REMEDIAL INVESTIGATION WORK PLAN

ST. JOSEPH APARTMENTS
484 EAST 178th STREET
BRONX, NEW YORK

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CERTIFICATION

I, Michael D. Burke, certify that I am currently a Qualified Environmental Professional as defined in Title 6 of the official compilation of New York Codes, Rules, and Regulations (NYCRR) Part 375 and that this Remedial Investigation Work Plan (RIWP) was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation Technical Guidance for Site Investigation and Remediation (DER-10).

Michael D. Burke, PG, CHMM

1.0 INTRODUCTION

This Remedial Investigation Work Plan (RIWP) was prepared on behalf of St. Joseph Apartments LLC (the Participant) for the property located at 484 East 178th Street in the Tremont neighborhood of the Bronx, New York (the site). The Participant entered into the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP – Site No. C203182) to investigate and remediate the site, and will implement this RIWP pursuant to the forthcoming Brownfield Cleanup Agreement.

The objectives of the Remedial Investigation (RI) are to investigate and characterize the nature and extent of environmental conditions at the site, evaluate whether any contamination is emanating from the site, provide sufficient information to evaluate remedial alternatives, and inform the Qualitative Human Health Exposure Assessment (QHHEA). The RI will generate a data set sufficient to perform a qualitative on- and off-site human health exposure assessment and to evaluate remedial alternatives. This RIWP was developed in accordance with the process and requirements identified in the NYSDEC Division of Environmental Remediation (DER)-10 Technical Guidance for Site Investigation and Remediation (May 2010); NYSDEC Sampling, Analysis and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) (April 2023) (NYSDEC PFAS Guidance); and the New York State Department of Health (NYSDOH) "Guidance for Evaluating Soil Vapor Intrusion in the State of New York" (October 2006, with updates) (NYSDOH Guidance for SVI).

2.0 SITE BACKGROUND

2.1 Site Description

The approximately 40,102-square-foot (0.92-acre) site is located in the Tremont neighborhood of the Bronx, New York and is identified as Block 3043, Lot 10 (formerly Lots 10, 16, 22, and 23). Lots 10, 16, 22, and 23 were combined to form Lot 10 in January 2024. The site is bound by East 178th Street to the north, Bathgate Avenue to the east, a daycare facility (Block 3043 Lot 30) and a mixed-use commercial/residential building (Block 3043 Lot 8) to the south, and Washington Avenue to the west.

Former site buildings were demolished in 2019, and the site is currently improved with a vacant lot containing remnant structures including a ramp, staircase, and retaining walls. A site location map is provided as Figure 1 and a site plan is provided as Figure 2.

According to the New York City Planning Commission Zoning Map 3d, dated August 15, 2024, the site is located in an R7D manufacturing area. An R7 district is characterized by medium-density apartments that consist of lower buildings on smaller lots and taller buildings with less lot coverage on larger lots.

The purpose of the project is to develop an underutilized, contaminated parcel of land into a 100% affordable multi-family residential development, while implementing remedial measures that are protective of human health and the environment. The proposed redevelopment project is still in advanced planning stages and is expected to include a 100% affordable eight-story residential building with a 33,300-square-foot footprint. The building is anticipated to have a U-shaped design with landscaped inner courtyard and a partial basement used for building superintendent housing, community facility space, storage, and utilities. The redevelopment plan is included in Appendix A.

2.2 Surrounding Property Land Use

The site is located in an urban setting occupied by single- and multi-story buildings with residential, commercial and industrial occupants in addition to public facilities, schools, and recreational space. The following is a summary of surrounding property use:

Direction	Adjoining Properties	Surrounding Properties
North	East 178th Street followed by multi-story residential buildings	Multi-story residential and commercial buildings
East	Bathgate Avenue followed by a garden, two multi-story residential buildings, and an elementary school	Multi-story residential and commercial buildings and an outdoor parking lot
South	Church/preschool and multi-story commercial building	Multi-story residential and commercial buildings, and a church

Direction	Adjoining Properties	Surrounding Properties
West	Washington Avenue followed by a church and three multi-story residential buildings	Vacant land, an auto repair shop and multiple industrial buildings

Public infrastructure (storm drains, sewers, and underground utility lines) exists within the streets surrounding the site. A land use map showing the adjacent and surrounding properties is provided as Figure 3.

Land use within a half-mile radius includes residential, commercial, public spaces, public facilities, and light industrial buildings. Residential areas, consisting of single- and multi-family houses/buildings are located along East 178th Street to the north of site, along Washington Avenue to the west of site, and along Bathgate Avenue to the east of the site. The nearest ecological receptor is Bronx River, located about 1.1 miles east of the site. Sensitive receptors, as defined in DER-10, located within a half-mile of the site include those listed below:

Number	Name (Approximate distance from site)	Address
1	Bronx Charter School for Excellence 5 (approx. 350 feet southwest of the site)	1946 Bathgate Avenue Bronx, NY 10457
2	Sharon Baptist Head Start Campus 4 (approx. 500 feet southeast of the site)	1925 Bathgate Avenue Bronx, NY 10457
3	Loyalty Daycare LLC (approx. 0.1 miles east of the site)	4226 Third Avenue Bronx, NY 10457
4	Six to Six Group Family Daycare (approx. 0.1 miles northwest of the site)	4375 Park Avenue Bronx, NY 10457
5	Chiquitines Daycare II Corp. (approx. 0.1 miles north of the site)	454 E 179th Street Bronx, NY 10457
6	Treasured Learning Child Care Services (approx. 0.1 miles west of the site)	4275 Park Avenue Bronx, NY 10457
7	Trabajamos Community Head Start (approx. 0.1 mile north of the site)	997 Bathgate Avenue Bronx, NY 10457
8	Josies Daycare (approx. 0.2 miles east of the site)	2080 Grand Concourse, Apt A22 Bronx, NY 10457
9	Bronx Daycare Center Inc. (approx. 0.2 miles southeast of the site)	559 East Tremont Avenue Bronx, NY 10457
10	Fun Place Daycare LLC (approx. 0.2 miles north of the site)	2039 Washington Avenue Bronx, NY 10457
11	Bright Dreamers Daycare (approx. 0.2 mile north of the site)	2047 Bathgate Avenue Bronx, NY 10457

Number	Name (Approximate distance from site)	Address
12	Tiny Hearts Bathgate LLC (approx. 0.2 miles north of site)	2071 Bathgate Avenue Bronx, NY 10457
13	First Steps Urban Outreach, Inc. (approx. 0.2 miles southwest of the site)	4197 Park Avenue Bronx 10457
14	Providing Urban Learners Success In Education High School (approx. 0.2 miles northeast of site)	560 East 179th Street Bronx, NY 10457
15	P.S 058-X058 (approx. 0.3 miles southwest of the site)	459 176th Street Bronx, NY 10457
16	The Eagle Academy for Young Men (approx. 0.3 miles south of the site)	4143 Third Avenue Bronx, NY 10457
17	Around the Clock Academy Daycare (approx. 0.3 miles northeast of site)	2052 Arthur Ave Bronx, NY 10457
18	Sunflower Daycare (approx. 0.3 miles north of site)	455 E 181st St 1 floor Bronx, NY 10457
19	Mallelyn Group Family Day Care (approx. 0.4 west of the from site)	1960 Anthony Avenue 1 floor Bronx, NY 10457
20	Rainbow Clouds Group Family Daycare (approx. 0.4 miles east of the site)	1997 Huges Avenue, Apartment 2B Bronx, NY 10457
21	Maritza Day Care (approx. 0.4 miles west of the site)	1835 Anthony Ave #5906 Bronx, NY 10457
22	P.S. 352 (approx. 0.4 miles east of site)	700 E 179th St Suite 417 Bronx, NY 10457
23	Zeta Bronx Tremont Park Elementary School (approx. 0.4 miles southeast of the site)	1910 Arthur Avenue Bronx, NY 10457
24	P.S. 059 The Community School of Technology (approx. 0.4 miles north of the site)	21845 Bathgate Avenue Bronx, NY 10457
25	JHS 118 William W. Niles School (approx. 0.4 miles northeast of the site)	577 East 179th Street Bronx, NY 10457
26	P.S. 163 Arthur A. Schomburg (approx. 0.4 miles northwest of the site)	2075 Webster Avenue Bronx, NY 10457
27	P.S. 3 Raul Julia Micro Society (approx. 0.5 miles northeast of the site)	2100 Lafontaine Avenue Bronx, NY 10457
28	Noah's Ark Daycare (approx. 0.5 miles southwest of the site)	1775 Clay Avenue Bronx, NY 10457
29	My Happy Place Family Daycare (approx. 0.5 miles west of the site	1900 Grand Concourse Apt A Bronx, NY 10457

Number	Name (Approximate distance from site)	Address
30	Nadia Daycare Center (approx. 0.5 miles northwest of the site)	20254 Anthony Avenue Bronx, NY 10457

2.3 Site Physical Conditions

2.3.1 Topography

According to a site survey last revised on February 28, 2024, the site is at el. 85.56 relative to the North American Vertical Datum 1988 (NAVD88) in the northeastern part and el. 57.83 NAVD88 in the southwestern part of site. The surrounding area slopes down to the west toward the Harlem River, which is located about 1.3 miles from the site.

2.3.2 Geology

The site is located in a developed area of the Bronx, New York that is generally covered with paved roads, public walkways, and buildings. The built environment is generally underlain by uncontrolled fill used for construction and development since the late 1800's. According to the USGS Bedrock and Engineering Geologic Maps of Bronx County and Parts of New York and Queens Counties, New York, dated 1992, the site is underlain by Fordham Gneiss interlayered with units of the Inwood Marble Formation, which generally consists of white calcite-dolomite marble.

The stratigraphy of the site, from the surface down, consists of urban fill, sand, and gravel underlain by bedrock. The fill was observed from below surface cover to approximately 2 to 14 feet below grade surface (bgs) during previous investigations. Based on drilling refusal and a rock probe investigation, bedrock is expected to range from 2 to 19.1 feet bgs and follows the same general slope of the surface grade from the northeast down to the west and south.

2.3.3 Hydrogeology

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

Groundwater was encountered in one soil boring/monitoring well (B-6W) during the previous geotechnical investigation at around 11.5 feet bgs. A permanent monitoring well(B-6W) was installed and developed during the geotechnical investigation and currently remains in the

northern part of the site. Groundwater flow direction was not evaluated in the previous geotechnical investigation, however, regional groundwater flow is estimated to the west. Groundwater elevations and flow direction will be evaluated during the RI.

Groundwater in the Bronx is not used as a potable water source. Potable water provided to the City of New York is derived from surface impoundments in the Croton, Catskill, and Delaware watersheds.

2.3.4 Wetlands

Wetlands were evaluated by reviewing the National Wetlands Inventory and NYSDEC regulated wetlands map. There are no designated wetlands on the site.

2.4 Summary of Previous Site Use

A review of historical data revealed that the site was located in a densely developed urban area, characterized by commercial and industrial uses, as early as 1896. Historical records indicate that the site was improved with an early iteration of "St. Joseph's Academy" on the southern part of the site, a mixed-use building on the northwestern part of the site, and two dwellings on the northeastern part of the site. By 1901, a church structure with a basement for an auditorium, meeting hall, cafeteria, gym, and school counseling was constructed along with another rendition of the academy/convent. A rectory was added as well in 1950. By 1981, the mixed-use commercial and residential buildings were demolished. The dwellings were demolished by 2012, and the church and remaining buildings were demolished in 2019 for redevelopment of the site.

There is one 3,000-gallon fuel oil aboveground storage tank (AST) registered to Lot 10. This AST was removed during demolition of the former church in 2019. There are municipal records that refer to several underground storage tanks (UST), including two 275-gallon USTs on former Lot 23 and one 1,000-gallon UST on former Lot 22. Although a job filing to remove the USTs was filed in 2012, it is unknown if these remain on-site or have been removed.

Potential sources of contamination at the site include the unknown fill used to develop the site, demolition of former structures, previous USTs and AST registered to the site, and migration from an off-site source.

2.5 Summary of Previous Environmental Investigations

The following previous environmental reports were prepared for the site and are summarized below. (copies are provided in Appendix B):

- Phase I Environmental Site Assessment (ESA), prepared by VHB Consultants, dated September 19, 2019
- Phase II Environmental Site Investigation (ESI), prepared by VHB Consultants, dated February 11, 2024

Phase I ESA, prepared by VHB Consultants, dated September 19, 2019

The findings of the Phase I ESA include the following:

- At the time of the Phase I ESA, one steel 3,000-gallon fuel oil AST was registered to the property on former Lot 10. The AST was reportedly installed around 1911, rested directly on soil, and was listed as in-service as of date of submission of the Phase I ESA. The AST was not observed during the site reconnaissance. It is unknown if the AST condition was assessed prior to the commencement of demolition activities, or whether the AST historically leaked and impacted the subsurface environment. Municipal records associated with the site reference three USTs (two 275-gallon USTs on former Lot 23 and one 1,000-gallon UST on former Lot 22). No documentation of UST conditions were provided, however, a job listing to remove one 1,000-gallon UST was filed in 2012. It is unknown if these USTs remain on site or if they were removed.

- Given the development history and recent demolition of the mixed-use building with an elevator on former Lot 16 and the two-story dwelling on former Lot 22, there is a potential for remnant historic structures (i.e., remnant foundations) and urban fill materials to be present on the subject property. Former Lot 22 is elevated with respect to surrounding grade.

Phase II ESI, prepared by VHB Consultants, dated February 11, 2024

The Phase II ESI was conducted in March 2023. The investigation within the site consisted of:

- Installation of 11 soil borings to between 2 and 14 feet bgs and collection of 17 soil samples

- Installation of 10 soil vapor sampling points to between 2 and 11 feet bgs and collection of 10 soil vapor samples

Groundwater was not encountered above the refusal depths at presumed bedrock, and no groundwater samples were collected. The following is a summary of the findings:

Soil

- *Subsurface Observations*: Urban fill, sand and gravel were observed from surface grade to approximately 2 to 14 feet bgs. Bedrock was observed underlying fill at each of the boring locations. A petroleum odor was apparent and a maximum photoionization detector (PID) reading of 31.4 parts per million (ppm) was detected from 5 to 9 feet bgs at soil boring SB-11 (former Lot 23). Municipal records identifying two 275-gallon USTs on Lot 23 were noted in the previous Phase I ESA, possibly connecting these impacts to historical tank leaks or releases.

- Two of the eleven soil borings (SB-4 and SB-5) contained semivolatile organic compounds (SVOC) including benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene at concentrations above the NYSDEC 6 New York Code of Rules and Regulations (NYCRR) Part 375 Unrestricted Use (UU) Soil Cleanup Objectives (SCOs).

- Two of the eleven soil borings (SB-4 and SB-5) contained SVOCs including benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene at concentrations above NYSDEC 6 NYCRR Part 375 Restricted Use Restricted-Residential (RURR) SCOs.

- All eleven soil borings (SB-1 through SB-11) contained metals including mercury, zinc, copper, barium, lead, chromium, and arsenic at concentrations above the NYSDEC 6 NYCRR Part 375 UU SCOs.

- Two of the eleven soil borings (SB-5 and SB-11) contained metals including barium, lead, and arsenic at concentrations above the NYSDEC 6 NYCRR Part 375 RURR SCOs.

- Four of the eleven soil borings (SB-1, SB-4, SB-5, and SB-11) contained pesticides including 4,4'-DDT, 4,4'-DDD, 4,4'-DDE, alpha chlordane, dieldrin, and heptachlor that were detected at concentrations above the NYSDEC 6 NYCRR Part 375 UU SCOs.

Soil Vapor

Twenty (20) volatile organic compounds (VOCs) were detected in soil vapor samples across the site. One chlorinated volatile organic compound (CVOC), tetrachloroethene (PCE), was detected in soil vapor at concentrations ranging from 59.7 micrograms per cubic meter (µg/m^3) to 658 µg/m^3. Per the NYSDOH Guidance for SVI Decision Matrices, eight soil vapor samples exceed the minimum soil vapor/sub-slab vapor concentration warranting recommendations ranging from no further action to mitigation.

A summary of soil and soil vapor sampling results are provided on Figures 4 and 5.

2.6 Preliminary Areas of Concern

Based on site history and the findings of the previous studies, the preliminary areas of concern (PAOC) to be further investigated during the RI are described below and shown on Figure 6:

PAOC 1: SVOC and Metal Contamination in Fill

Previous investigations identified elevated SVOC and metal contamination in multiple soil samples. Based on the location of soil borings with SVOC and metal concentrations above RURR SCOs, this PAOC is in the northern part of site.

PAOC 2: Chlorinated Solvent Contamination

Previous investigations identified CVOC contamination in soil vapor. PCE was detected at maximum concentration of 658 µg/m^3 in soil vapor yielding recommendations ranging from "mitigate" to "no further action" when evaluated using the NYSDOH Guidance for SVI Decision Matrices. Based on the widespread presence of CVOCs in soil vapor and the current lack of an identified source, this PAOC is sitewide.

PAOC 3: Petroleum Bulk Storage

Historical records indicate one former AST was present on former Lot 22 from 1911 to approximately 2019 when the buildings were undergoing demolition. No documentation of the AST condition was provided in the Phase I ESA and Phase II ESI, and it is unknown if the condition was assessed prior to the commencement of demolition activities. No documentation of the condition of the former USTs on former Lot 23 prior to their removal was available for review. Petroleum-like odors and maximum PID readings of 31.4 ppm were observed around 5 to 9 feet bgs in soil boring SB-11 near the western site boundary (previous investigation by VHB), suggesting historical releases of petroleum. These petroleum-like impacts and locations of the former PBS tanks require further investigation and represent a PAOC in the northeastern part of site.

3.0 SCOPE OF WORK

The objective of this RIWP is to investigate and characterize "the nature and extent of the contamination at and/or emanating from the brownfield site," per Environmental Conservation Law (ECL) Article 27, Title 14 (Brownfield Cleanup Program, or BCP). The rationale for each sampling location in relation to the PAOCs and analytical parameters for each proposed sample are provided in Table 1. The field tasks are discussed in more detail in the following sections.

Geophysical Survey

- Perform a geophysical survey over the entire site and adjoining sidewalks to clear sample locations and identify underground structures and utilities. Sample locations may be relocated based on the findings of the geophysical survey.

Soil Investigation and Sampling

- Advance at least nine soil borings (RIB01 through RIB09) to 14 feet bgs or refusal due to presumed bedrock, whichever is encountered first. Six of the soil borings to be converted to groundwater monitoring wells will be advanced to at least 5 feet below the observed groundwater interface or bedrock refusal, whichever is encountered first.

- Collect 5 surficial soil samples (RISS01 through RISS05) to about 6 inches bgs within the vegetated/soil-covered parts of the site.

- Collect a minimum of two soil samples from nine boring locations (RIB01 through RIB09) (plus quality assurance/quality control [QA/QC] samples) and one soil sample from five surficial soil sampling locations (RISS01 through RISS05) for laboratory analysis. Sampling frequency and analysis is further described in Section 3.2.

Monitoring Well Installation and Sampling

- Install and develop six permanent groundwater monitoring wells (RIMW01 through RIMW05 and RIMW09); bedrock wells will be installed where groundwater is not encountered above bedrock.

- Develop previously installed permanent monitoring well, B-6W, due to inactivity between investigations.

- Collect one groundwater sample from each monitoring well, including previously installed monitoring, B-6W, (plus QA/QC samples) for laboratory analysis.

    - Install and develop additional permanent groundwater monitoring wells on a case-by-case basis north, east, and west of the site. If groundwater sample results collected from on-site monitoring wells indicate the presence of contamination, to investigate potential off-site migration of contamination.

- Survey and gauge monitoring wells to establish groundwater elevations and evaluate flow direction.

Soil Vapor and Ambient Air Sampling

- Install three soil vapor points (RISV01 and RISV03) to at least 2 feet above the groundwater table to supplement existing on-site soil vapor data.

- Collect one sample from each point, one ambient air sample (AA-01), and one duplicate sample for laboratory analysis for VOCs by United States Environmental Protection Agency (USEPA) Method TO-15.

Off-site Soil Vapor Sampling

- Install five soil vapor point to at least 2 feet above the groundwater table to the north, east, and west of the site (RIOSV01 through RIOSV05).

- Collect one sample from each point for VOCs by USEPA Method TO-15.

Modifications to this scope of work may be required: 1) due to site operations, equipment or other access restrictions; 2) in the event that unexpected contamination is detected and additional analytical data is needed; and 3) to adequately characterize and delineate subsurface impacts in compliance with the BCP, regulations and applicable investigation guidance documents (e.g., DER-10). NYSDEC and NYSDOH will be notified in advance of implementing any modifications.

The field investigation will be completed in accordance with NYSDEC DER-10 Guidance and the procedures specified in the Health and Safety Plan (HASP) and the Quality Assurance Project Plan (QAPP) included as Appendices C and D, respectively. A Community Air Monitoring Plan (CAMP) will be implemented during this investigation (see Section 3.7.2 and Appendix E).

The names, contact information and roles of the principal personnel who will participate in the investigation are listed below. The HASP contains emergency contact information (HASP Table 5) and a map with a route to the nearest hospital (HASP Figure 2). Résumés for Langan employees involved in the project are included in the QAPP (Appendix D).

Personnel	Investigation Role	Contact Information
Michael Burke, PG, CHMM Langan	Qualified Environmental Professional	Phone – 212-479-5413 Email – mburke@langan.com
Paul McMahon, PE Langan	Senior Project Manager	Phone – 212-479-5451 Email – pmcmahon@langan.com
Tony Moffa, CHMM, CSP Langan	Langan Health & Safety Officer	Phone – 215-491-6500 Email – tmoffa@langan.com
Bill Bohrer, PG Langan	Field Safety Officer	Phone – 410-984-3068 Email – wbohrer@langan.com
Kimberly Nagotko, GIT Langan	Project Manager	Phone – 212-479-5499 x5635 Email – pmcmahon@langan.com
Gabriella DeGennaro Langan	Field Team Leader	Phone – 212-479-5499 x 5604 Email – Gdegennaro@langan.com
Joe Conboy Langan	Program Quality Assurance Monitor/Data Validator	Phone – 215-845-8985 Email – jconboy@langan.com

3.1 Geophysical Survey

Langan will coordinate with a geophysical contractor to clear subsurface testing locations of potential subsurface utilities or other suspect anomalies and to locate potential USTs. The site-wide and adjoining sidewalks geophysical survey will be completed using a collection of geophysical instruments, including electromagnetic and utility line locator instruments and ground-penetrating radar (GPR). Sample locations will be relocated as necessary to avoid subsurface utilities, infrastructure, or other impediments identified during the survey.

3.2 Soil Investigation

3.2.1 Drilling and Logging

An environmental drilling subcontractor will advance nine on-site soil borings to a minimum of 14 feet bgs or bedrock refusal, whichever is encountered first. The groundwater table is anticipated to be encountered around 11.5 feet bgs. A plan showing the proposed boring locations is included as Figure 6. A Langan engineer, geologist, or scientist will document the work, screen the soil samples for environmental impacts, and collect environmental samples for laboratory analyses under the direct supervision of a Qualified Environmental Professional. Soil will be screened continuously to the boring termination depth with a PID equipped with a 10.6 electron volt (eV) bulb, for visual and olfactory evidence of environmental impacts (e.g., staining and odor), and for non-aqueous phase liquid (NAPL) saturation and distribution (if encountered). Soil descriptions will be recorded in a field log. Boring logs will be presented in the Remedial Investigation Report (RIR).

Non-disposable, down-hole drilling equipment and sampling apparatus will be decontaminated between locations with Alconox® and water.

3.2.2 Surficial Soil Investigation

A Langan field scientist, engineer, or geologist will use a shovel to collect five surficial soil samples (RISS01 through RISS05) throughout the vegetated/soil-covered parts of the site. The samples will be collected from 0 to 6 inches bgs. Excavated soil will be screened for total organic vapor (TOV) concentrations using a PID equipped with a 10.6 eV bulb, and for visual and olfactory indications of environmental impacts (e.g., staining and odor). The shovel will be decontaminated between test pits using Alconox® and water.

3.2.3 Soil Sampling and Analysis

A minimum of two soil samples will be collected from each soil boring and one soil sample will be collected from each surficial soil sampling location for laboratory analysis, for a total of 21 soil samples plus QA/QC samples. The following sampling methodology will be applied:

Soil Borings:

- If impacts are not observed, a sample will be taken from shallow fill and above bedrock (boring termination).
- If impacts are observed, an additional sample will be collected from the most impacted interval, and an additional sample will be collected from below the impacted interval if encountered above the boring termination depth.

Surficial Soil Samples:

- A sample will be taken from the top 6 inches, targeting the 0- to 2-inch interval. If vegetation or coarse aggregate is observed at grade, then a soil sample will be collected from 0 to 2 inches beneath the base of the vegetation and/or aggregate layer.

The proposed soil samples are summarized in Table 1. The samples will be collected in laboratory-supplied containers and will be sealed, labeled, and placed in an ice-chilled cooler (to attempt to maintain a temperature of approximately 4°C) for delivery to a NYSDOH Environmental Laboratory Approval Program (ELAP)-certified laboratory.

Soil samples collected from soil borings in areas that have not been investigated yet (RIB01, RIB04, RIB05, RIB07, and RIB09) and surficial soil sample locations (RISS01 through RISS05) will be analyzed using the latest USEPA methods as follows:

- Part 375 List and Target Compound List (TCL) VOCs by USEPA methods 8260C/5035
- Part 375 List and TCL SVOCs by USEPA method 8270D
- Part 375 List Polychlorinated biphenyls (PCBs) by USEPA method 8082A
- Target Analyte List (TAL)/Part 375 List metals (including cyanide and hexavalent and trivalent chromium) by USEPA Methods 6010C/7471B/9010C/7196A.
- Part 375 List pesticides by USEPA methods 8081B and 8151A, respectively

- NYSDEC List PFAS by EPA Method 1633. A list of the PFAS compounds is provided in Table 2.
- 1,4-dioxane by EPA Method 8270D

Soil samples collected from soil borings co-located with soil borings from previous investigations (RIB02, RIB03, RIB06, and RIB08) will be analyzed using the latest USEPA methods as follows:

- NYSDEC List PFAS by EPA Method 1633.
- 1,4-dioxane by EPA Method 8270D
- If impacts are observed, samples will be additionally analyzed for VOCs and SVOCs

QA/QC procedures to be followed are described in the QAPP in Appendix D.

3.3 Groundwater Investigation

3.3.1 Monitoring Well Installation

Six of the nine on-site soil borings will be converted to permanent groundwater monitoring wells. Proposed monitoring well locations are shown on Figure 6.

Additional permanent groundwater monitoring wells may be installed on a case-by-case basis on the north, east, and west of the site if groundwater sample results collected from on-site monitoring wells indicate the presence of contamination, to investigate potential off-site migration of contamination.

If groundwater is observed in overburden material, monitoring wells will be constructed using 2-inch-diameter, threaded, flush-joint, polyvinyl chloride (PVC) casing, and 10-foot-long, pre-packed well screens that will terminate about 7 feet below the observed groundwater table. Clean sand (e.g., Morie No. 2) will be used to fill the minimum 2-inch-thick annulus around the screen up to about 2 feet above the top of the screened interval. A 2-foot-thick bentonite seal will be installed above the sand, and the remaining borehole annulus will be backfilled with drill cuttings with no evidence of chemical or petroleum impacts (i.e., staining, odors, or PID readings above background conditions) to within 12 inches of the surface and/or grouted to the surface with a bentonite and cement slurry. Monitoring wells will be finished at the surface with flush-mounted access covers.

If groundwater is not encountered above bedrock, bedrock monitoring wells will be installed. After soil sampling has been completed, a 4-inch-diameter stainless steel casing will be advanced a minimum of 2 feet into competent bedrock, and the borehole will be grouted to seal the well from potential overburden impacts. The grout will be allowed at least 24 hours to cure. After curing, the bedrock will be cored using a 2.875-inch or 3.875-inch HQ core bit to about 5 to 15 feet into competent rock, depending on water level. Management of investigation-derived waste (IDW) is discussed in Section 3.7.

Following installation, the wells will be developed using a surge block across the well screen to agitate and remove fines. The surge block will be moved within the installed well in 2-to-3-foot increments for approximately 2 minutes per increment. After surging, the well will be purged via pumping until the water becomes clear (having turbidity less than 50 Nephelometric Turbidity Units [NTU]). The well will then be allowed to equilibrate for a minimum of one week before collecting groundwater samples.

3.3.2 Monitoring Well Survey

The location and elevation of the groundwater monitoring wells (top of casing elevations) will be surveyed. This data will be used with synoptic groundwater well gauging data to prepare a groundwater contour map to evaluate the direction of groundwater flow. Vertical control will be established by surveying points relative to NAVD88 by a NYS-licensed land surveyor. Elevations of the top of monitoring well casings and protective well casings will be surveyed to the nearest 0.01 foot.

3.3.3 Groundwater Sampling and Analysis

One groundwater sample will be collected from each of the seven on-site monitoring wells as summarized in Table 1. Prior to sampling, one round of synoptic gauging for static water levels will be performed and the monitoring wells will be purged. Purging will consist of pumping, at a minimum, the stabilized drawdown volume plus the pump's tubing volume, and waiting until the physical and chemical parameters (e.g., temperature, dissolved oxygen, oxygen reduction potential, turbidity) stabilize within the ranges specified in the USEPA's Low Stress Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells (dated July 30, 1996, and 4th revision September 19, 2017). If physical and chemical parameters do not stabilize within one hour of purging, sample collection will proceed. Samples will be collected with a submersible pump and dedicated polyethylene tubing (or similar pump apparatus). Non-disposal components of the pump will be decontaminated with Alconox and water between each sample location. Development and purge water will be containerized for off-site disposal.

The groundwater samples will be collected in laboratory-supplied containers and will be sealed, labeled, and placed in an ice-chilled cooler (to maintain a temperature of approximately 4°C) for delivery to the laboratory. Groundwater samples from both newly installed and existing well locations will be analyzed using the latest USEPA methods as follows:

- TCL VOCs by USEPA method 8260C
- TCL SVOCs by USEPA method 8270D
- PCBs by USEPA method 8082A
- Metals (filtered and unfiltered) by USEPA method 6010C/7470
- NYSDEC List PFAS by EPA Method 1633

- 1,4-dioxane by EPA Method 8270D with selected ion monitoring (SIM)

QA/QC procedures to be followed are described in the QAPP in Appendix D.

3.4 Soil Vapor Investigation

3.4.1 Soil Vapor Point Installation

Three on-site soil vapor points and five off-site soil vapor points will be installed in accordance with the NYSDOH Guidance for SVI.

Soil vapor points will be installed using direct-push technology by advancing a vapor probe to about 2 feet above the bedrock or groundwater table, whichever is shallower. The soil vapor collection points will consist of inert sample tubing (i.e., polyethylene) and the annulus (i.e., the sampling zone) around the installed tubing will be filled with a clean, coarse sand pack to about 0.5 feet bgs, followed by a hydrated bentonite seal to surface grade.

3.4.2 Soil Vapor Sampling and Analysis

Samples will be collected in general accordance with NYSDOH Guidance for SVI. The proposed vapor samples are summarized in Table 1. A plan showing the proposed soil vapor locations is included as Figure 6. Before collecting soil vapor samples, a minimum of three vapor probe volumes (i.e., the volume of the sample implant and tubing) will be purged from each sample point at a rate of less than 0.2 liters per minute using a RAE Systems MultiRAE® meter. Purged soil vapor will be monitored for VOCs with the MultiRAE® during this process. Samples will be collected within one day of installing temporary vapor points.

A helium tracer gas will be used in accordance with NYSDOH protocols to serve as a QA/QC technique to document the seal integrity of each soil vapor sampling point seal before and after sampling. The tracer gas will be introduced into a container surrounding the vapor point and seal. Helium will be measured from the sampling tube and inside the container. If the sample tubing contains more than 10% of the tracer gas concentration that was introduced into the container, then the seal is considered compromised and should be enhanced or reconstructed to reduce outside air infiltration.

After integrity of each seal is confirmed, soil vapor will be collected over a 2-hour sampling period into laboratory-supplied, batch-certified clean 6.0-liter Summa® canisters with calibrated flow controllers. One sample will be collected from each of the eight soil vapor points. One duplicate sample of one soil vapor point will be collected. One ambient air sample will be collected from the breathing zone (about 3 to 5 feet above grade) concurrently with soil vapor sample collection to provide information regarding background air conditions, for a total of ten samples. The samples will be analyzed for VOCs by USEPA Method TO-15.

A log sheet for each soil vapor sample will be completed to record sample identification, date and time of sample collection, sampling depth, name of the field staff responsible for sampling,

sampling methods and equipment, vapor purge volumes, volume of vapor extracted, flow rate, and vacuum of canisters before and after sample collection.

QA/QC procedures to be followed are described in the QAPP in Appendix D.

3.5 Contingencies for Additional Investigation

Based on field observations and receipt of preliminary sample results, additional investigation may be warranted to complete vertical and horizontal delineation of on-site impacts. If preliminary sample results indicate the presence of a hotspot, additional soil borings and/or groundwater monitoring wells may be installed to investigate potential off-site migration of contamination. Additional investigation would be completed in accordance with Sections 3.1, 3.2, and 3.3. The NYSDEC Project Manager will be notified in advance of beginning any additional investigation.

3.6 Data Management and Validation

Laboratory analyses of soil, groundwater, vapor, and air samples will be conducted by a NYSDOH ELAP-approved laboratory in accordance with USEPA SW-846 methods and delivered in NYSDEC Category B format. Environmental data will be reported electronically using the database software application EQuIS as part of NYSDEC's Environmental Information Management System (EIMS).

Table 1 summarizes the proposed samples and laboratory analyses. QA/QC procedures required by SW-846 methods, including initial and continuing instrument calibrations, standard compound spikes, surrogate compound spikes, and analysis of other samples (blanks, laboratory control samples, and matrix spikes/matrix spike duplicates), will be followed. The laboratory will provide sample bottles, which will be pre-cleaned and preserved in accordance with the SW-846 methods.

Data validation will be performed in accordance with the USEPA Region 2 Standard Operating Procedures (SOPs) for data validation and USEPA's National Functional Guidelines for Organic and Inorganic Data Review, Technical and Administrative Guidance Memorandum (TAGM) Solid Waste Guidance (SW-96-09) Development and Review of Site Analytical Plans, and DER-10 Appendix 2B Section 2.0. Tier 1 data validation (the equivalent of USEPA's Stage 2A validation) will be performed to evaluate data quality. Tier 1 data validation is based on completeness and compliance checks of sample-related quality control results including:

- Holding times;
- Sample preservation;
- Blank results (method, trip, and field blanks);
- Surrogate recovery compounds and extracted internal standards (as applicable);

- Laboratory control samples and laboratory control sample duplicates recoveries and relative percent difference (RPDs);
- Matrix spike and matrix spike duplicate recoveries and RPDs;
- Laboratory duplicate RPDs; and
- Field duplicate RPDs.

A Data Usability Summary Report (DUSR) will be prepared by the data validator and reviewed by the quality assurance manager before issuance. The DUSR will present the results of data validation, including a summary assessment of laboratory data packages, sample preservation and chain-of-custody procedures, and a summary assessment of precision, accuracy, representativeness, comparability, and completeness for each analytical method. Additional details on the DUSRs are provided in the QAPP in Appendix D.

3.7 Management of Investigation-Derived Waste

Excess Investigation-Derived Waste (IDW), including soil cuttings, purged groundwater, and decontamination fluids, will be containerized in properly-labeled and sealed United Nations/Department of Transportation (UN/DOT)-approved 55-gallon drums and staged for future waste characterization and off-site disposal at a facility permitted to accept the waste. The drums will be staged in an area on-site, pending receipt of laboratory data and off-site disposal to an appropriate facility. IDW will be removed from the site within one month of completing the investigation. The site will be secured during and after investigation to prevent public access to the site.

3.8 Air Monitoring

A site-specific HASP will be followed during implementation of this RIWP and air monitoring will be conducted for site workers in addition to the Community Air Monitoring Program (CAMP) for the community. Air monitoring results will be recorded in the field book during the investigation activities, downloaded from field instruments and summarized in the RIR/daily reports.

3.8.1 Worker Air Monitoring

Air monitoring of the breathing zone will be performed periodically during drilling and sampling activities to document health and safety protection for the work team. VOCs will be monitored with a PID in accordance with the HASP (Appendix C). If air monitoring during intrusive operations identifies the presence of VOCs, the field engineer will follow the guidelines outlined in the HASP regarding action levels, permissible exposure, engineering controls, and personal protective equipment. If the VOC action level is exceeded, work will cease, and the work location will be evacuated. Monitoring will continue until the levels drops to permissible limits, at which point, work will resume with continued monitoring. If high levels persist, field activities will be

halted, and the work relocated to another area. If dust emissions are observed, work will stop and dust suppression measures (i.e., water spray) will be implemented.

3.8.2 Community Air Monitoring Plan

In addition to air monitoring in the worker breathing zone, community air monitoring will be performed in compliance with the NYSDOH Generic CAMP during any outdoor intrusive work. The CAMP is included in Attachment E.

CAMP will consist of continuous monitoring for VOCs and dust emissions during ground-intrusive activities (i.e., soil boring and monitoring well installation). Upwind concentrations will be measured at the start of each workday to establish background concentrations. VOCs and dust emissions will be monitored at the downwind perimeter of the work zone, which will be established at a point on the site where the general public or site workers may be present. VOC monitoring will be conducted with a PID equipped with a 10.6 eV lamp. VOC community air monitoring requirements will be conducted until it is determined that the site is not a source of organic vapors. Dust emissions will be monitored using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM10) and capable of averaging a period of 15 minutes (or less) for comparison to the airborne particulate action level (e.g., DustTrak). If dust emissions are observed, work will stop, and dust suppression measures will be implemented.

3.9 Green Remediation Standards

Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per the NYSDEC DER-31 Green Remediation Policy (DER-31). DER-31 requires the following green remediation/sustainability concepts be considered and/or implemented, to the extent feasible, during investigations:

- Increase energy efficiency/minimize total energy use and direct and indirect CO2/greenhouse gas (GHG) emissions to the atmosphere
- Reduce emissions of air pollutants
- Minimize habitat disturbance and create or enhance habitat or usable land
- Conserve natural resources such as soil and water; promote the sequestration of carbon through reforestation or afforestation
- Minimize freshwater consumption and maximize water reuse during daily operations and treatment processes
- Prevent long-term erosion, surface runoff, and off-site water quality impacts; prevent unintended soil compaction
- Minimize waste or implement beneficial use of materials that would otherwise be considered a waste

- Minimize equipment and truck idling and use sustainably produced biofuels to reduce discharges of pollutants and GHGs to the atmosphere
- Utilize clean diesel (new or retrofitted) equipment to reduce emissions to the atmosphere
- Minimize truck travel for disposal to save energy, reduce emissions, reduce localized noise, vibration, and wear and tear on roads
- Minimize use of heavy equipment to save energy and reduce emissions

During implementation of this RIWP, the following elements will be incorporated, to the extent feasible, to reduce GHGs and other emissions:

- Use of Ultra Low Sulfur Diesel in vehicles and machinery by drilling contractor
- Use of diesel exhaust purifier scrubbers on machinery (drill rigs) by drilling contractor
- Minimization of idling of all vehicles (including construction equipment) in accordance with 6 NYCRR Part 217 Motor Vehicle Emissions, Subpart 217-3 Idling Prohibition for Heavy Duty Vehicles
- Reduction of materials consumption and off-site transport by reuse of non-impacted drilling spoils as backfill within the boring of origin and containerization of drilling spoils exhibiting visual, olfactory, and instrumental signs of contamination.
- Site workers in New York City will use public transportation to the extent feasible for commuting in lieu of personal vehicles.

3.10 Qualitative Human Health Exposure Assessment

A Qualitative Human Health Exposure Assessment will be conducted in accordance with Appendix 3B of the NYSDEC DER-10, Technical Guidance for Site Investigation and Remediation. The assessment will be submitted in the RIR.

4.0 REPORTING

4.1 Remedial Investigation Report

Following completion of the RI and receipt of analytical data, an RIR will be prepared in accordance with the applicable requirements of DER-10 Section 3.14. The report will:

- Describe site history and previous investigations
- Describe site environmental conditions
- Describe sampling methodology and field observations
- Evaluate analytical results and describe findings
- Provide conclusions and recommendations for any further assessment (if warranted)

The RIR will summarize the nature and extent of contamination at each area of concern and identify unacceptable exposure pathways (as determined through a QHHEA. DUSRs will be included in the RIR, and electronic data deliverables will be submitted to the NYSDEC EQuIS database prior to submission of the draft RIR.

The RIR will include soil boring and well construction logs, sampling logs, tabulated analytical results, figures, and laboratory data packages. The tabulated analytical results will be organized in table format and include sample location, media sampled, sample depth, field/laboratory identification numbers, analytical results and the applicable Standards, Criteria, and Guidance (SCGs) pertaining to the site and contaminants of concern for comparison. The report will include scaled figures showing the locations of soil borings, monitoring wells, soil vapor points, sub-slab vapor points, indoor air samples, and ambient air samples and corresponding concentrations above SCGs for each media, groundwater elevation contours and flow direction, and, if appropriate, groundwater contaminant concentration contours.

Soil sample results will be compared to UU and RURR SCOs. Soil sample results will also be compared to Protection of Groundwater (PGW) SCOs for analytes detected above NYSDEC Standard Guidance Values (SGVs) in groundwater.

Groundwater sample results will be compared to the NYSDEC SGVs.

Soil vapor sample results will be compared to NYSDOH Guidance for SVI Decision Matrices.

The RIR will be provided in an electronic format to the NYSDEC.

4.2 Daily Reports

Daily reports will be prepared and submitted to the NYSDEC and NYSDOH project managers by the end of each day following the reporting period and will include:

- Progress updates

- Photographic documentation
- Identification of samples collected
- Locations and references to a site map for completed activities
- A summary of any and all community complaints with relevant details, including contact information
- A summary of CAMP findings, including elevated concentrations and response actions, if any
- An explanation of notable site conditions
- A list of anticipated work for the following reporting day

Daily reports are not intended to notify the NYSDEC of emergencies (e.g., accident, spill), request changes to the RIWP, or communicate other sensitive or time-critical information. However, such conditions will also be included in the daily reports. Emergency conditions and changes to the RIWP will be communicated directly to the NYSDEC Project Manager.

The NYSDEC-assigned project number will appear on all reports.

5.0 SCHEDULE

The table below presents an anticipated schedule for the proposed RI and reporting following the approval of the RIWP. If the schedules changes, it will be updated and submitted to the NYSDEC.

Milestone	Weeks from NYSDEC Approval of RIWP	Estimated Duration (weeks)
RI Mobilization	2	2
RI Field Investigation	5	3
Laboratory Analysis	7	2
Remedial Investigation Report Preparation and Submission to the NYSDEC	13	6

TABLES

Table 1
Proposed Sample Summary
Remedial Investigation Work Plan

St. Joseph Apartments
Bronx, New York
Langan Project No. 170852601

No.	Sample Name	Type	Boring	Rationale	Depth[1]	Analyses
SOIL BORINGS						
1	RIB01_depth	Grab	RIB01	Investigate AOC 1 & 2	Shallow fill	1,4-dioxane and PFAS
2	RIB01_depth				Above bedrock	
3	RIB01_depth				Greatest degree of impacts, if impacts are seen	
4	RIB01_depth				Clean interval below the greatest degree of impacts, if impacts are seen	
5	RIB02_depth		RIB02	Investigate all AOCs	Shallow fill	Part 375/TCL VOCs, SVOCs, PCBs, pesticides, herbicides, Part 375/TAL metals including hexavalent and trivalent chromium, total cyanide, 1,4-dioxane and PFAS
6	RIB02_depth				Above bedrock	
7	RIB02_depth				Greatest degree of impacts, if impacts are seen	
8	RIB02_depth				Clean interval below the greatest degree of impacts, if impacts are seen	
9	RIB03_depth		RIB03	Investigate AOC 2	Shallow fill	
10	RIB03_depth				Above bedrock	
11	RIB03_depth				Greatest degree of impacts, if impacts are seen	
12	RIB03_depth				Clean interval below the greatest degree of impacts, if impacts are seen	
13	RIB04_depth		RIB04		Shallow fill	1,4-dioxane and PFAS
14	RIB04_depth				Above bedrock	
15	RIB04_depth				Greatest degree of impacts, if impacts are seen	
16	RIB04_depth				Clean interval below the greatest degree of impacts, if impacts are seen	
17	RIB05_depth		RIB05	Investigate AOC 2 & 3	Shallow fill	
18	RIB05_depth				Above bedrock	
19	RIB05_depth				Greatest degree of impacts, if impacts are seen	
20	RIB05_depth				Clean interval below the greatest degree of impacts, if impacts are seen	
21	RIB06_depth		RIB06	Investigate AOC 1 & 2	Shallow fill	Part 375/TCL VOCs, SVOCs, PCBs, pesticides, herbicides, Part 375/TAL metals including hexavalent and trivalent chromium, total cyanide, 1,4-dioxane and PFAS
22	RIB06_depth				Above bedrock	
23	RIB06_depth				Greatest degree of impacts, if impacts are seen	
24	RIB06_depth				Clean interval below the greatest degree of impacts, if impacts are seen	
25	RIB07_depth		RIB07	Investigate all AOCs	Shallow fill	1,4-dioxane and PFAS
26	RIB07_depth				Above bedrock	
27	RIB07_depth				Greatest degree of impacts, if impacts are seen	
28	RIB07_depth				Clean interval below the greatest degree of impacts, if impacts are seen	
29	RIB08_depth		RIB08	Investigate all AOCs	Shallow fill	Part 375/TCL VOCs, SVOCs, PCBs, pesticides, herbicides, Part 375/TAL metals including hexavalent and trivalent chromium, total cyanide, 1,4-dioxane and PFAS
30	RIB08_depth				Above bedrock	
31	RIB08_depth				Greatest degree of impacts, if impacts are seen	
32	RIB08_depth				Clean interval below the greatest degree of impacts, if impacts are seen	
33	RIB09_depth		RIB09	Investigate AOC 2	Shallow fill	
34	RIB09_depth				Above bedrock	
35	RIB09_depth				Greatest degree of impacts, if impacts are seen	
36	RIB09_depth				Clean interval below the greatest degree of impacts, if impacts are seen	
N/A	RISODUP01_date		TBD	QA/QC	Duplicate	
	RIBXX_date				Matrix Spike/Matrix Spike Duplicate	
	RISOFB01_date		N/A		Field Blank	
SURFICIAL SOIL						
1	RISS01_depth	Grab	RISS01	Investigate direct exposure pathways in unpaved areas throughout the site	Within the top 6 inches	Part 375/TCL VOCs, SVOCs, PCBs, pesticides, herbicides, Part 375/TAL metals including hexavalent and trivalent chromium, total cyanide, 1,4-dioxane and PFAS
2	RISS02_depth		RISS02			
3	RISS03_depth		RISS03			
4	RISS04_depth		RISS04			
5	RISS05_depth		RISS05			
GROUNDWATER						
1	RIMW01_date	Grab	RIMW01	Investigate AOC 1 & 2	Midpoint of screened interval	TCL VOCs, SVOCs, PCBs, herbicides, pesticides, TAL metals (total and dissolved), trivalent and hexavalent chromium, total cyanide, PFAS, and 1,4-dioxane
2	RIMW02_date		RIMW02	Investigate AOC 2 & 3		
3	RIMW03_date		RIMW03	Investigate AOC 2		
4	RIMW04_date		RMW04	Investigate AOC 2		
5	RIMW05_date		RIMW05	Investigate AOC 2 & 3		
6	B-6W_date		B-6W	Previously installed MW		
7	RIMW09_date		RIMW09	Investigate AOC 2		
NA	RIGWDUP01_date	Duplicate	TBD	QA/QC	Duplicate	
	RIMWXX_date	MS/MSD			Matrix Spike/Matrix Spike Duplicate	
	RIGWFB01_date	Field Blank	NA		Field Blank	
	RIGWTB01_date	Trip Blank			Trip Blank	TCL VOCs
	RIGWTB02_date					
	RIGWTB03_date					
	RIGWTB04_date					
Air						
1	RISV01_date	Grab	RISV01	Investigate AOC 1 & 2	Two feet above the groundwater table	TO-15 VOCs
2	RISV02_date		RISV02	Investigate AOC 2 & 3		
3	RISV03_date		RISV03	Investigate AOC 2		
4	RIOSV01_date		RIOSV01	Investigate off-site migration		
5	RIOSV02_date		RIOSV02			
6	RIOSV03_date		RIOSV03			
7	RIOSV04_date		RIOSV04			
8	RIOSV05_date		RIOSV05			
9	RISVDUP_date		TBD	QA/QC	Duplicate	
10	AA01_date		RIAA01	QA/QC	Breathing Height	

Areas of Concern (AOCs):
Investigate AOC 1 - Investigate elevated SVOC and metal concentration found in previous Phase II Environmental Site Investigation (ESI)
Investigate AOC 2 - Investigate the CVOC contamination found in soil vapor during the previous Phase II ESI
Investigate AOC 3 - Investigate the former AST and suspect USTs that may have caused petroleum-related impacts

Notes:
1. Soil sample depth intervals will be determined in the field.
2. Soil samples to be analyzed for New York State Department of Environmental Conservation (NYSDEC) Title 6 of the Official Compilation of New York Codes,
3. TBD = to be determined (in the field)
4. VOC = volatile organic compound
5. SVOC = semivolatile organic compound
6. CVOC = chlorinated volatile organic compound
7. PCB = polychlorinated biphenyl
8. TCL = Target Compound List
9. TAL = Target Analyte List
10. QA/QC = quality assurance/quality control
11. NA = not applicable
12. PFAS = per-fluorinated chemicals as limited to the list of compounds designated by NYSDEC
13. UST = underground storage tank
14. AST = aboveground storage tank

Table 1
Proposed Sample Summary
Remedial Investigation Work Plan

St. Joseph Apartments
Bronx, New York
Langan Project No. 170852601

No.	Sample Name	Type	Boring	Rationale	Depth[1]	Analyses

Areas of Concern (AOCs):
Investigate AOC 1 - Investigate elevated SVOC and metal concentration found in previous Phase II Environmental Site Investigation (ESI)
Investigate AOC 2 - Investigate the CVOC contamination found in soil vapor during the previous Phase II ESI
Investigate AOC 3 - Investigate the former AST and suspect USTs that may have caused petroleum-related impacts

Notes:
1. Soil sample depth intervals will be determined in the field.
2. Soil samples to be analyzed for New York State Department of Environmental Conservation (NYSDEC) Title 6 of the Official Compilation of New York Codes,
3. TBD = to be determined (in the field)
4. VOC = volatile organic compound
5. SVOC = semivolatile organic compound
6. CVOC = chlorinated volatile organic compound
7. PCB = polychlorinated biphenyl
8. TCL = Target Compound List
9. TAL = Target Analyte List
10. QA/QC = quality assurance/quality control
11. NA = not applicable
12. PFAS = per-fluorinated chemicals as limited to the list of compounds designated by NYSDEC
13. UST = underground storage tank
14. AST = aboveground storage tank

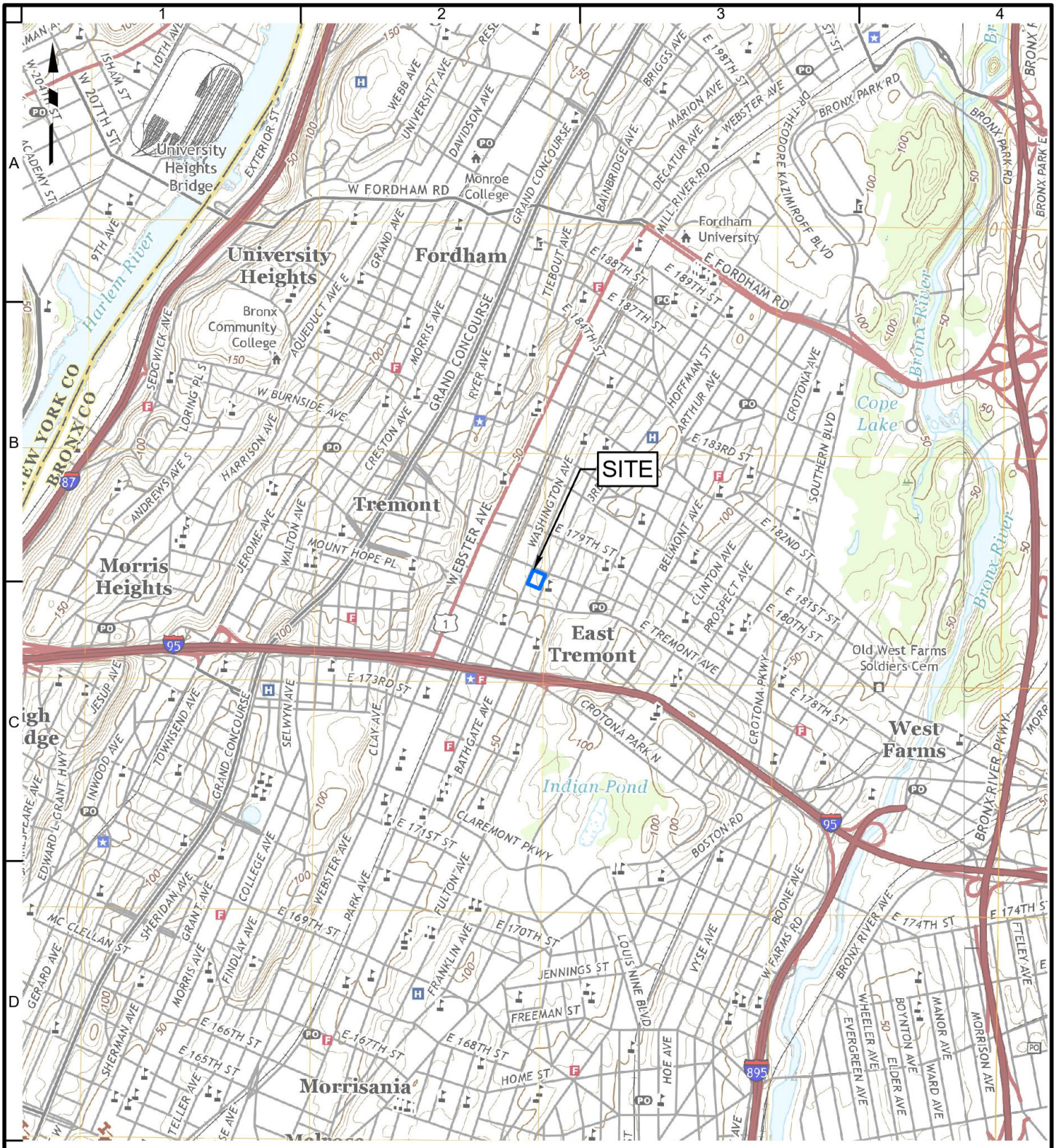
Table 2
List of Per- and Polyfluoroalkyl Substances
Remedial Investigation Work Plan

St. Joseph Apartments
Bronx, New York
Langan Project No. 170852601

Compound Name	Analytical Method
Perfluoroalkyl sulfonic acids	USEPA Method 1633
Perfluorobutanesulfonic acid (PFBS)	
Perfluoropentanesulfonic acid (PFPeS)	
Perfluorohexanesulfonic acid (PFHxS)	
Perfluoroheptanesulfonic acid (PFHpS)	
Perfluorooctanesulfonic acid (PFOS)	
Perfluorononanesulfonic acid (PFNS)	
Perfluorodecanesulfonic acid (PFDS)	
Perfluorododecanesulfonic acid (PFDoS)	
Perfluoroalkyl carboxylic acids	
Perfluorobutanoic acid (PFBA)	
Perfluoropentanoic acid (PFPeA)	
Perfluorohexanoic acid (PFHxA)	
Perfluoroheptanoic acid (PFHpA)	
Perfluorooctanoic acid (PFOA)	
Perfluorononanoic acid (PFNA)	
Perfluorodecanoic acid (PFDA)	
Perfluoroundecanoic acid (PFUnA)	
Perfluorododecanoic acid (PFDoA)	
Perfluorotridecanoic acid (PFTrDA)	
Perfluorotetradecanoic acid (PFTeDA)	
Per- and Polyfluoroether carboxylic acids	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	
Perfluoro-3-methoxypropanoic acid (PFMPA)	
Perfluoro-4-methoxybutanoic acid (PFMBA)	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	
Fluorotelomer sulfonic acids	
4:2 Fluorotelomer sulfonic acid (4:2-FTS)	
6:2 Fluorotelomer sulfonic acid (6:2-FTS)	
8:2 Fluorotelomer sulfonic acid (8:2-FTS)	
Fluorotelomer carboxylic acids	
3:3 Fluorotelomer carboxylic acid (3:3 FTCA)	
5:3 Fluorotelomer carboxylic acid (5:3 FTCA)	
7:3 Fluorotelomer carboxylic acid (7:3 FTCA)	
Perfluorooctane sulfonamides	
Perfluorooctane sulfonamide (PFOSA)	
N-methylperfluorooctane sulfonamide (NMeFOSA)	
N-ethylperfluorooctane sulfonamide (NEtFOSA)	
Perfluorooctane sulfonamidoacetic acids	
N-methylperfluorooctane sulfonamidoacetic acid (N-MeFOSAA)	
N-ethylperfluorooctane sulfonamidoacetic acid (N-EtFOSAA)	
Perfluorooctane sulfonamide ethanols	
N-methylperfluorooctane sulfonamidoethanol (MeFOSE)	
N-ethylperfluorooctane sulfonamidoethanol (EtFOSE)	
Ether sulfonic acids	
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (F-53B Major) (9Cl-PF3ONS)	
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (F-53B Minor) (11Cl-PF3OUdS)	
Perfluoro(2-ethoxyethane) sulfonic acid (PFEESA)	

Notes:
1. PFAS - per- and polyfluoroalkyl substances
2. USEPA = United States Environmental Protection Agency

FIGURES



Legend

Approximate Site Boundary

2,000 0 2,000

SCALE IN FEET

Notes:

1. Basemap adapted from United States Geological Survey (USGS) 7.5-Minute Series Topographical Maps, Central Park, New York, Quadrangle.

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Langan International LLC

Collectively known as Langan

Project	ST. JOSEPH APARTMENTS BLOCK No. 3043, LOT No. 10 BRONX NEW YORK
Figure Title	SITE LOCATION MAP
Project No.	170852601
Figure No.	1
Date	10/1/2024
Scale	1"=2,000'
Drawn By	MG
Submission Date	

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Legend

Approximate Site Boundary

Notes:
1. Aerial imagery provided through Langan's subscription to Near Map, dated 06/18/2024.

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SCALE IN FEET

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Project	ST. JOSEPH APARTMENTS
	BLOCK No. 3043, LOT No. 10
	BRONX NEW YORK
Figure Title	SITE PLAN
Project No.	170852601
Date	10/1/2024
Scale	1"=40'
Drawn By	MG
Figure No.	2

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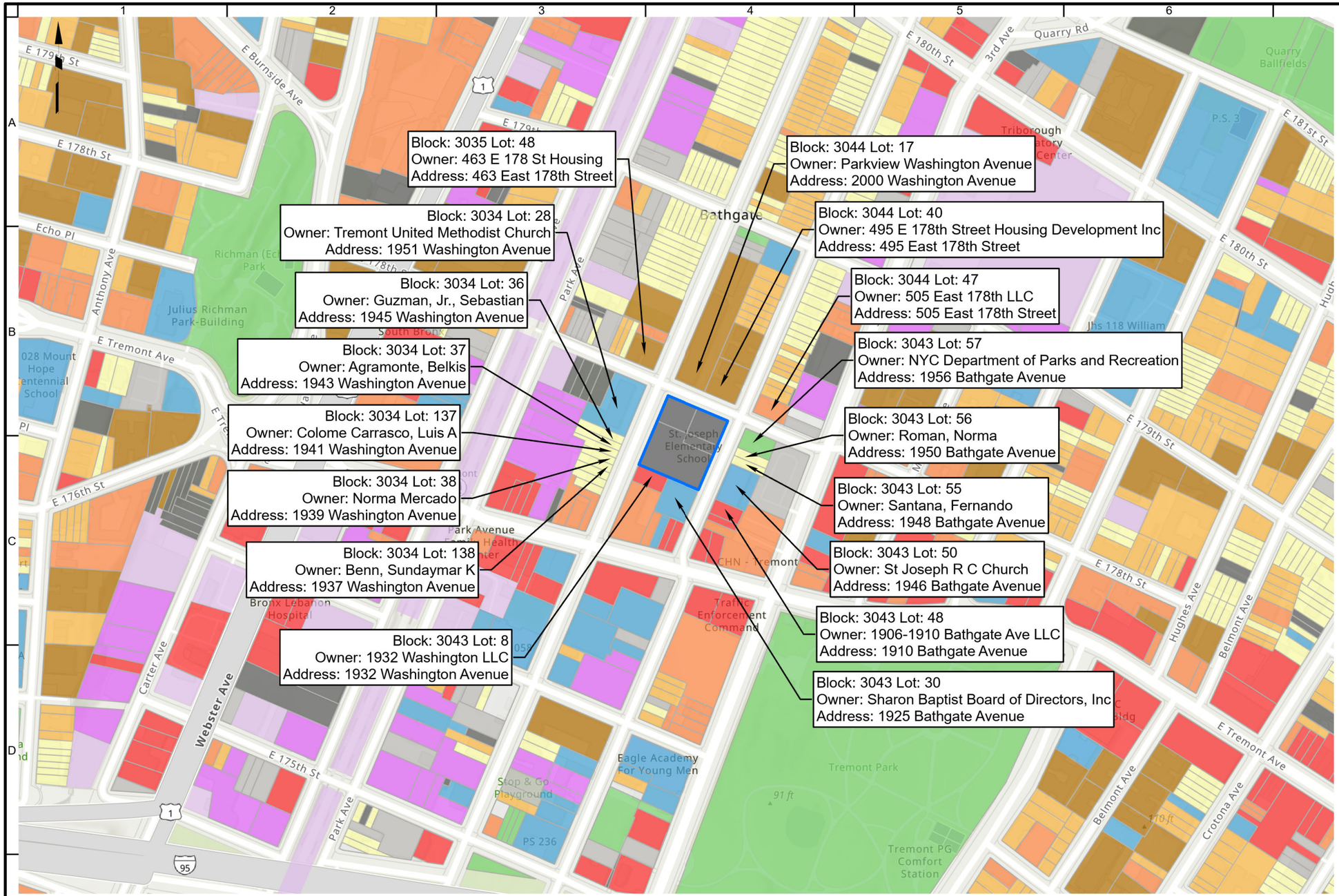

Legend

- Approximate Site Boundary

Land Use

- One & Two Family Buildings
- Multi-Family Walk-Up Buildings
- Multi-Family Elevator Buildings
- Mixed Residential & Commercial Buildings
- Commercial & Office Buildings
- Industrial & Manufacturing
- Transportation & Utility
- Public Facilities & Institutions
- Open Space & Outdoor Recreation
- Parking Facilities
- Vacant Land
- Other/No Data

Notes:
1. Land use data provided by the New York City Department of City Planning.

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Project
ST. JOSEPH APARTMENTS
BLOCK No. 3043, LOT No. 10
BRONX NEW YORK

Figure Title
ADJACENT PROPERTIES AND SURROUNDING LAND USE MAP

Project No. 170852601	Figure No. 3
Date 10/14/2024	
Scale 1"=300'	
Drawn By MG	

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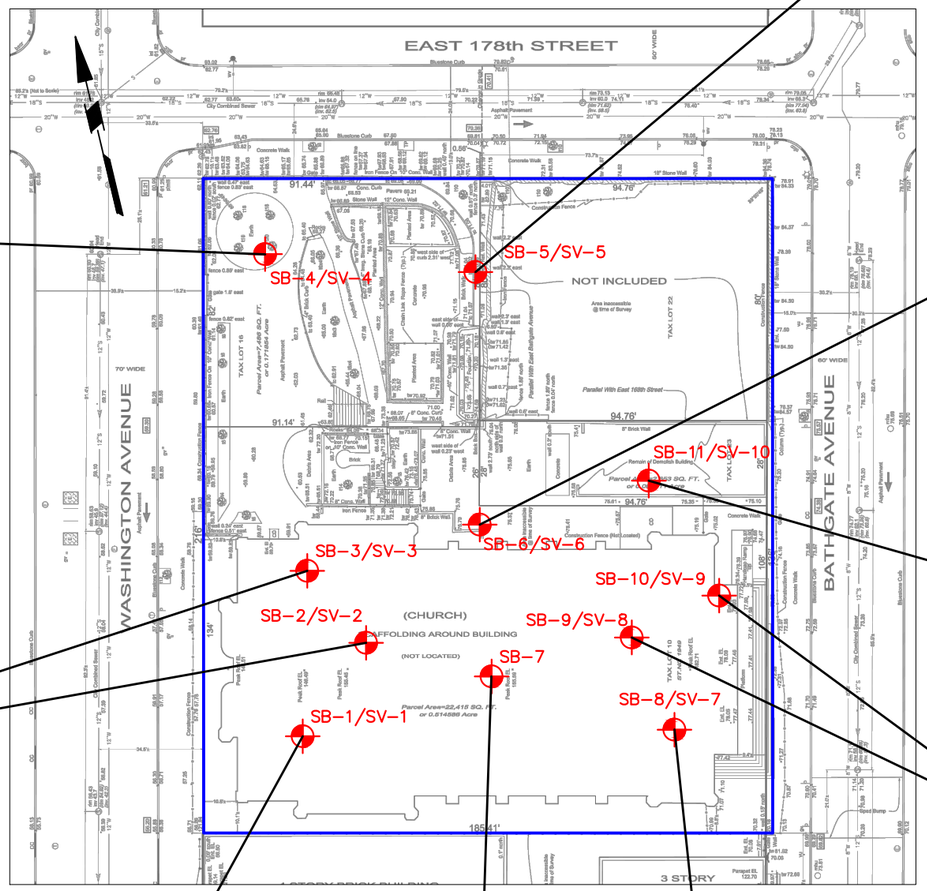
Location	SB04	SB04
Sample Name	SB-4_0-2	SB-4_4-6
Sample Date	03/29/2023	03/29/2023
Sample Depth	0-2	4-6
SVOCs		
Benzo(a)anthracene	**1.5**	**3.4**
Benzo(a)pyrene	**1.7**	**3.1**
Benzo(b)fluoranthene	**2.1**	**3.7**
Benzo(k)fluoranthene	0.56	**1.4**
Chrysene	**1.4**	**3**
Dibenz(a,h)anthracene	0.24 J	**0.62**
Indeno(1,2,3-cd)pyrene	**1.1**	**1.8**
Pesticides		
4,4'-DDD	**0.00657**	**0.0268**
4,4'-DDE	<0.00176 U	**0.181**
4,4'-DDT	**0.0768**	**0.806**
Alpha Chlordane	0.0176 IP	0.024 IP
Dieldrin	<0.0011 U	**0.0582**
Heptachlor	<0.000879 U	0.00175
Metals		
Arsenic	7.1	5.05
Barium	**366**	66.9
Chromium, Total	**16.6**	**16.7**
Copper	27	18.5
Lead	**178**	**77.8**
Mercury	0.173	**0.214**
Zinc	**292**	55.4

Location	SB03	SB03
Sample Name	SB-3_0-2	SB-3_6-8
Sample Date	03/29/2023	03/29/2023
Sample Depth	0-2	6-8
SVOCs		
Benzo(a)anthracene	<0.11 U	0.022 J
Benzo(a)pyrene	<0.15 U	<0.15 U
Benzo(b)fluoranthene	<0.11 U	0.034 J
Benzo(k)fluoranthene	<0.11 U	<0.11 U
Chrysene	<0.11 U	0.019 J
Dibenz(a,h)anthracene	<0.11 U	<0.11 U
Indeno(1,2,3-cd)pyrene	<0.15 U	<0.15 U
Pesticides		
4,4'-DDD	<0.00174 U	<0.00174 U
4,4'-DDE	<0.00174 U	<0.00174 U
4,4'-DDT	<0.00174 U	0.00257
Alpha Chlordane	<0.00217 U	<0.00218 U
Dieldrin	<0.00108 U	<0.00109 U
Heptachlor	<0.000868 U	<0.00087 U
Metals		
Arsenic	4.9	4.08
Barium	50.1	28.1
Chromium, Total	**9.44**	**5.34**
Copper	6.18	7.66
Lead	26.1	24.4
Mercury	0.08	<0.077 U
Zinc	17.8	25.4

Location	SB02	SB02
Sample Name	SB-2_0-2	SB-2_10-12
Sample Date	03/29/2023	03/29/2023
Sample Depth	0-2	10-12
SVOCs		
Benzo(a)anthracene	0.027 J	<0.11 U
Benzo(a)pyrene	<0.14 U	<0.15 U
Benzo(b)fluoranthene	0.031 J	<0.11 U
Benzo(k)fluoranthene	<0.11 U	<0.11 U
Chrysene	0.022 J	<0.11 U
Dibenz(a,h)anthracene	<0.11 U	<0.11 U
Indeno(1,2,3-cd)pyrene	<0.14 U	<0.15 U
Pesticides		
4,4'-DDD	<0.00169 U	<0.0017 U
4,4'-DDE	<0.00169 U	<0.0017 U
4,4'-DDT	0.00269	<0.0017 U
Alpha Chlordane	<0.00211 U	0.000656 J
Dieldrin	<0.00106 U	<0.00106 U
Heptachlor	<0.000845 U	<0.000852 U
Metals		
Arsenic	4.05	2.68
Barium	29.5	12.3
Chromium, Total	**6.63**	**3.76**
Copper	11.5	4.61
Lead	38.6	14.2
Mercury	0.051 J	0.058 J
Zinc	31.8	17.3



Location	SB05	SB05
Sample Name	SB-5_0-2	SB-5_12-14
Sample Date	03/29/2023	03/29/2023
Sample Depth	0-2	12-14
SVOCs		
Benzo(a)anthracene	**1.5**	0.7
Benzo(a)pyrene	**1.8**	0.84
Benzo(b)fluoranthene	**2.2**	0.96
Benzo(k)fluoranthene	0.67	0.33
Chrysene	**1.4**	0.69
Dibenz(a,h)anthracene	0.27 J	0.16
Indeno(1,2,3-cd)pyrene	**1.2**	**0.73**
Pesticides		
4,4'-DDD	0.00103 J	**0.00439**
4,4'-DDE	**0.00716**	**0.034**
4,4'-DDT	**0.0217**	**0.126**
Alpha Chlordane	0.00263 IP	0.0135 IP
Dieldrin	0.00412	**0.069**
Heptachlor	<0.000878 U	0.000456 J
Metals		
Arsenic	8.27	4.75
Barium	**352**	**522**
Chromium, Total	**19.5**	**8.85**
Copper	26	9.83
Lead	**141**	**1,370**
Mercury	0.143	0.134
Zinc	**261**	**1,500**

Location	SB11	SB11
Sample Name	SB-11_6.5-8.5	SB-11_0-2
Sample Date	03/29/2023	03/29/2023
Sample Depth	6.5-8.5	10-2
SVOCs		
Benzo(a)anthracene	0.055 J	0.024 J
Benzo(a)pyrene	0.054 J	<0.14 U
Benzo(b)fluoranthene	0.082 J	0.033 J
Benzo(k)fluoranthene	0.06 J	<0.11 U
Chrysene	0.1 J	0.029 J
Dibenz(a,h)anthracene	<0.11 U	<0.11 U
Indeno(1,2,3-cd)pyrene	0.087 J	<0.14 U
Pesticides		
4,4'-DDD	<0.00172 U	<0.0017 U
4,4'-DDE	<0.00172 U	<0.0017 U
4,4'-DDT	**0.164**	<0.0017 U
Alpha Chlordane	**3.47 PE**	**0.151 IP**
Dieldrin	<0.00107 U	<0.00106 U
Heptachlor	**0.699**	0.00803
Metals		
Arsenic	**93.8**	**13.4**
Barium	67.2	34.2
Chromium, Total	**8.09**	**11.4**
Copper	34.5	9.87
Lead	23.2	21.8
Mercury	0.118	0.049 J
Zinc	25.6	29.9

Location	SB09
Sample Name	SB-9_0-2
Sample Date	03/29/2023
Sample Depth	0-2
SVOCs	
Benzo(a)anthracene	0.021 J
Benzo(a)pyrene	<0.15 U
Benzo(b)fluoranthene	<0.11 U
Benzo(k)fluoranthene	<0.11 U
Chrysene	0.02 J
Dibenz(a,h)anthracene	<0.11 U
Indeno(1,2,3-cd)pyrene	<0.15 U
Pesticides	
4,4'-DDD	<0.00176 U
4,4'-DDE	<0.00176 U
4,4'-DDT	0.00164 JIP
Alpha Chlordane	<0.0022 U
Dieldrin	<0.0011 U
Heptachlor	<0.00088 U
Metals	
Arsenic	4.19
Barium	26.4
Chromium, Total	**6.86**
Copper	17
Lead	29.5
Mercury	0.052 J
Zinc	26.8

Location	SB06
Sample Name	SB-6_0-2
Sample Date	03/29/2023
Sample Depth	0-2
SVOCs	
Benzo(a)anthracene	<0.1 U
Benzo(a)pyrene	<0.14 U
Benzo(b)fluoranthene	<0.1 U
Benzo(k)fluoranthene	<0.1 U
Chrysene	<0.1 U
Dibenz(a,h)anthracene	<0.1 U
Indeno(1,2,3-cd)pyrene	<0.14 U
Pesticides	
4,4'-DDD	<0.00156 U
4,4'-DDE	<0.00156 U
4,4'-DDT	<0.00156 U
Alpha Chlordane	0.00198 IP
Dieldrin	<0.000978 U
Heptachlor	<0.000782 U
Metals	
Arsenic	5.51
Barium	71.1
Chromium, Total	**6.73**
Copper	7.64
Lead	**398**
Mercury	0.078
Zinc	48.5

Location	SB10
Sample Name	SB-10_0-2
Sample Date	03/29/2023
Sample Depth	0-2
SVOCs	
Benzo(a)anthracene	0.023 J
Benzo(a)pyrene	<0.15 U
Benzo(b)fluoranthene	<0.11 U
Benzo(k)fluoranthene	<0.11 U
Chrysene	0.022 J
Dibenz(a,h)anthracene	<0.11 U
Indeno(1,2,3-cd)pyrene	<0.15 U
Pesticides	
4,4'-DDD	<0.00178 U
4,4'-DDE	<0.00178 U
4,4'-DDT	<0.00178 U
Alpha Chlordane	0.00156 J
Dieldrin	<0.00111 U
Heptachlor	<0.000888 U
Metals	
Arsenic	4.22
Barium	40.6
Chromium, Total	**6.04**
Copper	**55.3**
Lead	15.1
Mercury	<0.077 U
Zinc	41.3

Location	SB01	SB01
Sample Name	SB-1_0-2	SB-1_5-6.5
Sample Date	03/29/2023	03/29/2023
Sample Depth	0-2	5-6.5
SVOCs		
Benzo(a)anthracene	0.04 J	0.034 J
Benzo(a)pyrene	<0.15 U	<0.15 U
Benzo(b)fluoranthene	0.056 J	0.036 J
Benzo(k)fluoranthene	<0.11 U	<0.11 U
Chrysene	0.038 J	0.03 J
Dibenz(a,h)anthracene	<0.11 U	<0.11 U
Indeno(1,2,3-cd)pyrene	0.028 J	<0.15 U
Pesticides		
4,4'-DDD	<0.00173 U	<0.00175 U
4,4'-DDE	<0.00173 U	0.00123 J
4,4'-DDT	**0.00593**	**0.0118**
Alpha Chlordane	0.000775 J	0.0176
Dieldrin	<0.00108 U	<0.00109 U
Heptachlor	<0.000863 U	0.00202
Metals		
Arsenic	4.73	3.12
Barium	44.9	25.2
Chromium, Total	**6.95**	**4.43**
Copper	27.3	2.65
Lead	**67.7**	12.4
Mercury	<0.08 U	<0.073 U
Zinc	46	12.5

Location	SB07	SB07
Sample Name	SB-7_0-2	
Sample Date	03/29/2023	
Sample Depth	0-2	
SVOCs		
Benzo(a)anthracene	0.025 J	
Benzo(a)pyrene	<0.15 U	
Benzo(b)fluoranthene	0.034 J	
Benzo(k)fluoranthene	<0.11 U	
Chrysene	0.023 J	
Dibenz(a,h)anthracene	<0.11 U	
Indeno(1,2,3-cd)pyrene	<0.15 U	
Pesticides		
4,4'-DDD	<0.00172 U	
4,4'-DDE	<0.00172 U	
4,4'-DDT	0.00237	
Alpha Chlordane	<0.00216 U	
Dieldrin	<0.00108 U	
Heptachlor	<0.000862 U	
Metals		
Arsenic	3.93	
Barium	27	
Chromium, Total	**6.1**	
Copper	12.6	
Lead	**80**	
Mercury	<0.081 U	
Zinc	28.3	

Location	SB08	SB08
Sample Name	SB-8_0-2	
Sample Date	03/29/2023	
Sample Depth	0-2	
SVOCs		
Benzo(a)anthracene	<0.11 U	
Benzo(a)pyrene	<0.15 U	
Benzo(b)fluoranthene	<0.11 U	
Benzo(k)fluoranthene	<0.11 U	
Chrysene	<0.11 U	
Dibenz(a,h)anthracene	<0.11 U	
Indeno(1,2,3-cd)pyrene	<0.15 U	
Pesticides		
4,4'-DDD	<0.00172 U	
4,4'-DDE	<0.00172 U	
4,4'-DDT	0.00184	
Alpha Chlordane	<0.00215 U	
Dieldrin	<0.00108 U	
Heptachlor	<0.000861 U	
Metals		
Arsenic	4.33	
Barium	25.6	
Chromium, Total	**6.52**	
Copper	6.64	
Lead	17.1	
Mercury	<0.072 U	
Zinc	20.2	

LEGEND:

APPROXIMATE SITE BOUNDARY

SB-1/SV-1 APPROXIMATE SOIL/SOIL VAPOR SAMPLE LOCATIONS

Analyte	NYSDEC Part 375 Unrestricted Use SCOs	NYSDEC Part 375 Restricted Use Restricted-Residential SCOs
SVOCs		
Benzo(a)anthracene	1	1
Benzo(a)pyrene	1	1
Benzo(b)fluoranthene	1	1
Benzo(k)fluoranthene	0.8	3.9
Chrysene	1	3.9
Dibenz(a,h)anthracene	0.33	0.33
Indeno(1,2,3-cd)pyrene	0.5	0.5
Pesticides		
4,4'-DDD	0.0033	13
4,4'-DDE	0.0033	8.9
4,4'-DDT	0.0033	7.9
Alpha Chlordane	0.094	4.2
Dieldrin	0.005	0.2
Heptachlor	0.042	2.1
Metals		
Arsenic	13	16
Barium	350	400
Chromium, Total	1	110
Copper	50	270
Lead	63	400
Mercury	0.18	0.81
Zinc	109	10000

Exceedance Summary:

10 - Result exceeds Unrestricted Use SCOs

10 - Result exceeds Restricted Use Restricted-Residential SCOs

NOTES:

1. BASE MAP TAKEN FROM 2018 ARCHITECTURAL SURVEY PREPARED BY MONTROSE SURVEYING CO., LLP.
2. ALL LOCATIONS ARE APPROXIMATE

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SCALE: 1 INCH = 50 FEET

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Project

ST. JOSEPH APARTMENTS

BLOCK No. 3043, LOT No. 10
BROOKLYN
BRONX NEW YORK

Drawing Title

SOIL SAMPLE ANALYTICAL RESULTS MAP

Project No.	170852601
Date	2024/10/8
Drawn By	VK
Checked By	PM

Figure 4

Sheet 2 of 3

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VERSION 3.0

Location	SV04
Sample Name	SV-4_033023
Sample Date	03/30/2023
Sample Type	SV
VOCs	
1,1,1-Trichloroethane	2.74
1,2,4-Trimethylbenzene	3.67
1,3,5-Trimethylbenzene (Mesitylene)	1.04
2-Hexanone (MBK)	2.03
4-Ethyltoluene	1.13
Acetone	23.8
Benzene	0.872
Carbon Disulfide	<0.623 U
Chloromethane	<0.413 U
Dichlorodifluoromethane	2.15
Ethylbenzene	4.01
M,P-Xylene	6.95
Methyl Ethyl Ketone (2-Butanone)	22.3
n-Heptane	3.6
n-Hexane	3.88
o-Xylene (1,2-Dimethylbenzene)	2.31
Styrene	<0.852 U
Tert-Butyl Alcohol	4.88
Tetrachloroethene (PCE)	93.6
Tetrahydrofuran	5.25
Toluene	2.9
Trichlorofluoromethane	1.13

Location	SV03
Sample Name	SV-3_033023
Sample Date	03/30/2023
Sample Type	SV
VOCs	
1,1,1-Trichloroethane	<1.09 U
1,2,4-Trimethylbenzene	6.78
1,3,5-Trimethylbenzene (Mesitylene)	1.68
2-Hexanone (MBK)	2.02
4-Ethyltoluene	<0.983 U
Acetone	27.1
Benzene	<0.639 U
Carbon Disulfide	0.975
Chloromethane	<0.413 U
Dichlorodifluoromethane	2.17
Ethylbenzene	2.19
M,P-Xylene	10.3
Methyl Ethyl Ketone (2-Butanone)	18.2
n-Heptane	1.61
n-Hexane	1.8
o-Xylene (1,2-Dimethylbenzene)	4.91
Styrene	1.11
Tert-Butyl Alcohol	1.72
Tetrachloroethene (PCE)	**159**
Tetrahydrofuran	<1.47 U
Toluene	18.6
Trichlorofluoromethane	<1.12 U

Location	SV02
Sample Name	SV-2_033023
Sample Date	03/30/2023
Sample Type	SV
VOCs	
1,1,1-Trichloroethane	<1.09 U
1,2,4-Trimethylbenzene	6.69
1,3,5-Trimethylbenzene (Mesitylene)	1.85
2-Hexanone (MBK)	1.32
4-Ethyltoluene	1.65
Acetone	20.7
Benzene	<0.639 U
Carbon Disulfide	<0.623 U
Chloromethane	<0.413 U
Dichlorodifluoromethane	2.12
Ethylbenzene	3.37
M,P-Xylene	15.6
Methyl Ethyl Ketone (2-Butanone)	10
n-Heptane	2.14
n-Hexane	0.73
o-Xylene (1,2-Dimethylbenzene)	5.95
Styrene	<0.852 U
Tert-Butyl Alcohol	2.95
Tetrachloroethene (PCE)	**264**
Tetrahydrofuran	1.58
Toluene	7.24
Trichlorofluoromethane	<1.12 U

Location	SV01
Sample Name	SV-1_033023
Sample Date	03/30/2023
Sample Type	SV
VOCs	
1,1,1-Trichloroethane	<1.09 U
1,2,4-Trimethylbenzene	4.13
1,3,5-Trimethylbenzene (Mesitylene)	<0.983 U
2-Hexanone (MBK)	<0.82 U
4-Ethyltoluene	<0.983 U
Acetone	13.3
Benzene	0.818
Carbon Disulfide	<0.623 U
Chloromethane	0.667
Dichlorodifluoromethane	2.14
Ethylbenzene	0.943
M,P-Xylene	4.3
Methyl Ethyl Ketone (2-Butanone)	1.83
n-Heptane	<0.82 U
n-Hexane	2.1
o-Xylene (1,2-Dimethylbenzene)	1.72
Styrene	<0.852 U
Tert-Butyl Alcohol	2.86
Tetrachloroethene (PCE)	59.7
Tetrahydrofuran	<1.47 U
Toluene	2.66
Trichlorofluoromethane	<1.12 U

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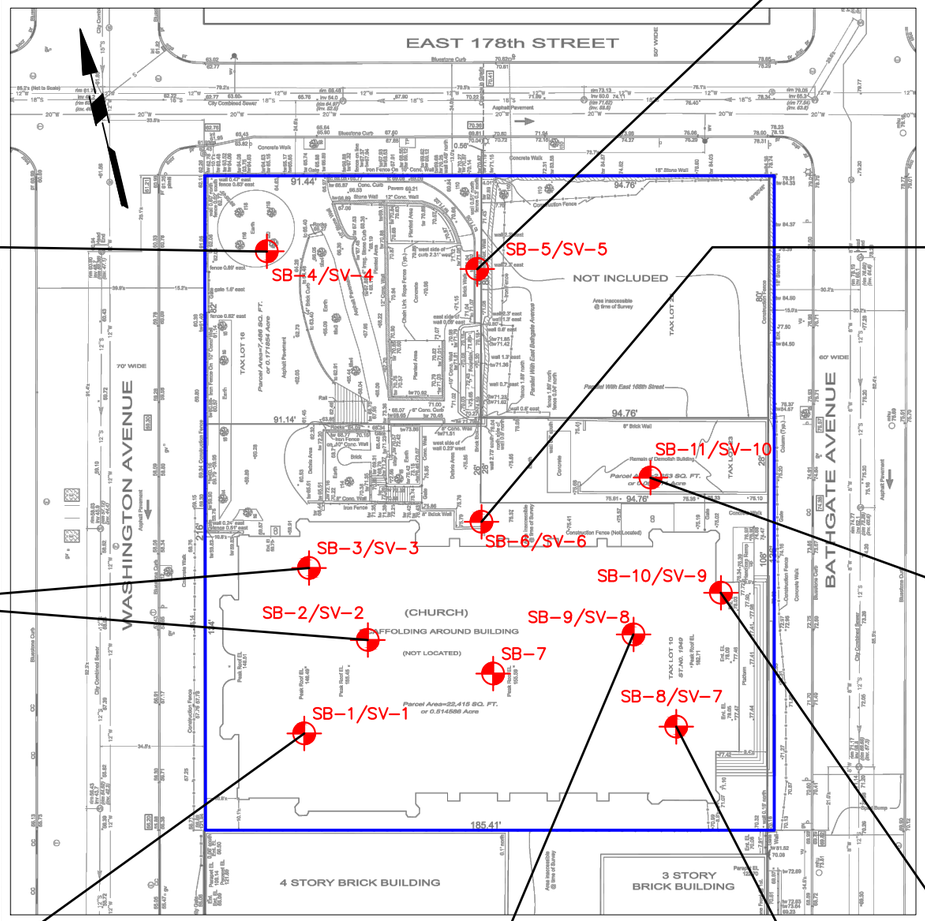

Location	SV08
Sample Name	SV-8_033023
Sample Date	03/30/2023
Sample Type	SV
VOCs	
1,1,1-Trichloroethane	<1.09 U
1,2,4-Trimethylbenzene	10.8
1,3,5-Trimethylbenzene (Mesitylene)	2.35
2-Hexanone (MBK)	<0.82 U
4-Ethyltoluene	2.68
Acetone	58.9
Benzene	0.879
Carbon Disulfide	2.6
Chloromethane	<0.413 U
Dichlorodifluoromethane	2.28
Ethylbenzene	4.34
M,P-Xylene	17.6
Methyl Ethyl Ketone (2-Butanone)	3.19
n-Heptane	2.77
n-Hexane	1.66
o-Xylene (1,2-Dimethylbenzene)	6.56
Styrene	<0.852 U
Tert-Butyl Alcohol	7.85
Tetrachloroethene (PCE)	**322**
Tetrahydrofuran	<1.47 U
Toluene	9.04
Trichlorofluoromethane	1.16

Location	SV07
Sample Name	SV-7_033023
Sample Date	03/30/2023
Sample Type	SV
VOCs	
1,1,1-Trichloroethane	<1.09 U
1,2,4-Trimethylbenzene	4.64
1,3,5-Trimethylbenzene (Mesitylene)	1.09
2-Hexanone (MBK)	5
4-Ethyltoluene	1.34
Acetone	35.9
Benzene	0.658
Carbon Disulfide	0.775
Chloromethane	<0.413 U
Dichlorodifluoromethane	2.23
Ethylbenzene	2.59
M,P-Xylene	9.73
Methyl Ethyl Ketone (2-Butanone)	40.4
n-Heptane	1.37
n-Hexane	4.86
o-Xylene (1,2-Dimethylbenzene)	3.98
Styrene	<0.852 U
Tert-Butyl Alcohol	2.47
Tetrachloroethene (PCE)	**142**
Tetrahydrofuran	<1.47 U
Toluene	6.41
Trichlorofluoromethane	1.2

Location	SV05
Sample Name	SV-5_033023
Sample Date	03/30/2023
Sample Type	SV
VOCs	
1,1,1-Trichloroethane	<2.18 U
1,2,4-Trimethylbenzene	8.36
1,3,5-Trimethylbenzene (Mesitylene)	2.3
2-Hexanone (MBK)	<1.64 U
4-Ethyltoluene	2.77
Acetone	30.6
Benzene	<1.28 U
Carbon Disulfide	<1.25 U
Chloromethane	<0.826 U
Dichlorodifluoromethane	2.24
Ethylbenzene	7.17
M,P-Xylene	27.8
Methyl Ethyl Ketone (2-Butanone)	<2.95 U
n-Heptane	10.2
n-Hexane	5,67
o-Xylene (1,2-Dimethylbenzene)	10.1
Styrene	<1,7 U
Tert-Butyl Alcohol	6
Tetrachloroethene (PCE)	**658**
Tetrahydrofuran	<2.95 U
Toluene	20,7
Trichlorofluoromethane	<2.25 U

Location	SV06
Sample Name	SV-6_033023
Sample Date	03/30/2023
Sample Type	SV
VOCs	
1,1,1-Trichloroethane	<1.09 U
1,2,4-Trimethylbenzene	9.93
1,3,5-Trimethylbenzene (Mesitylene)	2.12
2-Hexanone (MBK)	<0.82 U
4-Ethyltoluene	2.25
Acetone	75.3
Benzene	<0.639 U
Carbon Disulfide	1.44
Chloromethane	<0.413 U
Dichlorodifluoromethane	2.25
Ethylbenzene	2.46
M,P-Xylene	11.9
Methyl Ethyl Ketone (2-Butanone)	2,98
n-Heptane	1.91
n-Hexane	0.867
o-Xylene (1,2-Dimethylbenzene)	4.47
Styrene	<0,852 U
Tert-Butyl Alcohol	10
Tetrachloroethene (PCE)	**194**
Tetrahydrofuran	<1.47 U
Toluene	5,39
Trichlorofluoromethane	1.14

Location	SV10
Sample Name	SV-10_033023
Sample Date	03/30/2023
Sample Type	SV
VOCs	
1,1,1-Trichloroethane	<2.02 U
1,2,4-Trimethylbenzene	11.8
1,3,5-Trimethylbenzene (Mesitylene)	2.95
2-Hexanone (MBK)	<1.52 U
4-Ethyltoluene	3.28
Acetone	66.5
Benzene	<1.18 U
Carbon Disulfide	<1,15 U
Chloromethane	<0,764 U
Dichlorodifluoromethane	2,25
Ethylbenzene	5.99
M,P-Xylene	25,9
Methyl Ethyl Ketone (2-Butanone)	<2.73 U
n-Heptane	5.61
n-Hexane	<1.3 U
o-Xylene (1,2-Dimethylbenzene)	9.47
Styrene	<1.58 U
Tert-Butyl Alcohol	10.2
Tetrachloroethene (PCE)	**550**
Tetrahydrofuran	<2.73 U
Toluene	16.2
Trichlorofluoromethane	<2.08 U

Location	SV09
Sample Name	SV-9_033023
Sample Date	03/30/2023
Sample Type	SV
VOCs	
1,1,1-Trichloroethane	<1.56 U
1,2,4-Trimethylbenzene	9.98
1,3,5-Trimethylbenzene (Mesitylene)	2.47
2-Hexanone (MBK)	<1.17 U
4-Ethyltoluene	2.69
Acetone	78.9
Benzene	1.36
Carbon Disulfide	5.98
Chloromethane	<0,591 U
Dichlorodifluoromethane	2.28
Ethylbenzene	5,86
M,P-Xylene	22.2
Methyl Ethyl Ketone (2-Butanone)	3.83
n-Heptane	5.49
n-Hexane	13,5
o-Xylene (1,2-Dimethylbenzene)	8.21
Styrene	<1,22 U
Tert-Butyl Alcohol	9.22
Tetrachloroethene (PCE)	**412**
Tetrahydrofuran	<2.11 U
Toluene	17.4
Trichlorofluoromethane	<1.61 U

LEGEND:

APPROXIMATE SITE BOUNDARY

SB-1/SV-1 APPROXIMATE SOIL/SOIL VAPOR SAMPLE LOCATIONS

Analyte	NYSDOH Decision Matrices Minimum Concentrations
VOCs	
1,1,1-Trichloroethane	100
1,2,4-Trimethylbenzene	60
1,3,5-Trimethylbenzene (Mesitylene)	60
2-Hexanone (MBK)	NS
4-Ethyltoluene	NS
Acetone	NS
Benzene	60
Carbon Disulfide	NS
Chloromethane	NS
Dichlorodifluoromethane	NS
Ethylbenzene	60
M,P-Xylene	200
Methyl Ethyl Ketone (2-Butanone)	NS
n-Heptane	200
n-Hexane	200
o-Xylene (1,2-Dimethylbenzene)	60
Styrene	NS
Tert-Butyl Alcohol	NS
Tetrachloroethene (PCE)	100
Tetrahydrofuran	NS
Toluene	300
Trichlorofluoromethane	NS

Exceedance Summary:

10 - NYSDOH Decision Matrices Minimum Concentrations

NOTES:

1. BASE MAP TAKEN FROM 2018 ARCHITECTURAL SURVEY PREPARED BY MONTROSE SURVEYING CO., LLP.
2. ALL LOCATIONS ARE APPROXIMATE

50 0 25 50

SCALE: 1 INCH = 50 FEET

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New York, NY 10001
T: 212.479.5400 F: 212.479.5444 www.langan.com

Project: ST. JOSEPH APARTMENTS
BLOCK No. 3043, LOT No. 10
BROOKLYN
BRONX NEW YORK

Drawing Title: SOIL VAPOR SAMPLE ANALYTICAL RESULTS MAP

Project No. 170852601
Date 2024/10/8
Drawn By VK
Checked By PM

Figure 5

Sheet 3 of 3

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VERSION 3.0

Legend

- Proposed Surficial Soil Sample Location
- Proposed Soil Boring Location
- Proposed Soil Boring/Permanent Monitoring Well Location
- Proposed Soil Vapor/Ambient Air Sample Location
- Previous Soil Boring/Soil Vapor Locations Sampled during the Phase II Investigation
- Previously Installed Monitoring Well during Geotechnical Investigation
- Approximate Site Boundary
- PAOC 1: SVOC & Metal Contamination
- PAOC 2: CVOC Contamination
- PAOC 3: Petroleum Bulk Storage

Notes:
1. Aerial imagery provided through Langan's subscription to Near Map, dated 06/18/2024.

40 0 40
SCALE IN FEET

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BLOCK No. 3043, LOT No. 10
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Figure Title
PRELIMINARY AREAS OF CONCERN AND SAMPLE LOCATION MAP

Project No. 170852601	Figure No. 6
Date 2/14/2025	
Scale 1"=40'	
Drawn By MG	

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Path: \\langan.com\data\NYC\data6\170852601\Project Data\ArcGIS\APRX\170852601\170852601.aprx Date: 2/14/2025 User: mgeorgalas Time: 1:28 PM

APPENDIX A

REDEVELOPMENT PLANS

ST JOSEPH APARTMENTS

484 E 178TH ST, BRONX, NY 10457

LIST OF ALL REQUIRED APPLICATIONS
FILED SEPARATELY

NYC DOB NOW NB: #220212918-01
NYC DOB NOW EN: -
NYC DOB NOW FND/EARTHWORK: #X08026216-II
NYC DOB NOW SOE: -
NYC DOB NOW STRUC: #X08026211-II
NYC DOB NOW MECH: #X08026188-II
NYC DOB NOW PL: #X08026196-II
NYC DOB NOW SS/SP: #X08026201-II
NYC DOB NOW TEMP SP: -
NYC DOB NOW CIV PL: #X08026209-II
NYC DOB NOW BPP: -
FDNY FA: -

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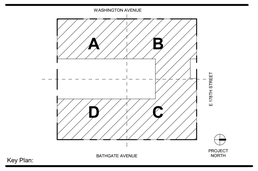
Tel (646) 794 3167

BLOCK: 3043 LOT: 16



Key Plan:

NUMBER	DATE	DESCRIPTION
1	08/09/2021	SD SUBMISSION
2	10/21/2022	DOB SUBMISSION
3	11/30/2022	100% DD SET
4	06/12/2024	DOB RESUBMISSION
6	08/30/2024	CD ESTIMATING SET

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COVER PAGE

DOB SEAL:

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PROJECT No:	17001
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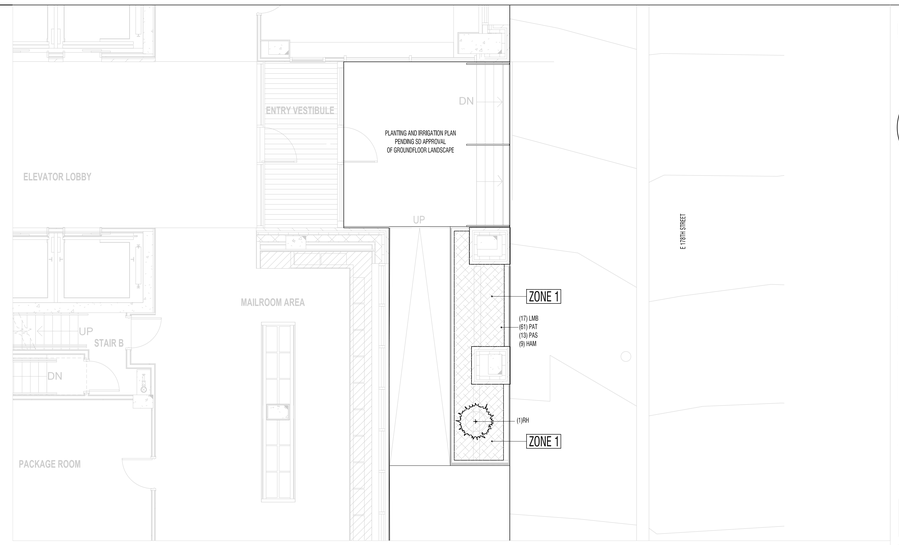
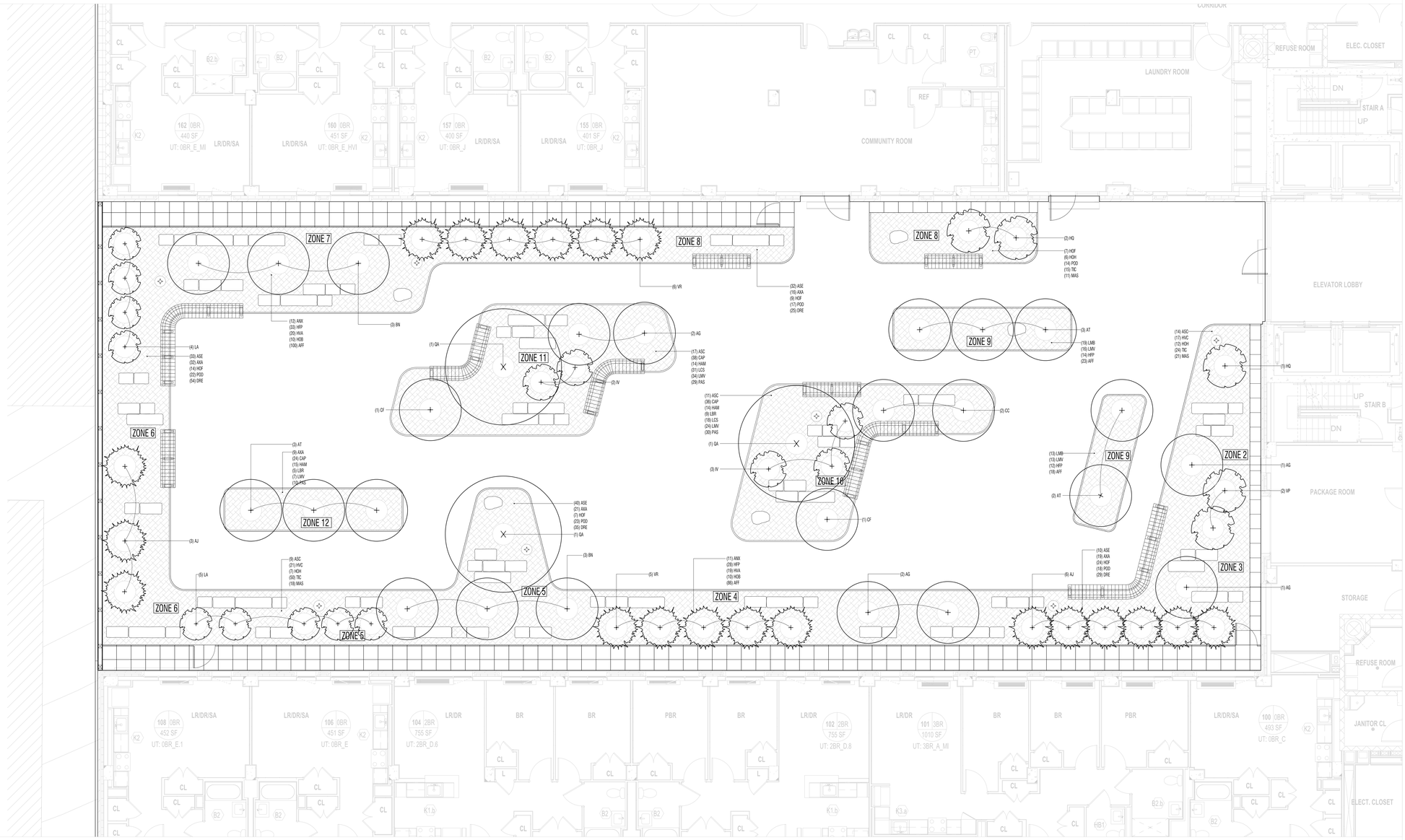
DWG No:	T-001.00
SCALE:	1 of 175



02 GROUND FLOOR ENTRY PLANTING AND IRRIGATION PLAN

3/16" = 1'-0"



01 GROUND FLOOR COURTYARD PLANTING AND IRRIGATION PLAN

3/16" = 1'-0"

LEGEND

- EVERGREEN TREE/SHRUB (PROPOSED)
- DECIDUOUS CANOPY TREE (PROPOSED)
- DECIDUOUS ORNAMENTAL TREE (PROPOSED)
- DECIDUOUS LARGE SHRUB (PROPOSED)
- GROUNDCOVER AND PERENNIAL MIX
- RELOCATED SALVAGED BOULDER
- RELOCATED SALVAGED STONE
- CATCH BASIN
- PLANT BED DRAIN
- ZONE X — IRRIGATION ZONES
- IRRIGATION VALVE BOX; TO BE LOCATED BY IRRIGATION CONSULTANT AND L.A. (COORDINATE LOW VOLTAGE CONDUIT FROM CONTROLLER TO IRRIGATION VALVE BOX)
- CONTROL BOX 1 — IRRIGATION CONTROL BOX, COORDINATE LOCATION WITHIN NEAREST UTILITY ROOM w/ M.E.P. ENGINEER & ARCHITECT
- HB — HOSE BIBS; SEE MEP DWG; GENERAL BUILDING CONTRACTOR TO PROVIDE CONNECTION TO EXTERIOR
- GFCI — GFCI; SEE MEP DWG; GENERAL BUILDING CONTRACTOR TO PROVIDE CONNECTION TO EXTERIOR
- PROPERTY LINE

NOTES:

1. SEE PLANTING SCHEDULE ON L-300. ALL PLANTS MUST BE NATIVE OR NON-INVASIVE SPECIES ADAPTED TO THE LOCAL CLIMATE.
2. REFER TO CIVIL ENGINEER & M.E.P. ENGINEER DRAWINGS FOR ALL PIPE & DRAINAGE CONNECTIONS
3. FINAL DRAIN LOCATIONS TO BE DETERMINED BY CIVIL ENGINEER
4. FINAL LOCATION OF IRRIGATION VALVE BOXES AND CONTROLLERS TO BE DETERMINED BY LANDSCAPE ARCHITECT AND ARCHITECT. SEE LANDSCAPE IRRIGATION DRAWINGS & SPECIFICATIONS FOR DETAILS.
5. FINAL LOCATION OF EXTERIOR GFCI OUTLETS TO BE DETERMINED BY M.E.P. ENGINEER & L.A.
6. LANDSCAPE CONTRACTOR TO DELIVER ALL NURSERY STOCK TO SITE PRIOR TO PLANTING. IF NOT POSSIBLE, LANDSCAPE CONTRACTOR TO SUBMIT NURSERY STOCK DELIVERY SCHEDULE TO LANDSCAPE ARCHITECT FOR APPROVAL PRIOR TO DELIVERY.
7. LANDSCAPE ARCHITECT TO LAY OUT PERENNIALS AND GROUND COVER AND APPROVE LOCATIONS OF ALL PLANT MATERIAL IN FIELD PRIOR TO PLANTING.
8. PROVIDE DRIP IRRIGATION AT ALL PLANTING AREAS. SEE SPECS.

St Joseph Apartments

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Block: 3043 Tax Lot: 16, BIN 2806745

Owner:

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Association of New York Catholic Homes
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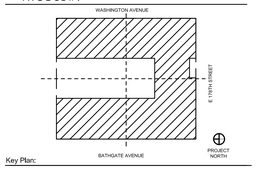
New York NY 10038
Tel (646) 794 3167

BLOCK: 3043 LOT: 10,16,22,23

NYC DOB # :

Key Plan:



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2	08/01/2022	50% DD SET
3	11/04/2022	80% DD SET
4	11/30/2022	100% DD SET
5	05/24/2024	5/24/24 PROGRESS SET
6	08/09/2024	8/09/24 PROGRESS SET
7	08/30/2024	CD ESTIMATING SET

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GROUND FLOOR PLANTING AND IRRIGATION PLAN

SEAL & SIGNATURE:

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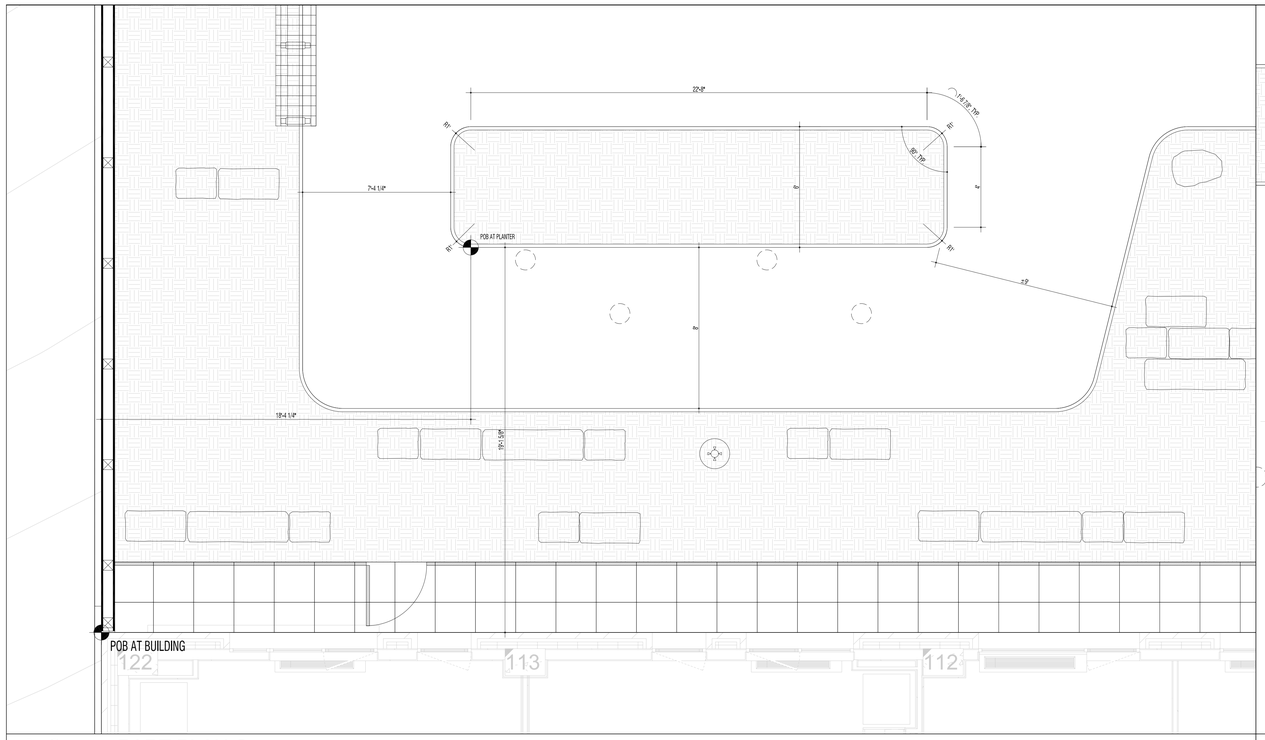
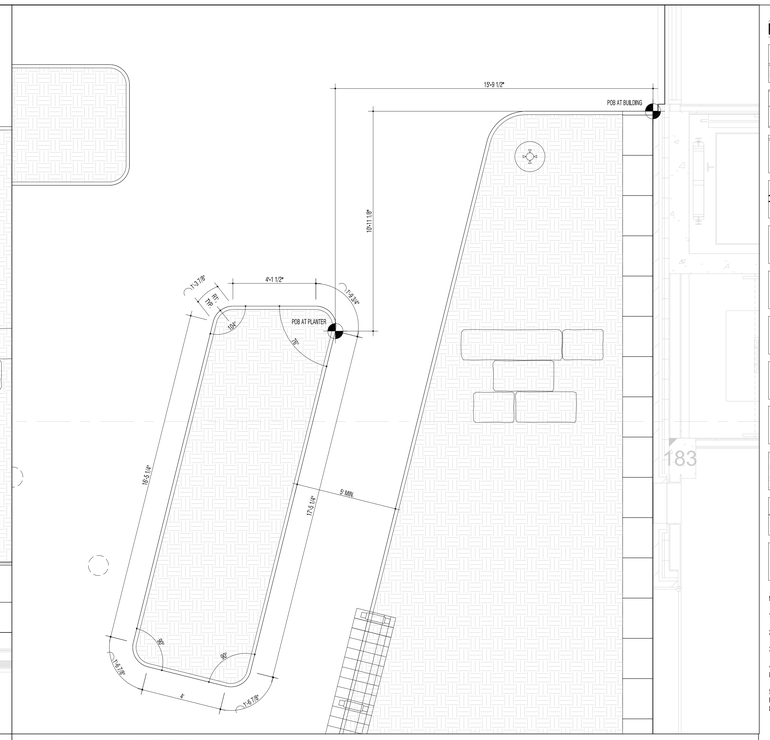
PROJECT No: 17001
DRAWING BY: AT
CHK BY: BG
DWG No: L-102
SCALE: AS NOTED
OF



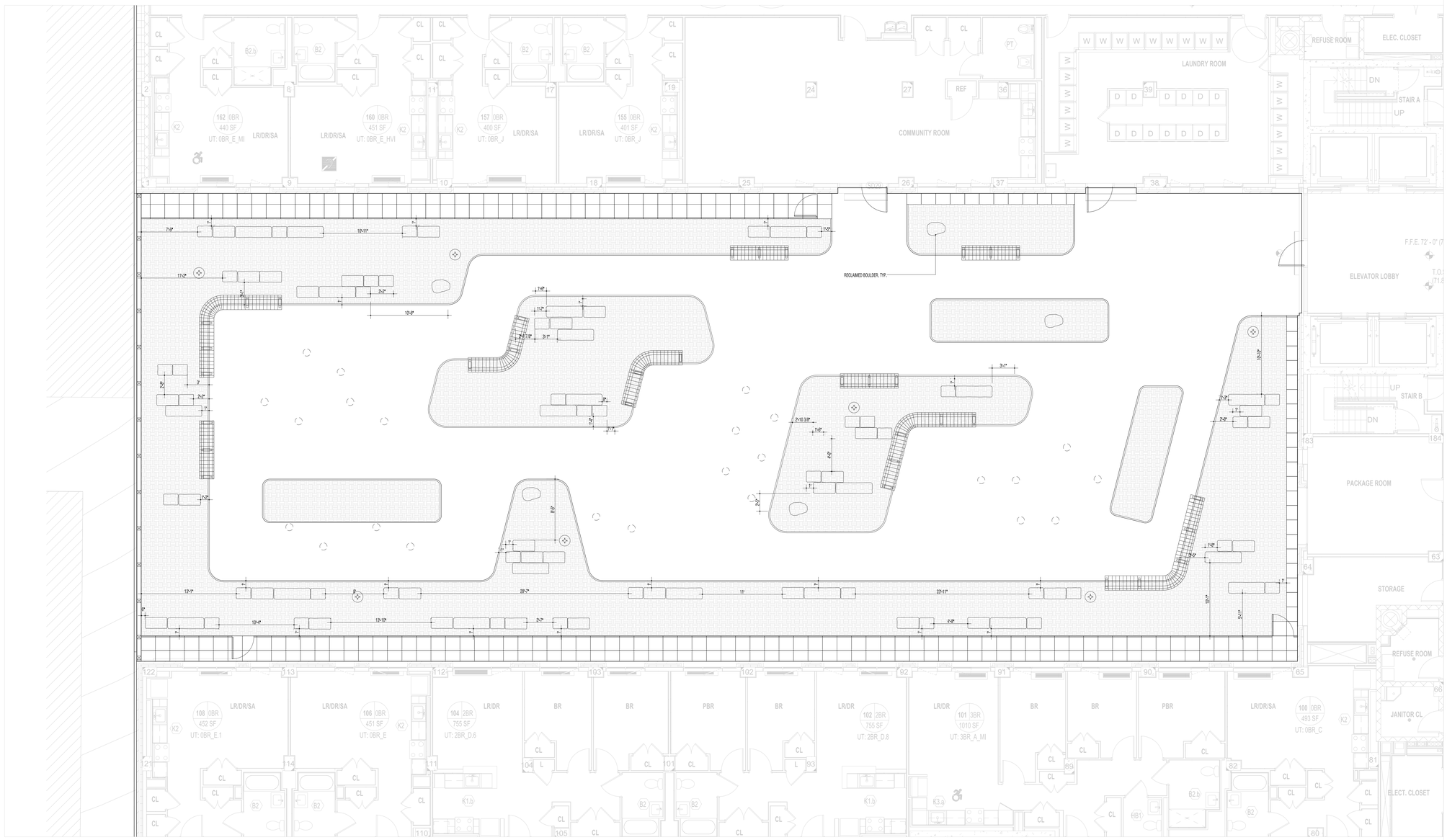
A-3 PART PLAN C

3/8"=1'-0"


POB AT BUILDING
POB AT PLANTER
13'-9 1/2"
10'-11 1/8"
4'-1 1/2"
1'-3 7/8"
1'-8 7/8"
1'-9 3/8"
90°
30°
30°
30

NOTE: STONE LOCATING DIMENSIONS FOR REFERENCE ONLY, LANDSCAPE ARCHITECT TO APPROVE IN FIELD.

02 GROUND FLOOR ENTRY STONE LAYOUT PLAN
3/16" = 1'-0"



01 GROUND FLOOR COURTYARD STONE LAYOUT PLAN
3/16" = 1'-0"

LEGEND

- METAL EDGE
- GRAVEL PEST STRIP WITH PAVERS ON TOP
- PRIVACY FENCE AND GATE
- FENCE
- TIMBER BENCH
- C.I.P. CONCRETE FURNITURE FOOTING
- RELOCATED SALVAGED STONE
- RELOCATED SALVAGED BOULDER
- LIGHT POLE; SEE LIGHTING SPECIFICATIONS FOR LIGHT FIXTURES
- PLANTING SOIL
- PROPERTY LINE
- POB — POINT OF BEGINNING (P.O.B.)

NOTES:

1. CONTRACTOR TO VERIFY ALL EXISTING DIMENSIONS IN THE FIELD.
2. SEE CIVIL DRAWINGS FOR GRADING AND DRAINAGE PLANS AND DETAILS.
3. SEE L-104 LIGHTING PLAN FOR LOCATING LIGHT POLES.
4. FINAL LOCATION OF STONE AND BOULDER LOCATION TO BE APPROVED BY LANDSCAPE ARCHITECT IN FIELD.
5. CONTRACTOR TO TEMPLATE APPROVED FURNITURE LOCATIONS IN THE FIELD AND SUBMIT FOOTING LOCATION SHOP DRAWING FOR APPROVAL BY LANDSCAPE ARCHITECT.

St Joseph Apartments

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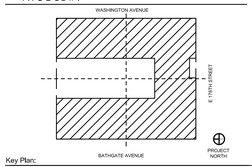
40 Maiden Lane, 13th Floor
New York NY 10038
Tel (646) 794 3167

BLOCK: 3043 LOT: 10,16,22,23

NYC DOB # :

Key Plan:



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GROUND FLOOR STONE LAYOUT PLAN

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PROJECT No: 17001
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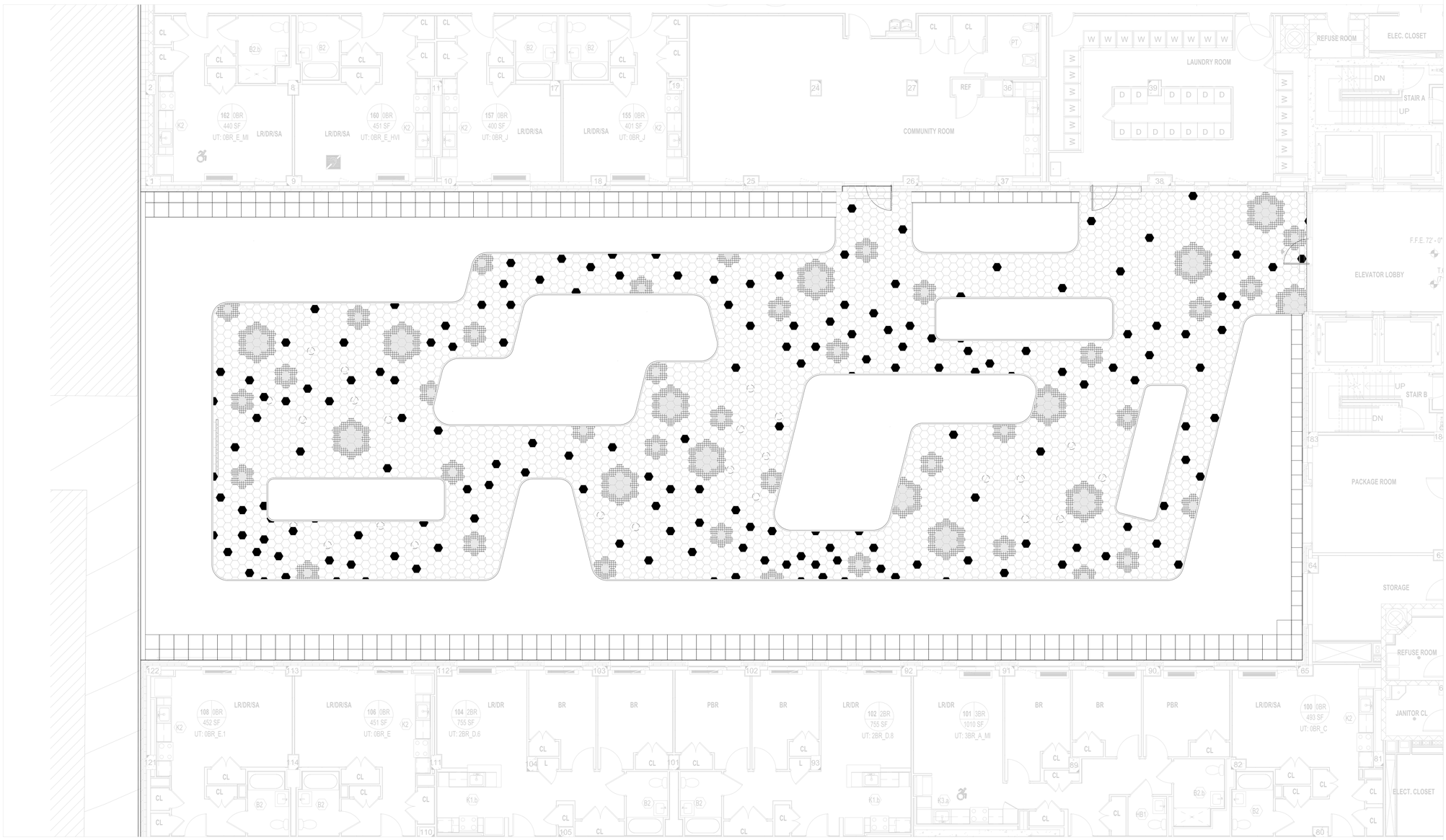
CHK BY: BG
DWG No: L-201
SCALE: AS NOTED
OF



01 GROUND FLOOR COURTYARD PAVING PLAN

3/16" = 1'-0"

LEGEND

- PRECAST CONCRETE PAVER FIELD: SEE SPECS
- PRECAST CONCRETE PAVER ACCENT 1: SEE SPECS
- PRECAST CONCRETE PAVER ACCENT 2: SEE SPECS
- PRECAST CONCRETE PAVER ACCENT 3: SEE SPECS

NOTES:

1. SEE CIVIL DRAWINGS FOR GRADING AND DRAINAGE PLANS AND DETAILS.

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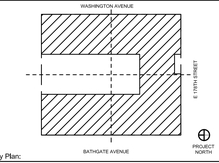

Key Plan:

NUMBER	DATE	DESCRIPTION
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2	08/01/2022	50% DD SET
3	11/04/2022	80% DD SET
4	11/30/2022	100% DD SET
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PROJECT No:	17001
DRAWING BY:	AT
CHK BY:	BG
DWG No:	L-202
SCALE: AS NOTED	# OF #

GENERAL FLOOR PLAN NOTES

1. REFER TO DRAWINGS A-600 & A-601 FOR PARTITION TYPES AND DETAILS.
2. REFER TO DRAWING A-611 FOR DOOR TYPES AND DETAILS.
3. REFER TO REFLECTED CEILING PLANS A-140 THROUGH A-163 FOR ADDITIONAL INFORMATION.
4. SEE DRAWINGS A-110 THROUGH A-128 FOR ENLARGED FLOOR PLANS INCLUDING TYPICAL APARTMENT UNIT PLANS.
5. REFER TO DRAWINGS A-501 THROUGH A-504 FOR STAIR DRAWINGS AND STAIR DETAILS.
6. SEE A-510 ELEVATOR DRAWINGS FOR ADDITIONAL INFORMATION.
7. ALL EXPOSED SURFACES TO RECEIVE A FINISH. REFER TO FINISH SCHEDULE AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
8. ALL STRUCTURAL COLUMNS IN RESIDENTIAL AND FRONT OF HOUSE AREAS TO RECEIVE FURRING AND FINISH, WHETHER OR NOT SHOWN ON DRAWINGS.
9. METAL OR VINYL CORNER GUARDS TO BE INSTALLED AT HIGH-TRAFFIC LOCATIONS TO BE APPROVED BY OWNER.
10. THE FOLLOWING SCOPE IS SUBJECT TO DELEGATED DESIGN:
    - A. SOLAR ARRAY GALVANIZED STEEL POSTS AND BEAMS, ANCHORS TO SUPERSTRUCTURE AND ROOF.
    - B. CONDENSERS SUPPORT DUNNAGE AND CATWALKS.
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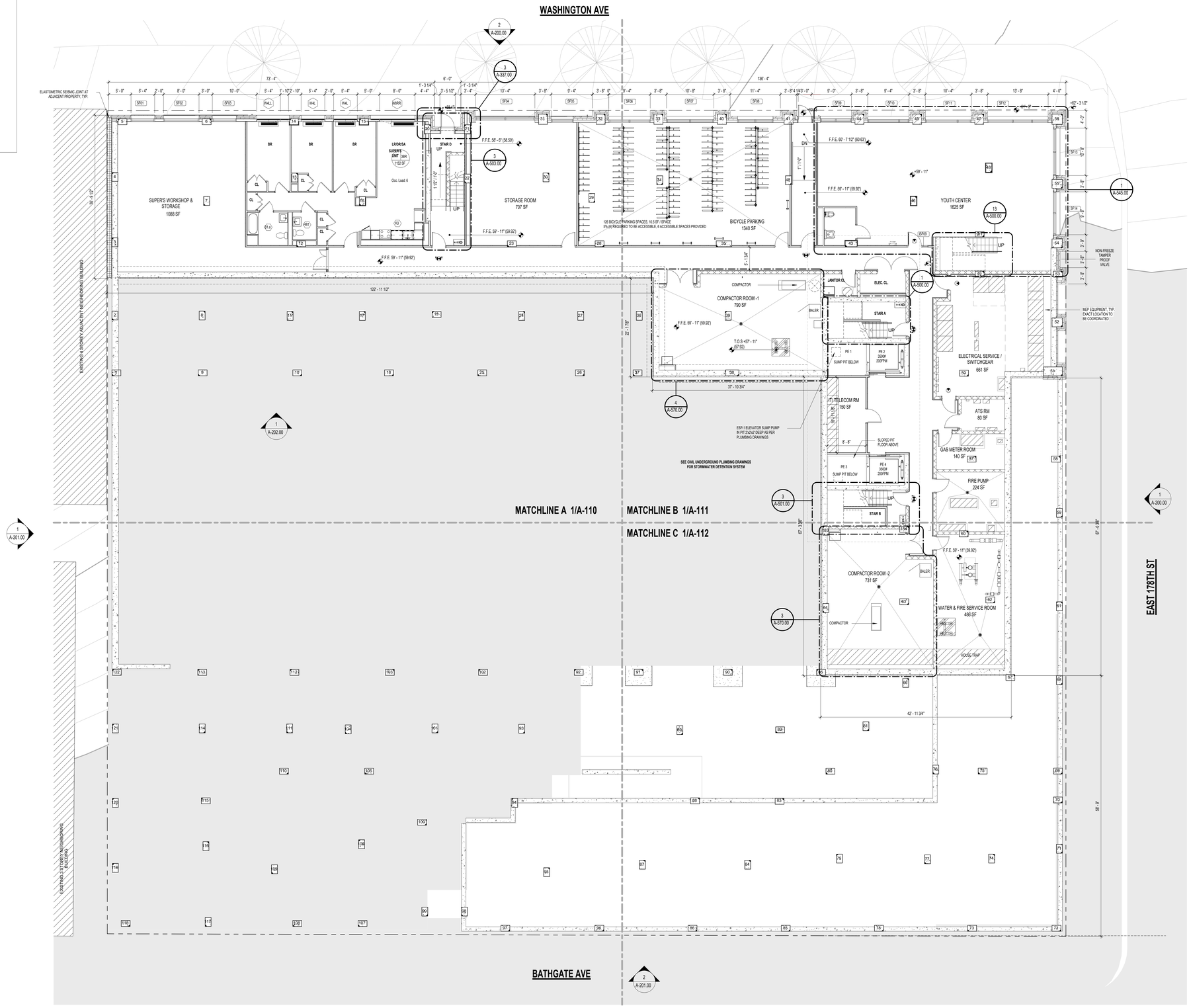

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Block: 3043 Tax Lot: 16, BIN 2806745

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Tel (646) 794 3167

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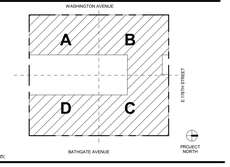

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CELLAR FLOOR PLAN

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No:	17001
DRAWING BY:	Author
CHK BY:	Checker
DWG No:	A-100.00
SCALE:	As indicated

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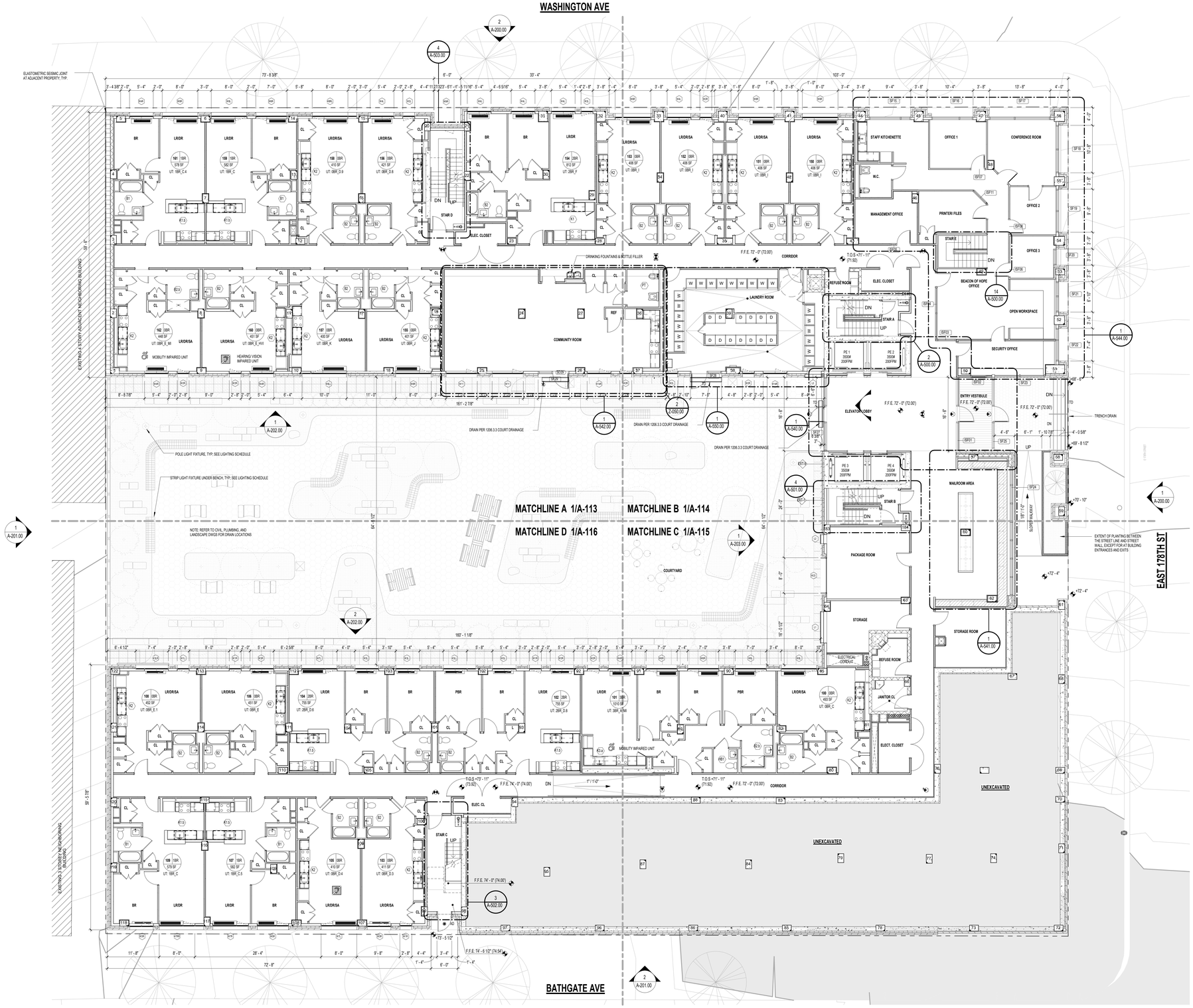

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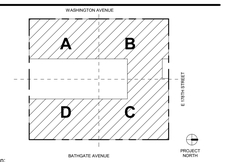

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1ST FLOOR PLAN

DOB SEAL:

SEAL & SIGNATURE:

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DRAWING BY:	Author
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DWG No:	A-101.00
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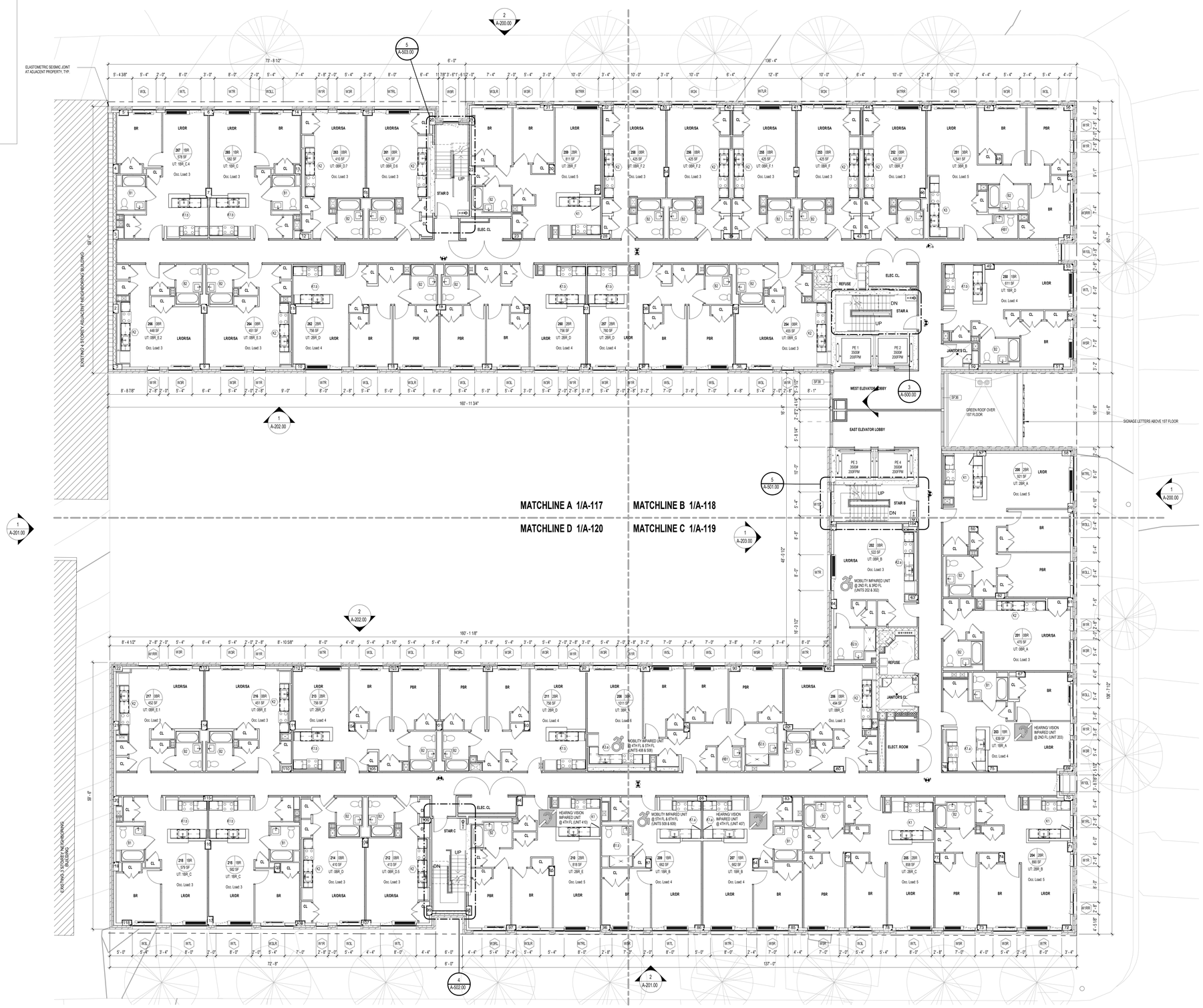

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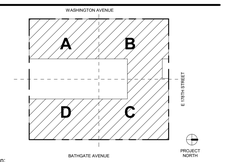

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2ND-6TH FLOOR PLAN

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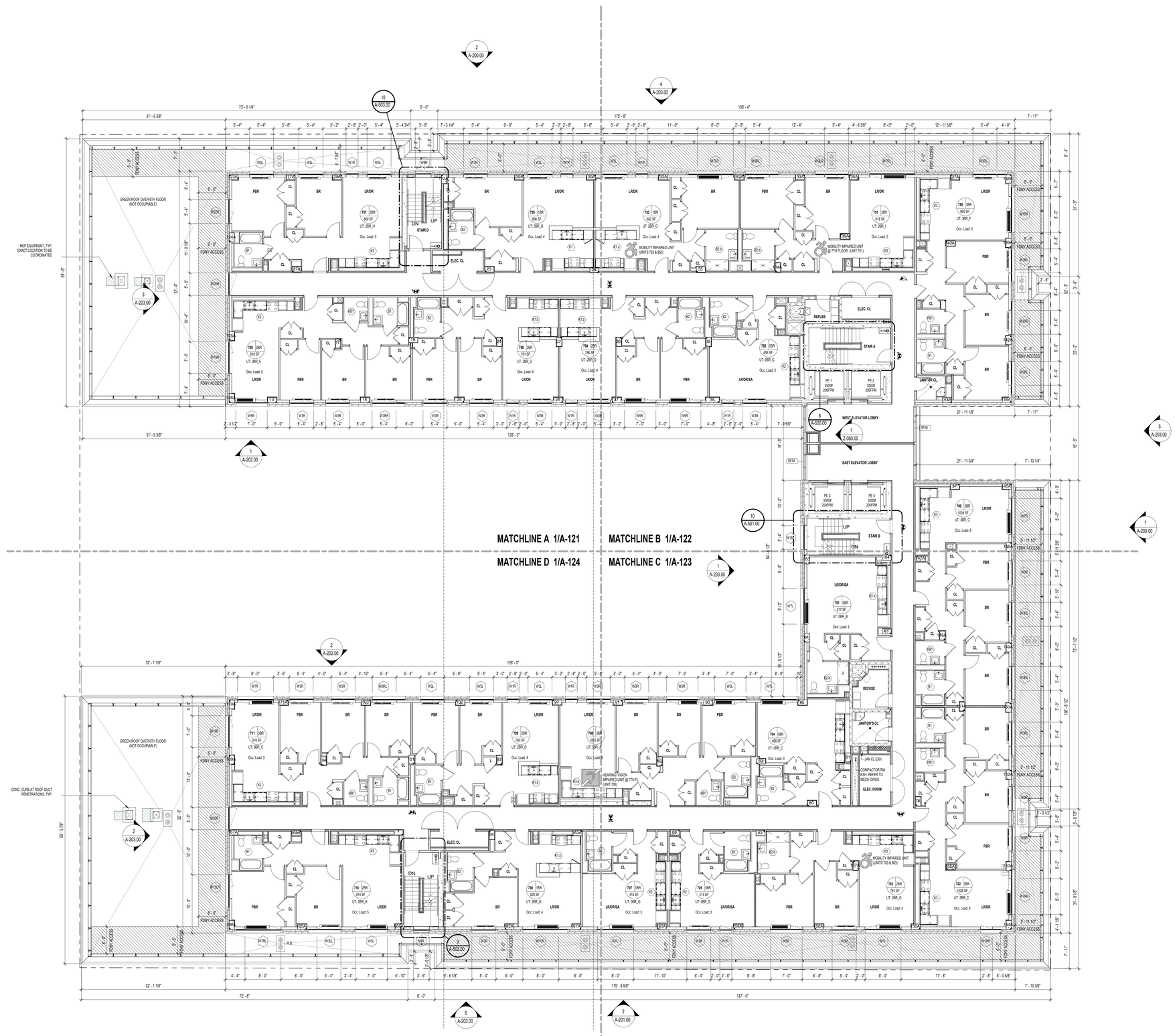

1 7TH-8TH FLOOR PLAN
1/8" = 1'-0"

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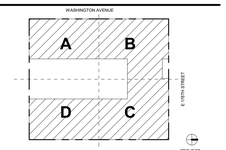

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7TH-8TH FLOOR PLANS

DOB SEAL:

SEAL & SIGNATURE:

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DRAWING BY:	Author
CHK BY:	Checker
DWG No:	A-103.00
SCALE: As indicated	40 of 175

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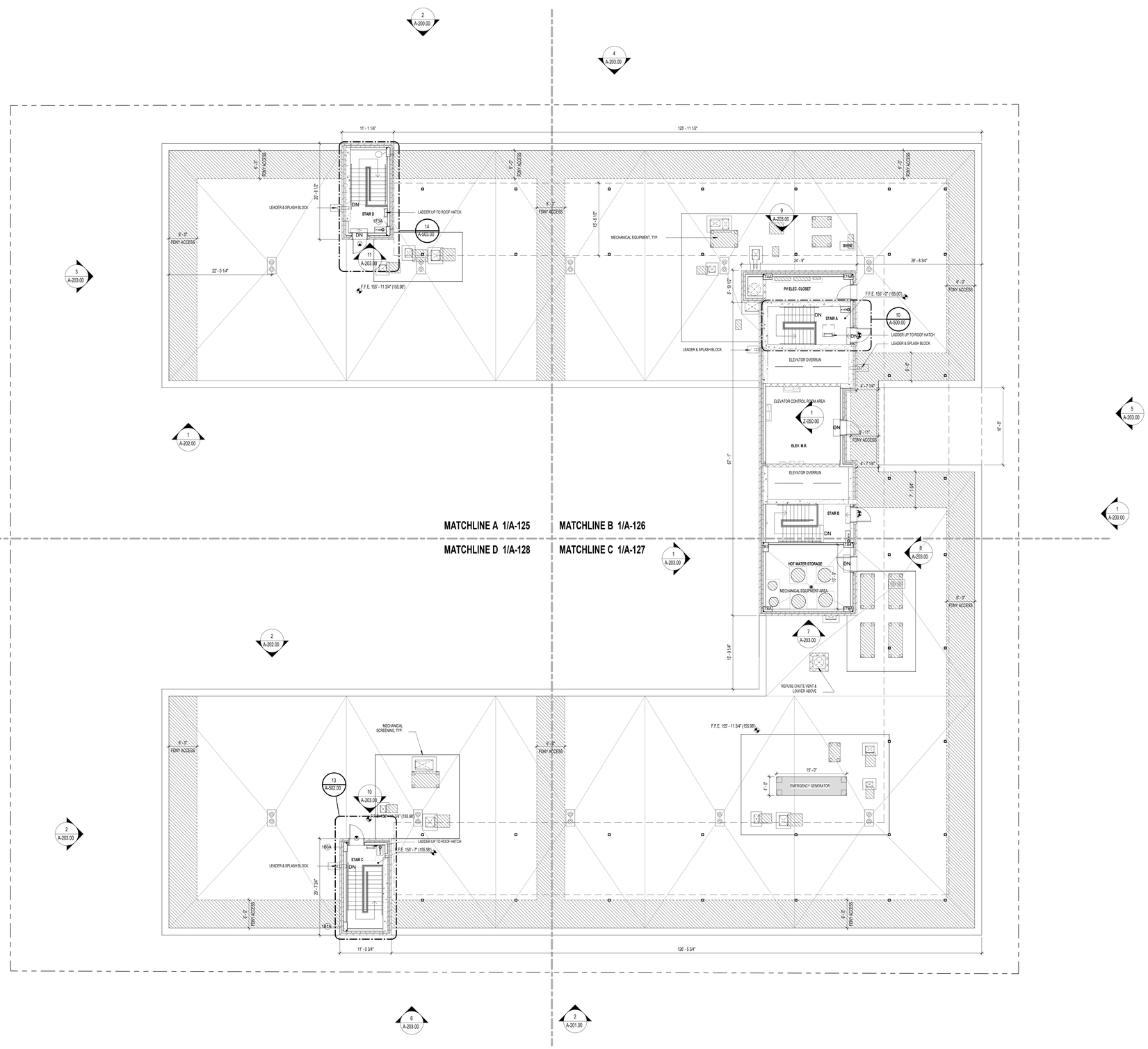

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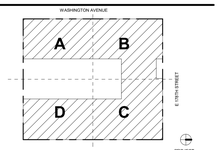

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MAIN ROOF PLAN

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No: 17001
DRAWING BY: Author
CHK BY: Checker
DWG No: A-104.00
SCALE: As indicated

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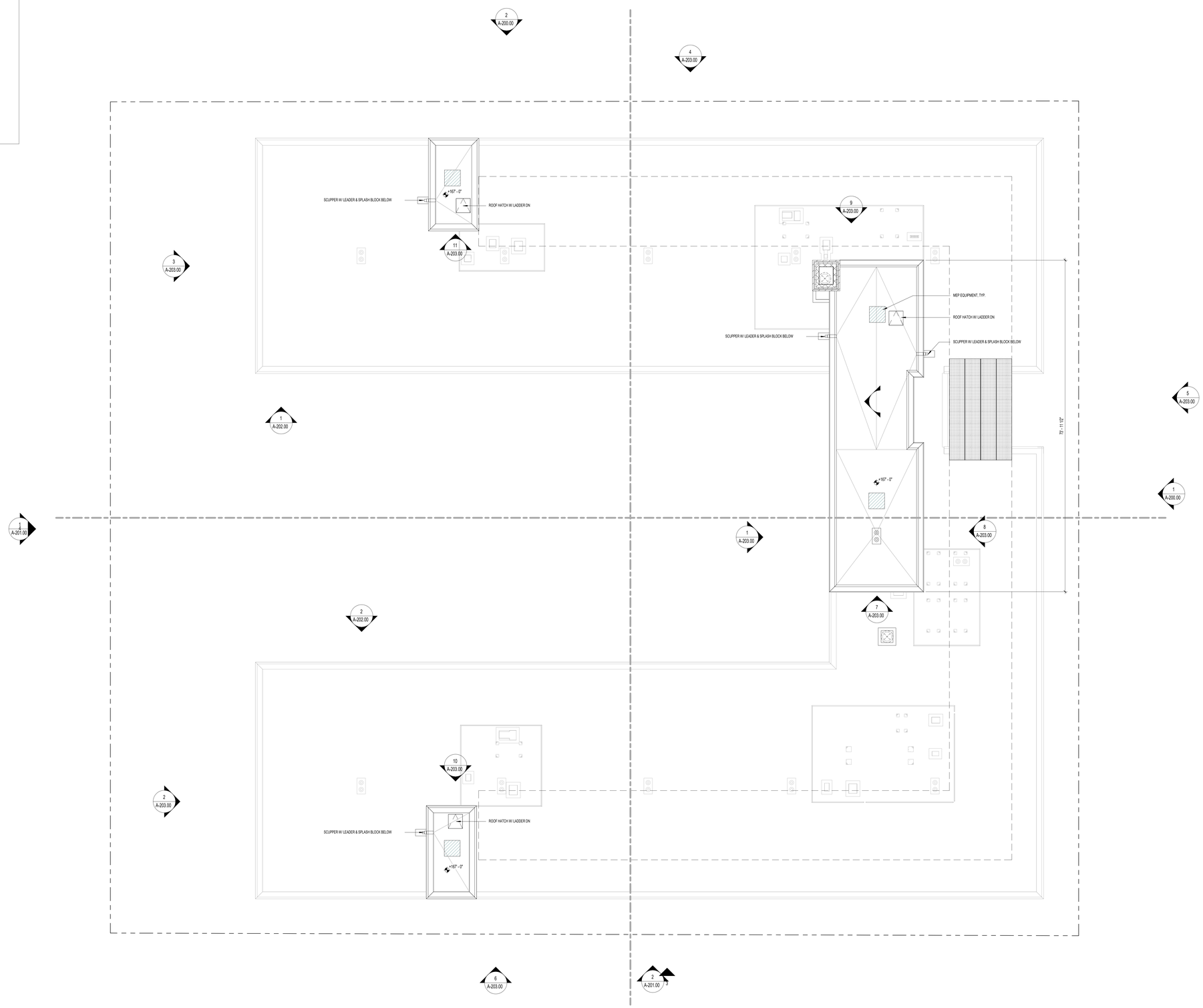

1 BULKHEAD T.O.S.
1/8" = 1'-0"

St Joseph Apartments

484 E 178th Street, The Bronx, NY 10457
Block: 3043 Tax Lot: 16, BIN 2806745

Owner:

CATHOLIC HOMES NEW YORK

Association of New York Catholic Homes
40 Maiden Lane, 13th Floor
New York NY 10038
Tel (646) 794 3167

BLOCK: 3043 LOT: 16

NYC DOB NOW NB: #220212918-01
NYC DOB NOW EN: -
NYC DOB NOW FND/EARTHWORK: #X08026216-II
NYC DOB NOW SOE: -
NYC DOB NOW STRUC: #X0802621 I-II
NYC DOB NOW MECH: #X08026188-II
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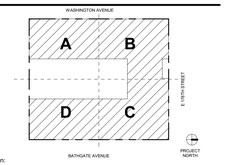
NYC DOB NOW CIV PL: #X08026209-II
NYC DOB NOW BPP: -
FDNY FA: -



Key Plan:

NUMBER	DATE	DESCRIPTION
3	11/30/2022	100% DD SET
5	06/28/2024	ENERGY MODELING
6	08/30/2024	CD ESTIMATING SET

NOT FOR CONSTRUCTION

Revisions:

Architect:
Magnusson Architecture & Planning PC
42 West 39th Street, 15th Floor
New York NY 10018
Tel (212) 253 7820 Fax (212) 253 1276

Structural Engineer:
GACE Consulting Engineers DPC
105 Madison Avenue
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Brooklyn NY 11232
Tel (212) 796 2529

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BULKHEAD PLAN

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No:	17001
DRAWING BY:	Author
CHK BY:	Checker
DWG No:	A-105.00
SCALE: As indicated	42 of 175

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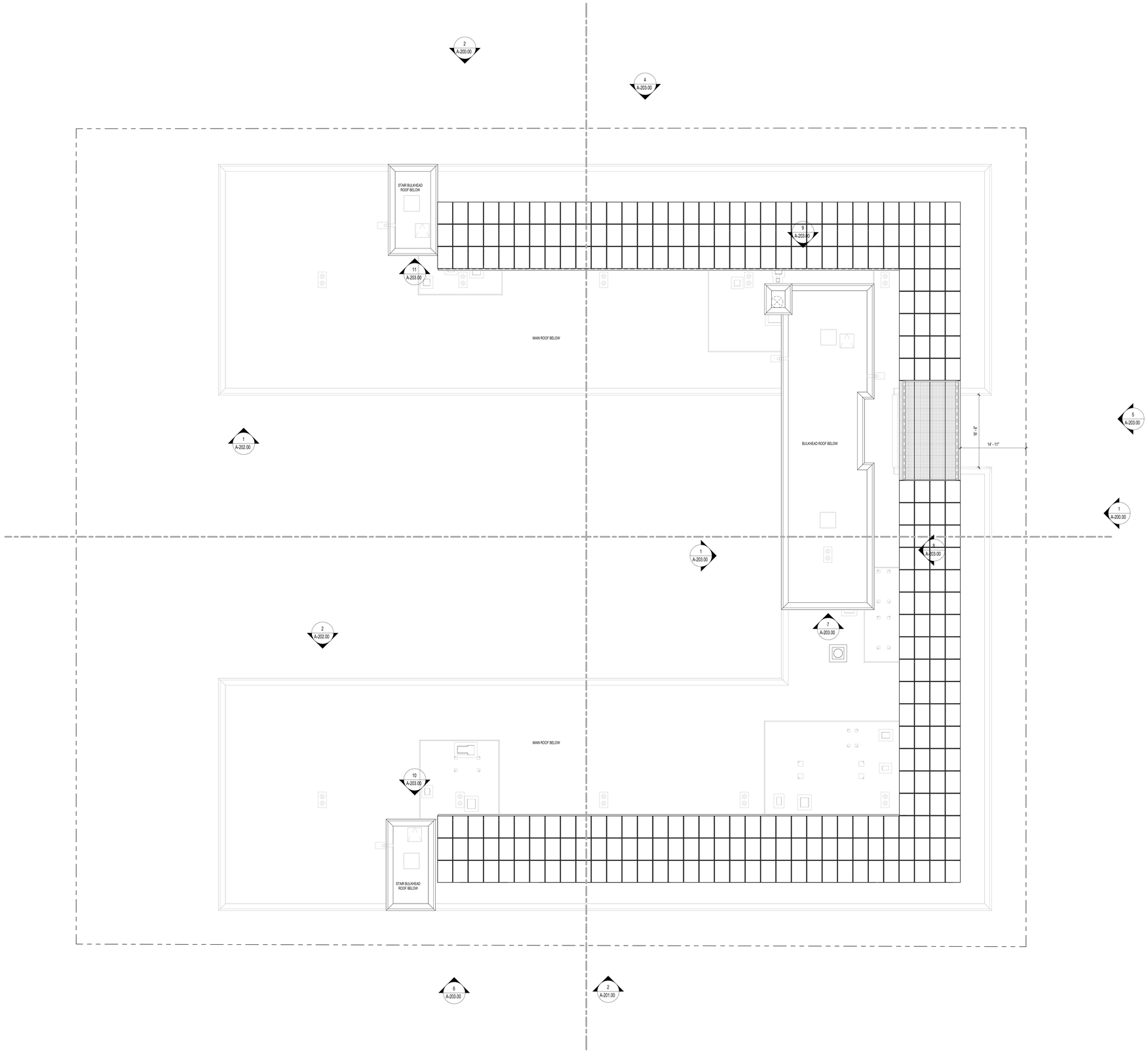

1 TOP OF PV ARRAY
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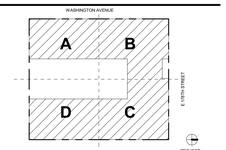

Key Plan:

NUMBER	DATE	DESCRIPTION
4	06/12/2024	DOB RESUBMISSION
5	06/28/2024	ENERGY MODELING
6	08/30/2024	CD ESTIMATING SET

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PV ARRAY PLAN

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No: 17001
DRAWING BY: Author
CHK BY: Checker
DWG No: A-106.00
SCALE: As indicated

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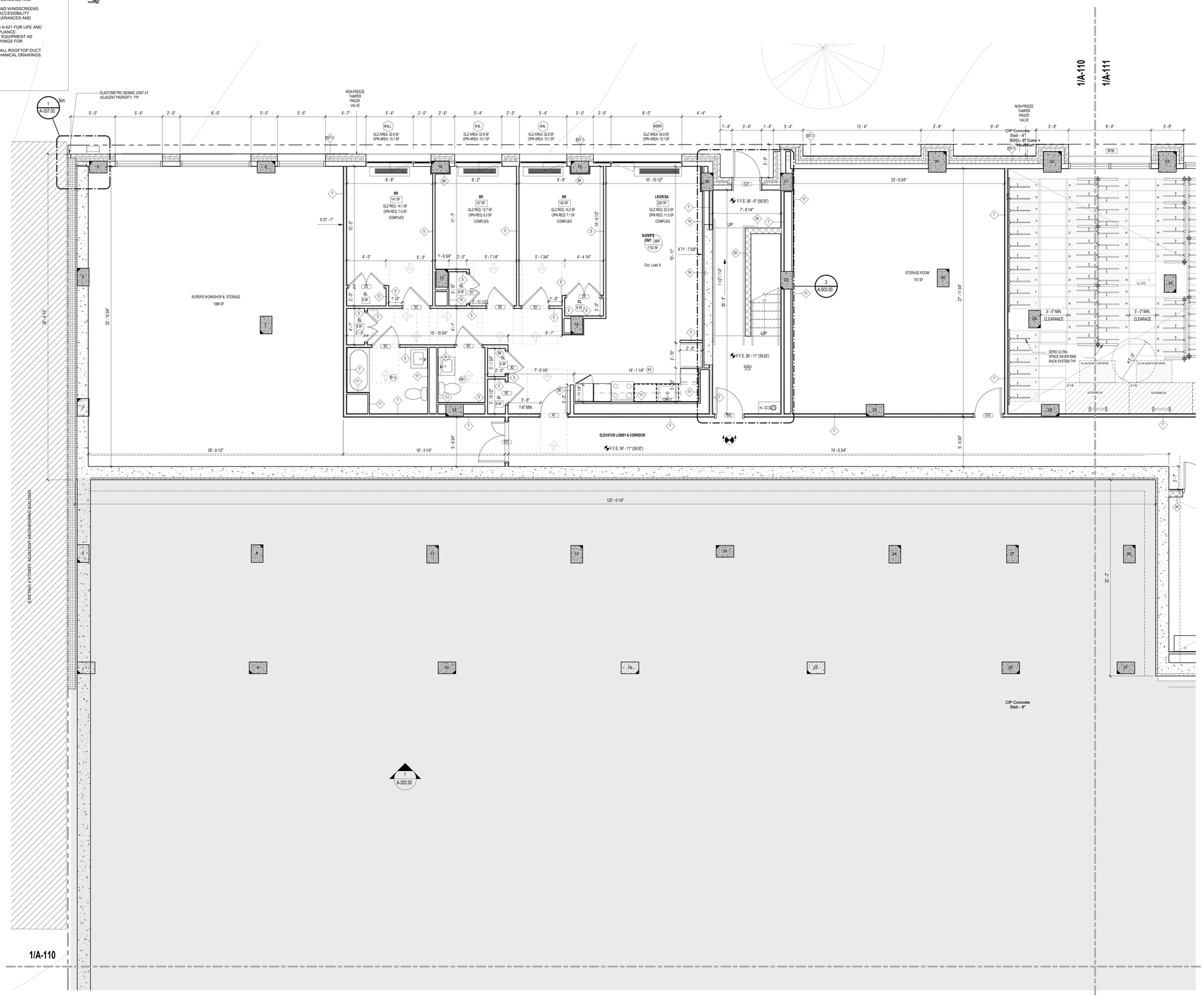

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Tel (646) 794 3167

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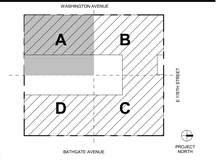

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CELLAR PARTIAL PLAN- A

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No:	17001
DRAWING BY:	Author
CHK BY:	Checker
DWG No:	A-110.00
SCALE: As indicated	44 of 175

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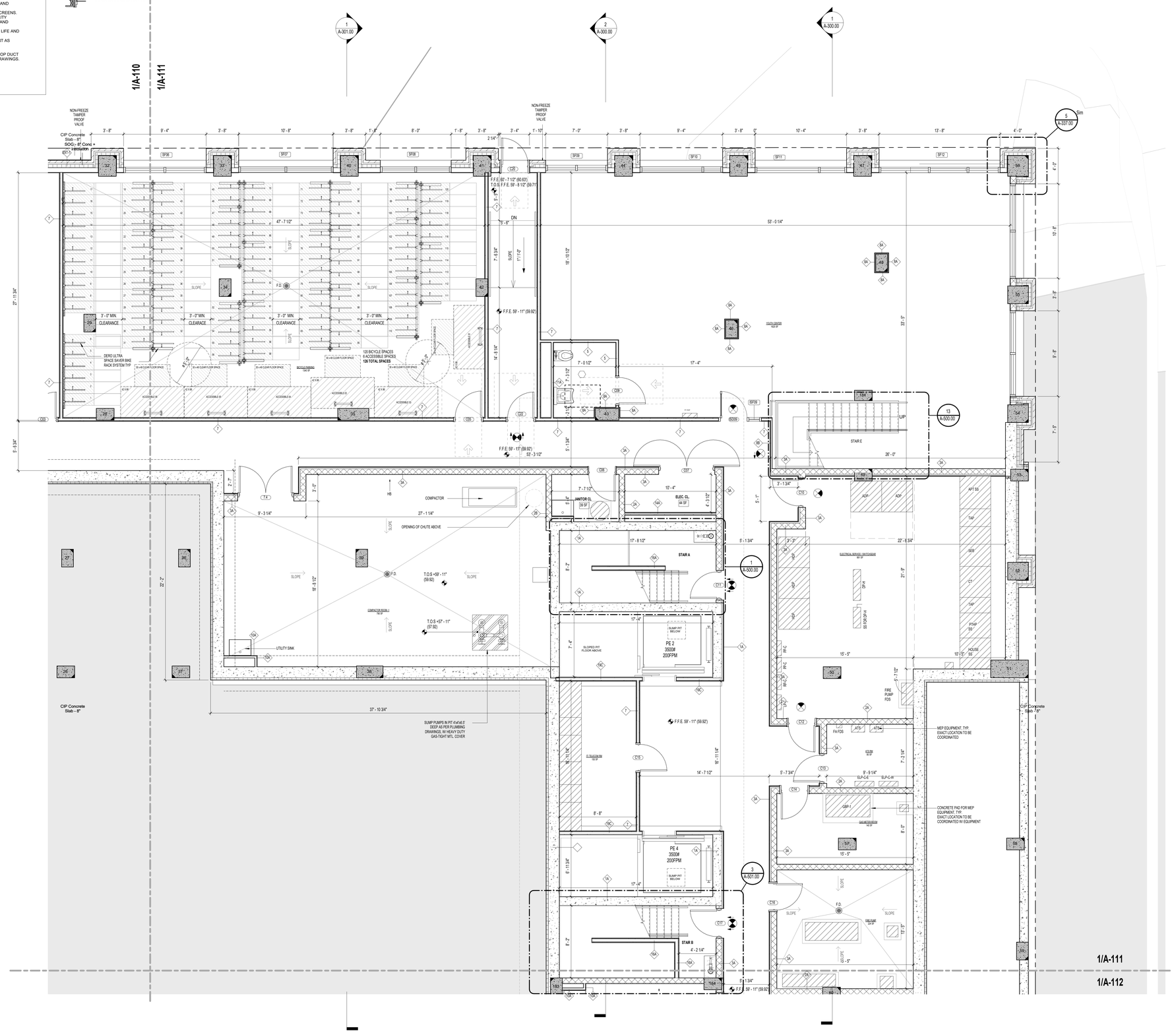

1 CELLAR PARTIAL PLAN - B
1/4" = 1'-0"

St Joseph Apartments

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Block: 3043 Tax Lot: 16, BIN 2806745

Owner:

CATHOLIC HOMES NEW YORK

Association of New York Catholic Homes
40 Maiden Lane, 13th Floor
New York NY 10038
Tel (646) 794 3167

BLOCK: 3043 LOT: 16

NYC DOB NOW NB: #122021918-01
NYC DOB NOW EN: -
NYC DOB NOW FND/EARTHWORK: #X08026216-II
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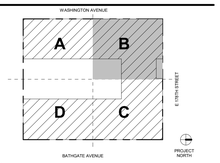

Key Plan:

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CELLAR PARTIAL PLAN - B

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No: 17001
DRAWING BY: Author
CHK BY: Checker
DWG No: A-111.00
SCALE: As indicated

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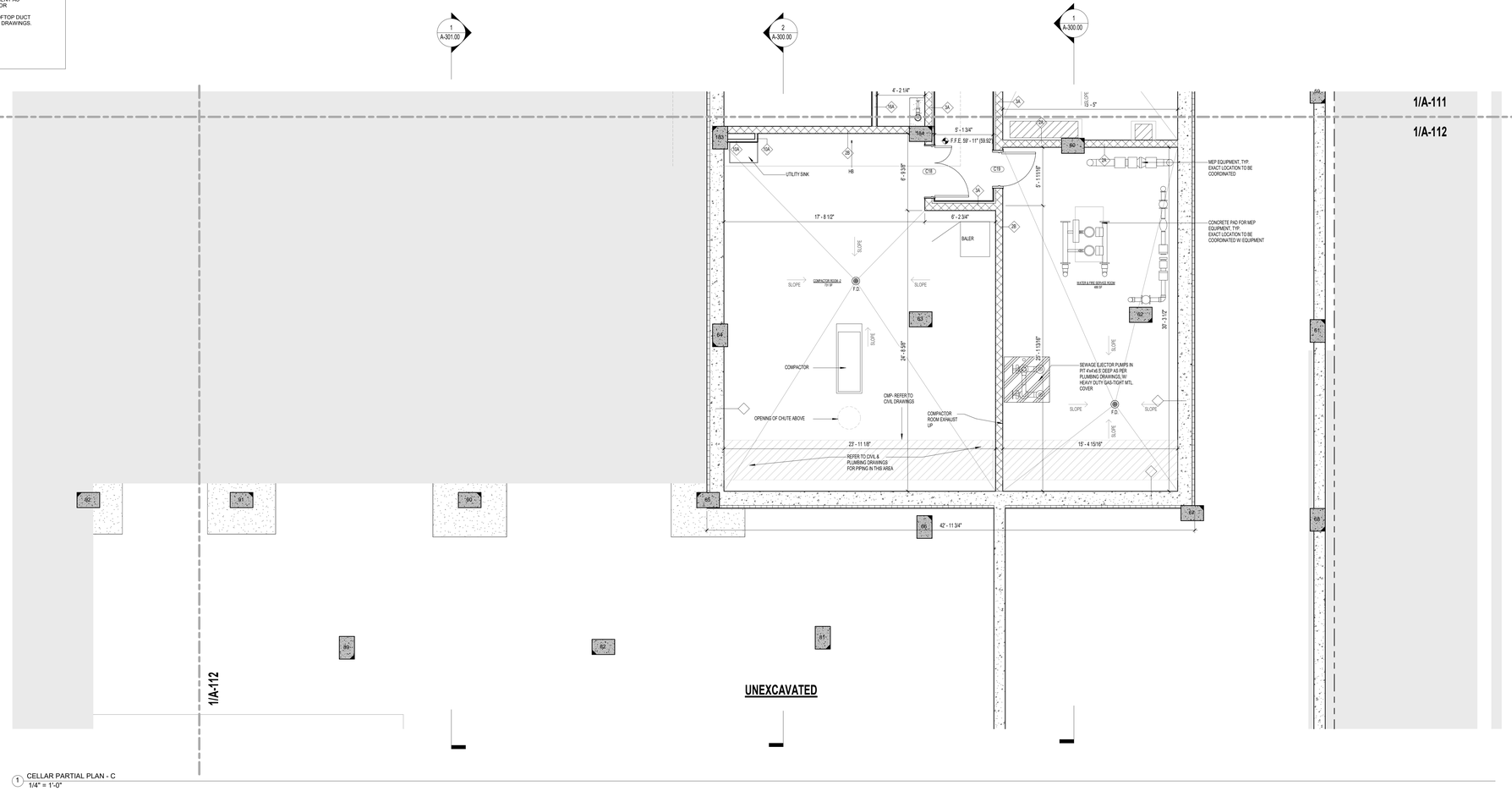

1 CELLAR PARTIAL PLAN - C
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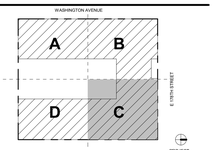

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CELLAR PARTIAL PLAN - C

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No:	17001
DRAWING BY:	Author
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DWG No:	A-112.00
SCALE: As indicated	46 of 175

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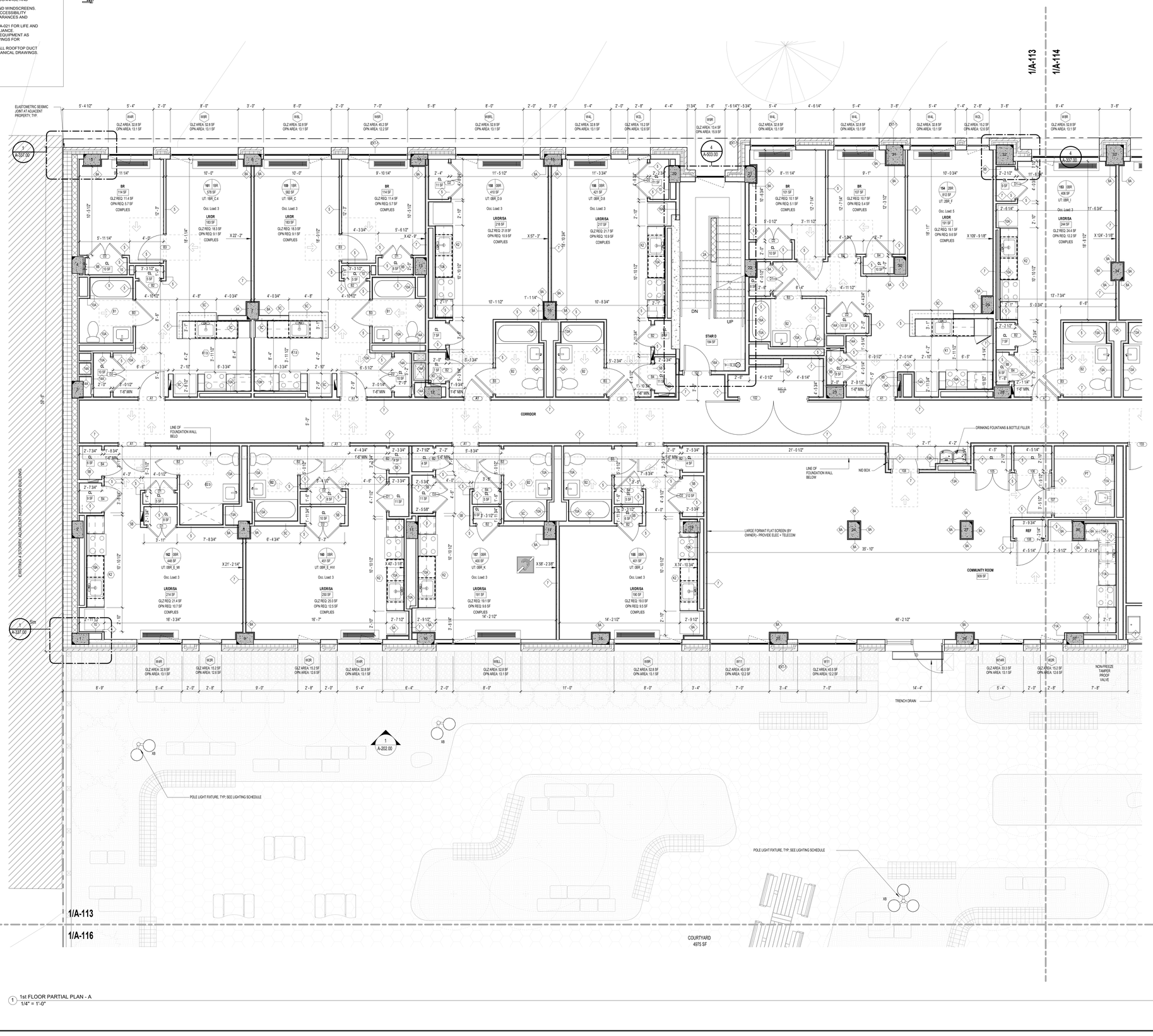
- DOOR JAMB CLEARANCE



1 1st FLOOR PARTIAL PLAN - A
1/4" = 1'-0"

St Joseph Apartments

484 E 178th Street, The Bronx, NY 10457
Block: 3043 Tax Lot: 16, BIN 2806745

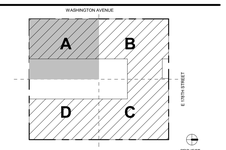
Owner:

CATHOLIC HOMES NEW YORK

Association of New York Catholic Homes
40 Maiden Lane, 13th Floor
New York NY 10038
Tel (646) 794 3167

BLOCK: 3043 LOT: 16

NYC DOB NOW NB: #220212918-01
NYC DOB NOW EN: -
NYC DOB NOW FND/EARTHWORK: #X08026216-II
NYC DOB NOW SOE: -
NYC DOB NOW STRUC: #X080262 I I-II
NYC DOB NOW MECH: #X08026188-II
NYC DOB NOW PL: #X08026196-II
NYC DOB NOW SS/SP: #X08026201-II
NYC DOB NOW TEMP SP: -
NYC DOB NOW CIV PL: #X08026209-II
NYC DOB NOW BPP: -
FDNY FA: -



Key Plan:

NUMBER	DATE	DESCRIPTION
1	08/09/2021	SD SUBMISSION
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6	08/30/2024	CD ESTIMATING SET

NOT FOR CONSTRUCTION

Revisions:

Architect:
Magnusson Architecture & Planning PC
42 West 39th Street, 15th Floor
New York NY 10018
Tel (212) 353 7820 Fax (212) 253 1276

Structural Engineer:
GACE Consulting Engineers DPC
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Filing Representative:
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Brooklyn NY 11232
Tel (212) 796 2529

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1ST FLOOR PARTIAL PLAN - A

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No:	17001
DRAWING BY:	Author
CHK BY:	Checker
DWG No:	A-113.00
SCALE:	As indicated

GENERAL FLOOR PLAN NOTES

1. REFER TO DRAWINGS A-600 & A-601 FOR PARTITION TYPES AND DETAILS.
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LEGEND

- MOI (MOBILITY IMPAIRED)
- HVI (HEARING/ VISUAL IMPAIRED)
- ELECTRICAL PANEL (EP)
- NID BOX
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- ROOM SEPARATION LINE
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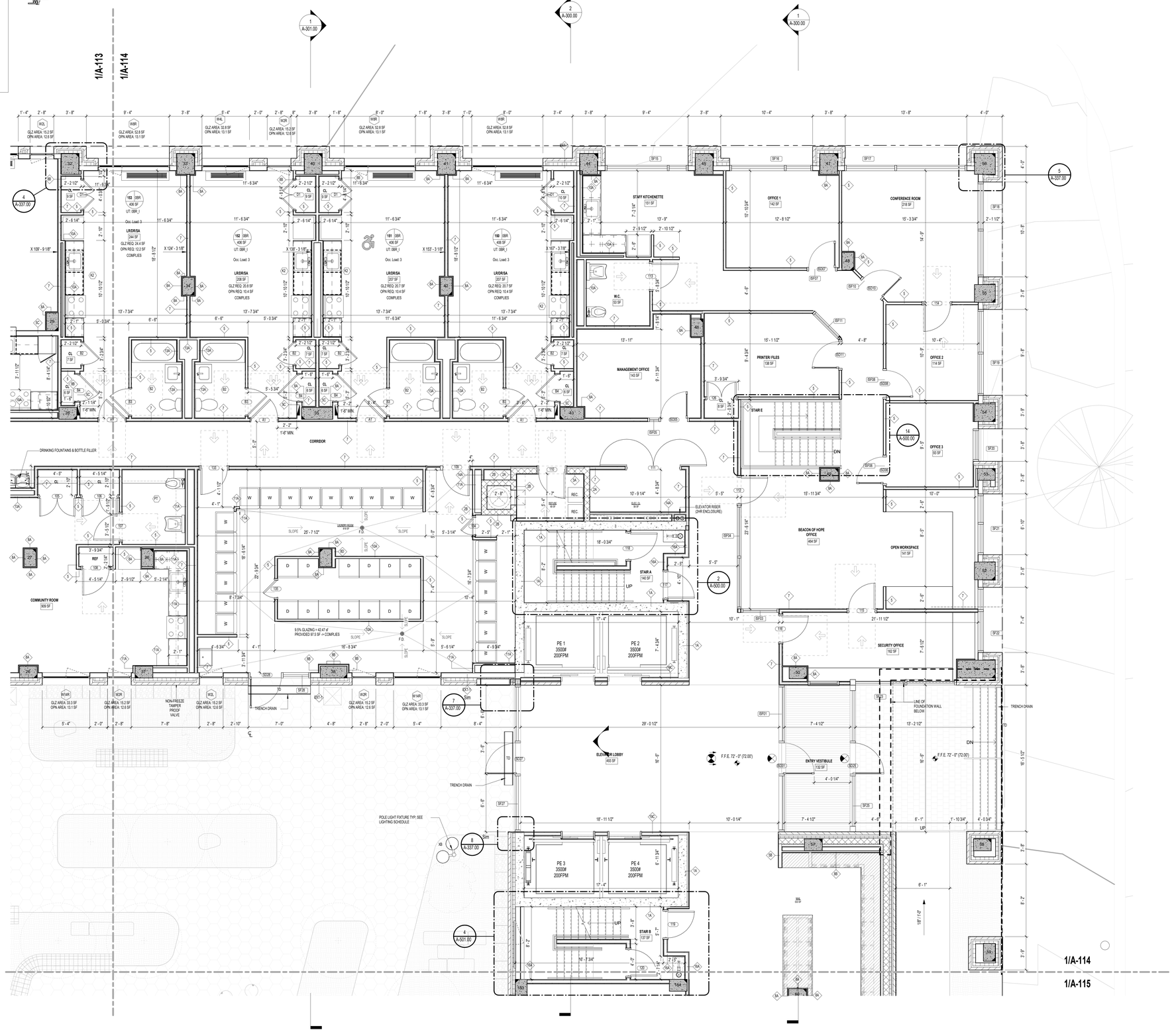

1 1st FLOOR PARTIAL PLAN - B
1/4" = 1'-0"

St Joseph Apartments

484 E 178th Street, The Bronx, NY 10457
Block: 3043 Tax Lot: 16, BIN 2806745

Owner:

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Tel (646) 794 3167

BLOCK: 3043 LOT: 16

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NYC DOB NOW EN: -
NYC DOB NOW FND/EARTHWORK: #X08026216-II
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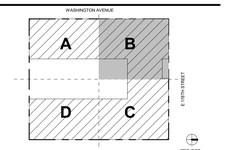
NYC DOB NOW MECH: #X08026188-II
NYC DOB NOW PL: #X08026196-II
NYC DOB NOW SS/SP: #X08026201-II
NYC DOB NOW TEMP SP: -
NYC DOB NOW CIV PL: #X08026209-II
NYC DOB NOW BPP: -
FDNY FA: -



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NOT FOR CONSTRUCTION

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1ST FLOOR PARTIAL PLAN - B

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No: 17001
DRAWING BY: Author
CHK BY: Checker
DWG No: A-114.00
SCALE: As indicated

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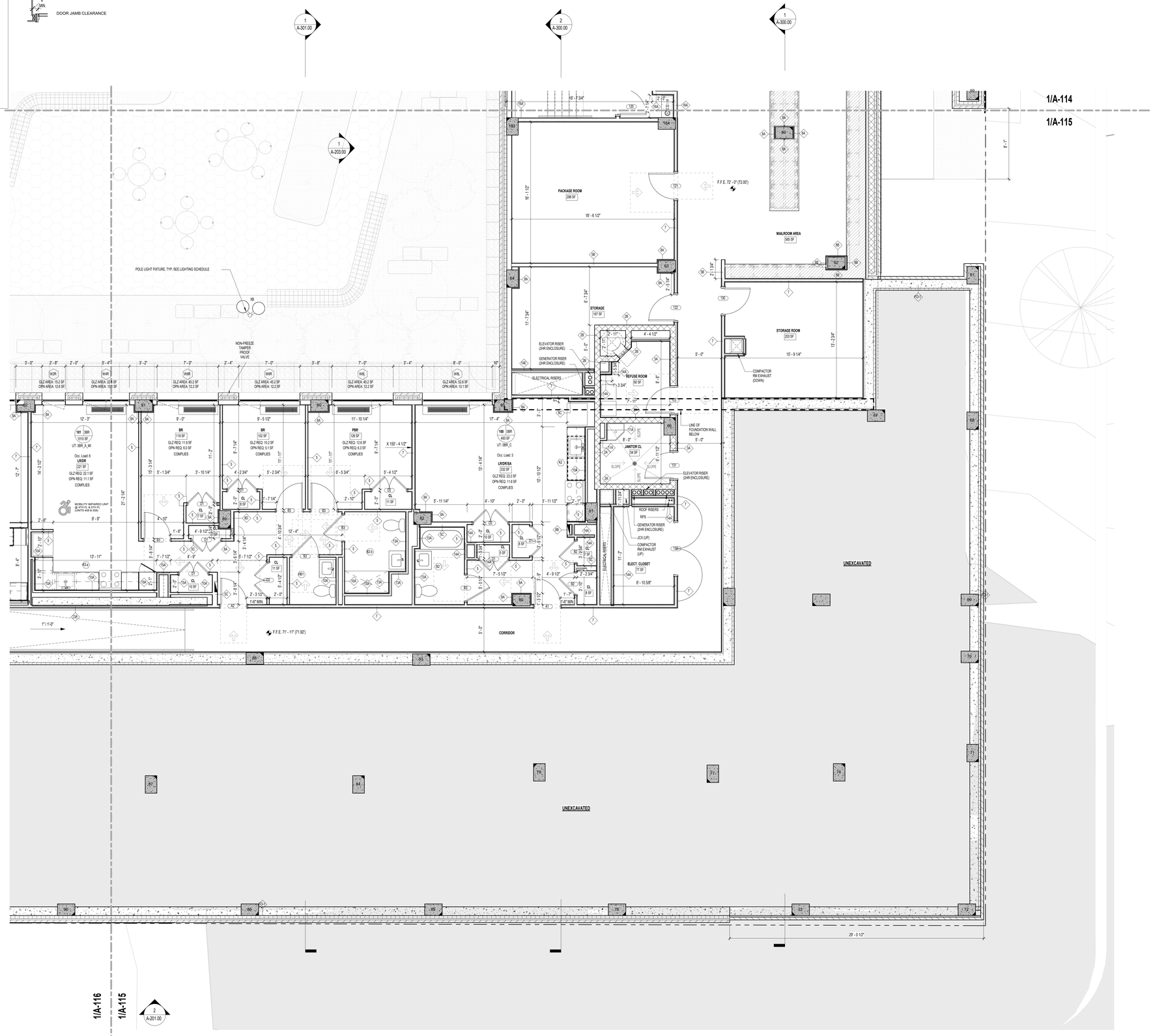

1 1st FLOOR PARTIAL PLAN - C
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Block: 3043 Tax Lot: 16, BIN 2806745

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New York NY 10038
Tel (646) 794 3167

BLOCK: 3043 LOT: 16

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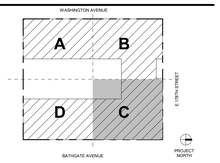
NYC DOB NOW PL: #X08026196-II
NYC DOB NOW SS/SP: #X08026201-II
NYC DOB NOW TEMP SP: -
NYC DOB NOW CIV PL: #X08026209-II
NYC DOB NOW BPP: -
FDNY FA: -



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NOT FOR CONSTRUCTION

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New York NY 10018
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1ST FLOOR PARTIAL PLAN - C

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No: 17001
DRAWING BY: Author
CHK BY: Checker
DWG No: A-115.00
SCALE: As indicated

GENERAL FLOOR PLAN NOTES

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- HVI (HEARING/ VISUAL IMPAIRED)
- ELECTRICAL PANEL (EP)
- NID BOX
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1 1st FLOOR PARTIAL PLAN - D
1/4" = 1'-0"

St Joseph Apartments

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Block: 3043 Tax Lot: 16, BIN 2806745

Owner:

CATHOLIC HOMES NEW YORK

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40 Maiden Lane, 13th Floor
New York NY 10038
Tel (646) 794 3167

BLOCK: 3043 LOT: 16

NYC DOB NOW NB: #220212918-01
NYC DOB NOW EN: -
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NYC DOB NOW SOE: -
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NYC DOB NOW PL: #X08026196-II
NYC DOB NOW SS/SP: #X08026201-II
NYC DOB NOW TEMP SP: -
NYC DOB NOW CIV PL: #X08026209-II
NYC DOB NOW BPP: -
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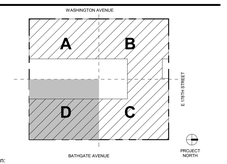

Key Plan:

NUMBER	DATE	DESCRIPTION
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NOT FOR CONSTRUCTION

Revisions:

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New York NY 10018
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1ST FLOOR PARTIAL PLAN - D

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No:	17001
DRAWING BY:	Author
CHK BY:	Checker
DWG No:	A-116.00
SCALE: As indicated	50 of 175

GENERAL FLOOR PLAN NOTES

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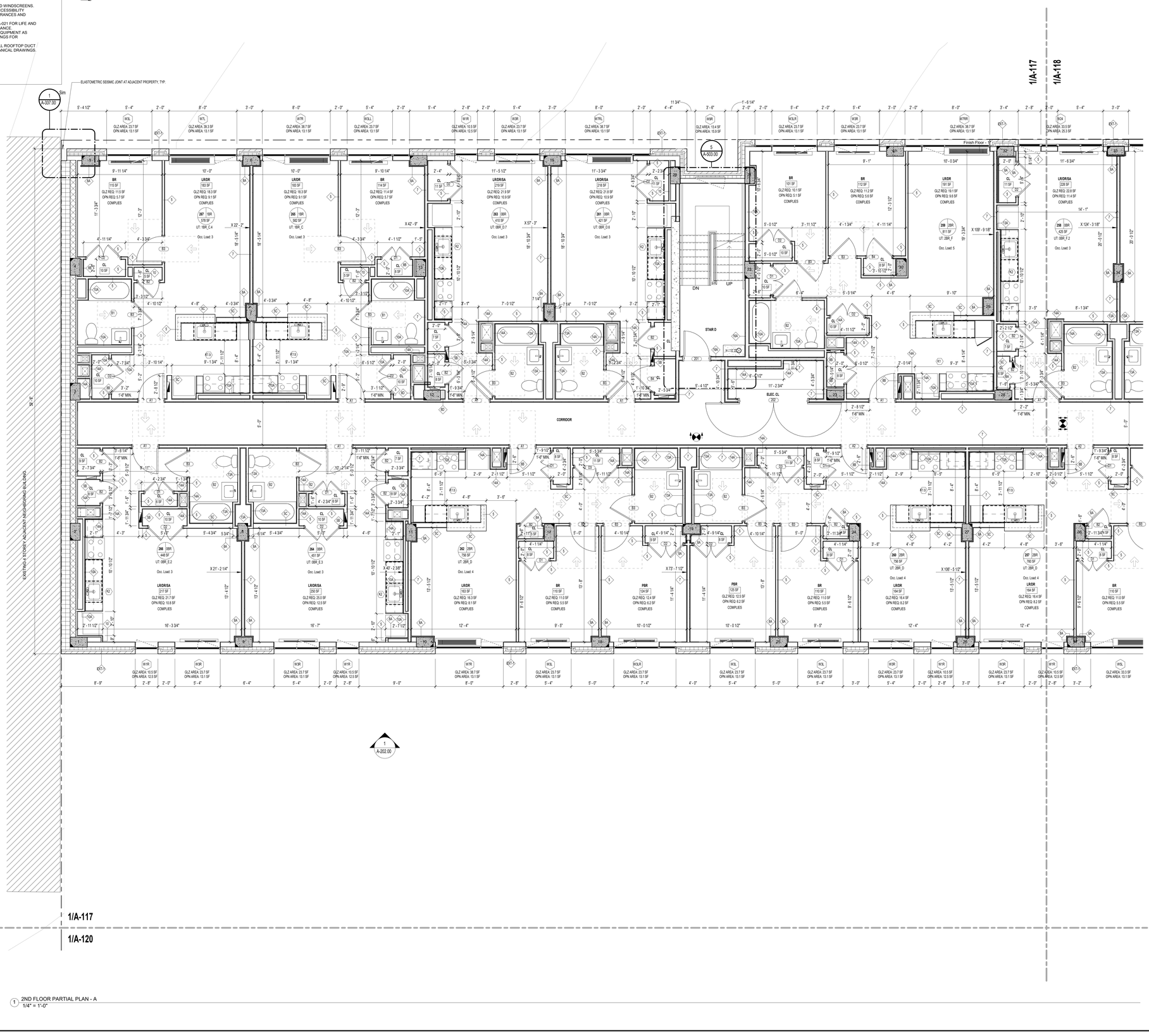

1 2ND FLOOR PARTIAL PLAN - A
1/4" = 1'-0"

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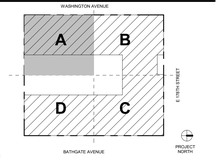

Key Plan:

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Revisions:

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2ND-6TH FLOOR PARTIAL PLAN - A

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No:	17001
DRAWING BY:	Author
CHK BY:	Checker
DWG No:	A-117.00
SCALE: As indicated	51 of 175

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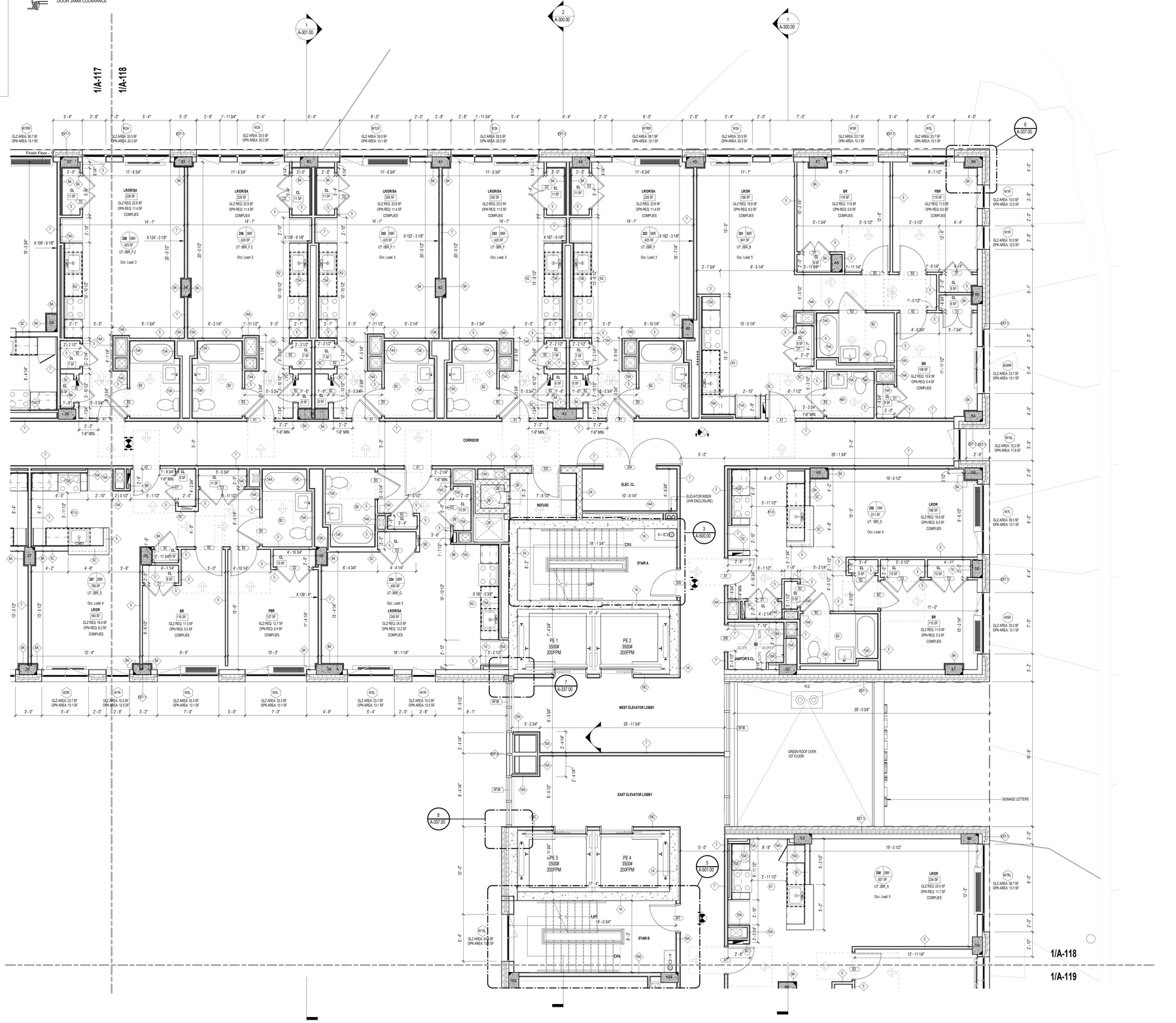

1 2ND FLOOR PARTIAL PLAN - B
1/4" = 1'-0"

St Joseph Apartments

484 E 178th Street, The Bronx, NY 10457
Block: 3043 Tax Lot: 16, BIN 2806745

Owner:

CATHOLIC HOMES NEW YORK

Association of New York Catholic Homes
40 Maiden Lane, 13th Floor
New York NY 10038
Tel (646) 794 3167

BLOCK: 3043 LOT: 16

NYC DOB NOW NB: #220212918-01
NYC DOB NOW EN: -
NYC DOB NOW FND/EARTHWORK: #X08026216-II
NYC DOB NOW SOE: -
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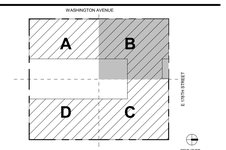

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NOT FOR CONSTRUCTION

Revisions:

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New York NY 10018
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2ND-6TH FLOOR PARTIAL PLAN - B

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No:	17001
DRAWING BY:	Author
CHK BY:	Checker
DWG No:	A-118.00
SCALE: As indicated	52 of 175

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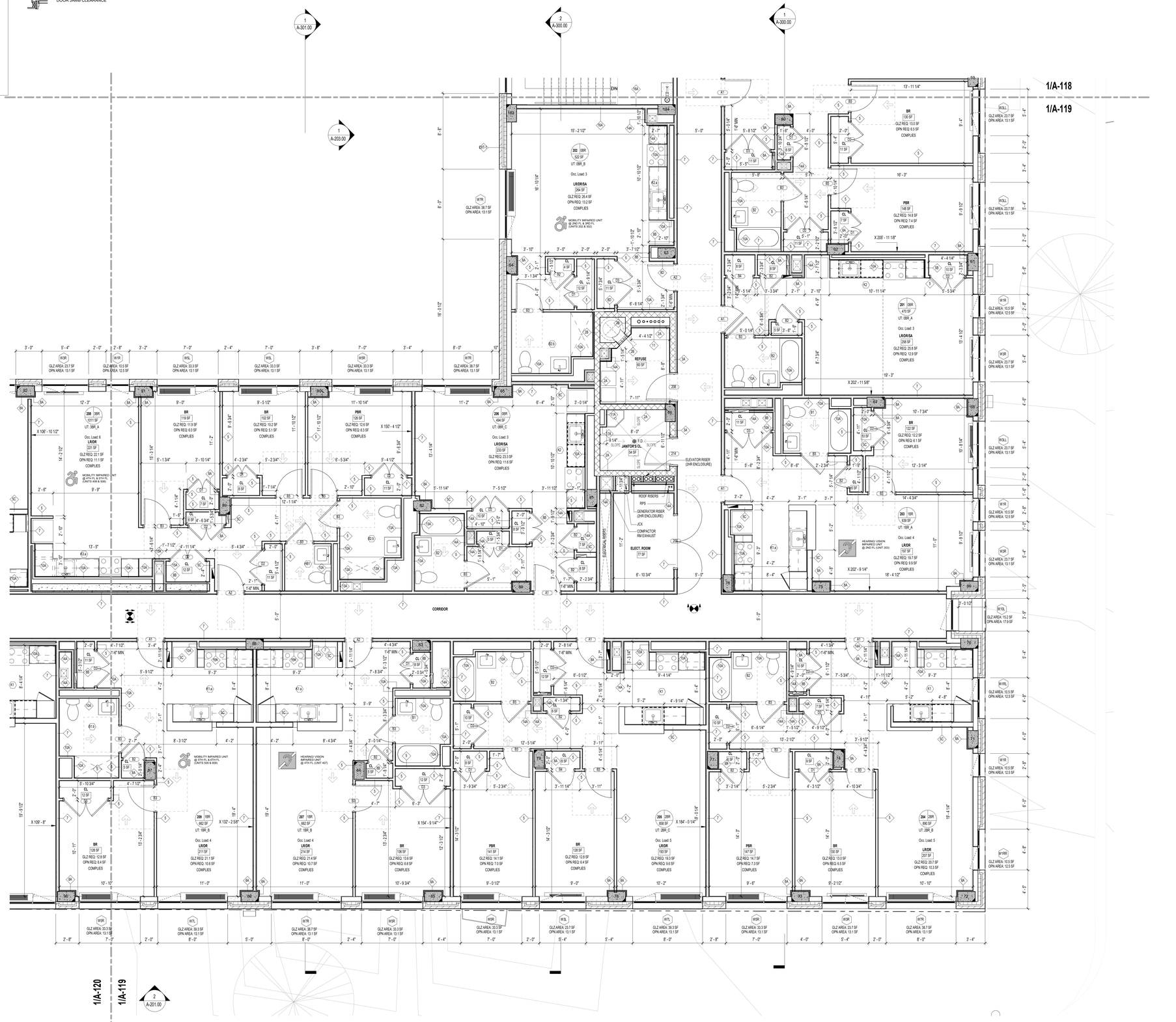

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BLOCK: 3043 LOT: 16

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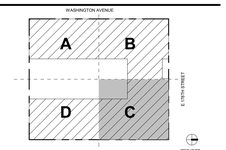

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2ND-6TH FLOOR PARTIAL PLAN - C

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SEAL & SIGNATURE:

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DRAWING BY:	Author
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DWG No:	A-119.00
SCALE: As indicated	53 of 175

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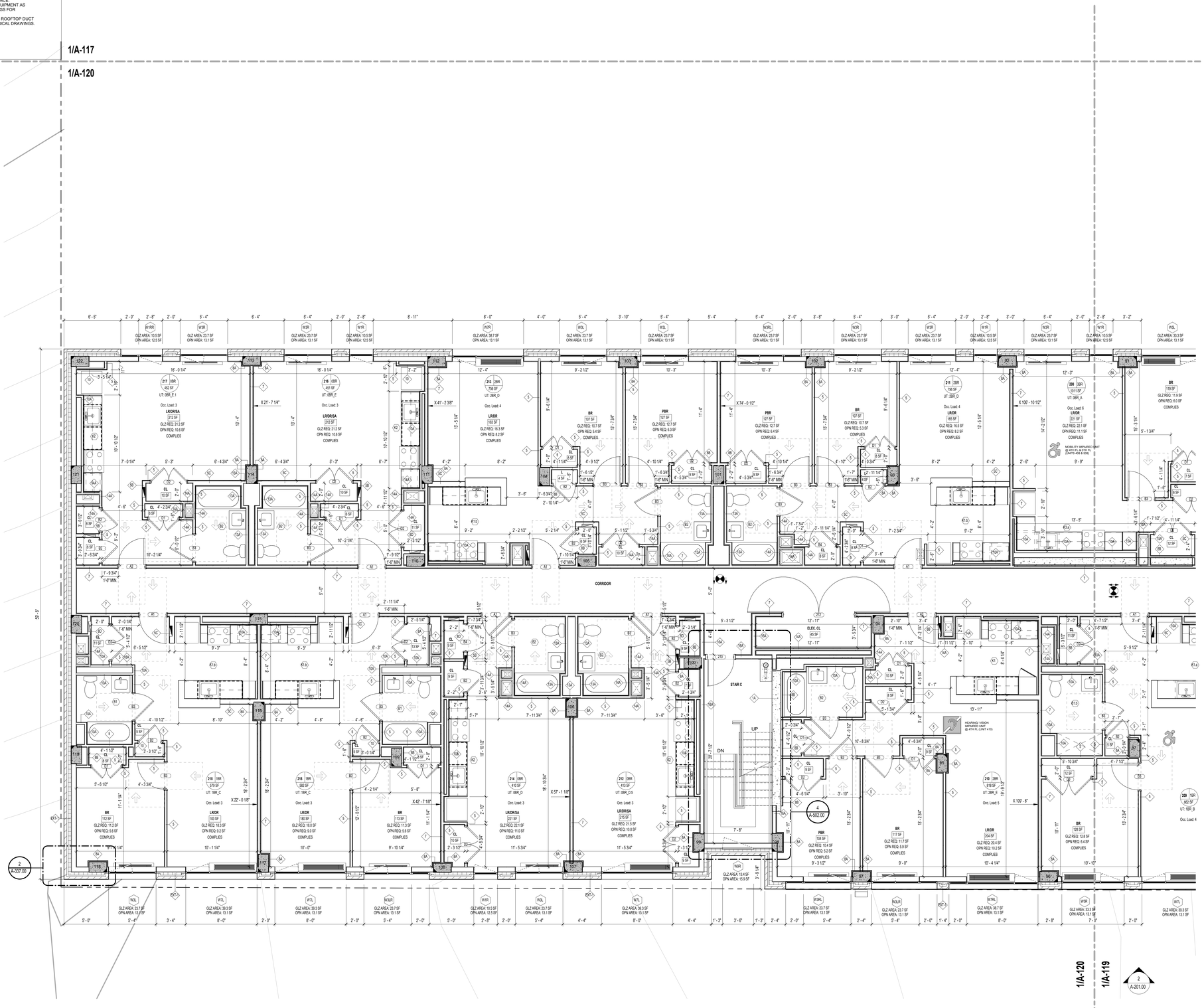

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BLOCK: 3043 LOT: 16

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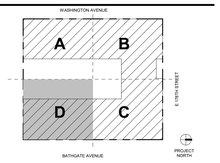
NYC DOB NOW BPP: -
FDNY FA: -



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2ND-6TH FLOOR PARTIAL PLAN - D

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No:	17001
DRAWING BY:	Author
CHK BY:	Checker
DWG No:	A-120.00
SCALE: As indicated	54 of 175

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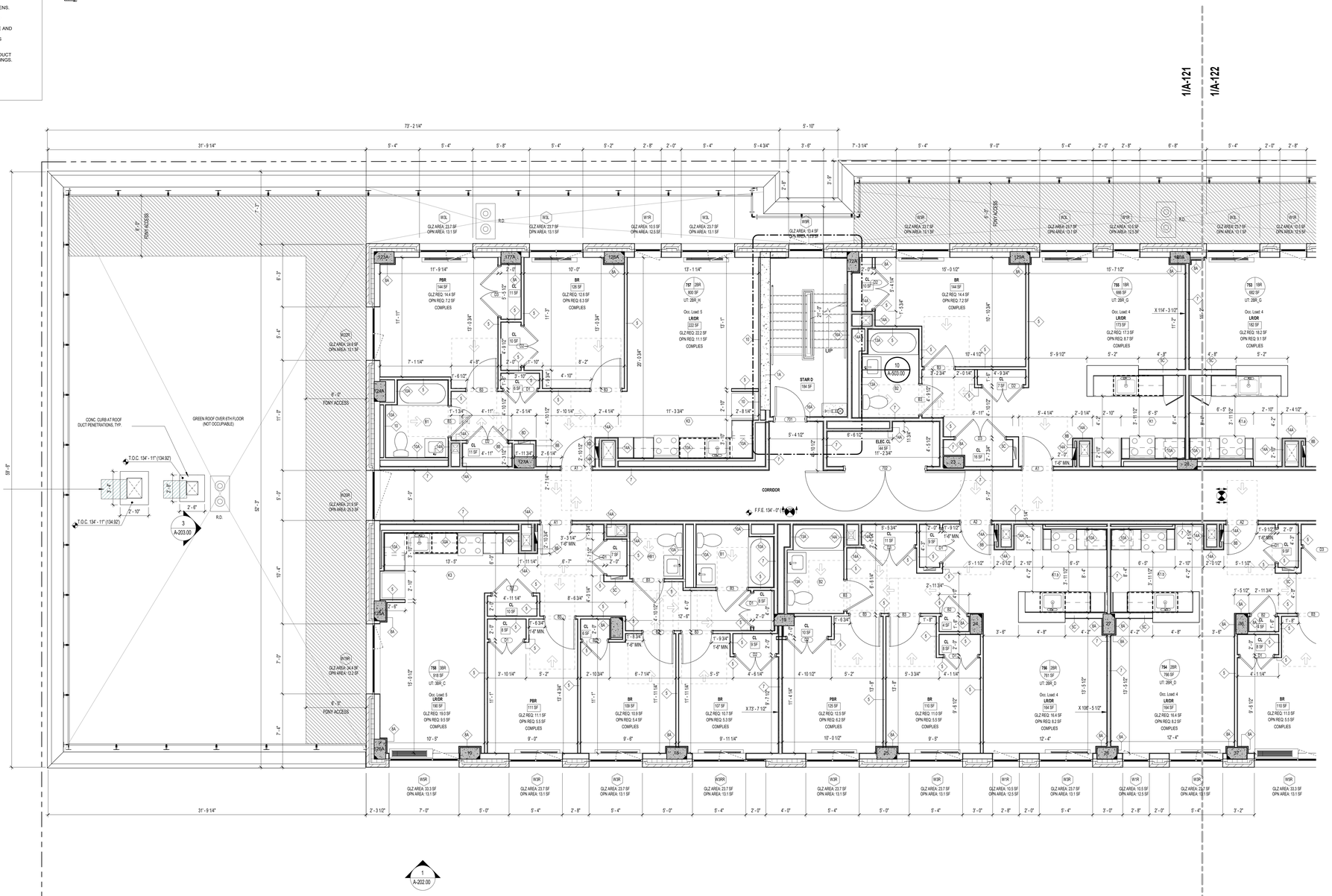

1 7TH-8TH FLOOR PARTIAL PLAN - A
1/4" = 1'-0"

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Block: 3043 Tax Lot: 16, BIN 2806745

Owner:

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Tel (646) 794 3167

BLOCK: 3043 LOT: 16

NYC DOB NOW NB: #222021918-01
NYC DOB NOW EN: -
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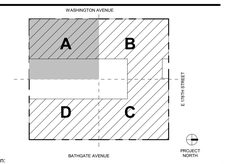

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7TH-8TH FLOOR PARTIAL PLAN - A

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No:	17001
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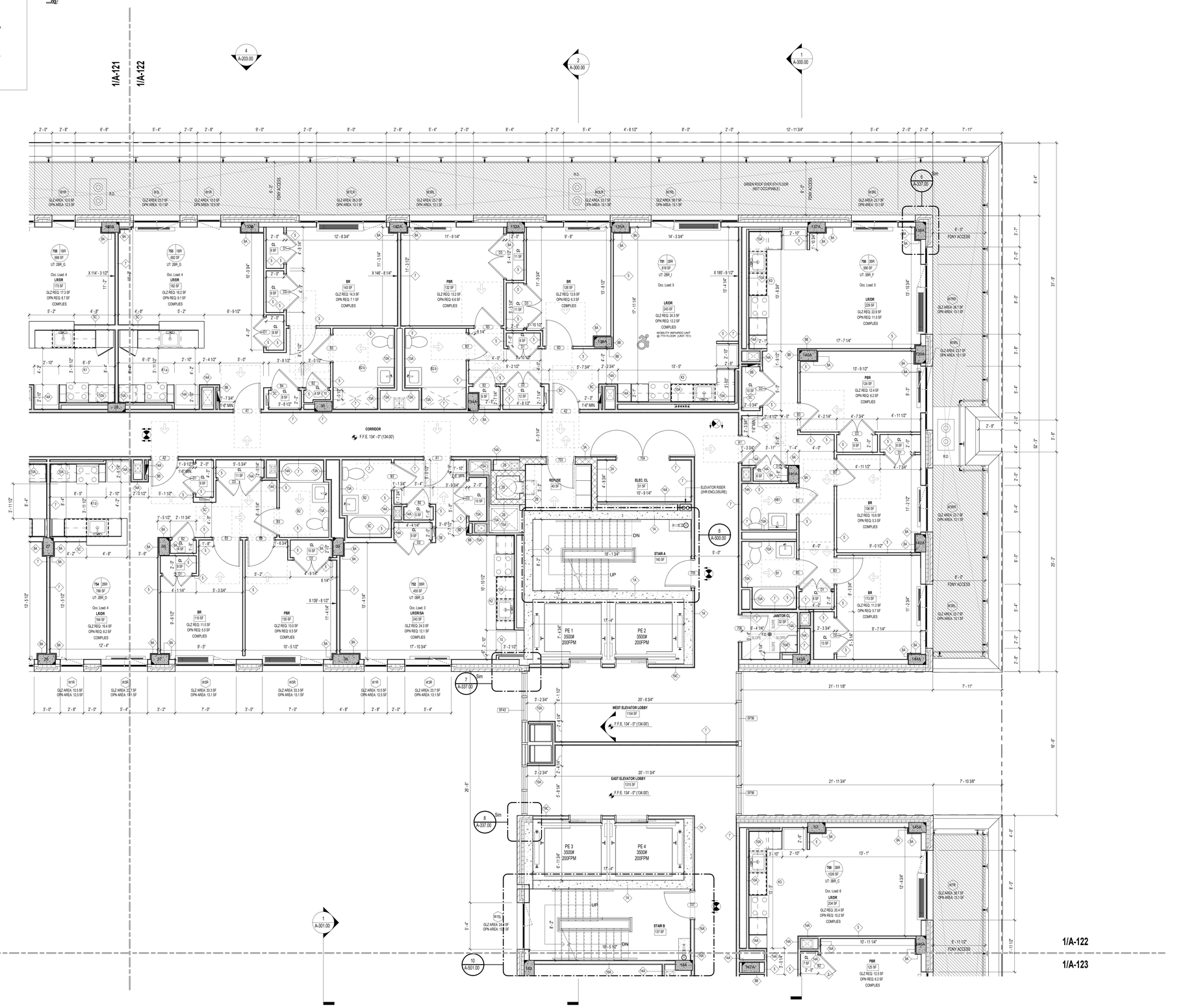

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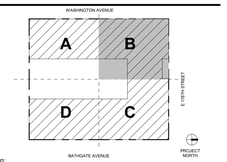

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LEGEND

- MOI (MOBILITY IMPAIRED)
- HVI (HEARING/ VISUAL IMPAIRED)
- ELECTRICAL PANEL (EP)
- NID BOX
- MATCH LINE
- ROOM SEPARATION LINE
- DOOR JAMB CLEARANCE

1 7TH-8TH FLOOR PARTIAL PLAN - C
1/4" = 1'-0"

St Joseph Apartments

484 E 178th Street, The Bronx, NY 10457
Block: 3043 Tax Lot: 16, BIN 2806745

Owner:

CATHOLIC HOMES NEW YORK

Association of New York Catholic Homes
40 Maiden Lane, 13th Floor
New York NY 10038
Tel (646) 794 3167

BLOCK: 3043 LOT: 16

NYC DOB NOW NB: #220212918-01
NYC DOB NOW EN: -
NYC DOB NOW FND/EARTHWORK: #X08026216-II
NYC DOB NOW SOE: -
NYC DOB NOW STRUC: #X08026211-II
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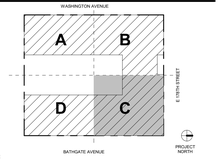
NYC DOB NOW BPP: -
FDNY FA: -



Key Plan:

NUMBER	DATE	DESCRIPTION
2	10/21/2022	DOB SUBMISSION
3	11/30/2022	100% DD SET
4	06/12/2024	DOB RESUBMISSION
5	06/28/2024	ENERGY MODELING
6	08/30/2024	CD ESTIMATING SET

NOT FOR CONSTRUCTION

Revisions:

Architect:
Magnusson Architecture & Planning PC
42 West 39th Screet, 15th Floor
New York NY 10018
Tel (212) 253 7820 Fax (212) 253 1276

Structural Engineer:
GACE Consulting Engineers DPC
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7TH-8TH FLOOR PARTIAL PLAN - C

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No:	17001
DRAWING BY:	Author
CHK BY:	Checker
DWG No:	A-123.00
SCALE:	As indicated

GENERAL FLOOR PLAN NOTES

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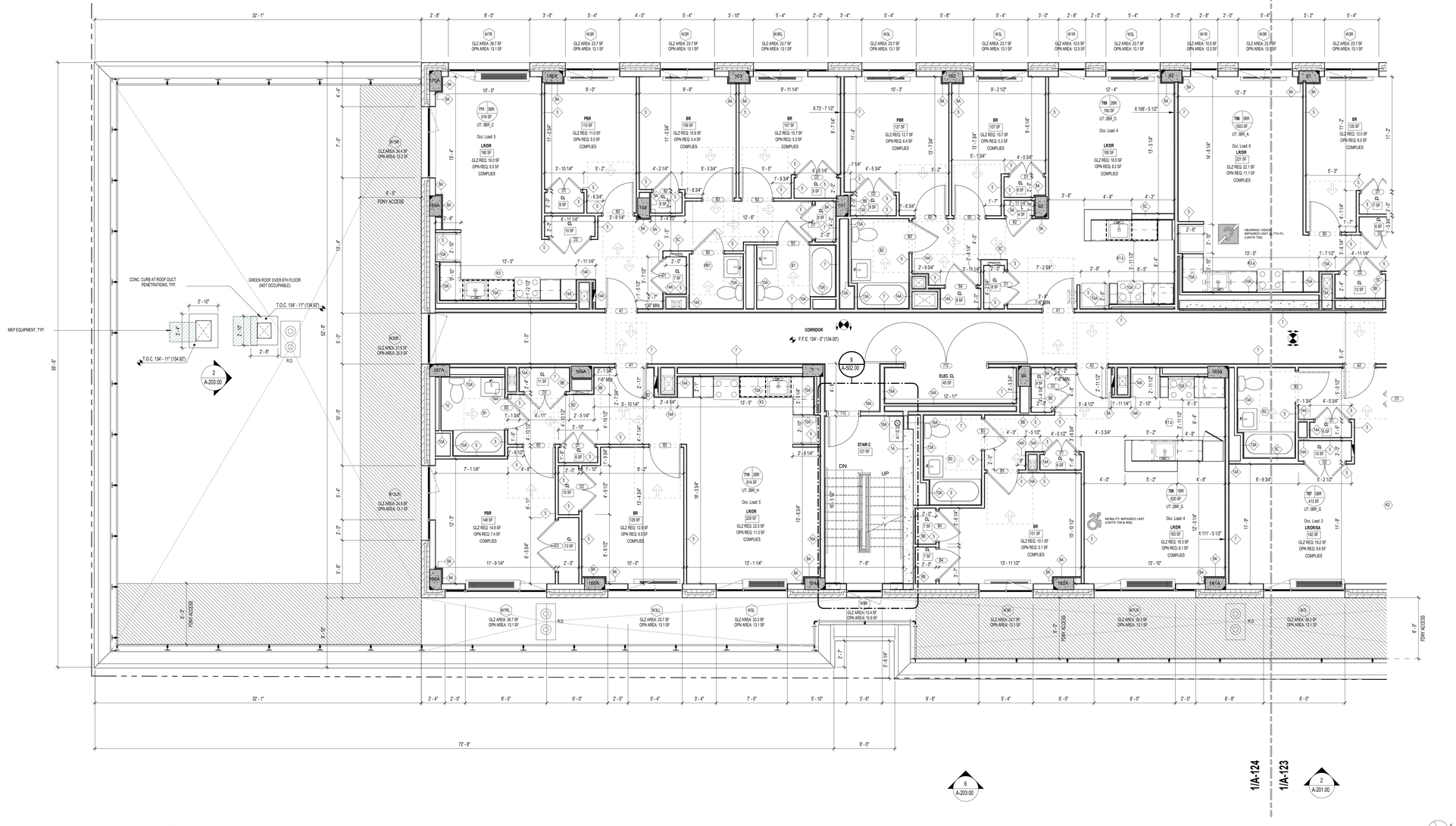
1/A-121

1/A-124



1 7TH-8TH FLOOR PARTIAL PLAN - D
1/4" = 1'-0"

6 A-203.00 — 1/A-124

1/A-123 — 2 A-201.00

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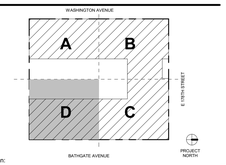

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7TH-8TH FLOOR PARTIAL PLAN - D

DOB SEAL:

SEAL & SIGNATURE:

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DRAWING BY:	Author
CHK BY:	Checker
DWG No:	A-124.00
SCALE:	As indicated

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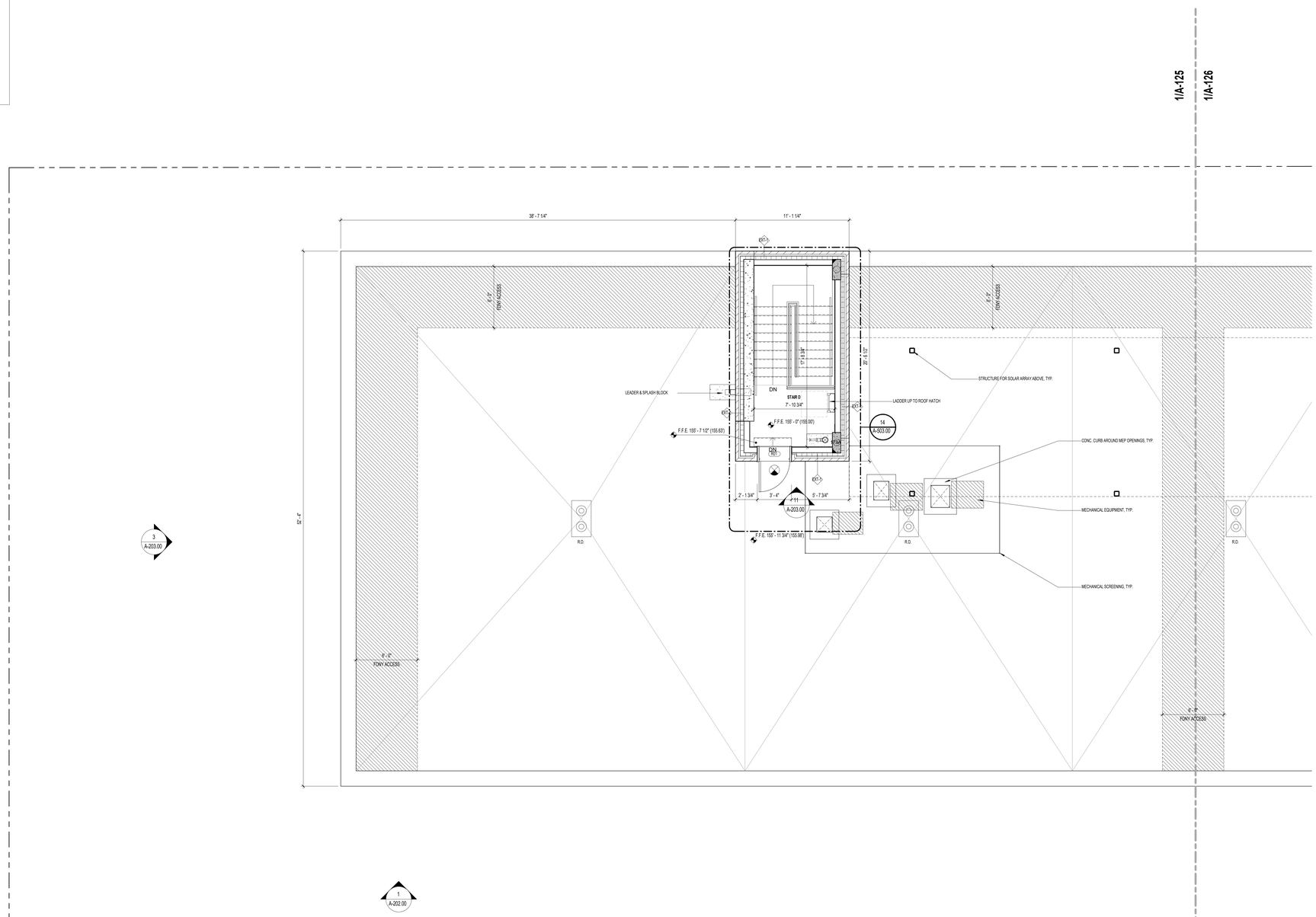

1/A-125

1/A-128

1 ROOF PARTIAL PLAN - A
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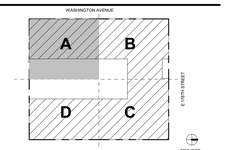

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MAIN ROOF PARTIAL PLAN - A

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No:	17001
DRAWING BY:	Author
CHK BY:	Checker
DWG No:	A-125.00
SCALE: As indicated	59 of 175

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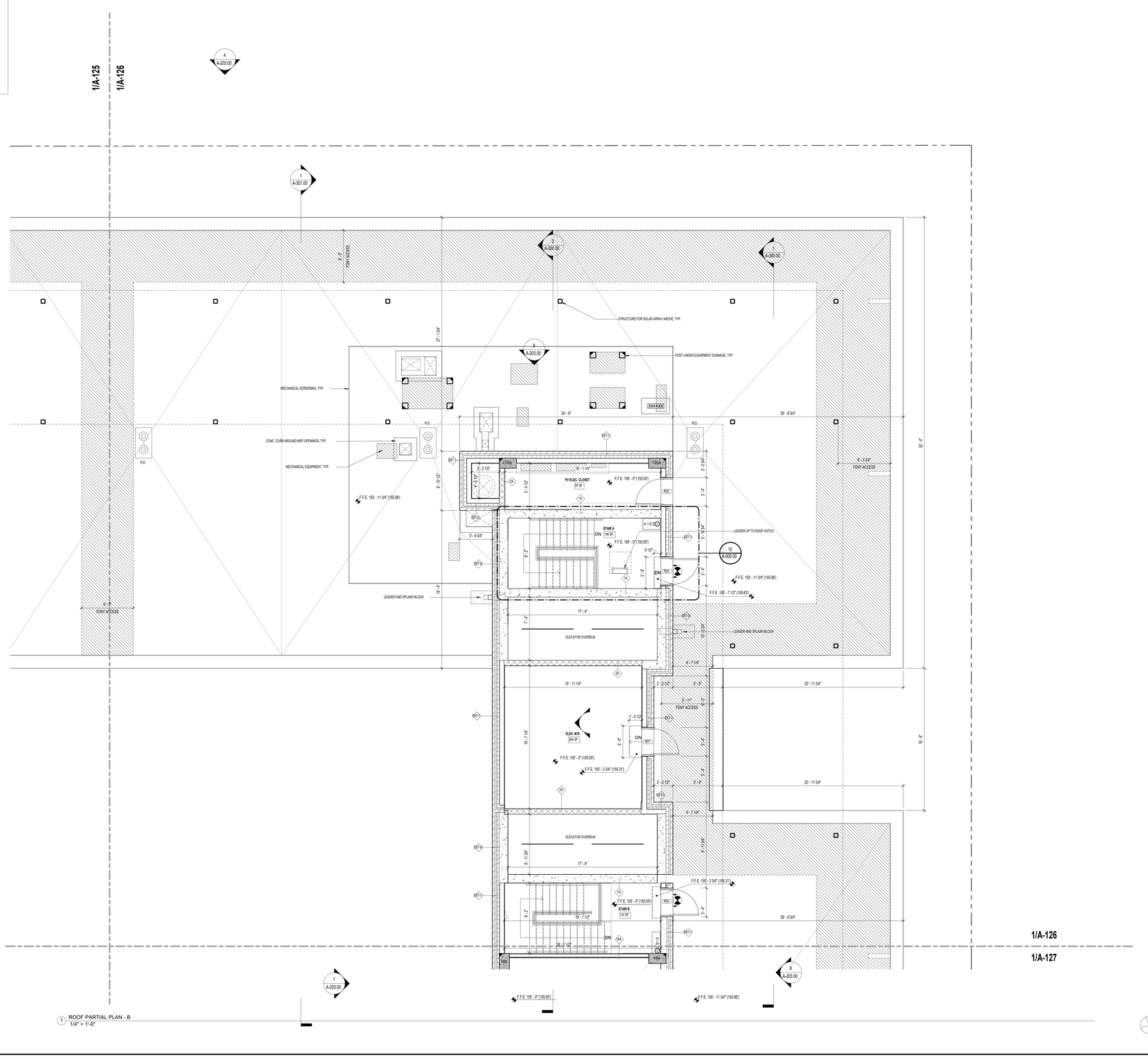

1 ROOF PARTIAL PLAN - B
1/4" = 1'-0"

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Block: 3043 Tax Lot: 16, BIN 2806745

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Tel (646) 794 3167

BLOCK: 3043 LOT: 16

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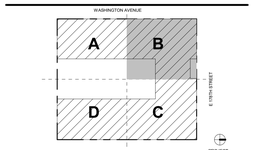

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MAIN ROOF PARTIAL PLAN - B

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No:	17001
DRAWING BY:	Author
CHK BY:	Checker
DWG No:	A-126.00
SCALE: As indicated	60 of 175

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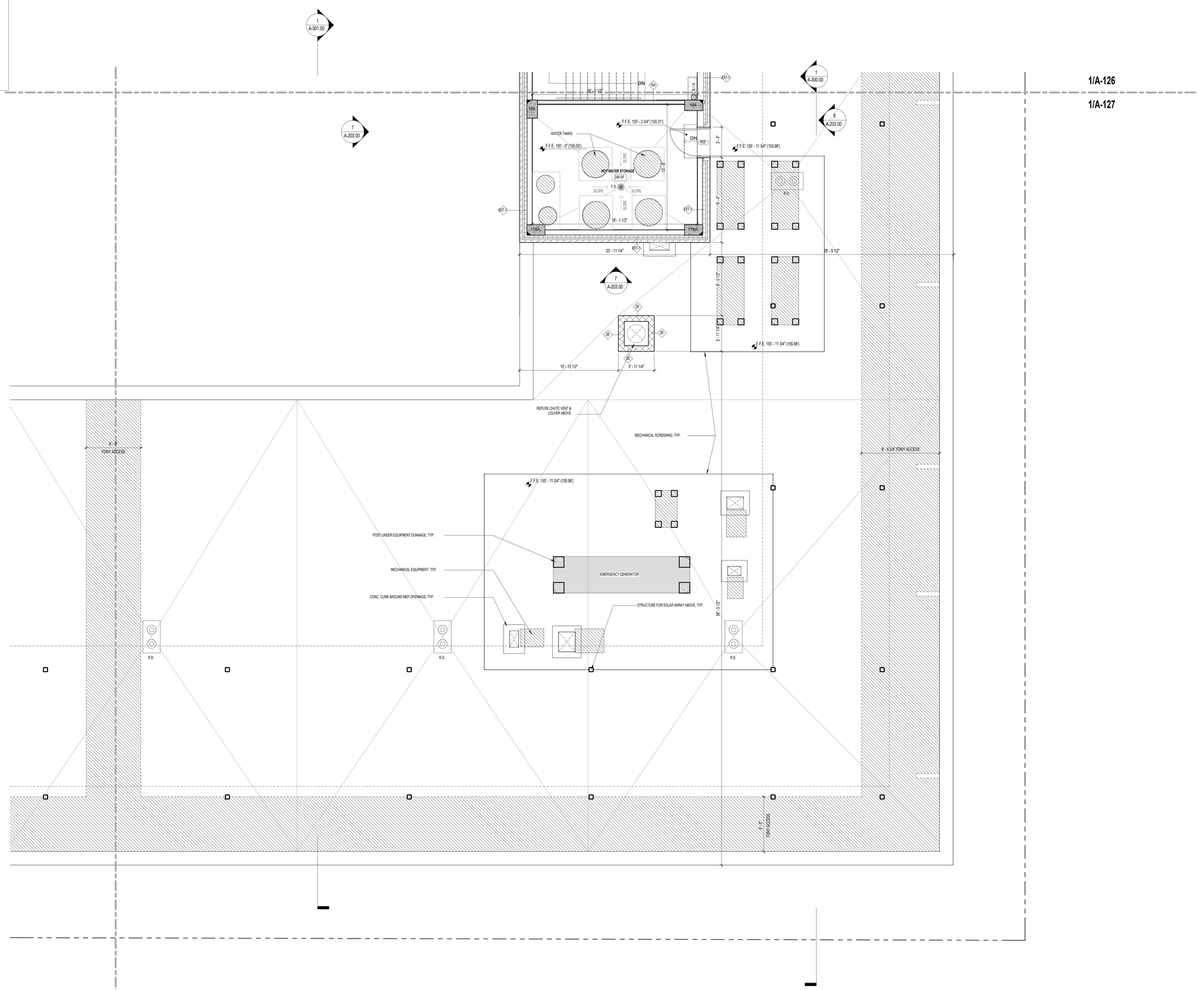

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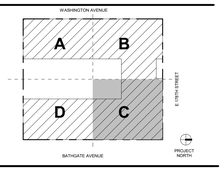

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SEAL & SIGNATURE:

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DRAWING BY:	Author
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DWG No:
A-127.00

SCALE: As indicated

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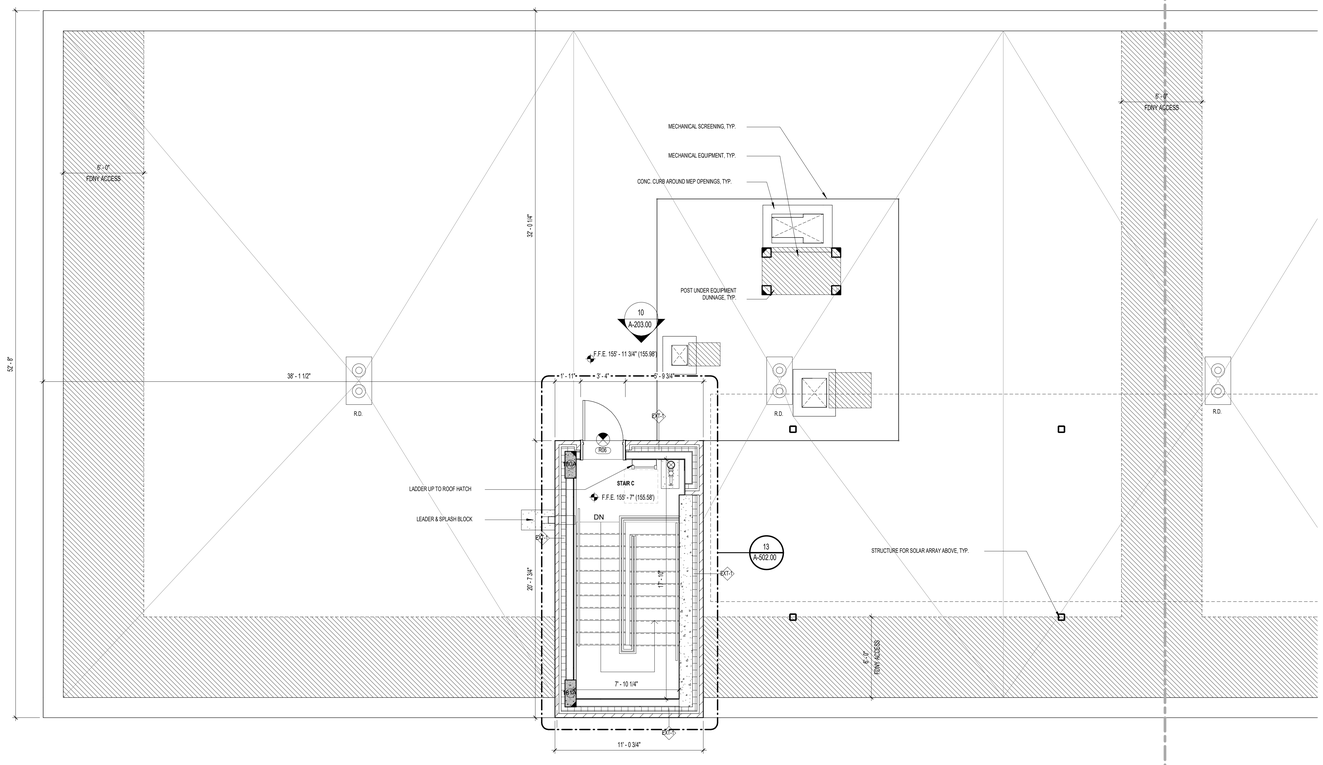

2 A-203.00

6 A-203.00

1/A-128

1/A-127

2 A-201.00

1 ROOF PARTIAL PLAN - D
1/4" = 1'-0"

St Joseph Apartments

484 E 178th Street, The Bronx, NY 10457
Block: 3043 Tax Lot: 16, BIN 2806745

Owner:

CATHOLIC HOMES NEW YORK

Association of New York Catholic Homes
40 Maiden Lane, 13th Floor
New York NY 10038
Tel (646) 794 3167

BLOCK: 3043 LOT: 16

NYC DOB NOW NB: #220212918-01
NYC DOB NOW EN: -
NYC DOB NOW FND/EARTHWORK: #X08026216-I1
NYC DOB NOW SOE: -
NYC DOB NOW STRUC: #X0802621 1-I1
NYC DOB NOW MECH: #X08026188-I1
NYC DOB NOW PL: #X08026196-I1
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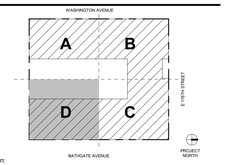
NYC DOB NOW BPP: -
FDNY FA: -



Key Plan:

NUMBER	DATE	DESCRIPTION
2	10/21/2022	DOB SUBMISSION
3	11/30/2022	100% DD SET
4	06/12/2024	DOB RESUBMISSION
5	06/28/2024	ENERGY MODELING
6	08/30/2024	CD ESTIMATING SET

NOT FOR CONSTRUCTION

Revisions:

Architect:
Magnusson Architecture & Planning PC
42 West 39th Street, 15th Floor
New York NY 10018
Tel (212) 253 7820 Fax (212) 253 1276

Structural Engineer:
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Tel (212) 796 3529

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MAIN ROOF PARTIAL PLAN - D

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No:	17001
DRAWING BY:	Author
CHK BY:	Checker
DWG No:	A-128.00
SCALE: As indicated	62 of 175

LEGEND

- GWB HUNG/FRAMED CEILING / SOFFIT — WATER RESISTANT AT WET LOCATIONS
- UNDERSIDE OF SLAB/PLANK ABOVE. TREATED W/ COVER COAT COMPOUND IN RESIDENTIAL AREAS. REFER TO SECTIONS & ELEVATIONS
- 2' X 2' ACOUSTICAL CEILING TILE
- DECORATIVE WOOD SLAT CEILING
- UHPC / FIBER CEMENT SOFFIT
- HARDWIRED CARBON MONOXIDE AND SMOKE DETECTOR
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- CEILING HVAC RETURN / EXHAUST DIFFUSER
- CEILING HVAC SUPPLY DIFFUSER
- STROBE DEVICE
- DOORBELL STROBE DEVICE
- CEILING ELEVATION

RCP NOTES

1) COORDINATE WITH MEP DRAWINGS.
2) LIGHTING CONTROLS TO COMPLY WITH NYC ENERGY CODE.
3) ALL PUBLIC LIGHTING SHALL BE METERED SEPARATELY FROM RESIDENTIAL UNITS.
4) ALL DWELLING UNITS SHALL BE INDIVIDUALLY METERED.
5) 100% OF PERMANENTLY INSTALLED FIXTURES WITHIN DWELLING UNITS SHALL BE PROVIDED WITH HIGH EFFICIENCY LAMPS, MEETING OR EXCEEDING ENERGY STAR SPECIFICATIONS.
6) REFER TO LIGHTING FIXTURE SCHEDULE ON A-650 AND SPECIFICATIONS.
7) ALL NON-APARTMENT AREAS SHALL BE PROVIDED WITH OCCUPANCY SENSOR CONTROLS, OR AUTOMATIC BI-LEVEL LIGHTING CONTROLS; AND SHALL HAVE COMBINED BALLAST AND LAMP EFFICACIES MEETING OR EXCEEDING ENERGY STAR SPECIFICATIONS.
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9) WHERE INVERTERS ARE REQUIRED FOR EMERGENCY LIGHT FIXTURES, PLACE ONE PER FLOOR MIN. IN THE ELECTRICAL CLOSET. COORD WITH ELECTRICAL DWGS.
10) DOTTED LINES IN RCP INDICATE WHERE DUCTS TRANSFER ABOVE CEILING. NOT ALL LOCATIONS MAY BE SHOWN.
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14) DUCTS IN STRUCTURE ABOVE (DASHED BOXES) ARE SHOWN FOR REFERENCE ONLY; REFER TO MEP DRAWINGS.
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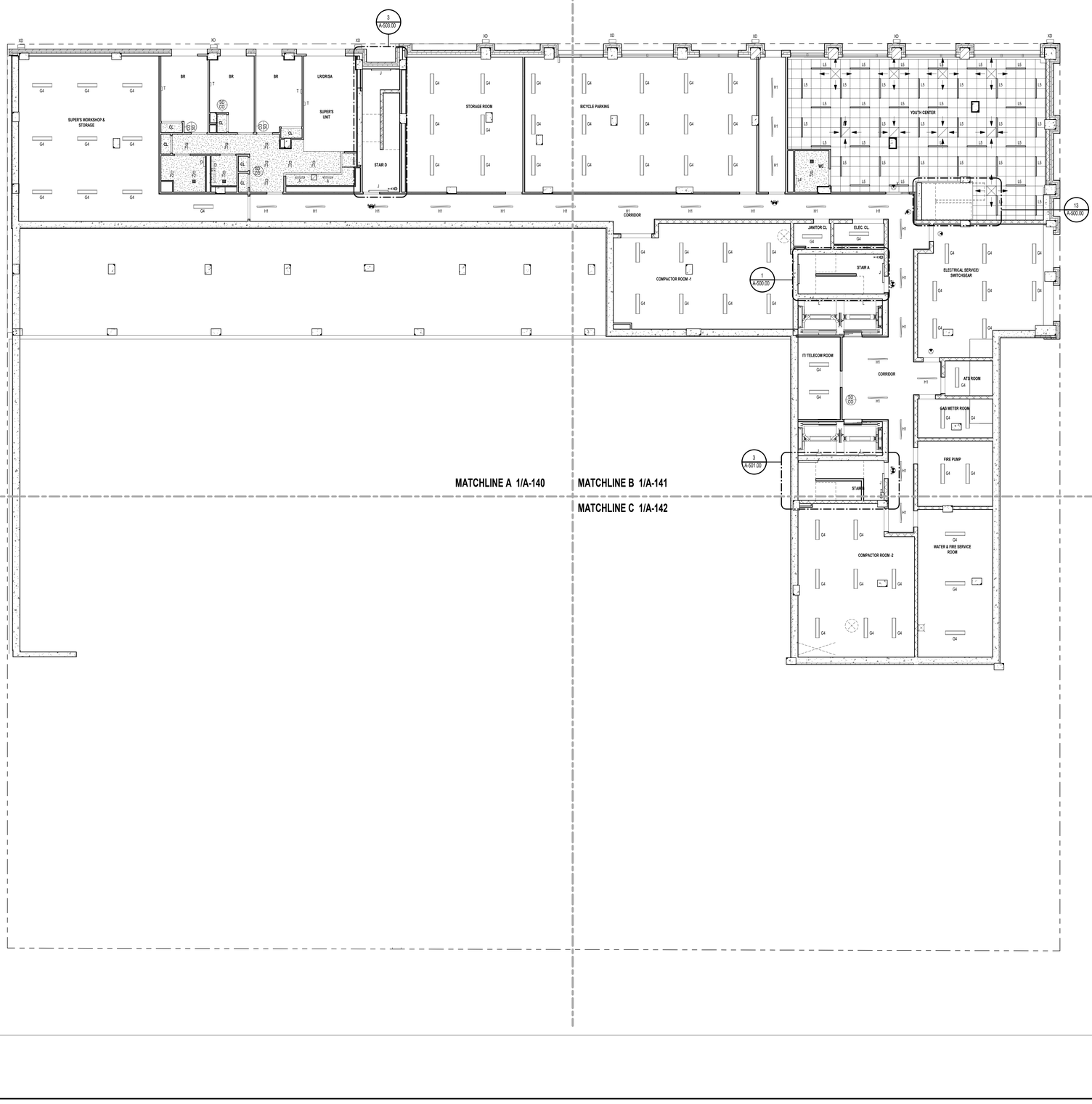

1 CELLAR RCP
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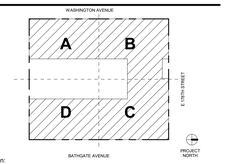

Key Plan:

NUMBER	DATE	DESCRIPTION
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5	06/28/2024	ENERGY MODELING
6	08/30/2024	CD ESTIMATING SET

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CELLAR RCP

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No:	17001
DRAWING BY:	Author
CHK BY:	Checker
DWG No:	A-130.00
SCALE: As indicated	63 of 175

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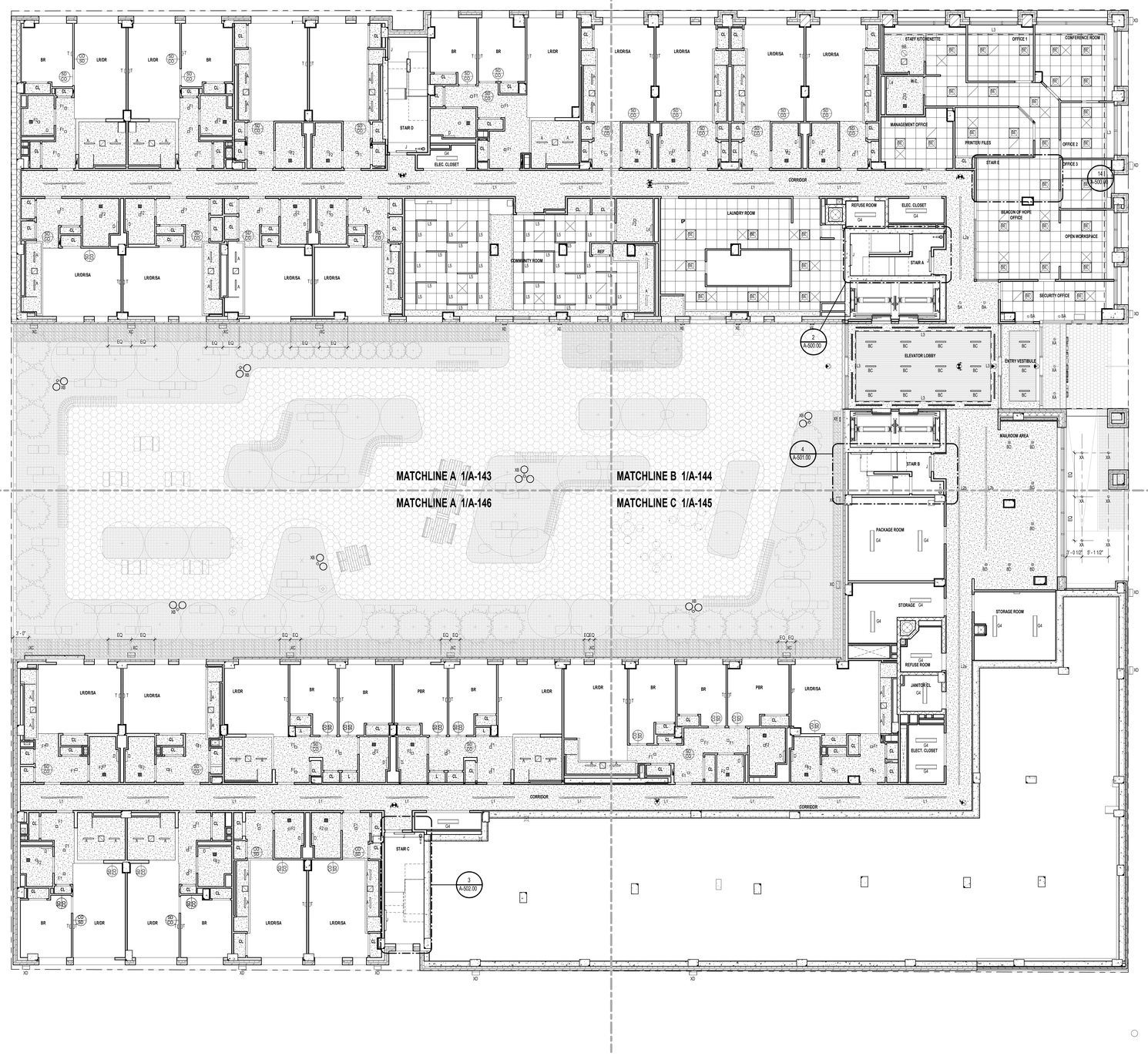

1 1st FLR REFLECTED CEILING PLAN
1/8" = 1'-0"

St Joseph Apartments

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Block: 3043 Tax Lot: 16, BIN 2806745

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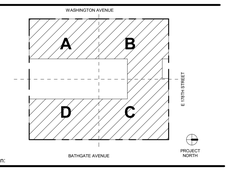

Key Plan:

NUMBER	DATE	DESCRIPTION
4	06/12/2024	DOB RESUBMISSION
5	06/28/2024	ENERGY MODELING
6	08/30/2024	CD ESTIMATING SET

NOT FOR CONSTRUCTION

Revisions:

Architect:
MAP
Magnusson Architecture & Planning PC
42 West 39th Screet, 15th Floor
New York NY 10018
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1ST FLOOR RCP

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No: 17001
DRAWING BY: Author
CHK BY: Checker
DWG No: A-131.00
SCALE: As indicated

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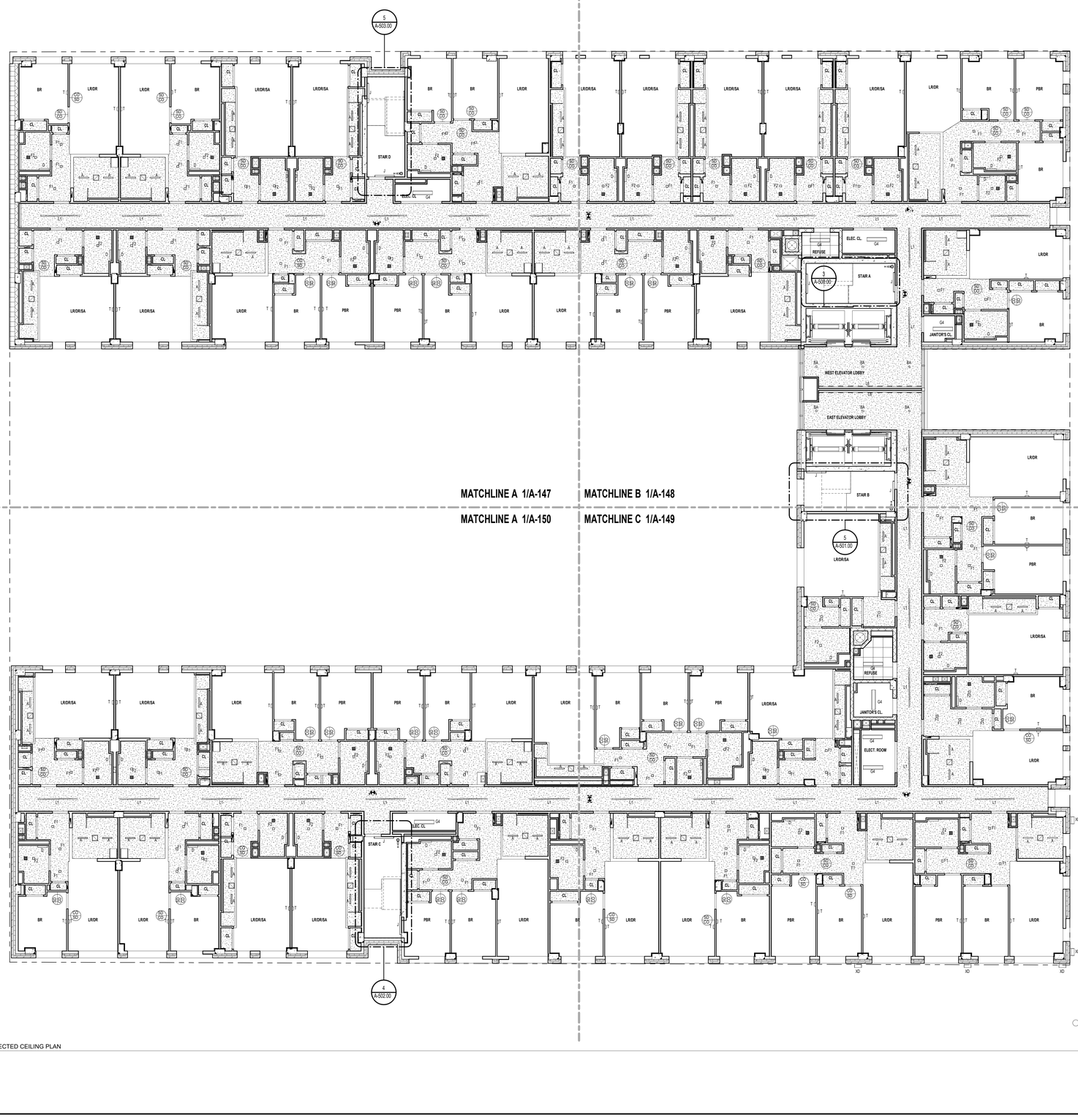

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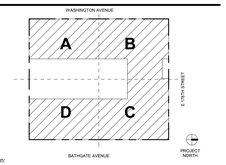

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Do Not Scale Plans
Contractor to promptly notify Architect of any material variations between field conditions and existing conditions as indicated in Contract documents

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2ND-5TH FLOOR RCP

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No:	17001
DRAWING BY:	Author
CHK BY:	Checker
DWG No:	A-132.00
SCALE: As indicated	65 of 175

LEGEND

- GWB HUNG/FRAMED CEILING / SOFFIT — WATER RESISTANT AT WET LOCATIONS
- UNDERSIDE OF SLAB/PLANK ABOVE. TREATED W/ COVER COAT COMPOUND IN RESIDENTIAL AREAS. REFER TO SECTIONS & ELEVATIONS
- 2' X 2' ACOUSTICAL CEILING TILE
- DECORATIVE WOOD SLAT CEILING
- UHPC / FIBER CEMENT SOFFIT
- HARDWIRED CARBON MONOXIDE AND SMOKE DETECTOR
- HARDWIRED CARBON MONOXIDE AND SMOKE DETECTOR WITH STROBE
- DAYLIGHT SENSOR
- OCCUPANCY SENSOR
- VACANCY SENSOR
- WIRELESS ACCESS POINT
- DIRECTIONAL ILLUMINATED EXIT SIGN
- CAPPED, RECESSED CEILING SPRINKLER HEAD
- CEILING HVAC RETURN / EXHAUST DIFFUSER
- CEILING HVAC SUPPLY DIFFUSER
- STROBE DEVICE
- DOORBELL STROBE DEVICE
- CEILING ELEVATION

RCP NOTES

1) COORDINATE WITH MEP DRAWINGS.
2) LIGHTING CONTROLS TO COMPLY WITH NYC ENERGY CODE.
3) ALL PUBLIC LIGHTING SHALL BE METERED SEPARATELY FROM RESIDENTIAL UNITS.
4) ALL DWELLING UNITS SHALL BE INDIVIDUALLY METERED.
5) 100% OF PERMANENTLY INSTALLED FIXTURES WITHIN DWELLING UNITS SHALL BE PROVIDED WITH HIGH EFFICIENCY LAMPS, MEETING OR EXCEEDING ENERGY STAR SPECIFICATIONS.
6) REFER TO LIGHTING FIXTURE SCHEDULE ON A-650 AND SPECIFICATIONS.
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10) DOTTED LINES IN RCP INDICATE WHERE DUCTS TRANSFER ABOVE CEILING. NOT ALL LOCATIONS MAY BE SHOWN.
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12) PROVIDE 2HR FIRE RATED ENCLOSURES WHERE REQUIRED FOR REFRIGERANT PIPING.
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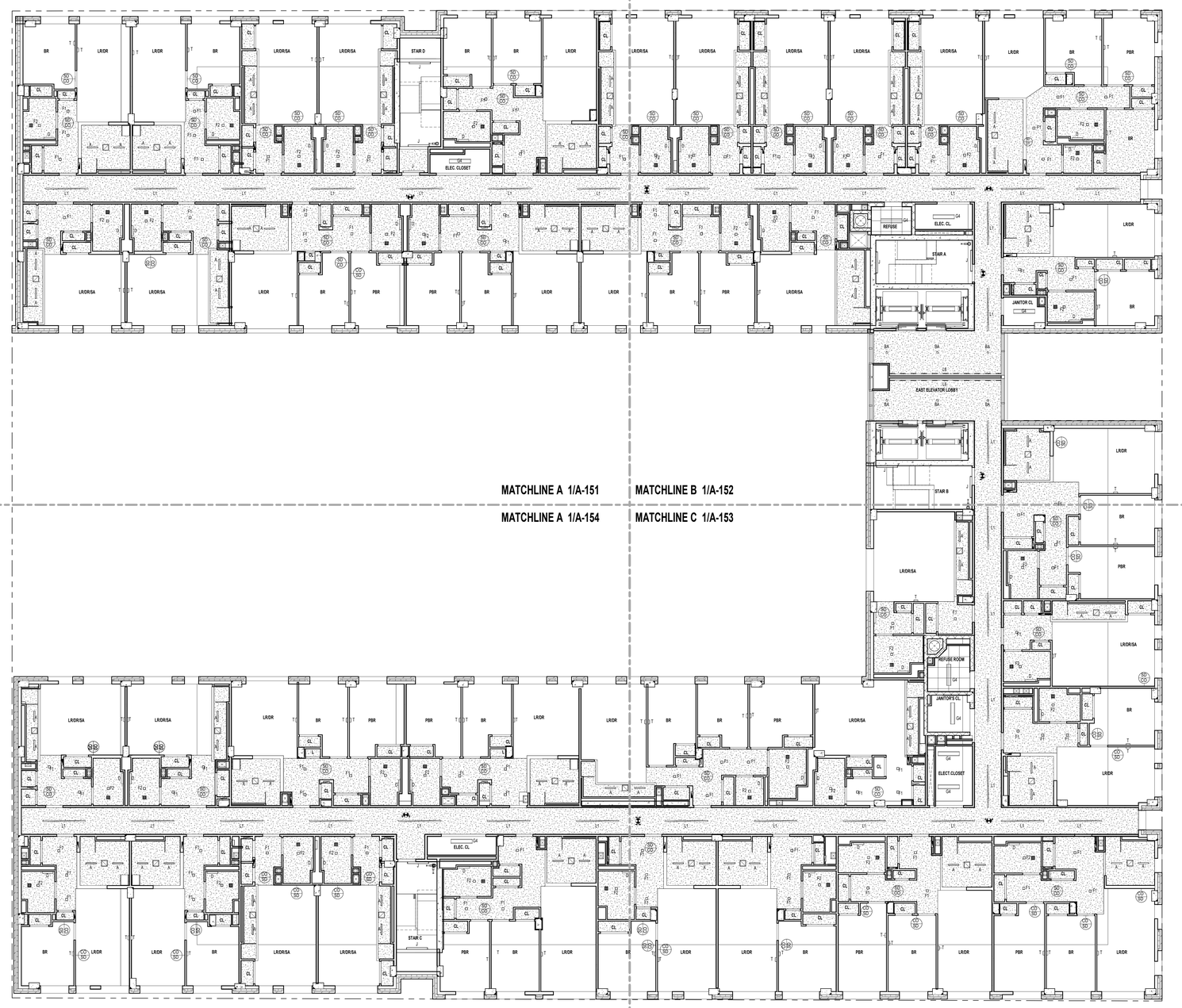

1 6th FLOOR REFLECTED CEILING PLAN
1/8" = 1'-0"

St Joseph Apartments

484 E 178th Street, The Bronx, NY 10457
Block: 3043 Tax Lot: 16, BIN 2806745

Owner:

CATHOLIC HOMES NEW YORK

Association of New York Catholic Homes
40 Maiden Lane, 13th Floor
New York NY 10038
Tel (646) 794 3167

BLOCK: 3043 LOT: 16

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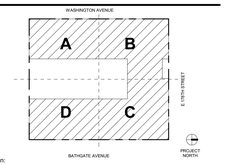

Key Plan:

NUMBER	DATE	DESCRIPTION
4	06/12/2024	DOB RESUBMISSION
5	06/28/2024	ENERGY MODELING
6	08/30/2024	CD ESTIMATING SET

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Revisions:

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Magnusson Architecture & Planning PC
42 West 39th Street, 15th Floor
New York NY 10018
Tel (212) 253 7820 Fax (212) 253 1276

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6TH FLOOR RCP

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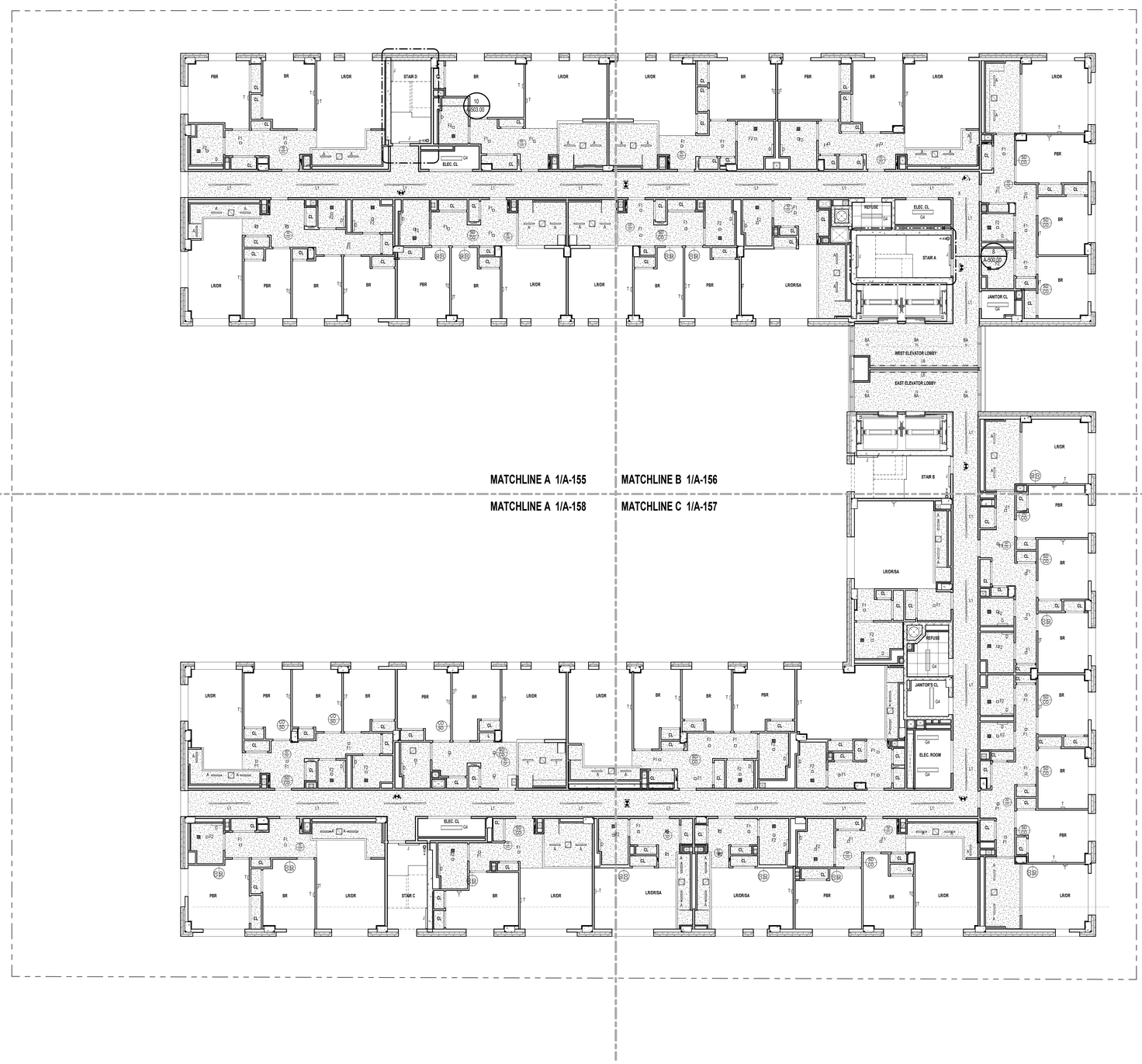

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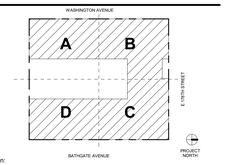

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7TH FLOOR RCP

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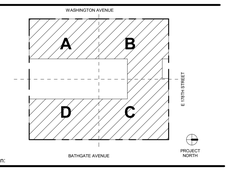

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8TH FLOOR RCP

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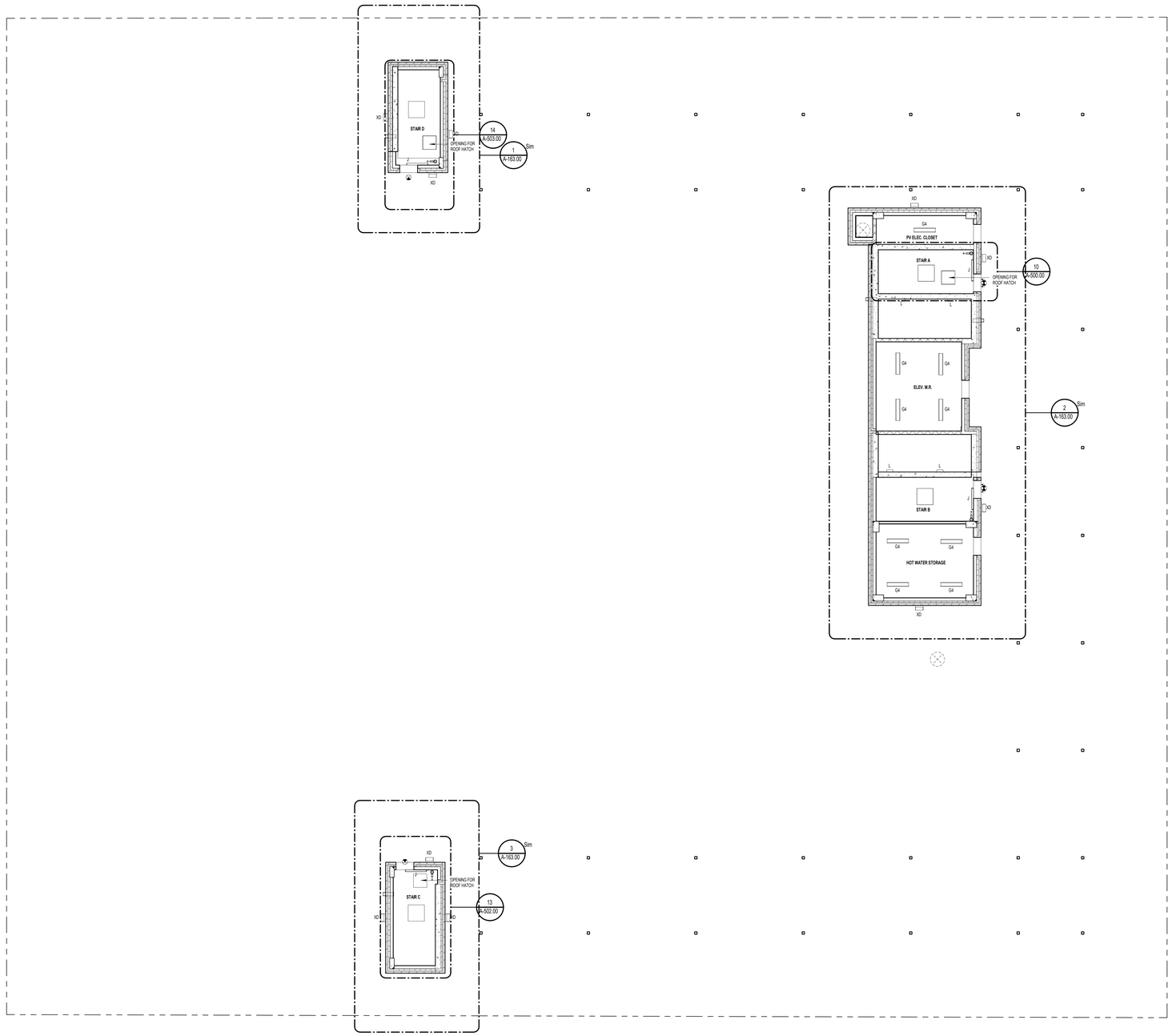

1 MAIN ROOF REFLECTED CEILING PLAN
1/8" = 1'-0"

St Joseph Apartments

484 E 178th Street, The Bronx, NY 10457
Block: 3043 Tax Lot: 16, BIN 2806745

Owner:
CATHOLIC HOMES NEW YORK
Association of New York Catholic Homes
40 Maiden Lane, 13th Floor
New York NY 10038
Tel (646) 794 3167

BLOCK: 3043 LOT: 16

NYC DOB NOW NB: #220212918-01
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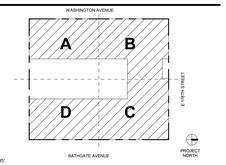

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Revisions:

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42 West 39th Street, 15th Floor
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Tel (212) 253 7820 Fax (212) 253 1276

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MAIN ROOF & BULKHEAD RCP

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No:	17001
DRAWING BY:	Author
CHK BY:	Checker
DWG No:	A-136.00
SCALE: As indicated	69 of 175

LEGEND

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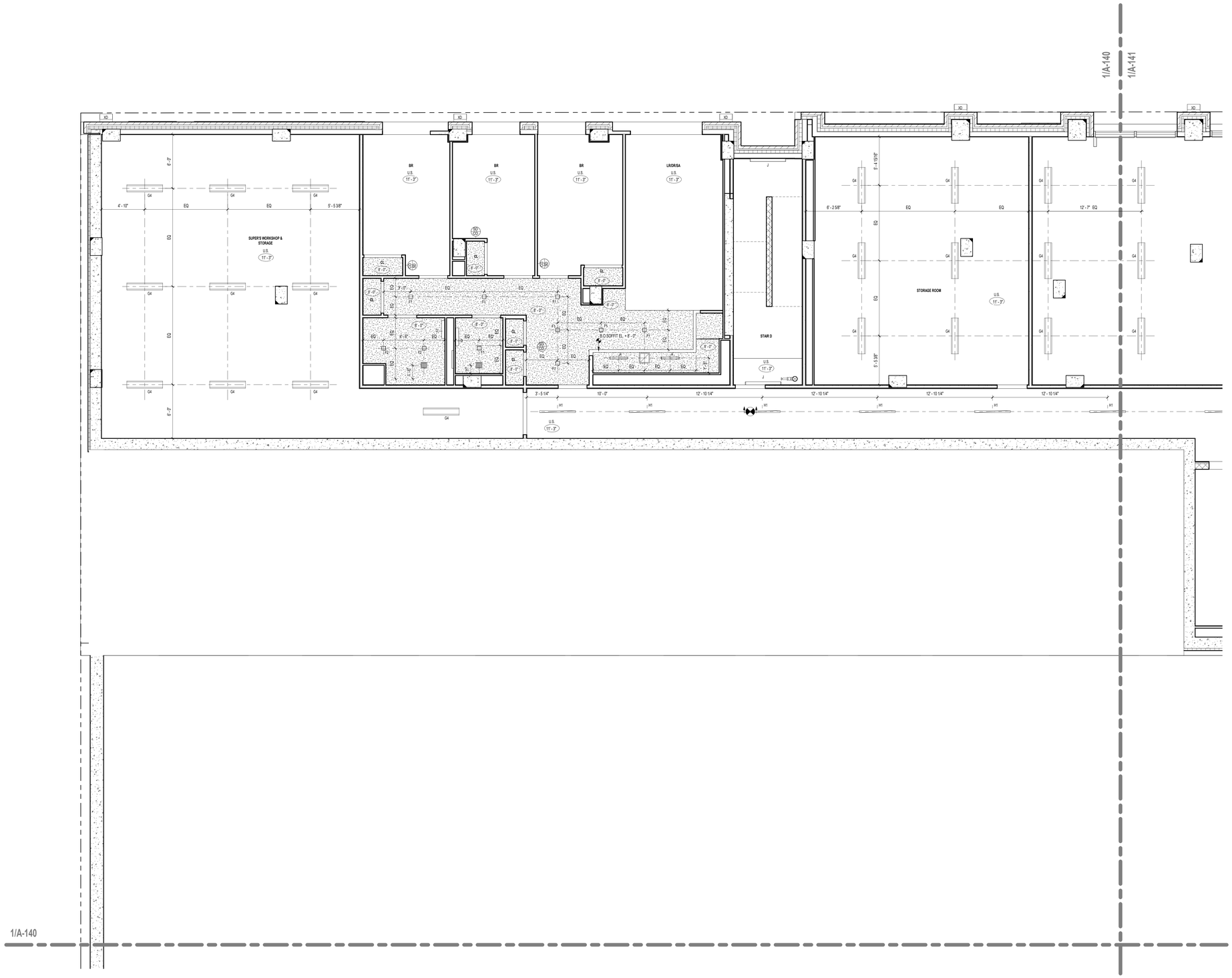

1/A-140

1 CELLAR PARTIAL RCP - A
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484 E 178th Street, The Bronx, NY 10457
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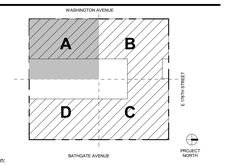

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CELLAR PARTIAL RCP - A

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No: 17001
DRAWING BY: Author
CHK BY: Checker
DWG No: A-140.00
SCALE: As indicated

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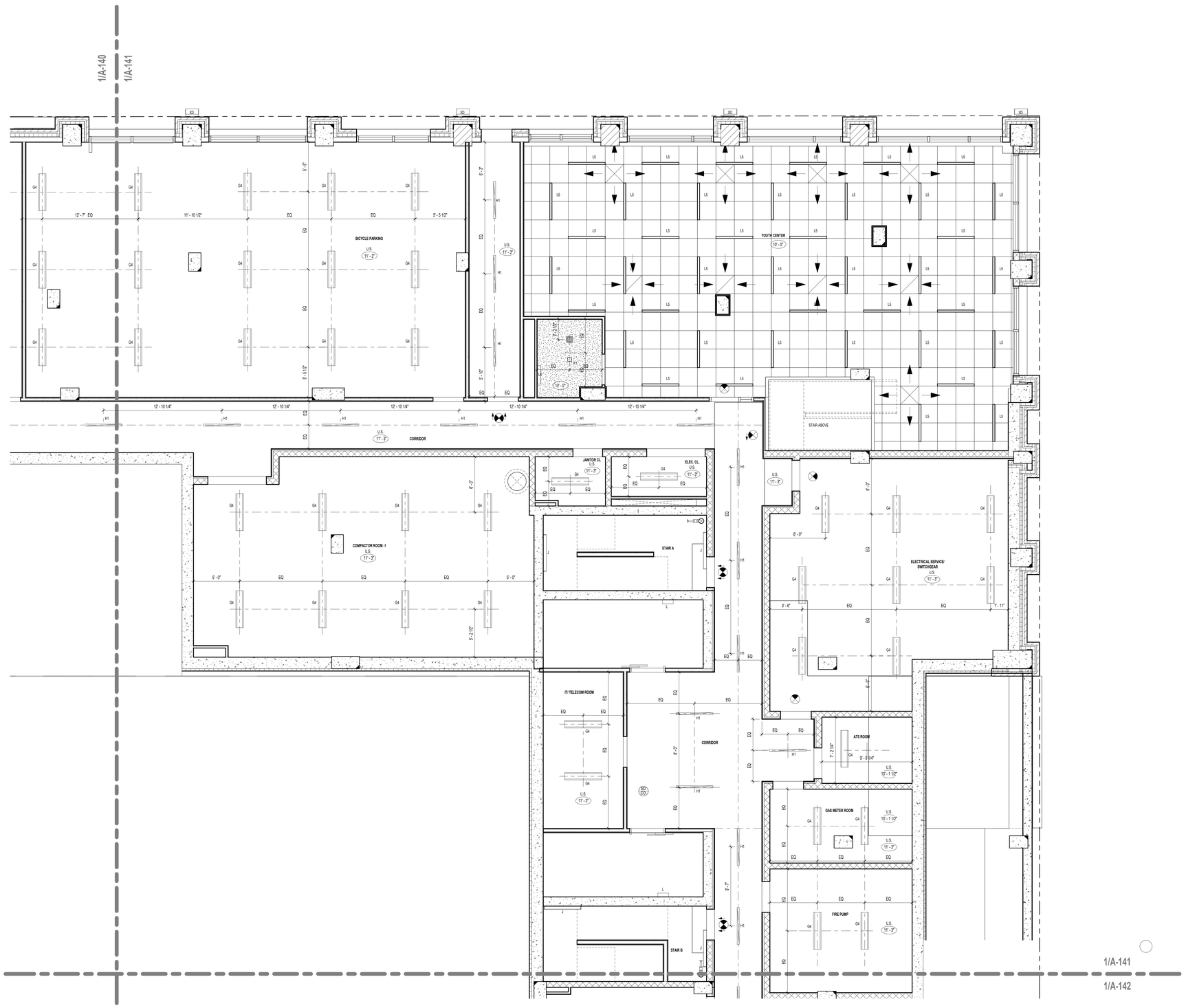

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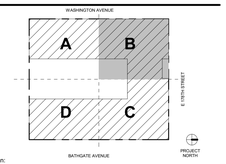

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DOB SEAL:

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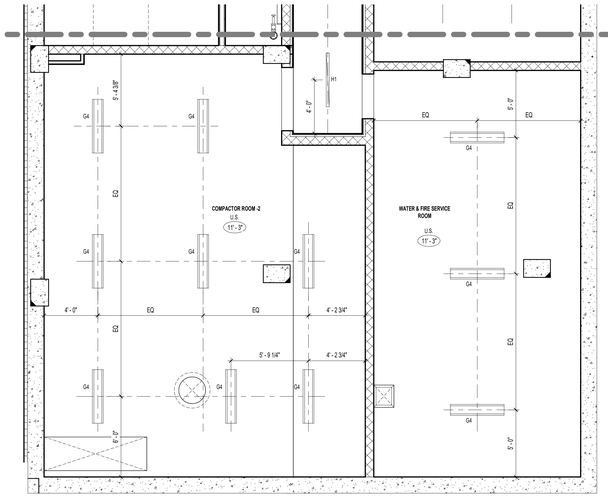

1/A-142

1 CELLAR PARTIAL RCP - C
1/4" = 1'-0"

St Joseph Apartments

484 E 178th Street, The Bronx, NY 10457
Block: 3043 Tax Lot: 16, BIN 2806745

Owner:
CATHOLIC HOMES NEW YORK
Association of New York Catholic Homes
40 Maiden Lane, 13th Floor
New York NY 10038
Tel (646) 794 3167

BLOCK: 3043 LOT: 16

NYC DOB NOW NB: #220212918-01
NYC DOB NOW EN: -
NYC DOB NOW FND/EARTHWORK: #X08026216-II
NYC DOB NOW SOE: -
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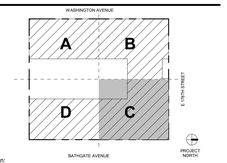
NYC DOB NOW BPP: -
FDNY FA: -



Key Plan:

NUMBER	DATE	DESCRIPTION
2	10/21/2022	DOB SUBMISSION
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6	08/30/2024	CD ESTIMATING SET

NOT FOR CONSTRUCTION

Revisions:

Architect:
Magnusson Architecture & Planning PC
42 West 39th Street, 15th Floor
New York NY 10018
Tel (212) 253 7820 Fax (212) 253 1276

Structural Engineer:
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CELLAR PARTIAL RCP - C

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No: 17001
DRAWING BY: Author
CHK BY: Checker
DWG No: A-142.00
SCALE: As indicated

LEGEND

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- UNDERSIDE OF SLAB/PLANK ABOVE. TREATED W/ COVER COAT COMPOUND IN RESIDENTIAL AREAS. REFER TO SECTIONS & ELEVATIONS
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- (SD CO) HARDWIRED CARBON MONOXIDE AND SMOKE DETECTOR
- (SD CO ST) HARDWIRED CARBON MONOXIDE AND SMOKE DETECTOR WITH STROBE
- (DL) DAYLIGHT SENSOR
- (OS) OCCUPANCY SENSOR
- (VS) VACANCY SENSOR
- (WAP) WIRELESS ACCESS POINT
- DIRECTIONAL ILLUMINATED EXIT SIGN
- CAPPED, RECESSED CEILING SPRINKLER HEAD
- CEILING HVAC RETURN / EXHAUST DIFFUSER
- CEILING HVAC SUPPLY DIFFUSER
- (S) STROBE DEVICE
- (DB ST) DOORBELL STROBE DEVICE
- (X'-XX") CEILING ELEVATION

RCP NOTES

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10) DOTTED LINES IN RCP INDICATE WHERE DUCTS TRANSFER ABOVE CEILING. NOT ALL LOCATIONS MAY BE SHOWN.
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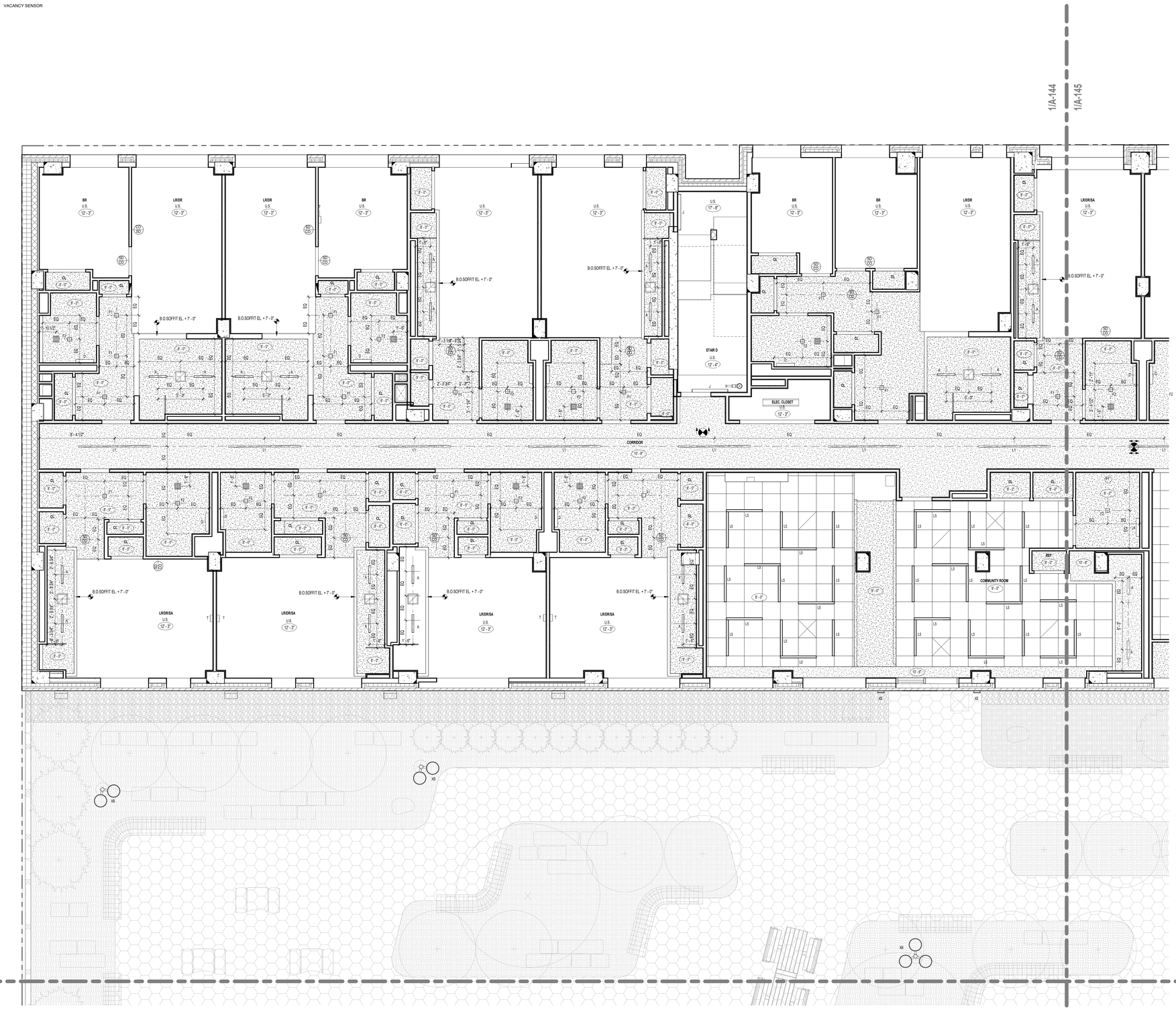

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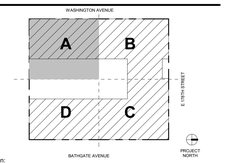

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1ST FLOOR PARTIAL RCP - A

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No: 17001
DRAWING BY: Author
CHK BY: Checker
DWG No: A-143.00
SCALE: As indicated

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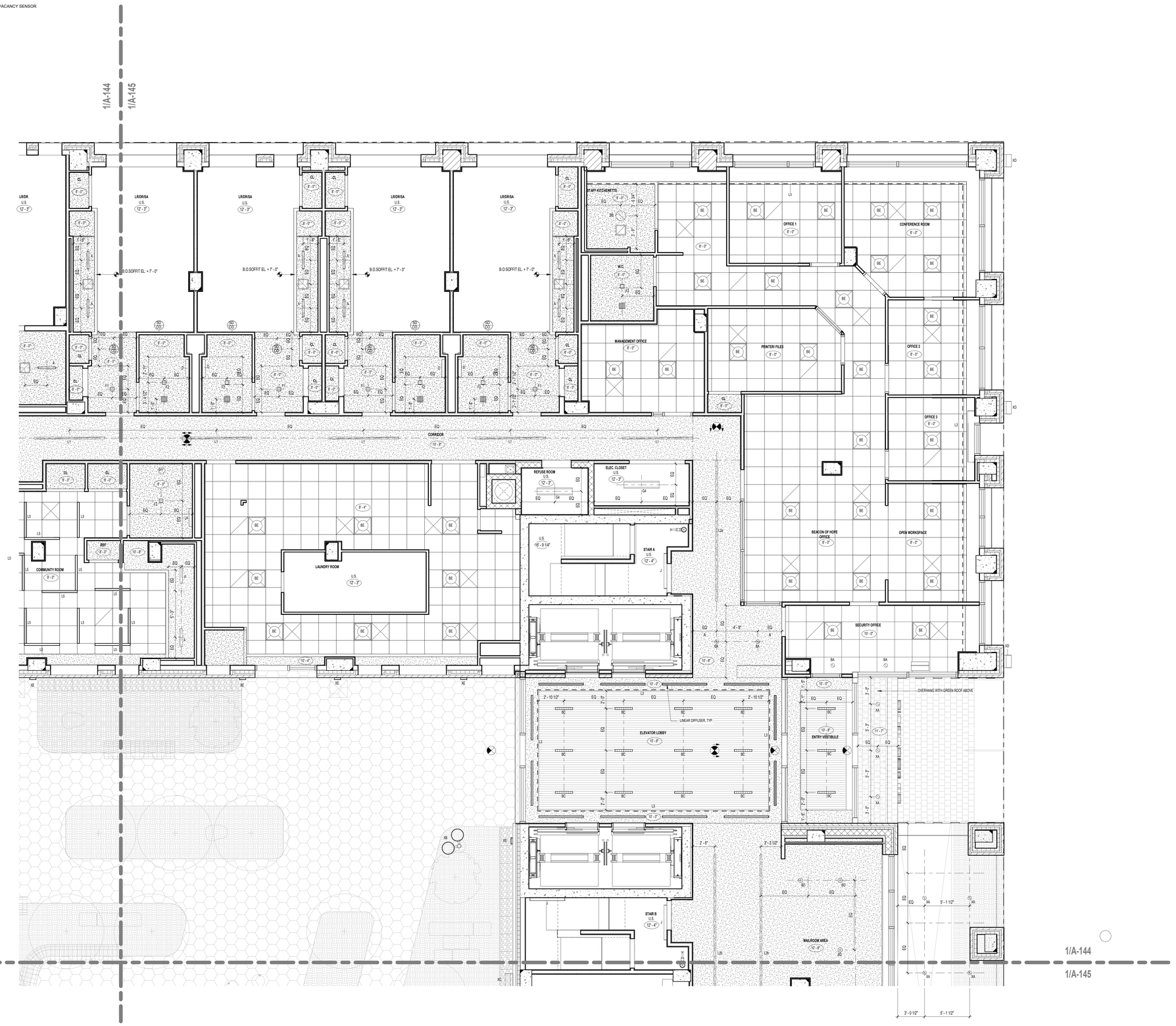

1 1st FLOOR PARTIAL RCP - B
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BLOCK: 3043 LOT: 16

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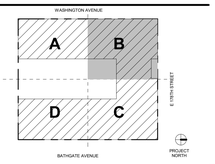

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DOB SEAL:

SEAL & SIGNATURE:

PROJECT No:	17001
DRAWING BY:	Author
CHK BY:	Checker
DWG No:	A-144.00
SCALE: As indicated	74 of 175

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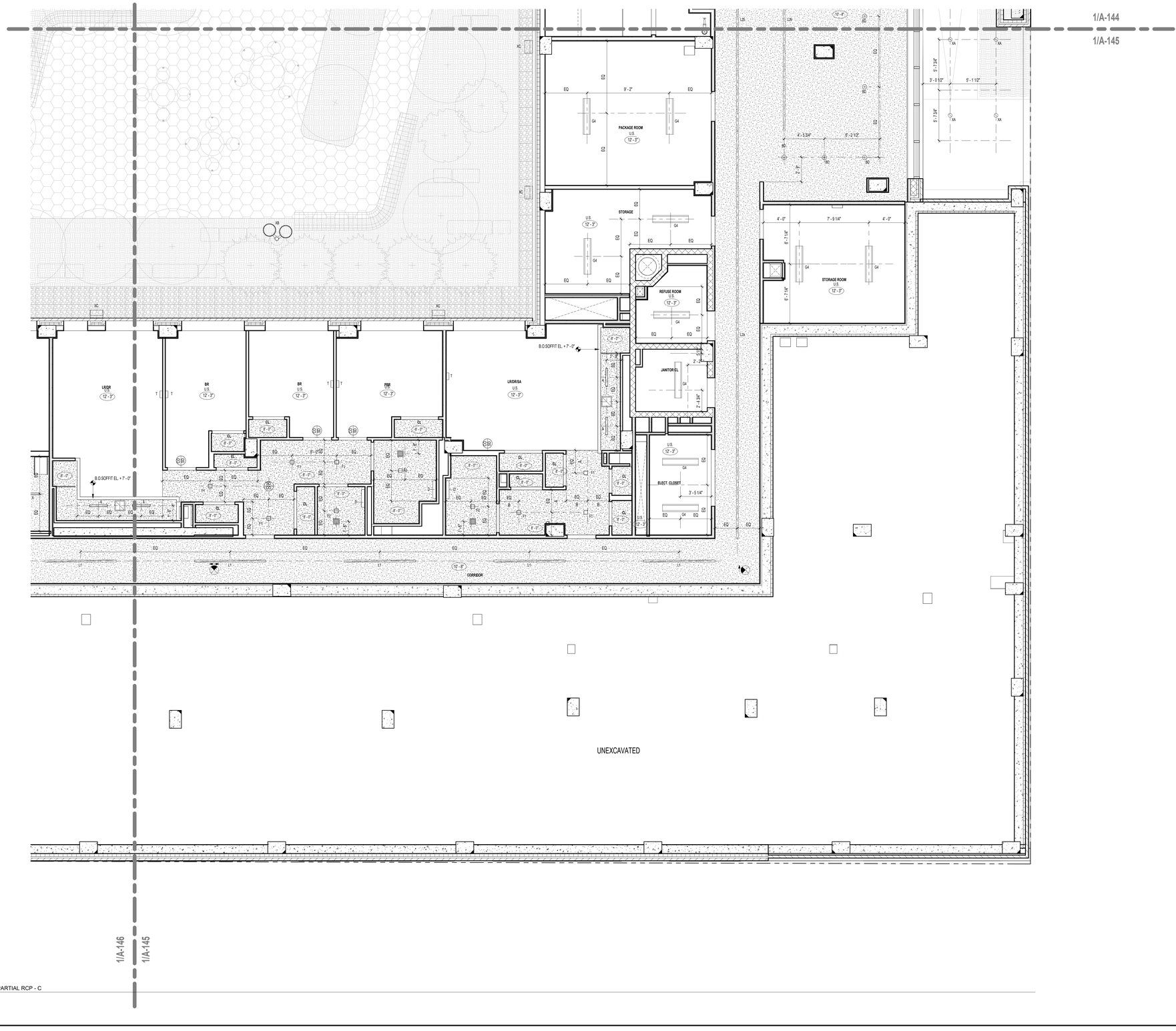

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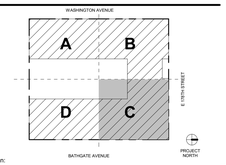
NYC DOB NOW CIV PL: #X08026209-II
NYC DOB NOW BPP: -
FDNY FA: -



Key Plan:

NUMBER	DATE	DESCRIPTION
2	10/21/2022	DOB SUBMISSION
3	11/30/2022	100% DD SET
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NOT FOR CONSTRUCTION

Revisions:

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1ST FLOOR PARTIAL RCP - C

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No:	17001
DRAWING BY:	Author
CHK BY:	Checker
DWG No:	A-145.00
SCALE:	As indicated

LEGEND

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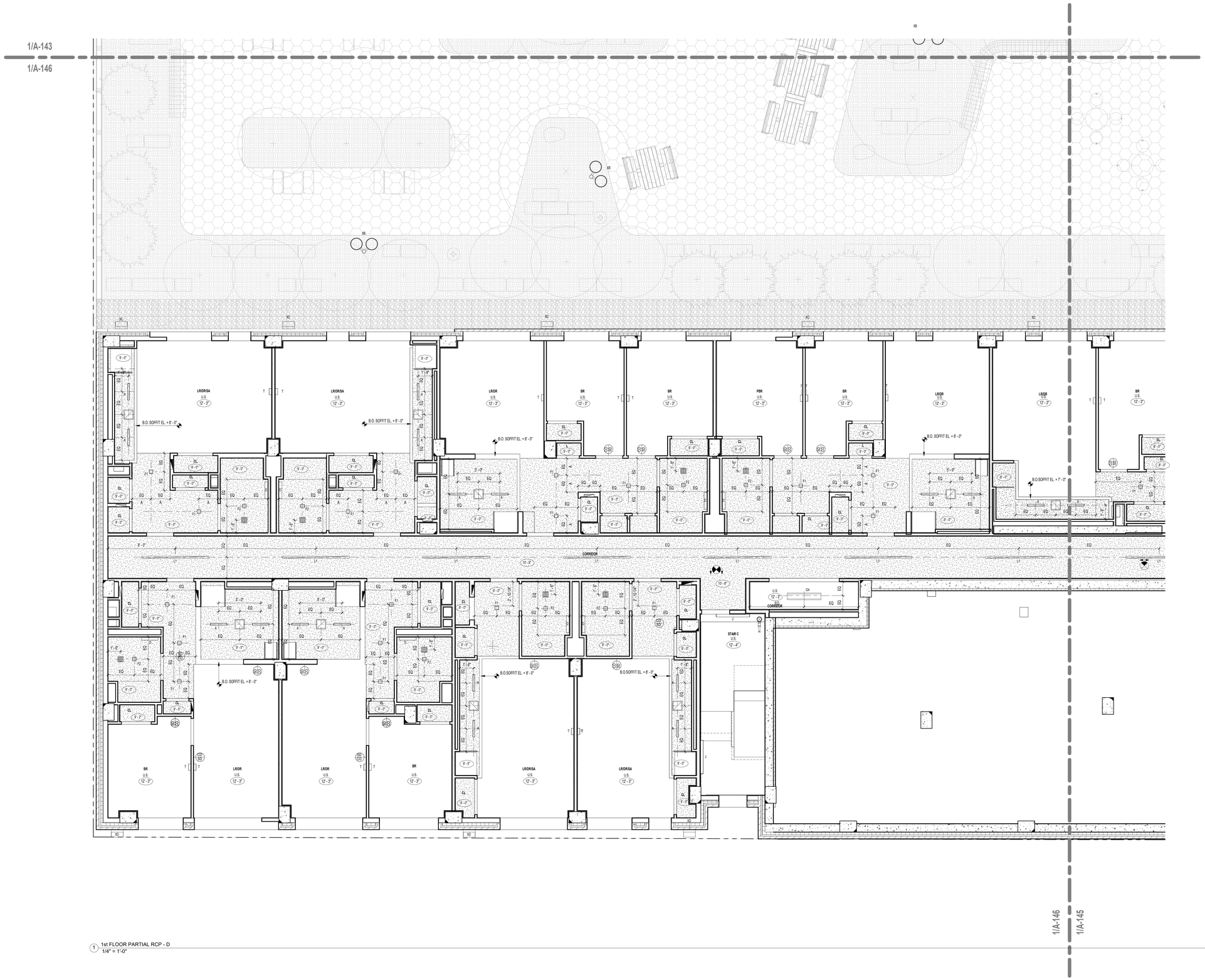

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1/4" = 1'-0"

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Block: 3043 Tax Lot: 16, BIN 2806745

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New York NY 10038
Tel (646) 794 3167

BLOCK: 3043 LOT: 16

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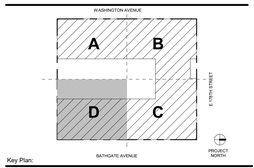

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DOB SEAL:

SEAL & SIGNATURE:

PROJECT No: 17001
DRAWING BY: Author
CHK BY: Checker
DWG No: A-146.00
SCALE: As indicated

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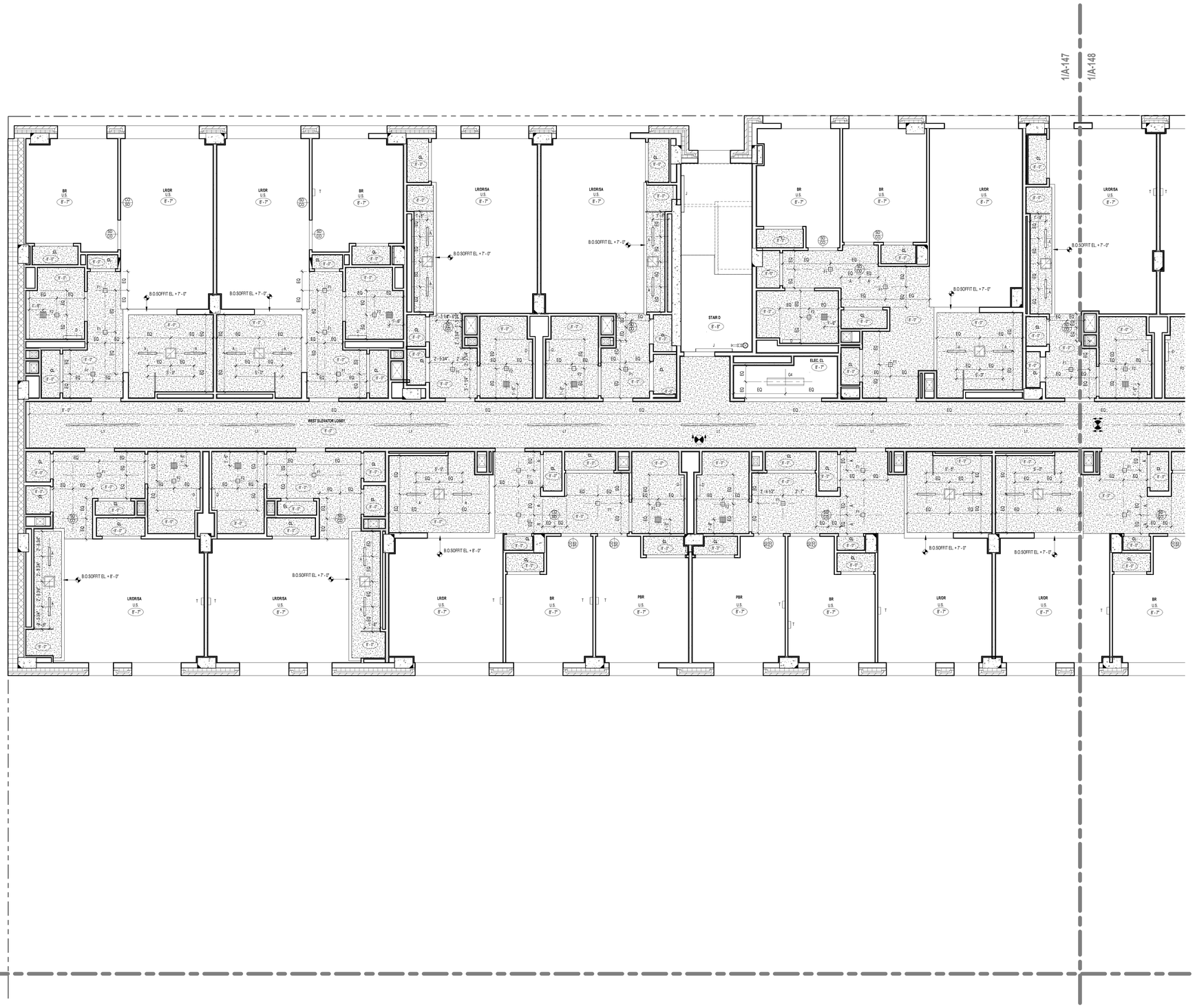

1 2nd FLOOR PARTIAL RCP - A
1/4" = 1'-0"

St Joseph Apartments

484 E 178th Street, The Bronx, NY 10457
Block: 3043 Tax Lot: 16, BIN 2806745

Owner:

CATHOLIC HOMES NEW YORK

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40 Maiden Lane, 13th Floor
New York NY 10038
Tel (646) 794 3167

BLOCK: 3043 LOT: 16

NYC DOB NOW NB: #220212918-01
NYC DOB NOW EN: -
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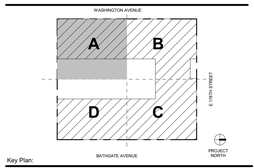

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2ND-5TH FLOOR PARTIAL RCP - A

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No:	17001
DRAWING BY:	Author
CHK BY:	Checker
DWG No:	A-147.00
SCALE:	As indicated

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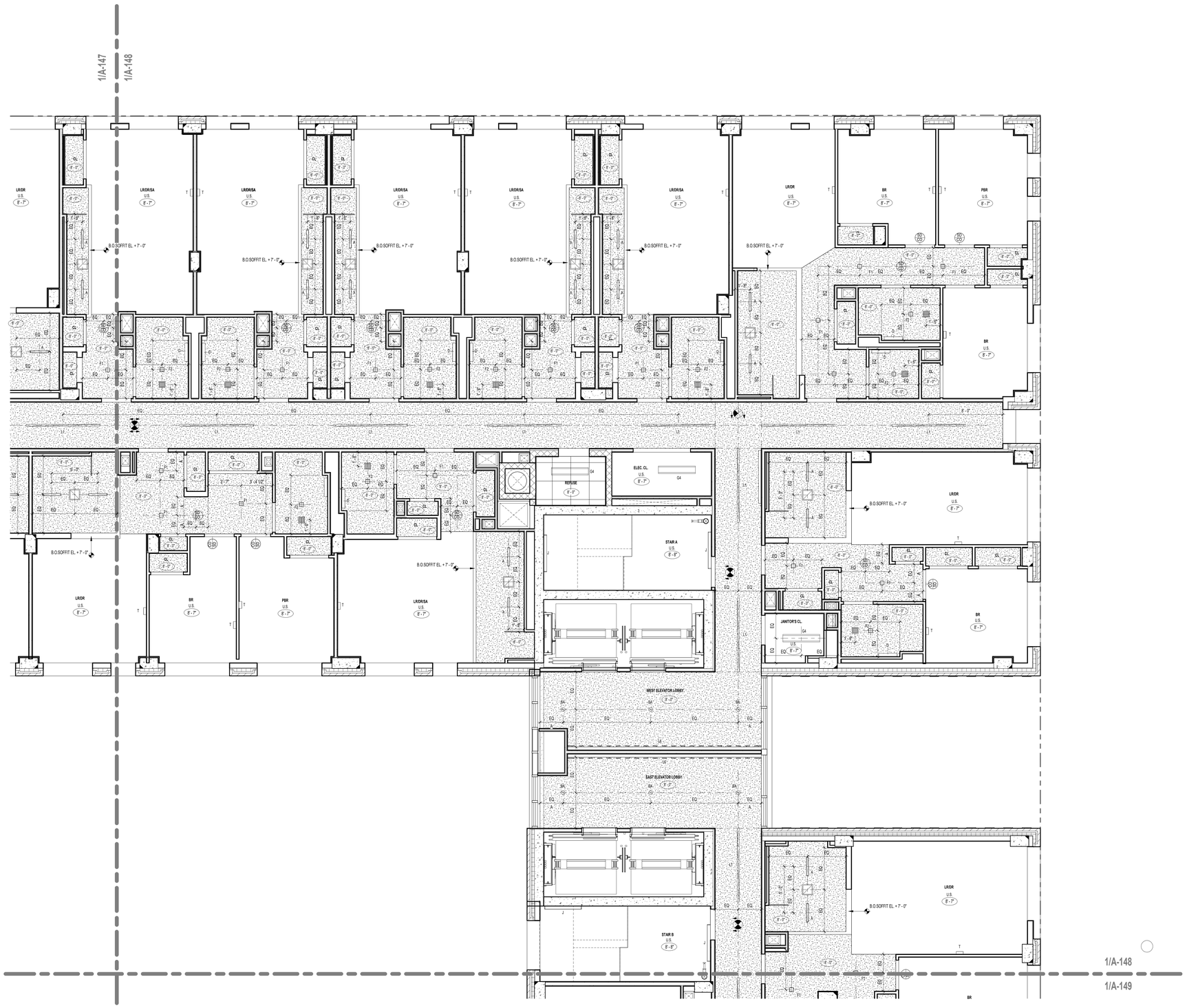

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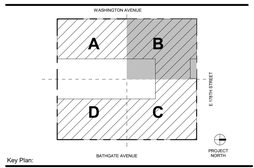

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SCALE:	As indicated

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- GWB HUNG/FRAMED CEILING / SOFFIT — WATER RESISTANT AT WET LOCATIONS
- UNDERSIDE OF SLAB/PLANK ABOVE. TREATED W/ COVER COAT COMPOUND IN RESIDENTIAL AREAS. REFER TO SECTIONS & ELEVATIONS
- 2' X 2' ACOUSTICAL CEILING TILE
- DECORATIVE WOOD SLAT CEILING
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- HARDWIRED CARBON MONOXIDE AND SMOKE DETECTOR
- HARDWIRED CARBON MONOXIDE AND SMOKE DETECTOR WITH STROBE
- DAYLIGHT SENSOR
- OCCUPANCY SENSOR
- VACANCY SENSOR
- WIRELESS ACCESS POINT
- DIRECTIONAL ILLUMINATED EXIT SIGN
- CAPPED, RECESSED CEILING SPRINKLER HEAD
- CEILING HVAC RETURN / EXHAUST DIFFUSER
- CEILING HVAC SUPPLY DIFFUSER
- STROBE DEVICE
- DOORBELL STROBE DEVICE
- CEILING ELEVATION

RCP NOTES

1) COORDINATE WITH MEP DRAWINGS.
2) LIGHTING CONTROLS TO COMPLY WITH NYC ENERGY CODE.
3) ALL PUBLIC LIGHTING SHALL BE METERED SEPARATELY FROM RESIDENTIAL UNITS.
4) ALL DWELLING UNITS SHALL BE INDIVIDUALLY METERED.
5) 100% OF PERMANENTLY INSTALLED FIXTURES WITHIN DWELLING UNITS SHALL BE PROVIDED WITH HIGH EFFICIENCY LAMPS, MEETING OR EXCEEDING ENERGY STAR SPECIFICATIONS.
6) REFER TO LIGHTING FIXTURE SCHEDULE ON A-650 AND SPECIFICATIONS.
7) ALL NON-APARTMENT AREAS SHALL BE PROVIDED WITH OCCUPANCY SENSOR CONTROLS, OR AUTOMATIC BI-LEVEL LIGHTING CONTROLS; AND SHALL HAVE COMBINED BALLAST AND LAMP EFFICACIES MEETING OR EXCEEDING ENERGY STAR SPECIFICATIONS.
8) ALL EXTERIOR FIXTURES TO BE FULL CUT OFF, AND SHALL HAVE COMBINED BALLAST AND LAMP EFFICACIES MEETING OR EXCEEDING ENERGY STAR SPECIFICATIONS, SWITCHING TO BE AUTOMATIC ON TIMERS OR PHOTOCELL CONTROLS, WITH MANUAL SWITCH OVERRIDE.
9) WHERE INVERTERS ARE REQUIRED FOR EMERGENCY LIGHT FIXTURES, PLACE ONE PER FLOOR MIN. IN THE ELECTRICAL CLOSET. COORD WITH ELECTRICAL DWGS.
10) DOTTED LINES IN RCP INDICATE WHERE DUCTS TRANSFER ABOVE CEILING. NOT ALL LOCATIONS MAY BE SHOWN.
11) PROVIDE ACCESS PANELS WHERE REQUIRED FOR PROPER MAINTENANCE, SIZED AS RECOMMENDED BY MANUFACTURER, WHETHER OR NOT THEY APPEAR ON ARCHITECTURAL DRAWINGS. FINAL LOCATIONS TO BE APPROVED BY ARCHITECT.
12) PROVIDE 2HR FIRE RATED ENCLOSURES WHERE REQUIRED FOR REFRIGERANT PIPING.
13) REFER TO MECHANICAL DRAWINGS FOR MECHANICAL EQUIPMENT LOCATION.
14) DUCTS IN STRUCTURE ABOVE (DASHED BOXES) ARE SHOWN FOR REFERENCE ONLY; REFER TO MEP DRAWINGS.
15) ALL DUCTWORK, PIPES, AND CONDUIT TO BE CONCEALED IN GYPSUM BOARD CONSTRUCTION, WHETHER OR NOT INDICATED ON DRAWINGS. 16) MIN. LUMENS AT EGRESS PATHS TO BE PER NYC CODE CHAPTER 10.
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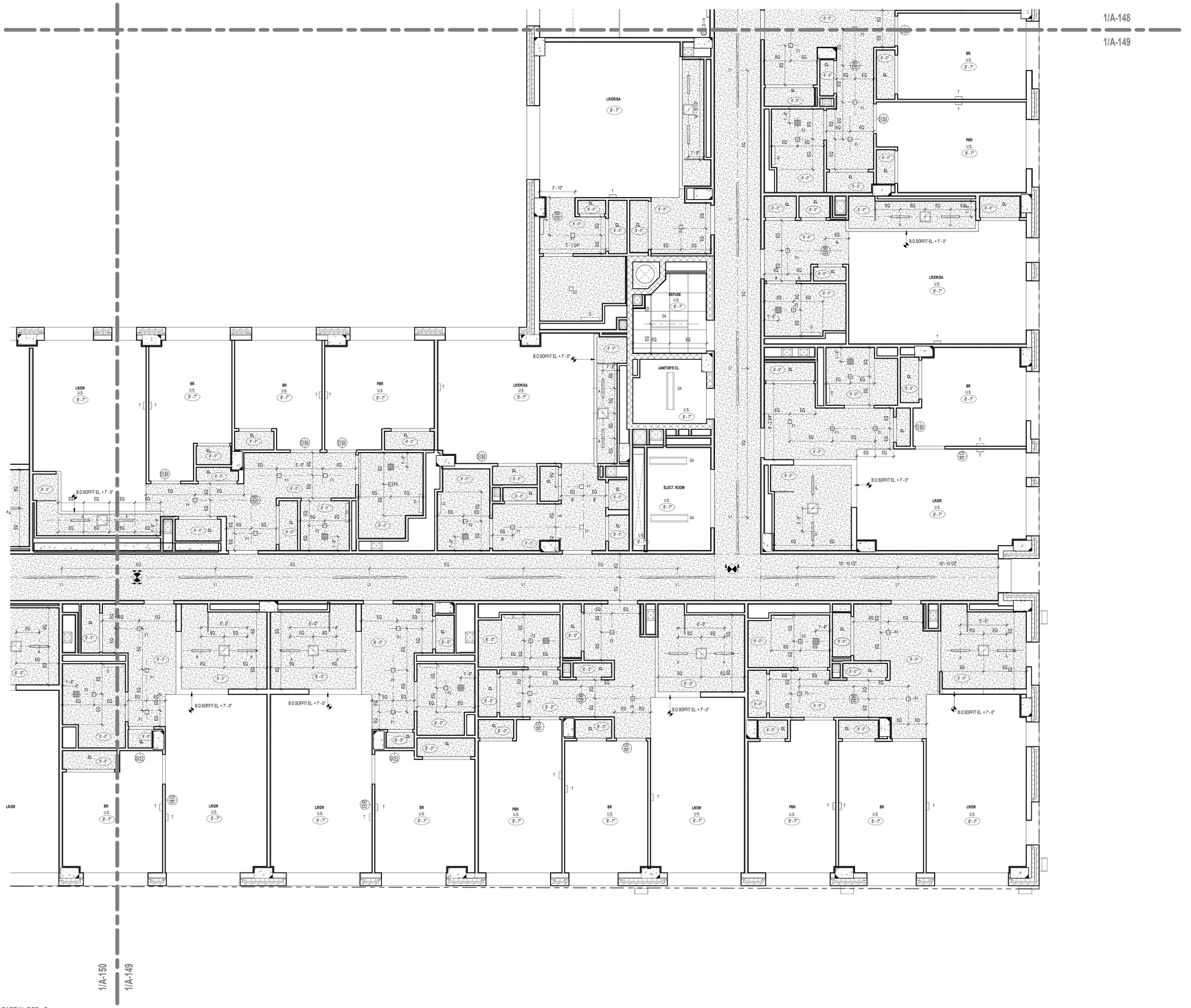

1 2nd FLOOR PARTIAL RCP - C
1/4" = 1'-0"

PROJECT NORTH

St Joseph Apartments

484 E 178th Street, The Bronx, NY 10457
Block: 3043 Tax Lot: 16, BIN 2806745

Owner:
CATHOLIC HOMES NEW YORK
Association of New York Catholic Homes
40 Maiden Lane, 13th Floor
New York NY 10038
Tel (646) 794 3167

BLOCK: 3043 LOT: 16

NYC DOB NOW NB: #220212918-01
NYC DOB NOW EN: -
NYC DOB NOW FND/EARTHWORK: #X08026216-II
NYC DOB NOW SOE: -
NYC DOB NOW STRUC: #X0802621 1-II
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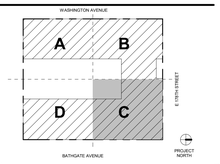
NYC DOB NOW PL: #X08026196-II
NYC DOB NOW SS/SP: #X08026201-II
NYC DOB NOW TEMP SP: -
NYC DOB NOW CIV PL: #X08026209-II
NYC DOB NOW BPP: -
FDNY FA: -



Key Plan:

NUMBER	DATE	DESCRIPTION
2	10/21/2022	DOB SUBMISSION
3	11/30/2022	100% DD SET
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6	08/30/2024	CD ESTIMATING SET

NOT FOR CONSTRUCTION

Revisions:

Architect:
Magnusson Architecture & Planning PC
42 West 39th Street, 15th Floor
New York NY 10018
Tel (212) 253 7820 Fax (212) 253 1276

Structural Engineer:
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MEP Engineer:
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New York NY 10006
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Landscape Architect:
Terrain-NYC Landscape Architecture PC
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New York NY 10003
Tel (212) 537 6080

Client Representative:

Filing Representative:
CORE Consultants NYC LLP
254 36th Street Suite C663
Brooklyn NY 11232
Tel (212) 796 2529

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2ND-5TH FLOOR PARTIAL RCP - C

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No:	17001
DRAWING BY:	Author
CHK BY:	Checker
DWG No:	A-149.00
SCALE:	As indicated

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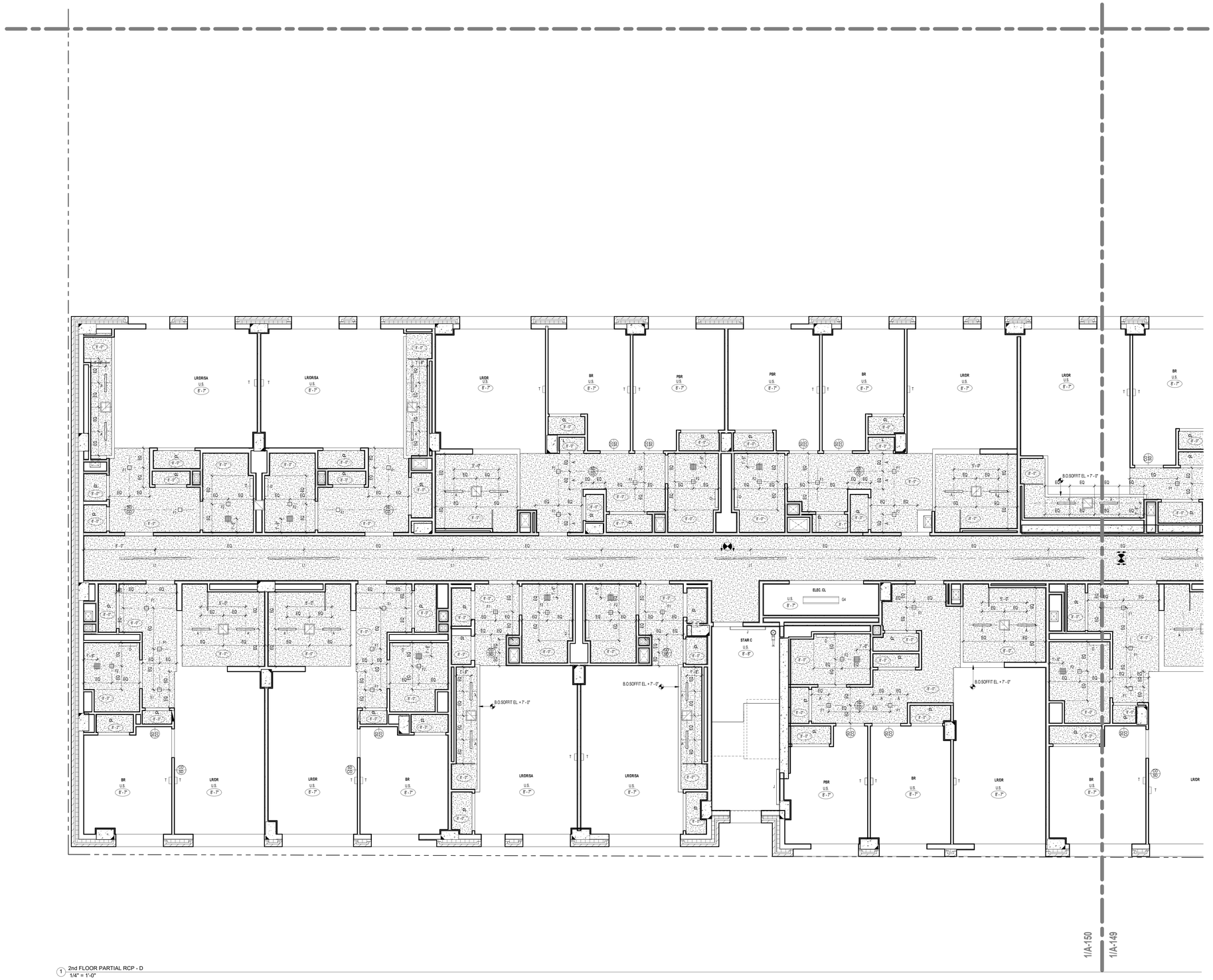

1 2nd FLOOR PARTIAL RCP - D
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St Joseph Apartments

484 E 178th Street, The Bronx, NY 10457
Block: 3043 Tax Lot: 16, BIN 2806745

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Tel (646) 794 3167

BLOCK: 3043 LOT: 16

NYC DOB NOW NB: #220212918-01
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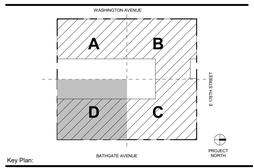

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2ND-5TH FLOOR PARTIAL RCP - D

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No:	17001
DRAWING BY:	Author
CHK BY:	Checker
DWG No:	A-150.00
SCALE: As indicated	80 of 175

LEGEND

- GWB HUNG/FRAMED CEILING / SOFFIT — WATER RESISTANT AT WET LOCATIONS
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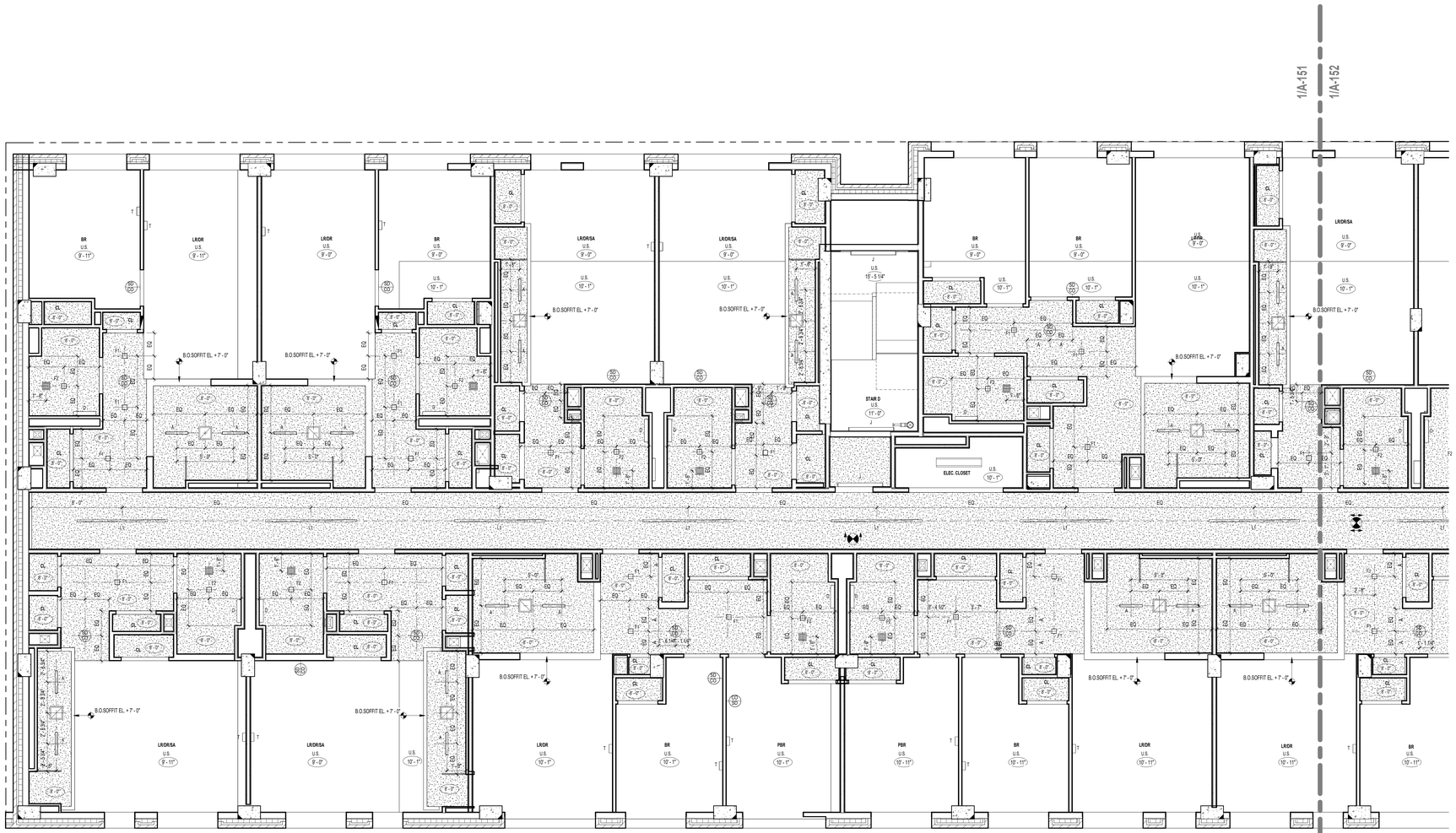

2 6th FLOOR PARTIAL RCP - QUADRANT - VIEW A
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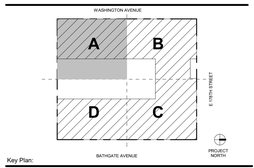

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6TH FLOOR PARTIAL RCP - A

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No:	17001
DRAWING BY:	Author
CHK BY:	Checker
DWG No:	A-151.00
SCALE: As indicated	81 of 175

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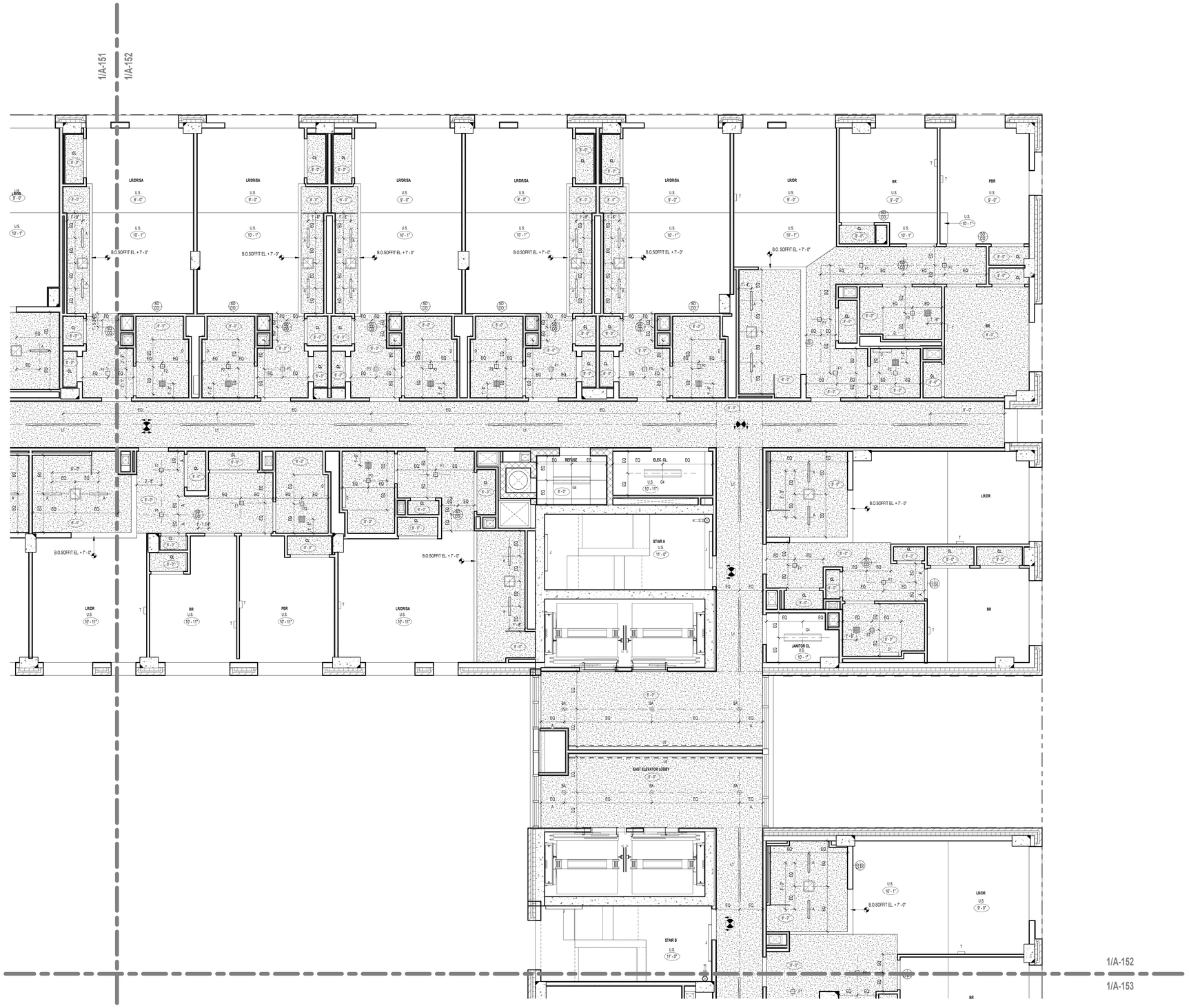

2 6th FLOOR PARTIAL RCP - QUADRANT - VIEW B
1/4" = 1'-0"

St Joseph Apartments

484 E 178th Street, The Bronx, NY 10457
Block: 3043 Tax Lot: 16, BIN 2806745

Owner:

CATHOLIC HOMES NEW YORK

Association of New York Catholic Homes
40 Maiden Lane, 13th Floor
New York NY 10038
Tel (646) 794 3167

BLOCK: 3043 LOT: 16

NYC DOB NOW NB: #220212918-01
NYC DOB NOW EN: -
NYC DOB NOW FND/EARTHWORK: #X08026216-II
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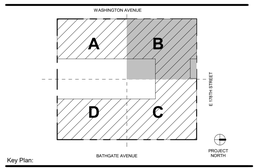
NYC DOB NOW TEMP SP: -
NYC DOB NOW CIV PL: #X08026209-II
NYC DOB NOW BPP: -
FDNY FA: -



Key Plan:

NUMBER	DATE	DESCRIPTION
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6	08/30/2024	CD ESTIMATING SET

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Revisions:

Architect:
MAP
Magnusson Architecture & Planning PC
42 West 39th Street, 15th Floor
New York NY 10018
Tel (212) 253 7820 Fax (212) 253 1276

Structural Engineer:
GACE Consulting Engineers DPC
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MEP Engineer:
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Filing Representative:
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Tel (212) 796 2529

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6TH FLOOR PARTIAL RCP - B

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No: 17001
DRAWING BY: Author
CHK BY: Checker
DWG No: A-152.00
SCALE: As indicated

LEGEND

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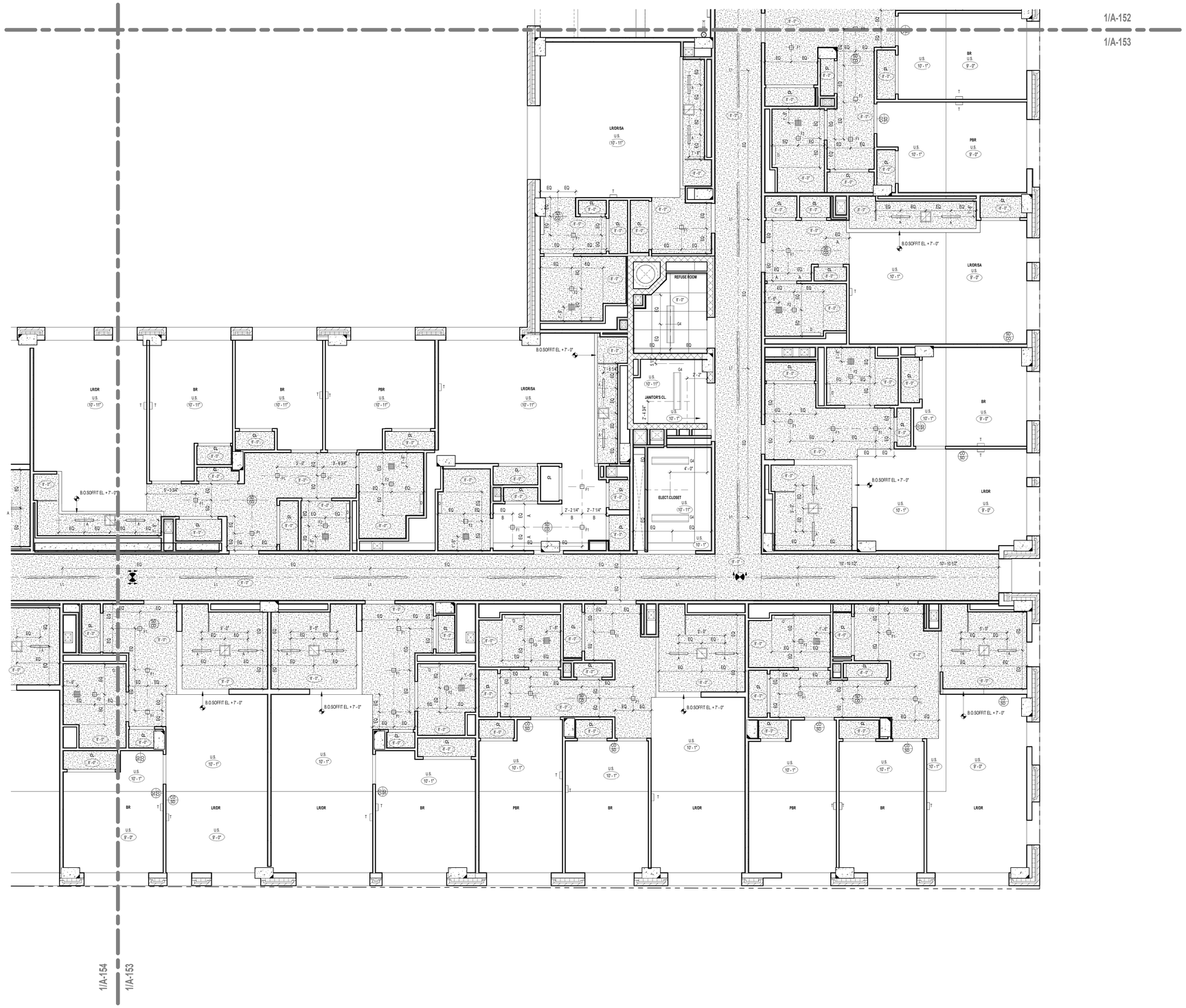

5 6th FLOOR PARTIAL RCP - QUADRANT - VIEW C
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St Joseph Apartments

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Block: 3043 Tax Lot: 16, BIN 2806745

Owner:

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New York NY 10038
Tel (646) 794 3167

BLOCK: 3043 LOT: 16

NYC DOB NOW NB: #220212918-01
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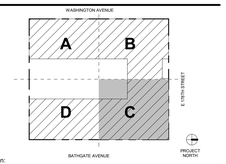

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NOT FOR CONSTRUCTION

Revisions:

Architect:
Magnusson Architecture & Planning PC
42 West 39th Screet, 15th Floor
New York NY 10018
Tel (212) 253 7820 Fax (212) 253 1276

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6TH FLOOR PARTIAL RCP - C

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No:	17001
DRAWING BY:	Author
CHK BY:	Checker
DWG No:	A-153.00
SCALE: As indicated	83 of 175

LEGEND

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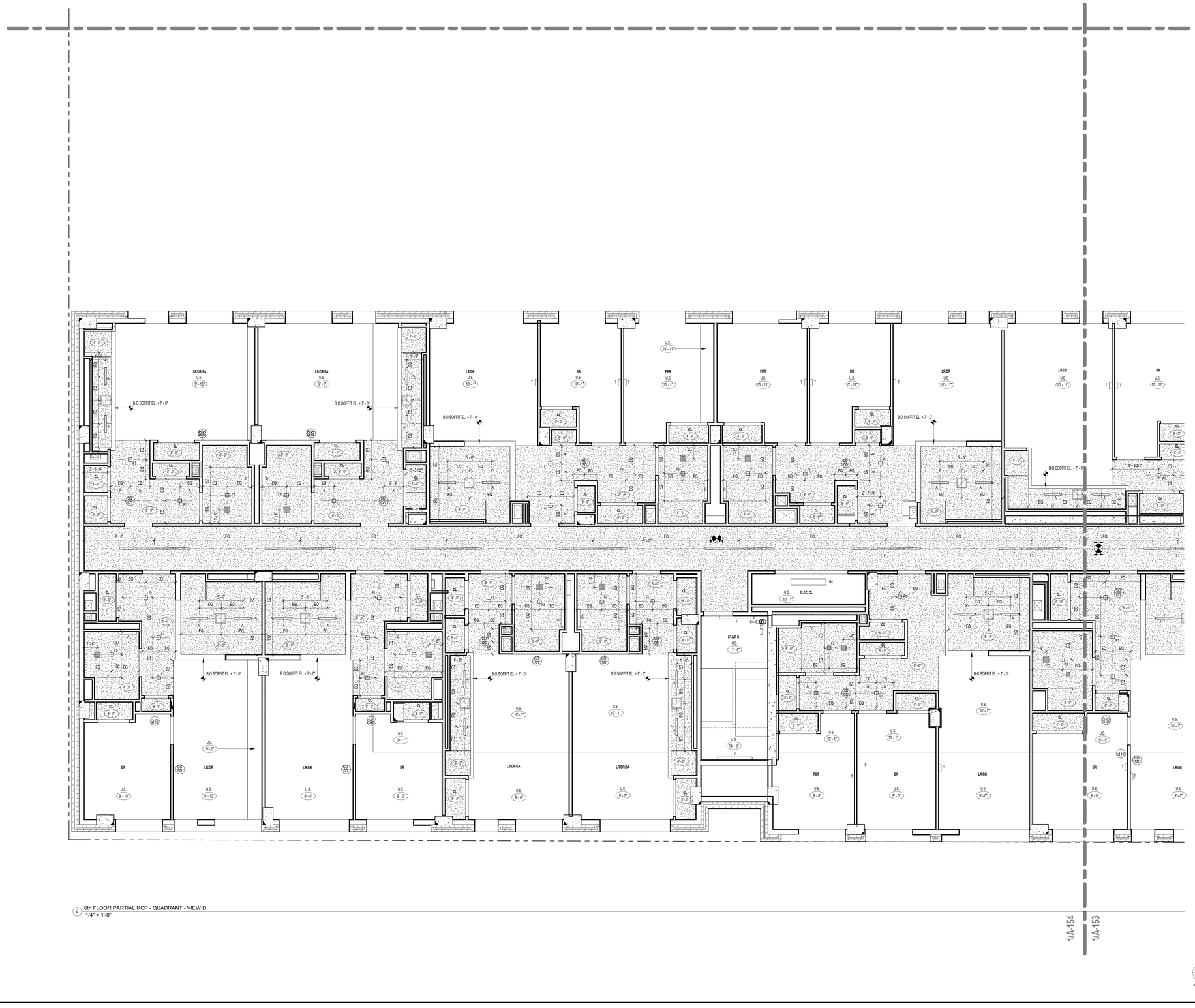

2 6th FLOOR PARTIAL RCP - QUADRANT - VIEW D
1/4" = 1'-0"

PROJECT NORTH

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BLOCK: 3043 LOT: 16

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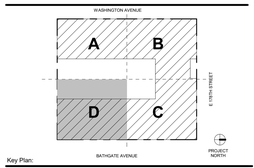

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6TH FLOOR PARTIAL RCP - D

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No:	17001
DRAWING BY:	Author
CHK BY:	Checker
DWG No:	A-154.00
SCALE: As indicated	84 of 175

LEGEND

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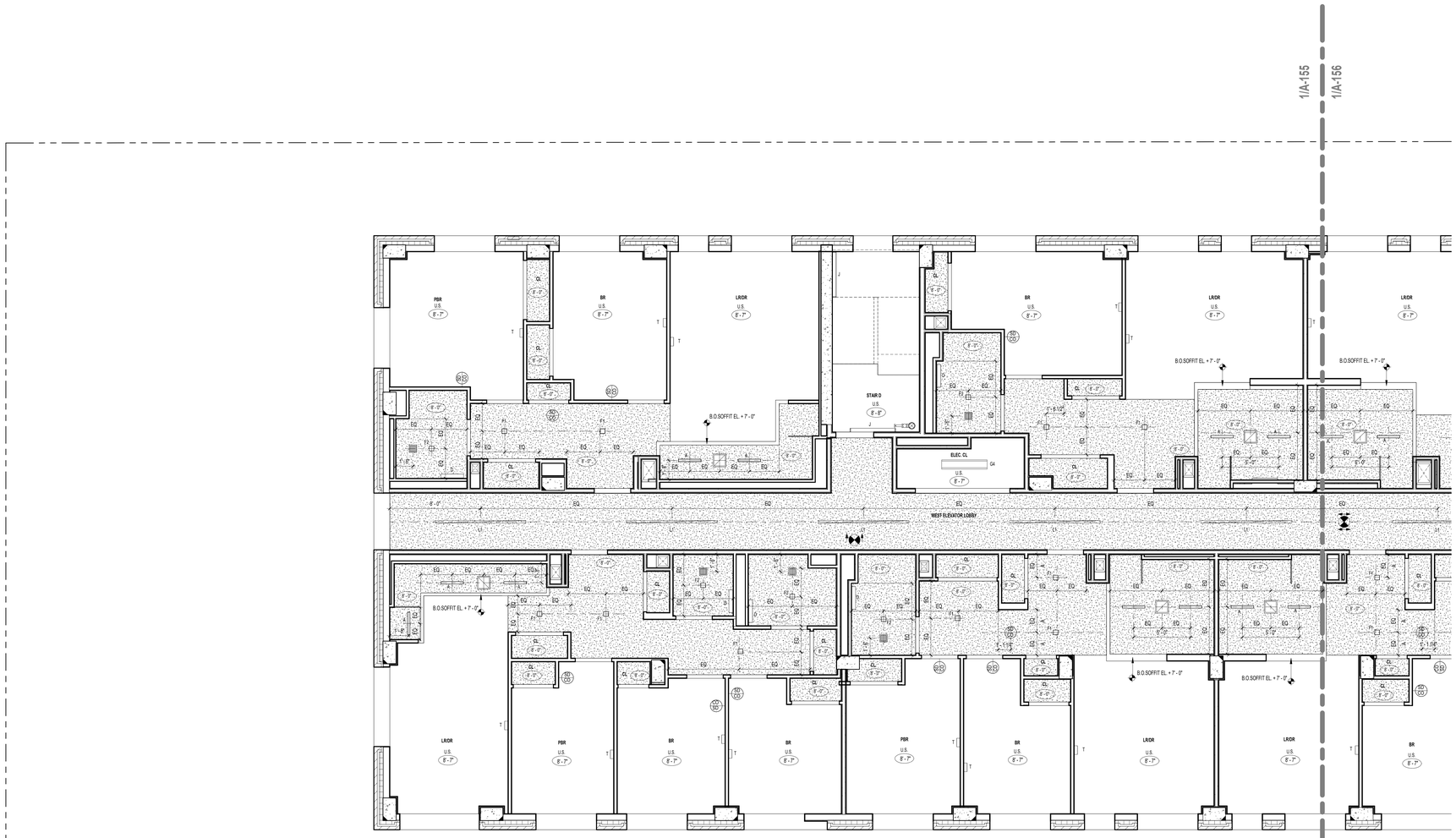

1 7th FLOOR PARTIAL RCP - A
1/4" = 1'-0"

St Joseph Apartments

484 E 178th Street, The Bronx, NY 10457
Block: 3043 Tax Lot: 16, BIN 2806745

Owner:

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Association of New York Catholic Homes
40 Maiden Lane, 13th Floor
New York NY 10038
Tel (646) 794 3167

BLOCK: 3043 LOT: 16

NYC DOB NOW NB: #220212918-01
NYC DOB NOW EN: -
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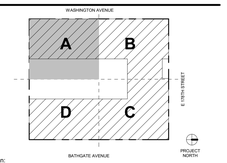
NYC DOB NOW BPP: -
FDNY FA: -



Key Plan:

NUMBER	DATE	DESCRIPTION
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Revisions:

Architect:
Magnusson Architecture & Planning PC
42 West 39th Street, 15th Floor
New York NY 10018
Tel (212) 253 7820 Fax (212) 253 1276

Structural Engineer:
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7TH FLOOR PARTIAL RCP - A

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No:	17001
DRAWING BY:	Author
CHK BY:	Checker

DWG No:
A-155.00

SCALE: As indicated

LEGEND

- GWB HUNG/FRAMED CEILING / SOFFIT — WATER RESISTANT AT WET LOCATIONS
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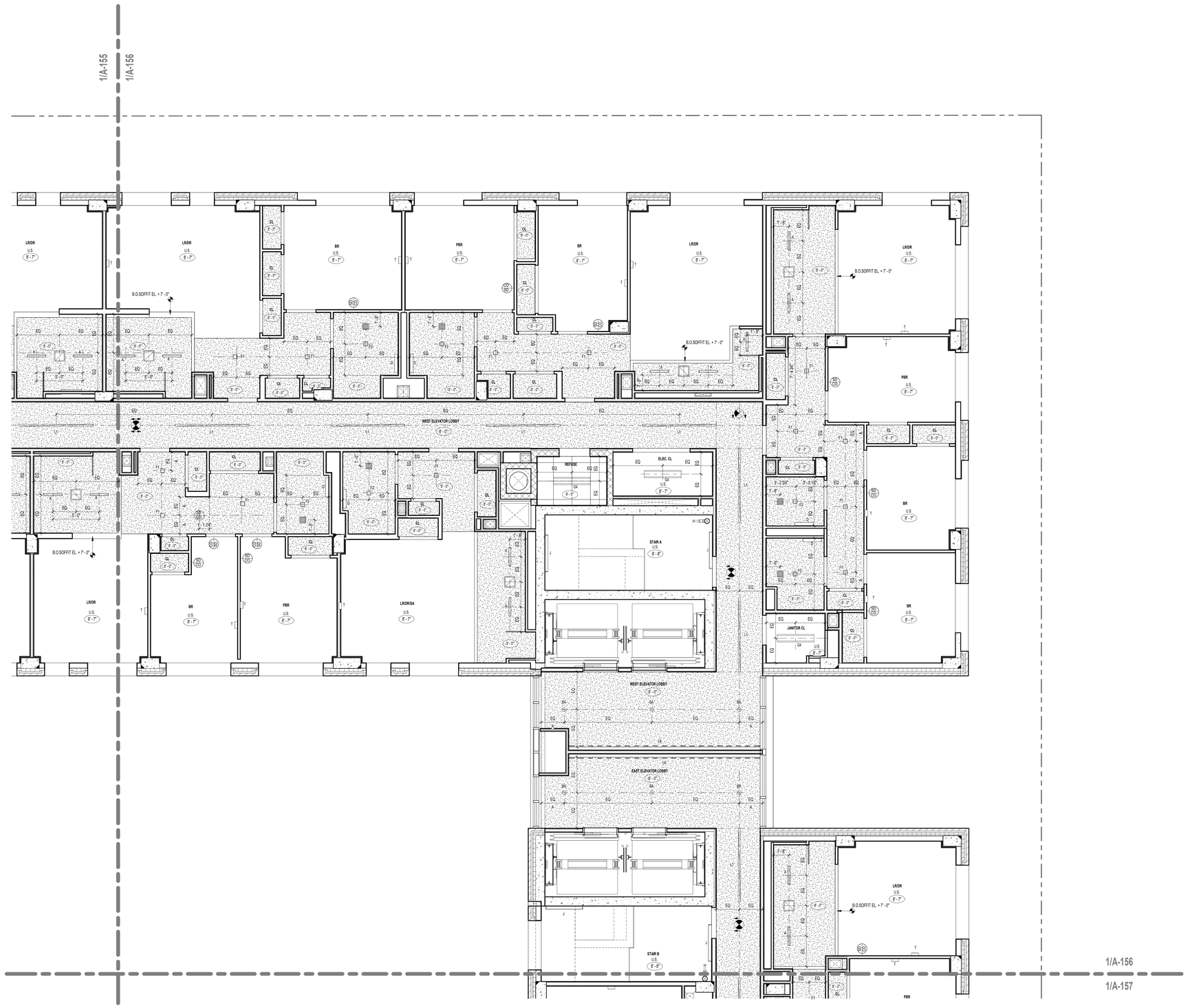

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BLOCK: 3043 LOT: 16

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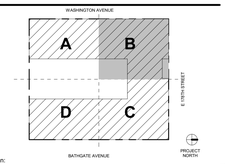

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7TH FLOOR PARTIAL RCP - B

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No:	17001
DRAWING BY:	Author
CHK BY:	Checker

DWG No:
A-156.00

SCALE: As indicated

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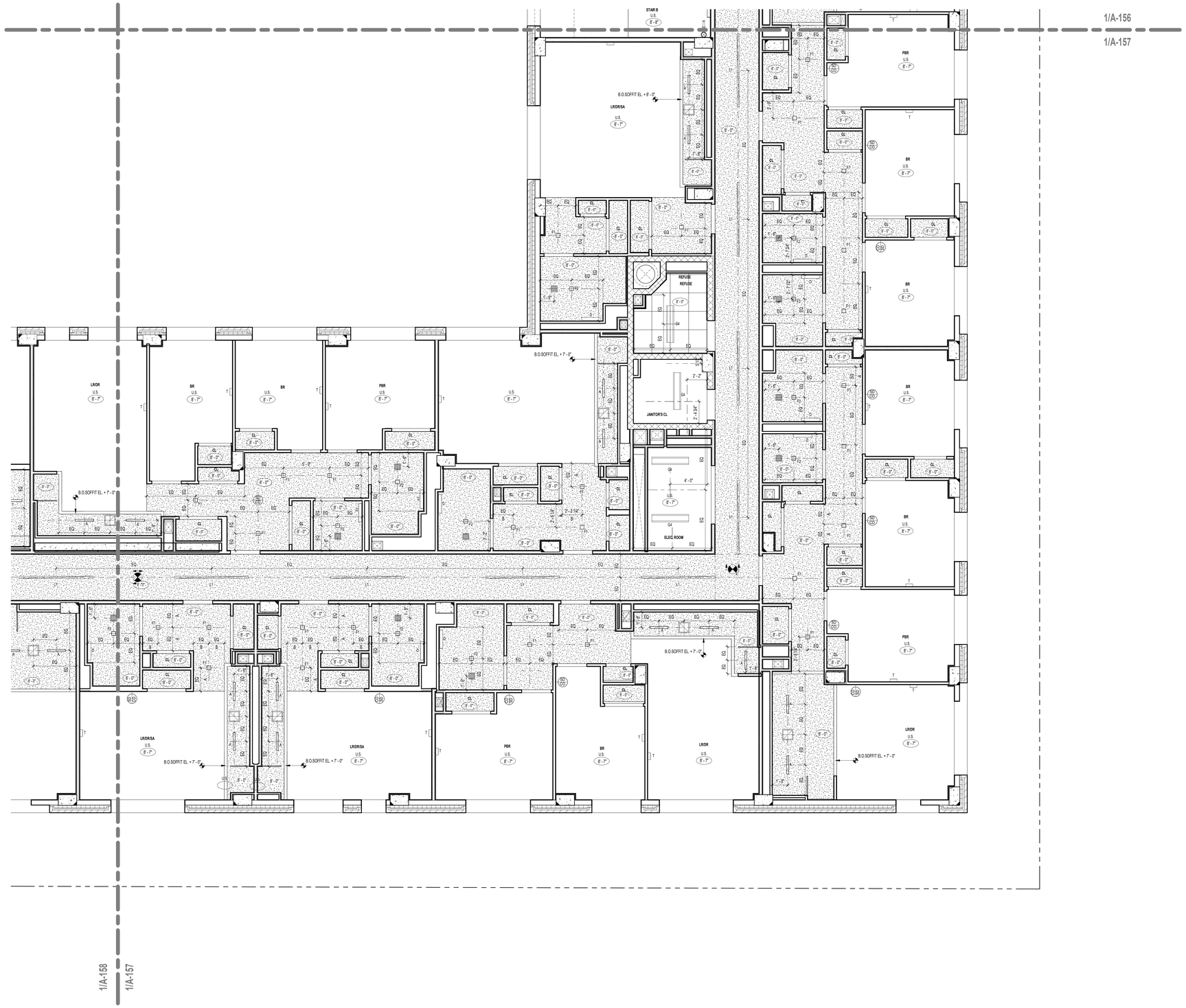

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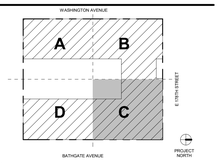

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SEAL & SIGNATURE:

PROJECT No: 17001
DRAWING BY: Author
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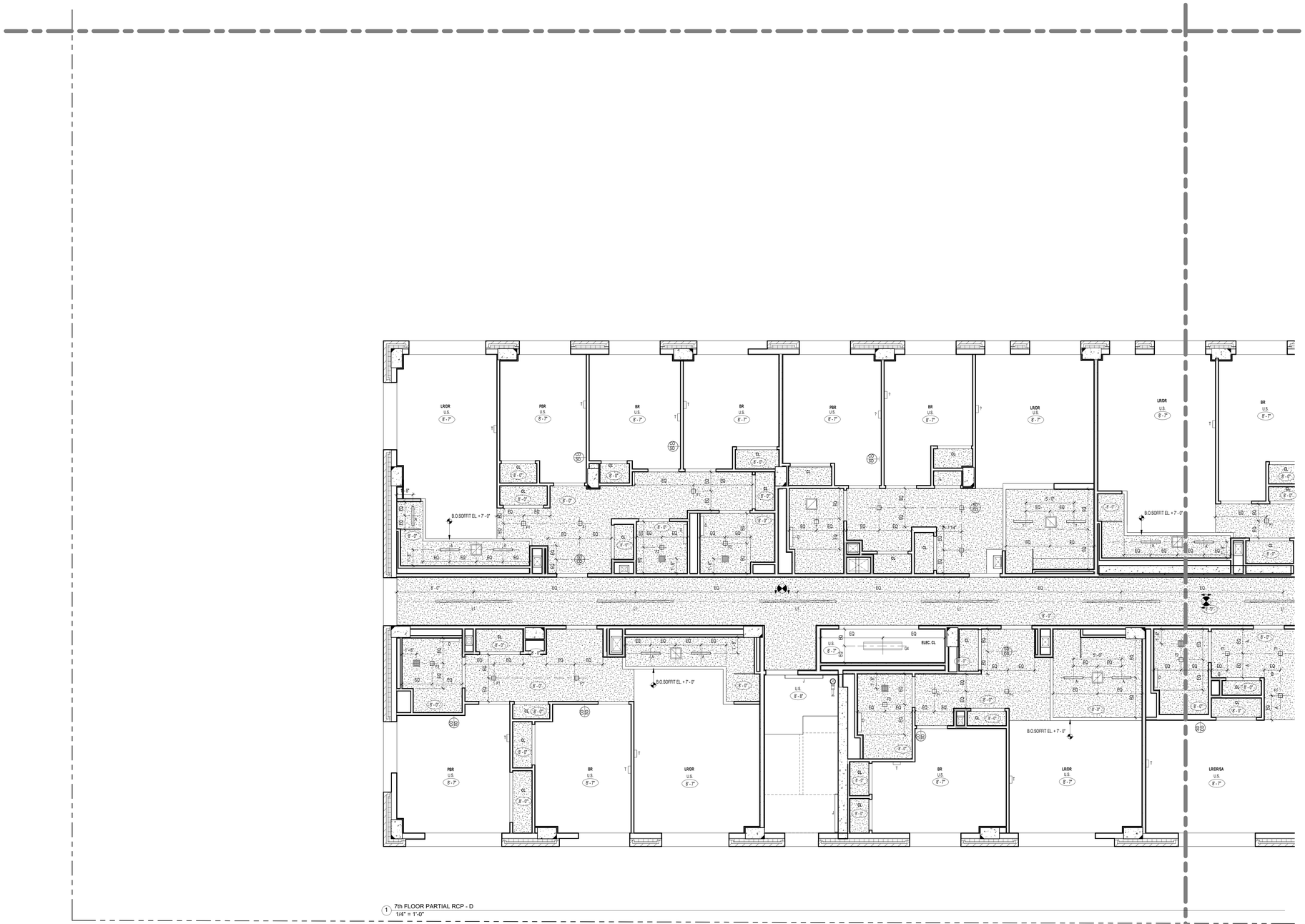

1 7th FLOOR PARTIAL RCP - D
1/4" = 1'-0"

St Joseph Apartments

484 E 178th Street, The Bronx, NY 10457
Block: 3043 Tax Lot: 16, BIN 2806745

Owner:

CATHOLIC HOMES NEW YORK

Association of New York Catholic Homes
40 Maiden Lane, 13th Floor
New York NY 10038
Tel (646) 794 3167

BLOCK: 3043 LOT: 16

NYC DOB NOW NB: #220212918-01
NYC DOB NOW EN: -
NYC DOB NOW FND/EARTHWORK: #X08026216-II
NYC DOB NOW SOE: -
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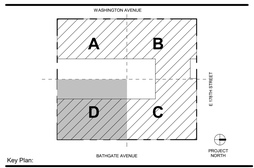

Key Plan:

NUMBER	DATE	DESCRIPTION
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6	08/30/2024	CD ESTIMATING SET

NOT FOR CONSTRUCTION

Revisions:

Architect:
Magnusson Architecture & Planning PC
42 West 39th Street, 15th Floor
New York NY 10018
Tel (212) 253 7820 Fax (212) 253 1276

Structural Engineer:
GACE Consulting Engineers DPC
105 Madison Avenue
New York NY 10016
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MEP Engineer:
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Filing Representative:
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Tel (212) 796 2529

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7TH FLOOR PARTIAL RCP - D

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No: 17001
DRAWING BY: Author
CHK BY: Checker
DWG No: A-158.00
SCALE: As indicated

LEGEND

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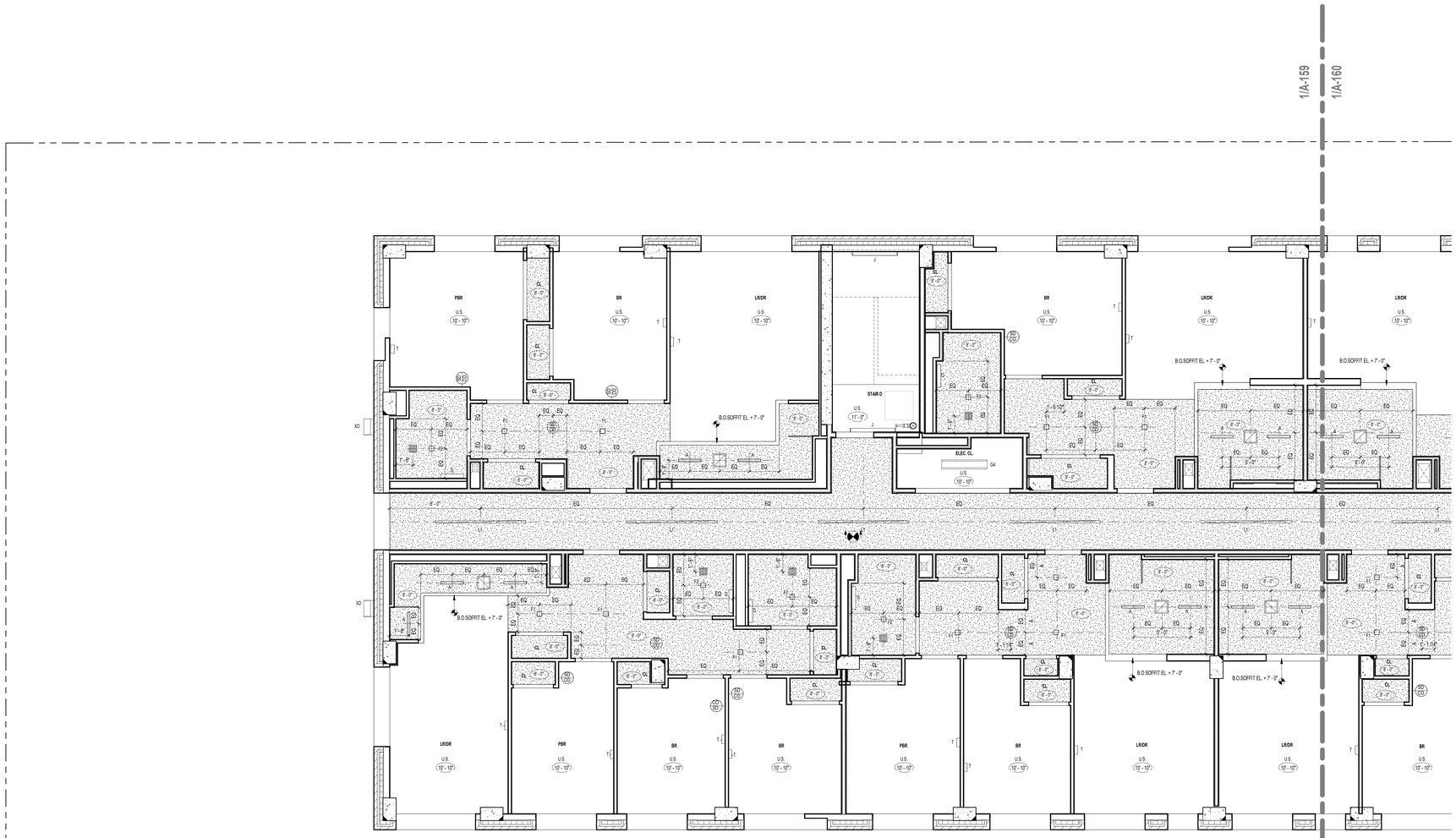

1 8th FLOOR PARTIAL RCP - A
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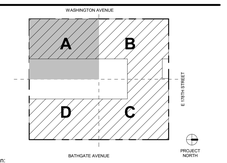

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8TH FLOOR PARTIAL RCP - A

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No:	17001
DRAWING BY:	Author
CHK BY:	Checker

DWG No:
A-159.00

SCALE: As indicated

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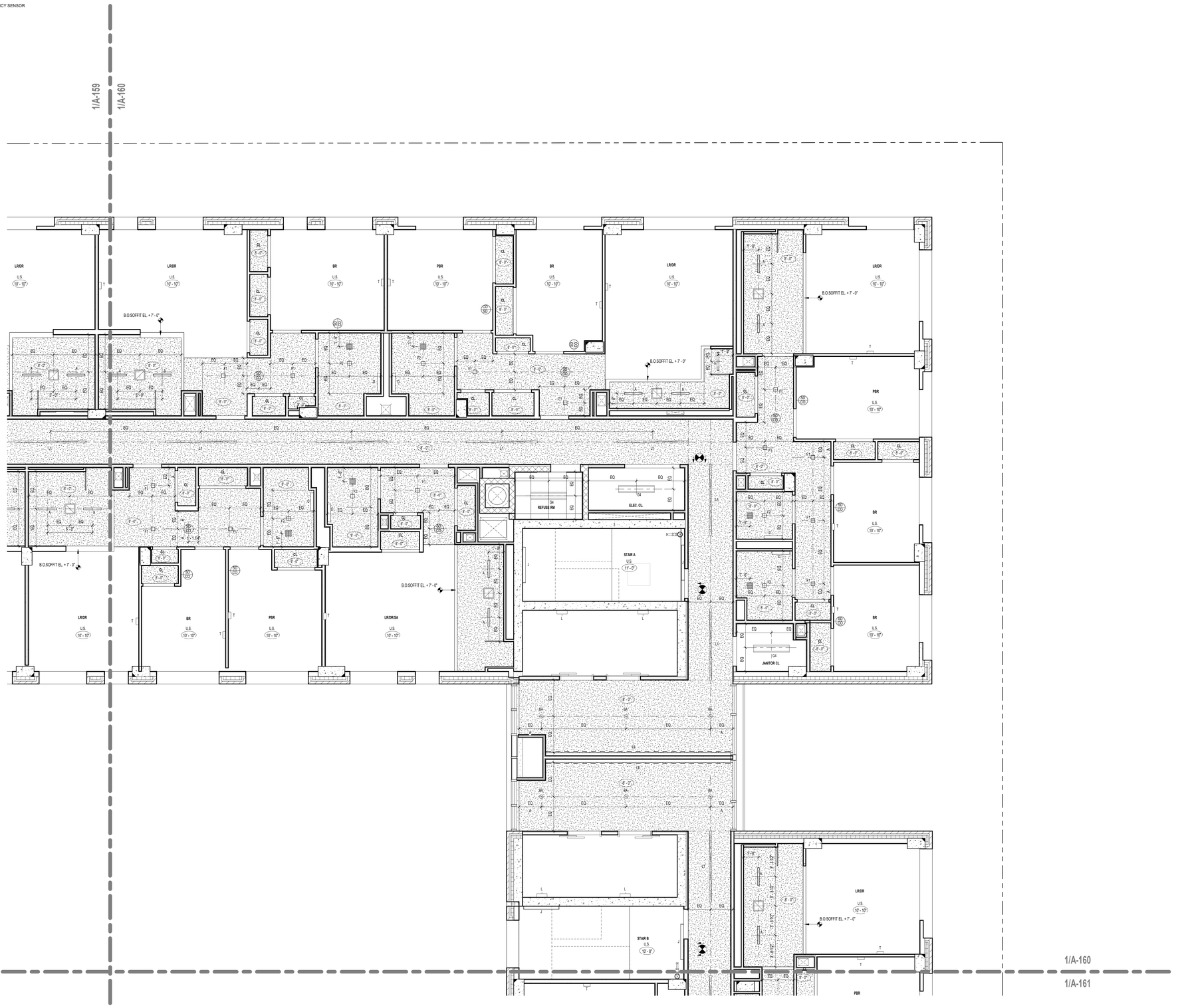

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BLOCK: 3043 LOT: 16

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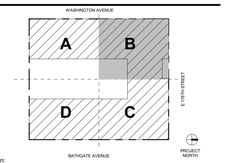

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8TH FLOOR PARTIAL RCP - B

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No:	17001
DRAWING BY:	Author
CHK BY:	Checker

DWG No:
A-160.00

SCALE: As indicated

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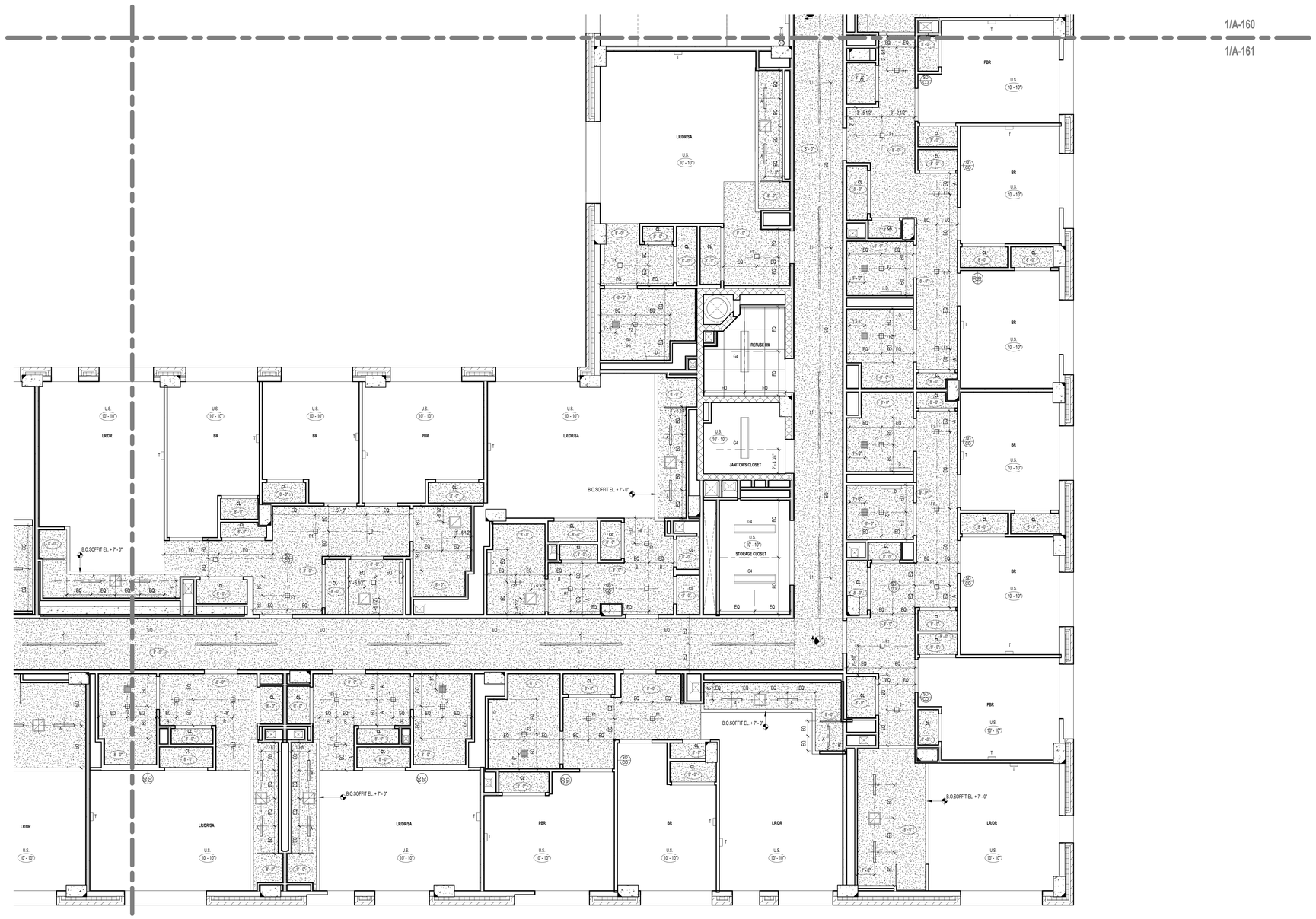

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1/A-159
1/A-161

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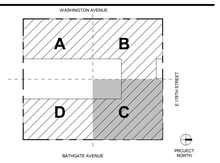

Key Plan:

NUMBER	DATE	DESCRIPTION
2	10/21/2022	DOB SUBMISSION
3	11/30/2022	100% DD SET
4	06/12/2024	DOB RESUBMISSION
5	06/28/2024	ENERGY MODELING
6	08/30/2024	CD ESTIMATING SET

NOT FOR CONSTRUCTION

Revisions:

Architect:
Magnusson Architecture & Planning PC
42 West 39th Street, 15th Floor
New York NY 10018
Tel (212) 253 7820 Fax (212) 253 1276

Structural Engineer:
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Tel (212) 796 2529

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8TH FLOOR PARTIAL RCP - C

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No:	17001
DRAWING BY:	Author
CHK BY:	Checker
DWG No:	A-161.00
SCALE: As indicated	91 of 175

LEGEND

- GWB HUNG/FRAMED CEILING / SOFFIT — WATER RESISTANT AT WET LOCATIONS
- UNDERSIDE OF SLAB/PLANK ABOVE. TREATED W/ COVER COAT COMPOUND IN RESIDENTIAL AREAS. REFER TO SECTIONS & ELEVATIONS
- 2' X 2' ACOUSTICAL CEILING TILE
- DECORATIVE WOOD SLAT CEILING
- UHPC / FIBER CEMENT SOFFIT
- HARDWIRED CARBON MONOXIDE AND SMOKE DETECTOR
- HARDWIRED CARBON MONOXIDE AND SMOKE DETECTOR WITH STROBE
- DAYLIGHT SENSOR
- OCCUPANCY SENSOR
- VACANCY SENSOR
- WIRELESS ACCESS POINT
- DIRECTIONAL ILLUMINATED EXIT SIGN
- CAPPED, RECESSED CEILING SPRINKLER HEAD
- CEILING HVAC RETURN / EXHAUST DIFFUSER
- CEILING HVAC SUPPLY DIFFUSER
- STROBE DEVICE
- DOORBELL STROBE DEVICE
- CEILING ELEVATION

RCP NOTES

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2) LIGHTING CONTROLS TO COMPLY WITH NYC ENERGY CODE.
3) ALL PUBLIC LIGHTING SHALL BE METERED SEPARATELY FROM RESIDENTIAL UNITS.
4) ALL DWELLING UNITS SHALL BE INDIVIDUALLY METERED.
5) 100% OF PERMANENTLY INSTALLED FIXTURES WITHIN DWELLING UNITS SHALL BE PROVIDED WITH HIGH EFFICIENCY LAMPS, MEETING OR EXCEEDING ENERGY STAR SPECIFICATIONS.
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9) WHERE INVERTERS ARE REQUIRED FOR EMERGENCY LIGHT FIXTURES, PLACE ONE PER FLOOR MIN. IN THE ELECTRICAL CLOSET. COORD WITH ELECTRICAL DWGS.
10) DOTTED LINES IN RCP INDICATE WHERE DUCTS TRANSFER ABOVE CEILING. NOT ALL LOCATIONS MAY BE SHOWN.
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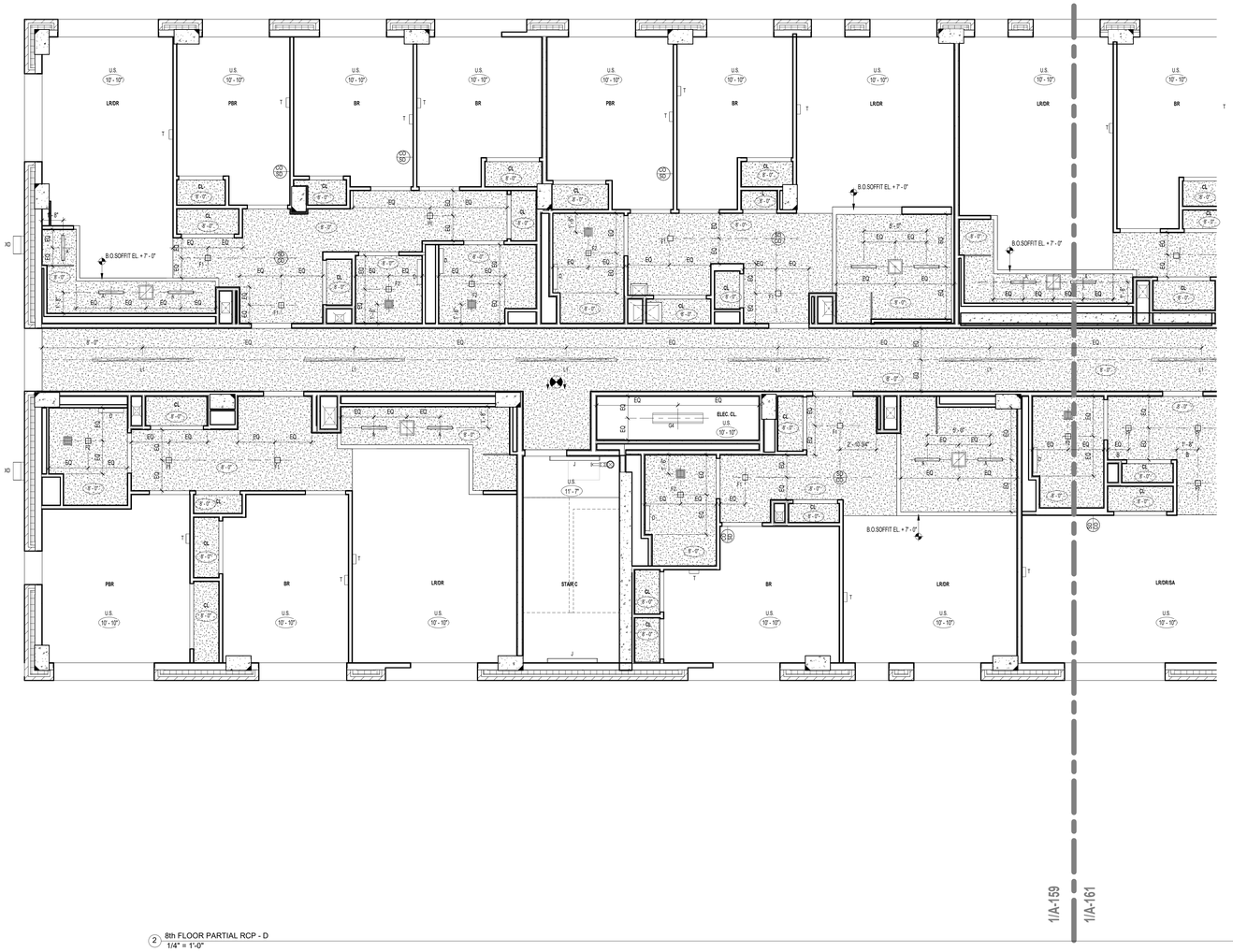

2 8th FLOOR PARTIAL RCP - D
1/4" = 1'-0"

St Joseph Apartments

484 E 178th Street, The Bronx, NY 10457
Block: 3043 Tax Lot: 16, BIN 2806745

Owner:

CATHOLIC HOMES NEW YORK

Association of New York Catholic Homes
40 Maiden Lane, 13th Floor
New York NY 10038
Tel (646) 794 3167

BLOCK: 3043 LOT: 16

NYC DOB NOW NB: #220212918-01
NYC DOB NOW EN: -
NYC DOB NOW FND/EARTHWORK: #X08026216-II
NYC DOB NOW SOE: -
NYC DOB NOW STRUC: #X080262 I I-II
NYC DOB NOW MECH: #X08026188-II
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NYC DOB NOW SS/SP: #X08026201-II
NYC DOB NOW TEMP SP: -
NYC DOB NOW CIV PL: #X08026209-II
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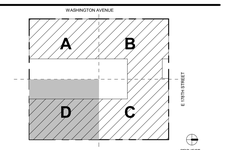
FDNY FA: -



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8TH FLOOR PARTIAL RCP - D

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No:	17001
DRAWING BY:	Author
CHK BY:	Checker
DWG No:	A-162.00
SCALE: As indicated	92 of 175

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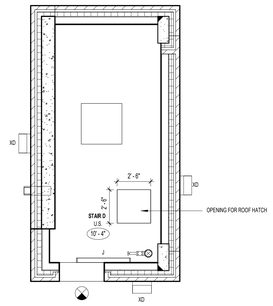
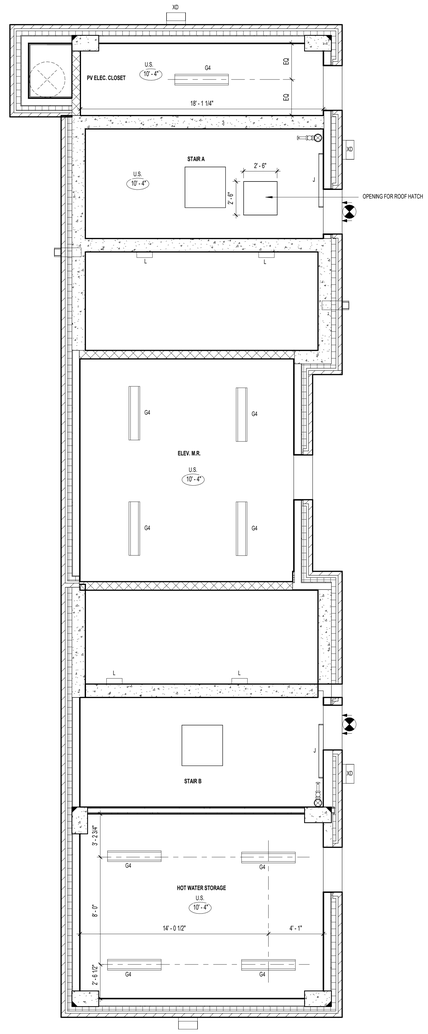
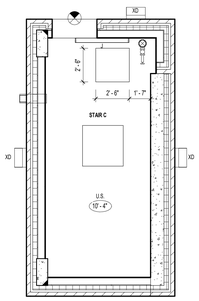


1 STAIR D ROOF RCP
1/4" = 1'-0"



2 MAIN ROOF RCP
1/4" = 1'-0"



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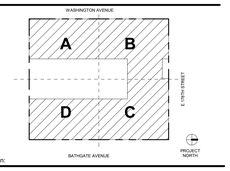

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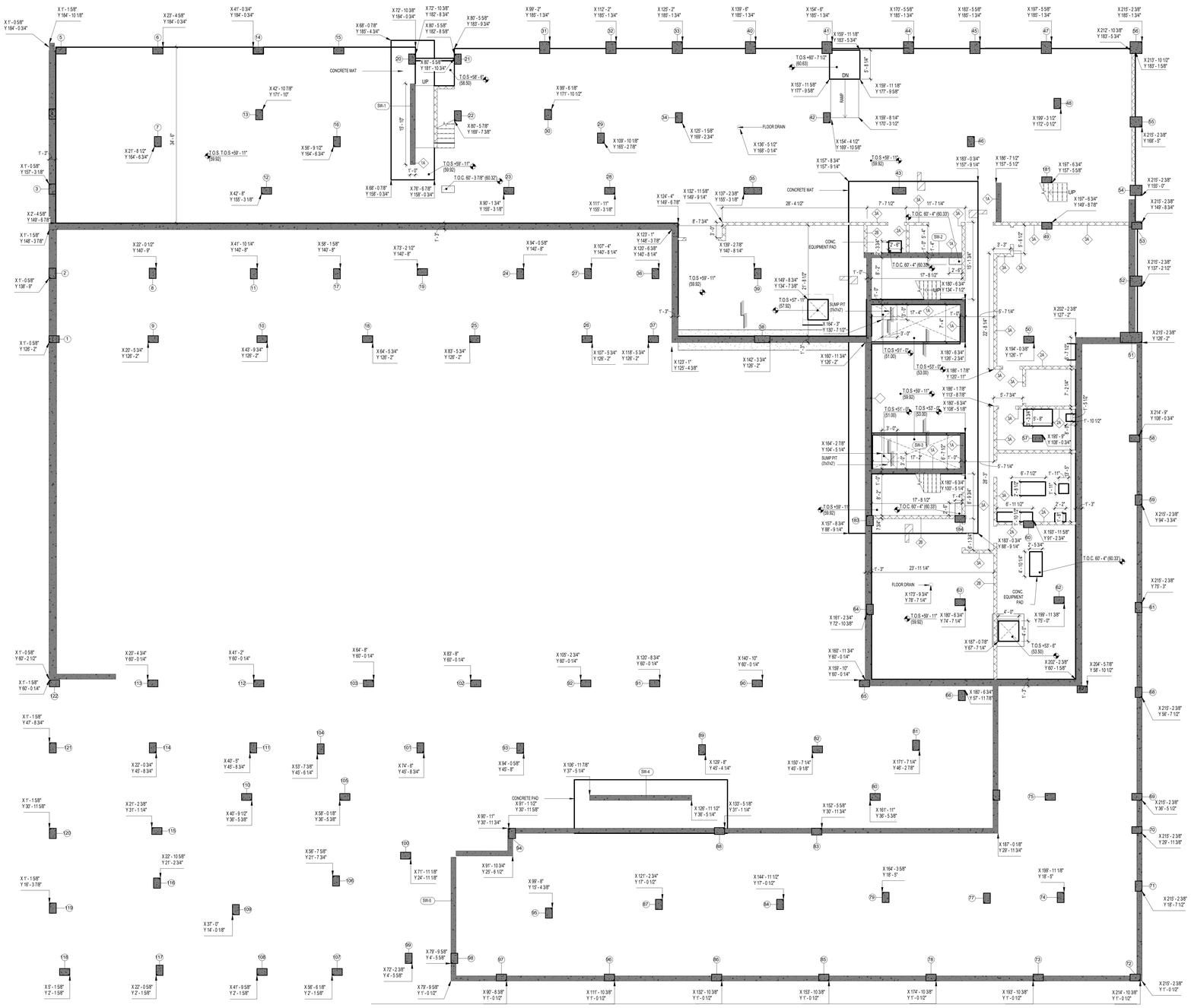
MAIN ROOF PARTIAL RCP

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No:	17001
DRAWING BY:	Author
CHK BY:	Checker
DWG No:	A-163.00
SCALE: As indicated	93 of 175


CONCRETE MAT
UP
DN
RAMP
FLOOR DRAIN
CONCRETE MAT
CONC. EQUIPMENT PAD
SUMP PIT (DN2%2)
CONCRETE PAD
CONC. EQUIPMENT PAD
FLOOR DRAIN
SUMP PIT (DN2%2)
SW-1
SW-2
SW-3
SW-4
SW-5
SW-6
T.O.C. 60' - 4" (60.33')
T.O.C. 60' - 3 7/8" (60.32')
T.O.S +60' - 7 1/2" (60.63)
T.O.S +59' - 11" (59.92)
T.O.S +59' - 10" (59.83)
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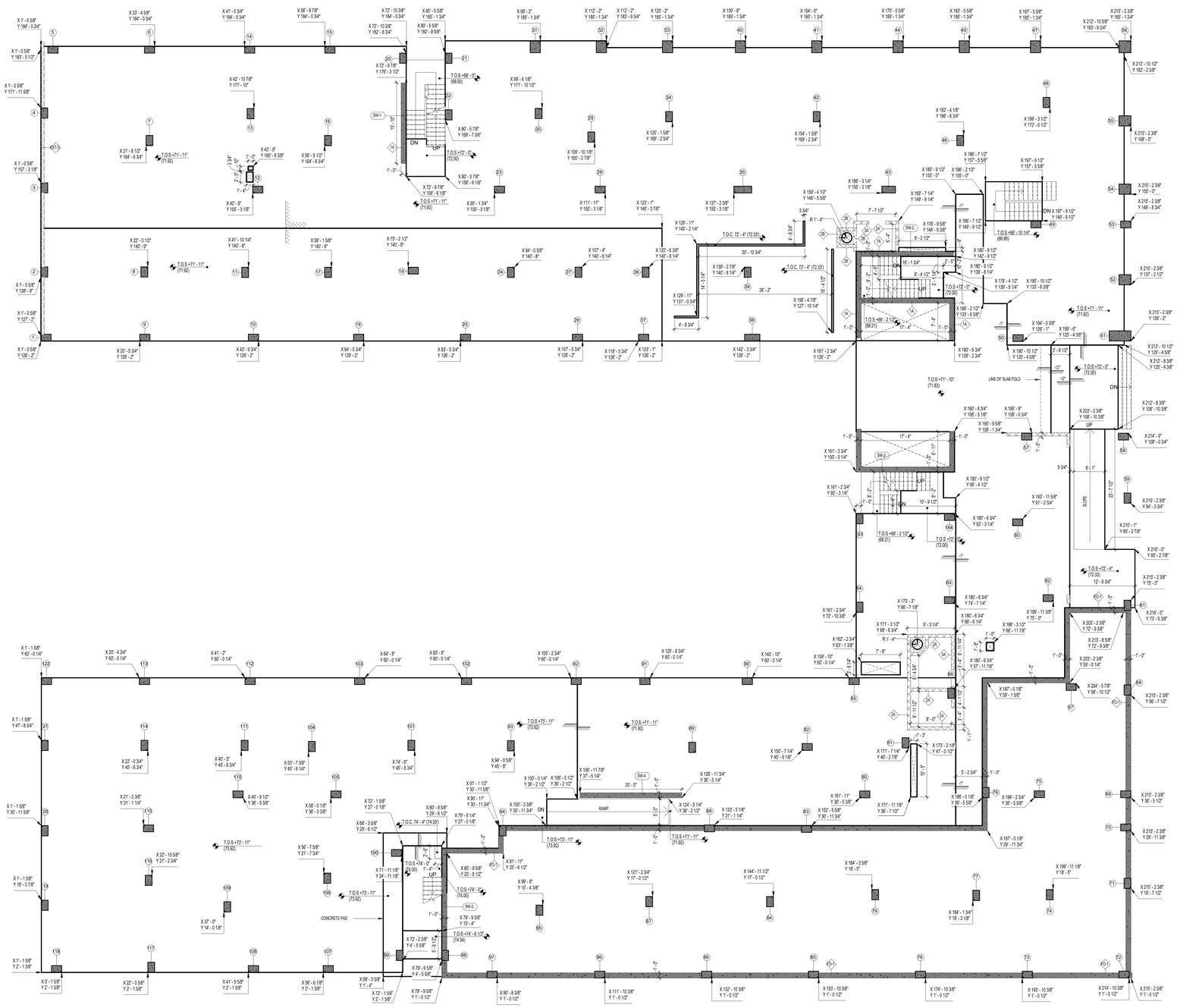
T.O.S +4' - 10" (4.83)
T.O.S +3' - 11" (3.92)
T.O.S +3' - 10" (3.83)
T.O.S +2' - 11" (2.92)
T.O.S +2' - 10" (2.83)
T.O.S +1' - 11" (1.92)
T.O.S +1' - 10" (1.83)
T.O.S +0' - 11" (0.92)
T.O.S +0' - 10" (0.83)
T.O.S -1' - 11" (-1.08)
T.O.S -1' - 10" (-1.17)
T.O.S -2' - 11" (-2.08)
T.O.S -2' - 10" (-2.17)
T.O.S -3' - 11" (-3.08)
T.O.S -3' - 10" (-3.17)
T.O.S -4' - 11" (-4.08)
T.O.S -4' - 10" (-4.17)
T.O.S


T.O.S +68' - 0"
(68.00)
T.O.S +72' - 0"
(72.00)
T.O.S +71' - 11"
(71.92)
T.O.C. 72' - 4" (72.33)
T.O.S +68' - 2 1/2"
(68.21)
T.O.S +74' - 0"
(74.00)
T.O.S +74' - 6 1/2"
(74.54)
T.O.S +73' - 11"
(73.92)
T.O.S +73' - 1"
(73.08)
T.O.S +68' - 10 1/4"
(68.86)
T.O.S +71' - 10"
(71.83)
T.O.C. 74' - 4" (74.33)
UP
DN
RAMP
LINE OF SLAB FOLD
CONCRETE PAD
SW-1
SW-2
SW-3
SW-4
SW-5
SW-6
20' - 10 3/4"
26' - 2"
16' - 1 3/4"
14' - 5 1/4"
17' - 4"
9' - 2 1/2"
7' - 7 1/2"
9' - 3 1/4"
12' - 9 3/4"
8' - 11 1/2"
8' - 4 1/2"
20' - 0"
9 3/4"
10' - 9 1/2"
2' - 8 1/2"
2' - 1"
1' - 0"
R 1' - 4"
3 3/4"
4' - 8 3/4"
4' - 6 1/4"
4' - 6 1/8"
4' - 6 1/4"
4' - 6 1/2"
4' - 6 3/4"
4' - 7"
4' - 7 1/8"
4' - 7 1/4"
4' - 7 3/8"
4' - 7 1/2"
4' - 7 5/8"
4' - 7 3/4"
4' - 7 7/8"
4' - 8"
4' - 8 1/8"
4' - 8 1/4"
4' - 8 3/8"
4' - 8 1/2"
4' - 8 5/8"
4' - 8 3/4"
4' - 8 7/8"
4' - 9"
4' - 9 1/8"
4' - 9 1/4"
4' - 9 3/8"
4' - 9 1/2"
4' - 9 5/8"
4' - 9 3/4"
4' - 9 7/8"
4' - 10"
4' - 10 1/8"
4' - 10 1/4"
4' - 10 3/8"
4' - 10 1/2"
4' - 10 5/8"
4' - 10 3/4"
4' - 10 7/8"
4' - 11"
4' - 11 1/8"
4' - 11 1/4"
4' - 11 3/8"
4' - 11 1/2"
4' - 11 5/8"
4' - 11 3/4"
4' - 11 7/8"
5' - 0"
5' - 2 3/4"
6' - 4 1/2"
6' - 11 1/2"
6' - 11 3/4"
7' - 8"
9' - 3 1/4"
17' - 4"
1' - 0"
1' - 3"
1' - 6"
1' - 9"
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2' - 9"
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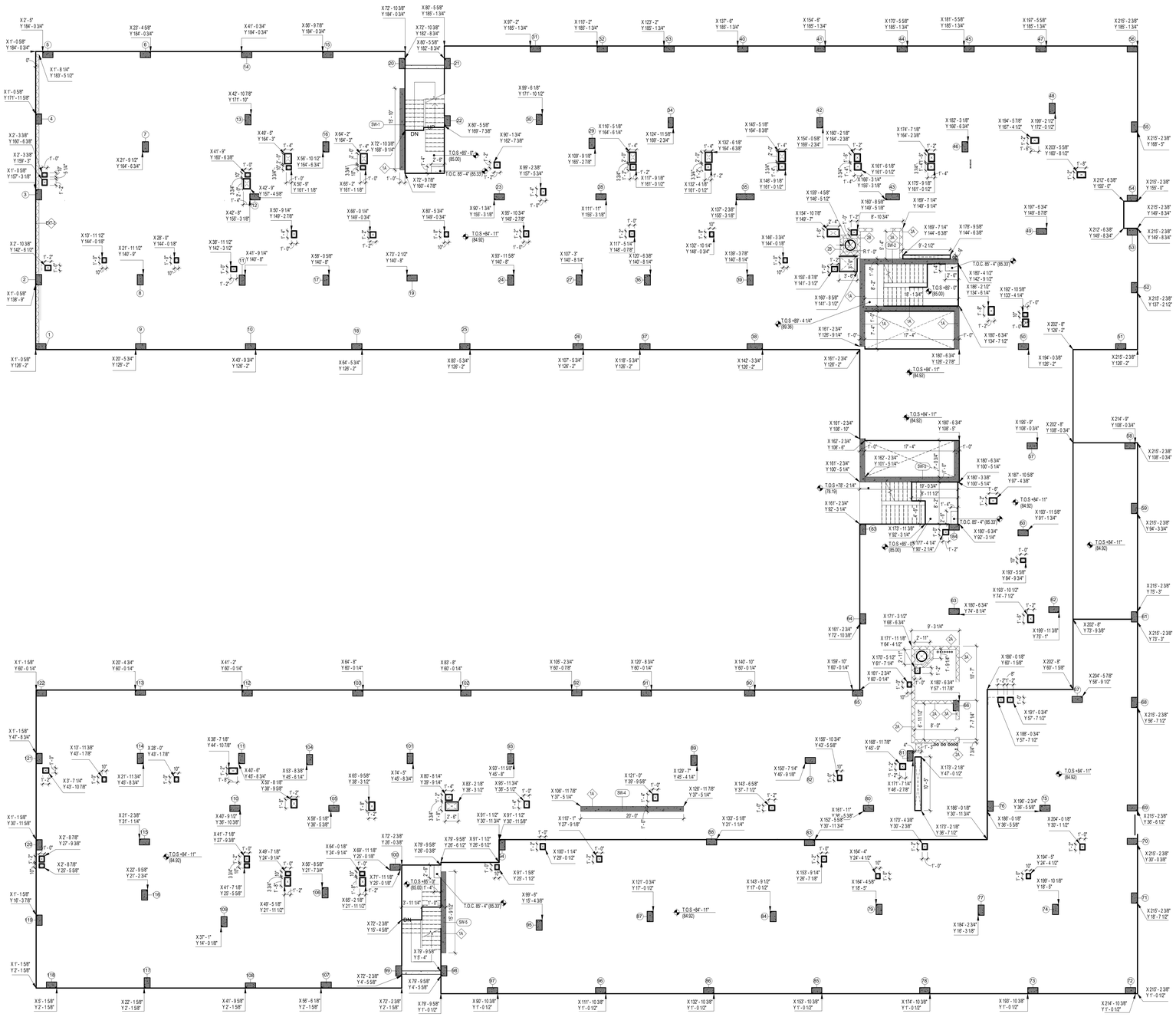
3' - 3"
3' - 6"
3' - 9"



1 2ND FLOOR SLAB EDGE PLAN
1/8" = 1'-0"

: Change In Slab Thickness

: Change In Elevation Indicator

St Joseph Apartments

484 E 178th Street, The Bronx, NY 10457
Block: 3043 Tax Lot: 16, BIN 2806745

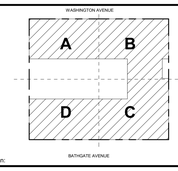
Owner:

CATHOLIC HOMES NEW YORK

Association of New York Catholic Homes
40 Maiden Lane, 13th Floor
New York NY 10038
Tel (646) 794 3167

BLOCK: 3043 LOT: 16

NYC DOB NOW NB: #220212918-01
NYC DOB NOW EN: -
NYC DOB NOW FND/EARTHWORK: #X08026216-II
NYC DOB NOW SOE: -
NYC DOB NOW STRUC: #X08026211-II
NYC DOB NOW MECH: #X08026188-II
NYC DOB NOW PL: #X08026196-II
NYC DOB NOW SS/SP: #X08026201-II
NYC DOB NOW TEMP SP: -
NYC DOB NOW CIV PL: #X08026209-II
NYC DOB NOW BPP: -
FDNY FA: -



Key Plan:

NUMBER	DATE	DESCRIPTION
5	06/28/2024	ENERGY MODELING
6	08/30/2024	CD ESTIMATING SET

NOT FOR CONSTRUCTION

Revisions:

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Tel (212) 253 7820 Fax (212) 253 1276

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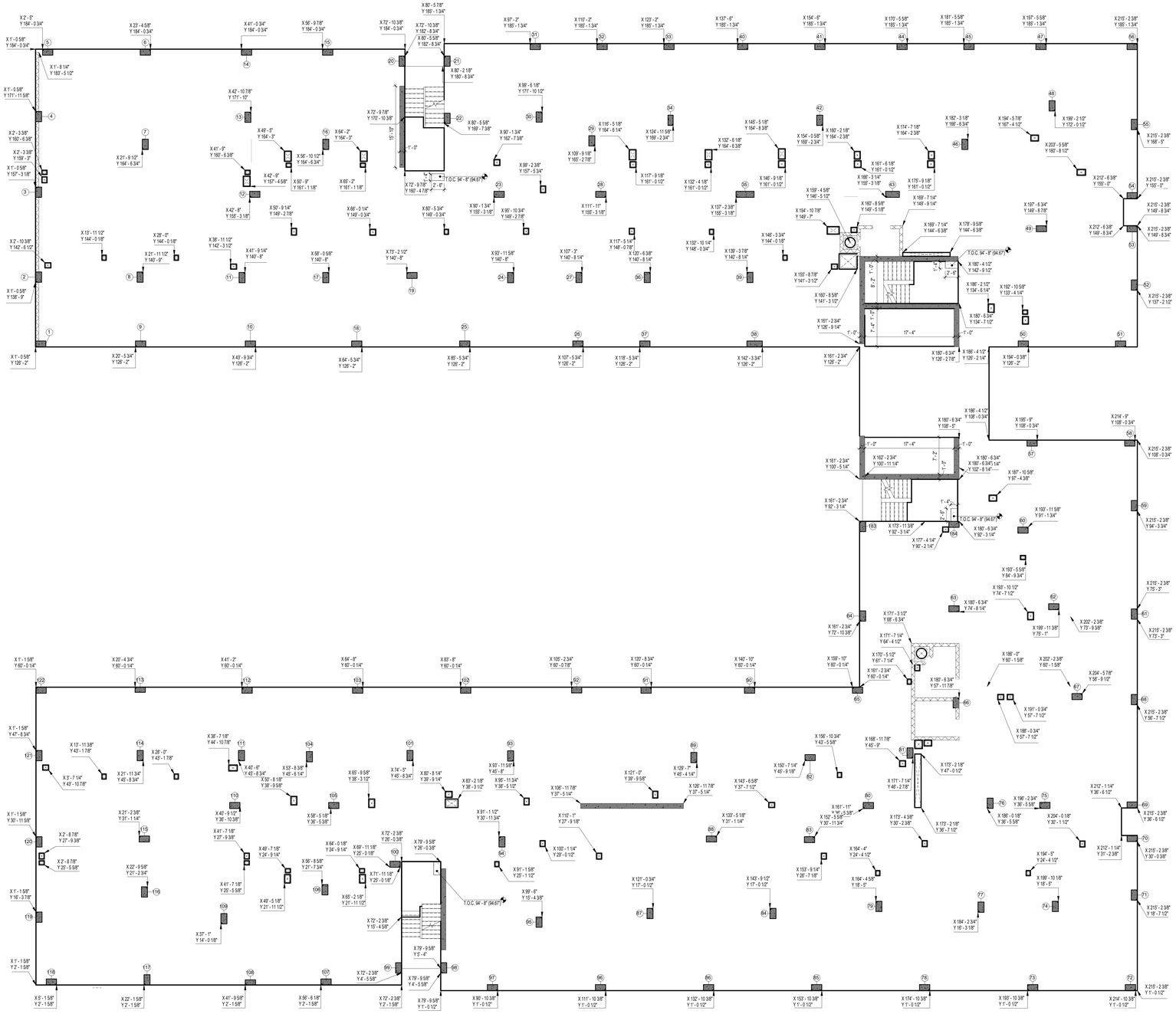
2ND FLOOR SLAB EDGE PLAN

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No:	17001
DRAWING BY:	Author
CHK BY:	Checker
DWG No:	A-902.00
SCALE:	As indicated



1 TOS 3RD FLOOR(1)
1/8" = 1'-0"

St Joseph Apartments

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Block: 3043 Tax Lot: 16, BIN 2806745

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New York NY 10038
Tel (646) 794 3167

BLOCK: 3043 LOT: 16

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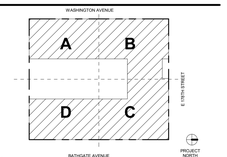
NYC DOB NOW SOE: -
NYC DOB NOW STRUC: #X08026211-II
NYC DOB NOW MECH: #X08026188-II
NYC DOB NOW PL: #X08026196-II
NYC DOB NOW SS/SP: #X08026201-II
NYC DOB NOW TEMP SP: -
NYC DOB NOW CIV PL: #X08026209-II
NYC DOB NOW BPP: -
FDNY FA: -



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5	06/28/2024	ENERGY MODELING
6	08/30/2024	CD ESTIMATING SET

NOT FOR CONSTRUCTION

Revisions:

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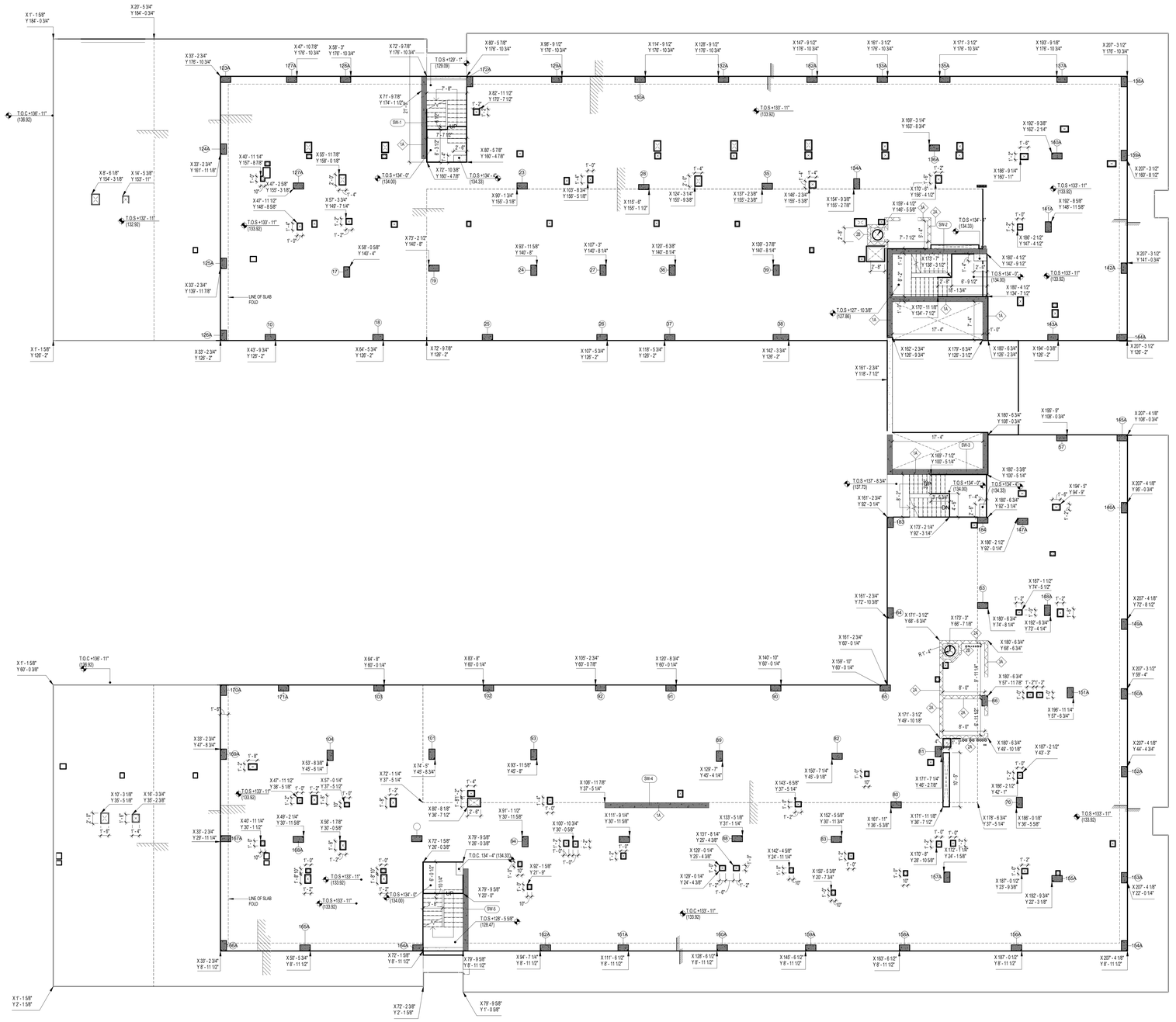
3RD - 6TH FLOOR SLAB EDGE PLAN

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No:	17001
DRAWING BY:	Author
CHK BY:	Checker
DWG No:	A-903.00
SCALE: 1/8" = 1'-0"	171 of 175



1 7TH FLOOR SLAB EDGE PLAN
1/8" = 1'-0"

: Change In Slab Thickness

: Change In Elevation Indicator

St Joseph Apartments

484 E 178th Street, The Bronx, NY 10457
Block: 3043 Tax Lot: 16, BIN 2806745

Owner:

CATHOLIC HOMES NEW YORK

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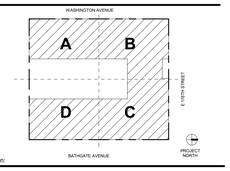
40 Maiden Lane, 13th Floor
New York NY 10038
Tel (646) 794 3167

BLOCK: 3043 LOT: 16

NYC DOB NOW NB: #220212918-01
NYC DOB NOW EN: -
NYC DOB NOW FND/EARTHWORK: #X08026216-II
NYC DOB NOW SOE: -
NYC DOB NOW STRUC: #X08026211-II
NYC DOB NOW MECH: #X08026188-II
NYC DOB NOW PL: #X08026196-II
NYC DOB NOW SS/SP: #X08026201-II
NYC DOB NOW TEMP SP: -
NYC DOB NOW CIV PL: #X08026209-II
NYC DOB NOW BPP: -
FDNY FA: -



Key Plan:

NUMBER	DATE	DESCRIPTION
5	06/28/2024	ENERGY MODELING
6	08/30/2024	CD ESTIMATING SET

NOT FOR CONSTRUCTION

Revisions:

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Magnusson Architecture & Planning PC
43 West 39th Street, 15th Floor
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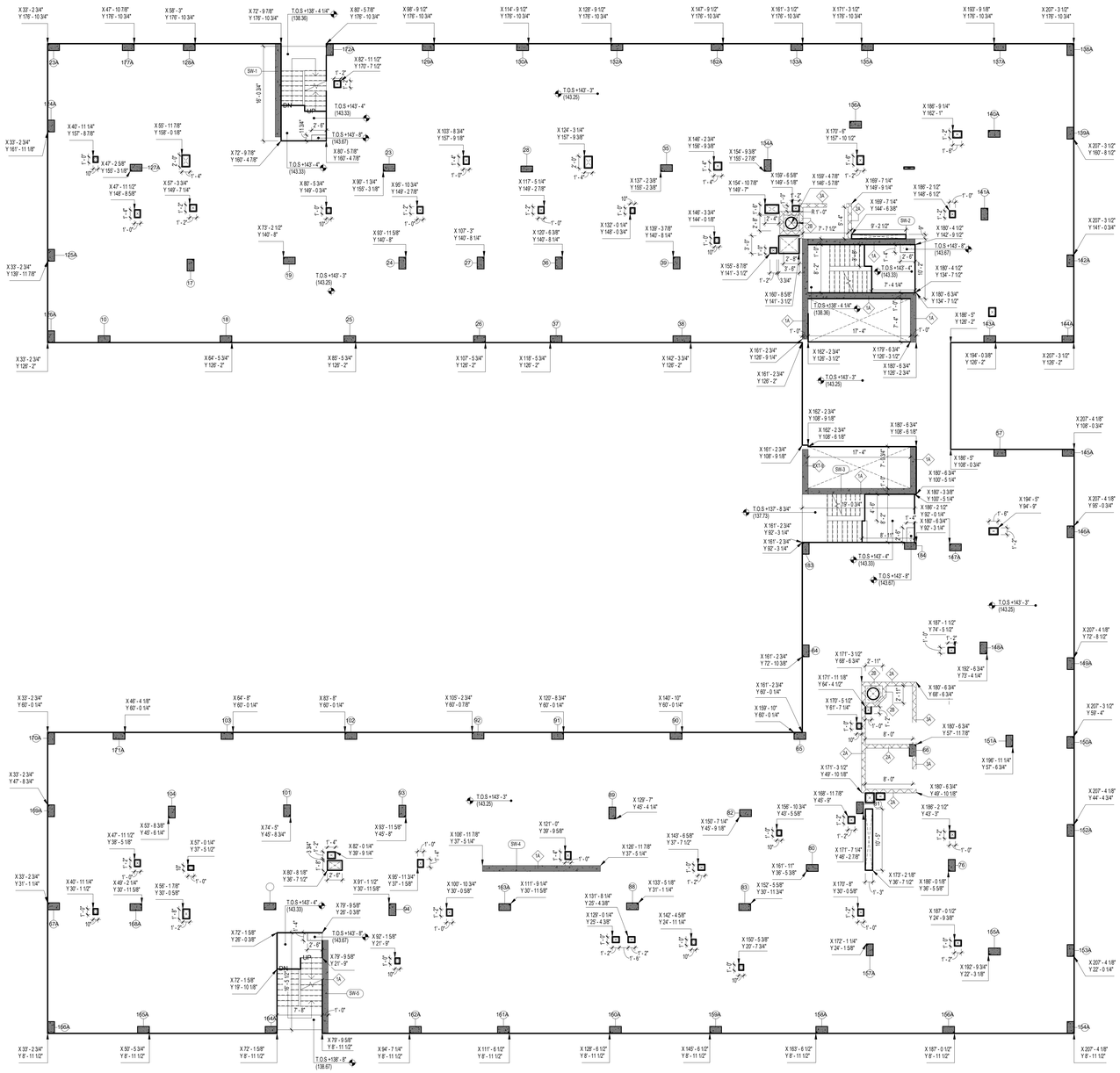
7TH FLOOR SLAB EDGE PLAN

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No:	17001
DRAWING BY:	Author
CHK BY:	Checker
DWG No:	A-904.00
SCALE:	As indicated



8TH FLOOR SLAB EDGE PLAN

: Change In Slab Thickness

: Change In Elevation Indicator

St Joseph Apartments

484 E 178th Street, The Bronx, NY 10457
Block: 3043 Tax Lot: 16, BIN 2806745

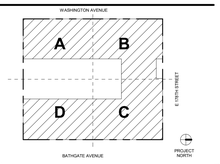
Owner:

CATHOLIC HOMES NEW YORK

Association of New York Catholic Homes
40 Maiden Lane, 13th Floor
New York NY 10038
Tel (646) 794 3167

BLOCK: 3043 LOT: 16

NYC DOB NOW NB: #220212918-01
NYC DOB NOW EN: -
NYC DOB NOW FND/EARTHWORK: #X08026216-II
NYC DOB NOW SOE: -
NYC DOB NOW STRUC: #X08026211-II
NYC DOB NOW MECH: #X08026188-II
NYC DOB NOW PL: #X08026196-II
NYC DOB NOW SS/SP: #X08026201-II
NYC DOB NOW TEMP SP: -
NYC DOB NOW CIV PL: #X08026209-II
NYC DOB NOW BPP: -
FDNY FA: -



Key Plan:

NUMBER	DATE	DESCRIPTION
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6	08/30/2024	CD ESTIMATING SET

NOT FOR CONSTRUCTION

Revisions:

Architect:

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42 West 39th Street, 15th Floor
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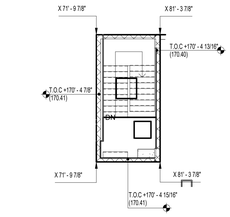
8TH FLOOR SLAB EDGE PLAN

DOB SEAL:

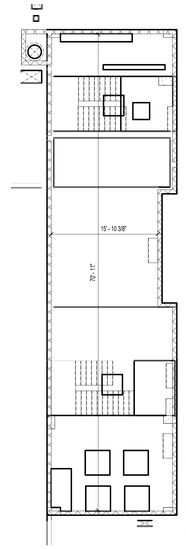
SEAL & SIGNATURE:

PROJECT No: 17001
DRAWING BY: Author
CHK BY: Checker
DWG No: A-905.00
SCALE: As indicated

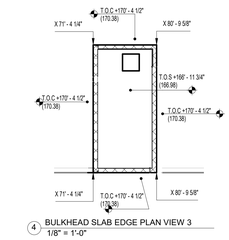
1 MAIN ROOF SLAB EDGE PLAN
1/8" = 1'-0"



2 BULKHEAD SLAB EDGE PLAN VIEW 1
1/8" = 1'-0"



3 BULKHEAD SLAB EDGE PLAN VIEW 2
1/8" = 1'-0"



4 BULKHEAD SLAB EDGE PLAN VIEW 3
1/8" = 1'-0"

: Change In Slab Thickness

: Change In Elevation Indicator

St Joseph Apartments

484 E 178th Street, The Bronx, NY 10457
Block: 3043 Tax Lot: 16, BIN 2806745

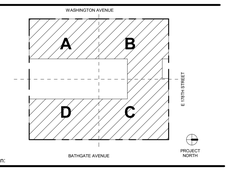
Owner:

CATHOLIC HOMES NEW YORK

Association of New York Catholic Homes
40 Maiden Lane, 13th Floor
New York NY 10038
Tel (646) 794 3167

BLOCK: 3043 LOT: 16

NYC DOB NOW NB: #220212918-01
NYC DOB NOW EN: -
NYC DOB NOW FND/EARTHWORK: #X08026216-II
NYC DOB NOW SOE: -
NYC DOB NOW STRUC: #X08026211-II
NYC DOB NOW MECH: #X08026188-II
NYC DOB NOW PL: #X08026196-II
NYC DOB NOW SS/SP: #X08026201-II
NYC DOB NOW TEMP SP: -
NYC DOB NOW CIV PL: #X08026209-II
NYC DOB NOW BPP: -
FDNY FA: -



Key Plan:

NUMBER	DATE	DESCRIPTION
5	06/28/2024	ENERGY MODELING
6	08/30/2024	CD ESTIMATING SET

NOT FOR CONSTRUCTION

Revisions:

Architect:

MAG

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Brooklyn NY 11232
Tel (212) 796 2529

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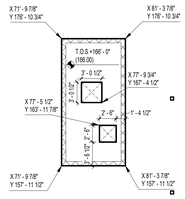
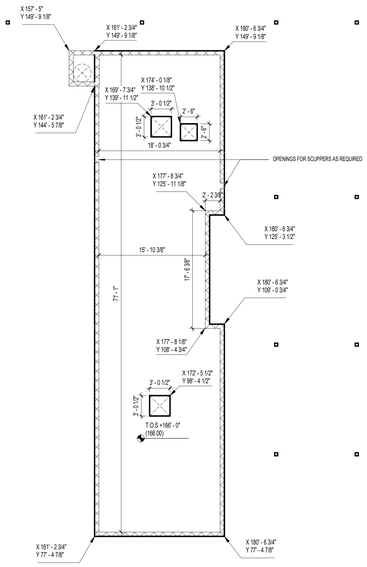
MAIN ROOF SLAB EDGE PLAN

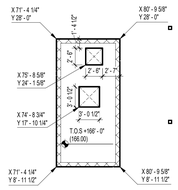
DOB SEAL:

SEAL & SIGNATURE:

PROJECT No:	17001
DRAWING BY:	Author
CHK BY:	Checker
DWG No:	A-906.00
SCALE: As indicated	







1 BULKHEAD SLAB EDGE PLAN
1/8" = 1'-0"

St Joseph Apartments

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Block: 3043 Tax Lot: 16, BIN 2806745

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NYC DOB NOW SOE: -
NYC DOB NOW STRUC: #X080262 11-II
NYC DOB NOW MECH: #X08026188-II
NYC DOB NOW PL: #X08026196-II
NYC DOB NOW SS/SP: #X08026201-II
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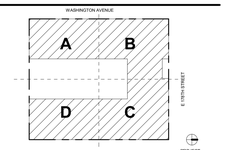
FDNY FA: -



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BULKHEAD SLAB EDGE PLAN

DOB SEAL:

SEAL & SIGNATURE:

PROJECT No:	17001
DRAWING BY:	Author
CHK BY:	Checker
DWG No:	A-907.00
SCALE: 1/8" = 1'-0"	175 of 175

DRAWING INDEX

S-001	.00	GENERAL NOTES
S-002	.00	DESIGN CRITERIA
FO-001	.00	FOUNDATION NOTES & TYPICAL DETAILS 1
FO-002	.00	FOUNDATION PART PLANS
FO-101	.00	FOUNDATION & CELLAR FRAMING PLAN
FO-201	.00	FOUNDATION SECTIONS
S-003	.00	TYPICAL DETAILS 1
S-004	.00	TYPICAL DETAILS 2
S-101	.00	GROUND FLOOR FRAMING PLAN
S-102	.00	2ND FLOOR FRAMING PLAN
S-103	.00	3RD-6TH FLOOR FRAMING PLAN
S-104	.00	7TH FLOOR FRAMING PLAN BOTTOM REINFORCEMENT
S-105	.00	7TH FLOOR FRAMING PLAN TOP REINFORCEMENT
S-106	.00	8TH FLOOR FRAMING PLAN
S-107	.00	ROOF FRAMING PLAN
S-108	.00	BULKHEAD FRAMING PLAN
S-201	.00	SECTIONS
S-301	.00	COLUMN SCHEDULES 1
S-302	.00	COLUMN SCHEDULES 2
S-303	.00	COLUMN SCHEDULES 3
S-304	.00	SCHEDULES
S-401	.00	SHEAR WALL DETAILS

GENERAL NOTES:

1. THE STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE ARCHITECTURAL AND MECHANICAL DRAWINGS AND SPECIFICATIONS.

2. THE 2022 EDITION OF THE NEW YORK CITY BUILDING CODE, AND APPLICABLE EDITIONS OF THE FOLLOWING CODES AND STANDARDS SHALL APPLY:

   A. CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES - AISC.
   B. ANSI/AISC 360-05 SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS.
   C. BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE - ACI 318.
   D. SPECIFICATIONS FOR MASONRY STRUCTURES – ACI 530.1

   IN CASE OF CONFLICT, THE MOST STRINGENT REQUIREMENTS SHALL APPLY.

3. FIELD MEASUREMENTS SHALL BE TAKEN AT THE SITE BY THE CONTRACTOR TO VERIFY AND SUPPLEMENT ALL DIMENSIONS AND ADDITIONS AFFECTED BY EXISTING WORK OR NEW WORK THAT HAS ALREADY BEEN INSTALLED. ANY DISCREPANCIES FROM THE INFORMATION SHOWN ON PLANS SHALL BE REPORTED TO AND COORDINATED WITH THE ARCHITECT.

4. BEFORE COMMENCEMENT OF ANY WORK AND/OR FABRICATION, THE CONTRACTOR SHALL SUBMIT TO THE ARCHITECT FOR HIS APPROVAL CONCRETE MIX DESIGNS FOR EACH TYPE OF CONCRETE TO BE USED, MILL REPORTS FOR STEEL, STRUCTURAL PENETRATIONS AND SHOP DRAWINGS FOR ALL STRUCTURAL TRADES AND OTHER DOCUMENTS AS REQUIRED PER PROJECT SPECIFICATIONS.

5. MEMBERS WITH SIZES INDICATED ON THE DRAWINGS ARE NEW UNLESS OTHERWISE NOTED (UON).

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL ROOF, FLOOR AND WALL PENETRATIONS, PATCHING, REPAIRING AND FLASHING AS REQUIRED.

7. ITEMS INDICATED AS "BY OTHERS" DENOTES DELEGATED DESIGN ITEMS TO BE PROVIDED BY THE CONTRACTOR (DESIGNED BY MANUFACTURER'S ENGINEER FOR PREFABRICATED ITEMS OR BY CONTRACTOR'S ENGINEER FOR CUSTOM ITEMS).

8. THE NOTES OF EACH FOLLOWING SECTION SHALL APPLY, EXCEPT AS SPECIFICALLY NOTED OR SHOWN OTHERWISE ON THE BALANCE OF THESE STRUCTURAL DRAWINGS.

CAST-IN-PLACE CONCRETE NOTES:

1. CONCRETE TYPES

   A. SLABS ON GRADE (OTHER THAN SIDEWALKS) – 4,000 PSI STONE CONCRETE.
   B. NON-STRUCTURAL FILL – 3,000 PSI LIGHTWEIGHT CONCRETE (115 PCF MAX.).
   C. MAT FOUNDATION - 8,000 PSI STONE CONCRETE.
   D. ALL OTHER CONCRETE – 6,000 PSI STONE CONCRETE.

2. BAR REINFORCEMENT SHALL CONFORM TO ASTM A615, GRADE 60 UNLESS HIGHER GRADE IS INDICATED ON DRAWINGS.

3. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A1064 WITH A MINIMUM ULTIMATE TENSILE STRENGTH OF 70,000 PSI.

4. CONCRETE SHALL BE CAST MONOLITHICALLY BETWEEN JOINTS SHOWN ON THE STRUCTURAL DRAWINGS. REQUESTS FOR ADDITIONAL CONSTRUCTION JOINTS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION. ADDITIONAL CONSTRUCTION JOINTS NOT SHOWN ON DRAWINGS MAY REQUIRE ADDITIONAL REINFORCING AT THE DIRECTION OF THE ENGINEER OF RECORD.

5. REINFORCEMENT MARKED "CONT." (CONTINUOUS) SHALL BE LAPPED A PROPER DISTANCE AT SPLICES AND CORNERS AND SHALL BE HOOKED OR EXTENDED A PROPER DISTANCE AT NON-CONTINUOUS ENDS AS PER SPLICE AND DEVELOPMENT LENGTH REQUIREMENTS SHOWN ON THE DRAWINGS. ALL HORIZONTAL WALL REINFORCING SHALL BE CONTINUOUS.

6. REINFORCEMENT SHALL BE CONTINUOUS THROUGH ALL CONSTRUCTION JOINTS. THE CONTRACTOR SHALL LOCATE CONSTRUCTION JOINTS AT POINTS OF MINIMUM SHEAR.

7. SPLICES FOR ALL REINFORCEMENT IN SHEAR WALLS SHALL BE TENSION SPLICES.

8. REINFORCING BARS SHALL HAVE THE FOLLOWING CONCRETE PROTECTION:

CONCRETE CAST AGAINST EARTH	- 3"
EXPOSED TO EARTH OR WEATHER	- 2"
SLABS AND WALLS NOT EXPOSED	- 3/4" OR BAR DIAMETER
BEAMS AND GIRDERS NOT EXPOSED	- 1-1/2" TO STIRRUPS
COLUMNS NOT EXPOSED	- 1-1/2" TO TIES

9. MAXIMUM LENGTH OF CONCRETE POUR (DISTANCE BETWEEN CONSTRUCTION JOINTS) SHALL BE 50 FEET DURING JUNE, JULY, AUGUST AND SEPTEMBER AND 75 FEET DURING THE REST OF THE YEAR. LOCATION OF CONSTRUCTION JOINTS, IF REQUIRED, SHALL BE SUBJECT TO THE APPROVAL OF THE ARCHITECT.

10. THE CONTRACTOR SHALL VERIFY DIMENSIONS AND LOCATIONS OF ALL OPENINGS, PIPE SLEEVES, ANCHOR BOLTS, ETC. AS REQUIRED BY TRADES BEFORE CONCRETE IS POURED.

11. THE CONTRACTOR SHALL PROVIDE SLAB BOLSTERS, HIGH CHAIRS AND ALL ACCESSORIES REQUIRED FOR PROPER PLACEMENT OF REINFORCING BARS AND WIRE MESH AS PER A.C.I. & C.R.S.I. STANDARDS.

12. CONCRETE MAY BE CONVEYED BY PUMPING. PUMPING METHODS SHALL COMPLY WITH REQUIREMENTS ESTABLISHED BY A.C.I. COMMITTEE 304, PLACING CONCRETE PUMPING METHODS.

13. PRIOR TO PLACING CONCRETE, ALL REINFORCEMENT SHALL BE FREE OF LOOSE FLAKY RUST, MUD, OIL OR OTHER COATING THAT WILL DESTROY, REDUCE OR HAMPER FULL BOND CAPACITY.

14. THE PLACEMENT OF DOWELS, ANCHOR RODS, OR ANY OTHER EMBEDMENTS INTO WET CONCRETE "WET STICKING", SHALL NOT BE PERMITTED.

15. THE FOLLOWING CRITERIA SHALL BE MET WITH REGARDS TO PLACEMENT OF CONDUITS, PIPES, ETC. IN CONCRETE SLABS.

   A. ALL CONDUITS SHALL BE CENTERED AT MID-DEPTH OF SLAB. CONDUIT DIAMETER SHALL NOT EXCEED 1/3 OF SLAB THICKNESS. CLEAR DISTANCE BETWEEN TWO ADJACENT CONDUITS SHALL BE A MINIMUM OF 3 DIAMETERS OF LARGER OF THE TWO CONDUITS.
   B. VERTICAL SLEEVES, PIPES, ETC. THROUGH SLAB EITHER CLUSTERED OR INDIVIDUAL, SHALL NOT INTERRUPT MORE THAN 1/3 OF THE WIDTH OF COLUMN STRIP.
   C. NO REINFORCEMENT BARS SHALL BE CUT, BENT, SHIFTED OR OTHERWISE ALTERED AS CONDUITS, PIPES, ETC. AS COMPARED TO WHAT IS SHOWN ON THESE DRAWINGS.
   D. ANY DEVIATIONS FROM ABOVE REQUIREMENTS SHALL BE SHOWN ON THE SHOP DRAWINGS AND SUBMITTED FOR APPROVAL BY THIS OFFICE.

STRUCTURAL STEEL NOTES:

1. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING:

   A. WIDE FLANGE AND TEE SHAPES - ASTM A992 GRADE 50
   B. CHANNELS, S SHAPES, ANGLES, PLATES AND BARS - ASTM A36
   C. ROUND, SQUARE & RECTANGULAR HSS SHAPES - ASTM A500 GRADE B

2. SHOP CONNECTIONS SHALL BE WELDED OR BOLTED. FIELD CONNECTIONS SHALL BE BOLTED UNLESS SPECIFICALLY SHOWN OTHERWISE ON STRUCTURAL DRAWINGS.

3. ALL BOLTING SHALL CONFORM TO THE RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS", LATEST EDITION.

4. BOLTED CONNECTIONS SHALL UTILIZE ASTM A325 OR A490 BOLTS. ALL BOLTS SHALL BE 3/4 INCH DIAMETER MINIMUM. BOLTED SIMPLE SHEAR CONNECTIONS SHALL UTILIZE HIGH STRENGTH BOLTS IN BEARING TYPE CONNECTIONS AND SHALL BE INSTALLED "SNUG TIGHT". BOLTED MOMENT CONNECTIONS, SPLICE CONNECTIONS AND BRACING CONNECTIONS SHALL BE PRETENSIONED JOINTS WITH FULLY PRETENSIONED HIGH-STRENGTH BOLTS IN BEARING. CONNECTIONS WITH OVERSIZE HOLES OR SLOTTED HOLES IN WHICH THE LOAD IS NOT APPLIED NORMAL TO THE LONG DIMENSION OF THE SLOT REQUIRE SLIP CRITICAL BOLTS.

5. ALL WELDING ELECTRODES SHALL BE LOW HYDROGEN, AS REQUIRED BY AWS "STRUCTURAL WELDING CODE" AND "CODE FOR ARC AND GAS WELDING IN BUILDING CONSTRUCTION" TO SATISFY BASE-TO-FILLER METAL COMBINATION CRITERIA. ALL FILLER METAL SHALL HAVE A MINIMUM CVN TOUGHNESS OF 20 FT. LBS. AT MINUS 20 DEGREES F.

6. ALL WELDING SHALL BE DONE BY QUALIFIED WELDERS AND SHALL CONFORM TO THE AWS "CODE FOR ARC AND GAS WELDING IN BUILDING CONSTRUCTION", LATEST EDITION. WELDER CERTIFICATES SHALL BE SUBMITTED TO GACE BEFORE COMMENCEMENT OF WORK.

7. MINIMUM SIZE OF FILLET WELDS SHALL BE 1/4" MIN. FOR FIELD WELDS AND AS REQUIRED PER AISC SPECIFICATION RELATIVE TO BASE METAL THICKNESS FOR SHOP WELDS.

8. ALL DETAILING, FABRICATION AND ERECTION SHALL CONFORM TO AISC "LOAD AND RESISTANCE FACTOR DESIGN SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS" AND AISC "CODE OF STANDARD PRACTICE", LATEST EDITIONS.

9. CONNECTIONS OF ALL BEAMS AND GIRDERS SHALL BE DESIGNED FOR REACTIONS INDICATED ON STRUCTURAL DRAWINGS. ALL OTHER CONNECTIONS SHALL BE DESIGNED FOR THE FULL CAPACITY OF THE MEMBERS.

10. KNIFE CONNECTIONS SHALL NOT BE PERMITTED UNLESS SPECIFICALLY REQUESTED BY A CONTRACTOR AND APPROVED BY STRUCTURAL ENGINEER PRIOR TO SHOP DRAWING APPROVAL. CONTRACTOR'S BIDS SHALL BE SUBMITTED BASED ON THE KNIFE CONNECTIONS NOT ALLOWED. SPECIFIC KNIFE CONNECTION DETAILS SHALL BE SUBMITTED FOR APPROVAL AT THE TIME WHEN TYPICAL DETAILS AND ERECTION PLANS ARE SUBMITTED. THE DETAILS SHALL BE ACCOMPANIED BY CALCULATIONS SIGNED AND SEALED BY PROFESSIONAL ENGINEER LICENSED IN THE STATE WHERE PROJECT IS TO BE BUILT. CALCULATIONS SHALL DEMONSTRATE THAT THE HELDS ARE NOT OVERSTRESSED DUE TO SECONDARY STRESSES DUE TO BOLT TIGHTENING, PRYING ACTION, ETC.

11. INSPECTION AND TESTING OF WELDS AND BOLTS SHALL BE AS FOLLOWS:

   A. A TESTING AGENCY ACCEPTABLE TO THE ENGINEER OF RECORD SHALL BE EMPLOYED BY THE OWNER TO PERFORM ALL SHOP AND FIELD INSPECTIONS AND TESTING OUTLINED BELOW.
   B. ALL WORK SHALL BE SCHEDULED BY THE CONTRACTOR TO ALLOW THE BELOW SHOP AND FIELD TESTING TO BE COMPLETED.
   C. ALL WELDS SHALL BE VISUALLY INSPECTED. FIFTEEN (15) PERCENT OF RANDOMLY SELECTED FILLET, PLUG AND SLOT WELDS SHALL BE MEASURED.
   D. FIFTEEN (15) PERCENT OF RANDOMLY SELECTED FILLET WELDS IN BEAM AND GIRDER SHEAR CONNECTION PLATES, ANGLES, ETC. SHALL BE CHECKED BY MAGNETIC PARTICLE METHOD, ONLY THE FINAL PASS SHALL BE CHECKED.
   E. ULTRASONICALLY TEST 100 PERCENT OF ALL FULL AND PARTIAL PENETRATION WELDS. WELD PREPARATION OF 100 PERCENT OF WELDS SHALL BE INSPECTED.
   F. ALL BOLTS SHALL BE VISUALLY INSPECTED.
   G. ALL SLIP CRITICAL BOLTS SHALL BE CHECKED FOR PROPER TENSIONING USING THE "DIRECT TENSION INDICATOR" METHOD. MEASURE WITH FEELER GAGES AT LEAST 15% OF BOLTS IN EACH CONNECTION, BUT NOT LESS THAN TWO BOLTS PER CONNECTION.
   H. A MINIMUM OF 15 PERCENT OF BOLTS, BUT NOT LESS THAN TWO BOLTS IN EACH BEARING TYPE CONNECTION SHALL BE CHECKED FOR PROPER TENSIONING USING THE CALIBRATED TORQUE WRENCH METHOD.
   I. IN CASE MULTIPLE DEFECTS HAVE BEEN DETECTED, THE ABOVE EXTENT OF INSPECTION SHALL BE INCREASED AT DISCRETION OF STRUCTURAL ENGINEER OF RECORD.

12. SUBMITTALS

   A. SEE "SUBMITTAL NOTES" FOR GENERAL REQUIREMENTS.
   B. THE CONTRACTOR SHALL SUBMIT TO THE ARCHITECT, FOR REVIEW, ENGINEERED SHOP AND ERECTION DRAWINGS SHOWING SHOP FABRICATION DETAILS FOR EACH PIECE OF STEEL, FIELD ASSEMBLY DETAILS AND ERECTION PLANS FOR ALL STEEL.
   C. SHOP DRAWINGS SHOWING PIECE DETAILS SHALL NOT BE SUBMITTED PRIOR TO APPROVAL OF ERECTION DRAWINGS AND RELATED CONNECTION DETAILS, DIAGRAMS, SCHEDULES, ETC.

13. ALL CONNECTIONS SHALL BE DESIGNED AND DETAILED BY A PROFESSIONAL ENGINEER, REGISTERED IN THE STATE OF NEW YORK, HIRED BY THE CONTRACTOR. IF REQUESTED BY THE ENGINEER OF RECORD, CALCULATIONS SHALL BE SUBMITTED FOR THE ENGINEER OF RECORD'S REFERENCE. ALL REFERENCE CALCULATIONS SHALL BE SIGNED AND SEALED BY THE CONTRACTOR'S ENGINEER.

14. DETAILING SHALL BE PERFORMED USING APPROPRIATE ENGINEERING DESIGN PRINCIPLES AND ACCEPTED INDUSTRY STANDARDS. IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, DETAILER SHALL BE AWARE THAT THE DETAILS AND SECTIONS SHOWN ON THE STRUCTURAL DRAWINGS ARE CONCEPTUAL ONLY AND DO NOT INDICATE THE NUMBER OF BOLTS, WELD SIZES, AND OTHER INFORMATION REQUIRED TO BE SHOWN ON THE SHOP DRAWINGS, UNLESS SPECIFICALLY NOTED.

15. ALL STAIR AND OTHER MISCELLANEOUS STEEL STRUCTURES SHALL BE DESIGNED AND DETAILED BY AN ENGINEER EMPLOYED BY THE CONTRACTOR. DRAWINGS SHALL BEAR THE SEAL AND SIGNATURE OF A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF NEW YORK AND SHALL BE SUBMITTED FOR REVIEW BY STRUCTURAL ENGINEER OF RECORD. CALCULATIONS SHALL BE SUBMITTED FOR REFERENCE.

16. NO STRUCTURAL STEEL TO RECEIVE FIREPROOFING SHALL BE PAINTED. ALL STEEL SHALL BE CLEANED IN THE FIELD OF ALL RUST, LOOSE MILL SCALE AND OTHER FOREIGN MATERIALS PRIOR TO THE APPLICATION OF FIREPROOFING.

17. ALL STEEL EXPOSED TO WEATHER SHALL BE HOT-DIPPED GALVANIZED. THIS INCLUDES ALL STEEL LINTELS, RELIEVING ANGLES, HANGERS, ETC. DAMAGED / CUT / WELDED GALVANIZATION SHALL BE TOUCHED UP / REPAIRED IN ACCORDANCE WITH ASTM A780 "STANDARD PRACTICE FOR REPAIR OF DAMAGED AND UNCOATED AREAS OF HOT-DIP GALVANIZED COATINGS".

18. ALL BEAMS SHALL BE FABRICATED AND ERECTED WITH NATURAL CAMBER UP.

19. SHEAR STUDS SHALL BE HEADED SHEAR CONNECTORS AS MANUFACTURED AND INSTALLED BY NELSON STUD WELDING. SHEAR STUD INSTALLATION SHALL BE INSPECTED BY AN APPROVED TESTING AGENCY IN OWNER'S DIRECT EMPLOY. THREE (3) BEND TESTS SHALL BE PERFORMED AT THE BEGINNING OF CONSTRUCTION, AFTERWARDS, 20 PERCENT (MINIMUM) OF SHEAR STUDS SHALL BE INSPECTED BY "RING TEST" AND MEASURED. ALL STUD WELDING SHALL BE INSPECTED VISUALLY.

POST INSTALLED ANCHORS

1. ANCHOR CAPACITY SHALL BE BASED ON THE TECHNICAL DATA PUBLISHED BY THE ANCHOR MANUFACTURER OR OTHER METHOD AS APPROVED BY THE STRUCTURAL ENGINEER OF RECORD ("ENGINEER").

2. SUBSTITUTION REQUESTS FOR ALTERNATE PRODUCTS SHALL BE APPROVED IN WRITING BY THE ENGINEER PRIOR TO USE. CONTRACTOR SHALL PROVIDE CALCULATIONS DEMONSTRATING THAT THE SUBSTITUTED PRODUCT IS CAPABLE OF ACHIEVING THE PERFORMANCE VALUES OF THE SPECIFIED PRODUCT. SUBSTITUTIONS SHALL BE EVALUATED BY THEIR HAVING AN INTERNATIONAL CODE COUNCIL EVALUATION SERVICE REPORT (ICC ESR) SHOWING COMPLIANCE WITH THE RELEVANT BUILDING CODE FOR SEISMIC USES, LOAD RESISTANCE, INSTALLATION CATEGORY, AND AVAILABILITY OF COMPREHENSIVE INSTALLATION INSTRUCTIONS. ADHESIVE ANCHOR EVALUATION SHALL CONSIDER EFFECTS OF CREEP, IN-SERVICE TEMPERATURE AND INSTALLATION TEMPERATURE.

3. ANCHORS SHALL BE INSTALLED PER THE MANUFACTURER INSTRUCTIONS INCLUDED IN THE ANCHOR PACKAGING.

4. OVERHEAD ADHESIVE ANCHORS MUST BE INSTALLED USING THE HILTI PROFI SYSTEM OR OTHER MANUFACTURER'S EQUAL OR BETTER SYSTEM, IF APPROVED BY THE ENGINEER IN ADVANCE.

5. ALL POST INSTALLED ANCHORS SHALL BE INSTALLED BY PERSONNEL TRAINED AND CERTIFIED IN THE INSTALLATION OF THE SPECIFIED PRODUCTS AND ACCESSORIES. INSTALLERS SHALL BE CERTIFIED THROUGH THE ACI/CRSI ADHESIVE ANCHOR INSTALLER CERTIFICATION PROGRAM OR EQUIVALENT. INSTALLERS SHALL HAVE PROOF OF CERTIFICATION WITH THEM ON SITE AT THE TIME OF INSTALLATION AND SHALL PRESENT SAID CERTIFICATION TO THE SPECIAL INSPECTOR.

6. ANCHOR CAPACITY IS DEPENDENT UPON SPACING BETWEEN ADJACENT ANCHORS AND PROXIMITY OF ANCHORS TO THE EDGE OF CONCRETE. ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH SPACING AND EDGE DISTANCES INDICATED ON THE STRUCTURAL DRAWINGS.

7. REINFORCING BARS OR OTHER ELEMENTS EMBEDDED IN THE EXISTING CONCRETE STRUCTURE MAY CONFLICT WITH SPECIFIC ANCHOR LOCATIONS. UNLESS NOTED ON THE DRAWINGS THAT THE BARS, ETC. CAN BE CUT, THE CONTRACTOR SHALL REVIEW THE EXISTING STRUCTURAL DRAWINGS AND SHALL UNDERTAKE TO LOCATE THE POSITION OF THE EMBEDDED BARS, ETC. BY GROUND PENETRATING RADAR (GPR), X-RAY, CHIPPING OR OTHER MEANS.

8. CONTINUOUS SPECIAL INSPECTIONS FOR POST INSTALLED ANCHORS SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 4.4 OF THE INDIVIDUAL INTERNATIONAL CODE COUNCIL- EVALUATION SERVICE (ICC- ES) REPORT FOR THE INDIVIDUAL ANCHOR. THE CONTRACTOR SHALL GIVE THE SPECIAL INSPECTOR SUFFICIENT ADVANCE NOTICE TO ALLOW ENOUGH TIME FOR PROPER INSPECTION OF HOLE PREPARATION, ANCHOR INSTALLATION, TIGHTENING, ETC. ANCHORS INSTALLED WITHOUT INSPECTION AT ALL THESE PHASES SHALL BE REJECTED AND WILL HAVE TO BE REPLACED AT CONTRACTOR'S EXPENSE.

STEEL PAINTING NOTES - EXPOSED STEEL:

1. CLEAN STEEL IN ACCORDANCE WITH SSPC-SP6 COMMERCIAL BLAST CLEANING AND COAT WITH TNEMEC OMNITHANE 530 PRIME TO 2 - 3 MILS DRY FILM THICKNESS (DFT), OR APPROVED EQUAL, WITHIN 4 HOURS OF CLEANING. AFTER ERECTION AND TOUCH UP APPLY A FULL COAT OF TNEMEC N69F HI-BUILD EPOXOLINE II TO 3 - 5 MILS DFT FOR TEMPERATURES DURING APPLICATION / CURING BELOW 50 DEG. F DOWN TO 35 DEG. F., AND TNEMEC SERIES 135 CHEMBUILD TO 5 - 8 MILS DFT FOR TEMPERATURES DURING APPLICATION / CURING ABOVE 50 DEGREE F.

ALLOWANCES:

1. BIDDERS SHALL PROVIDE A SEPARATE PRICE FOR 5 TONS OF ADDITIONAL REINFORCING STEEL (ASTM A615) & 10 CUBIC YARDS OF CONCRETE (F'C = 6000 PSI) TO BE USED ON THE PROJECT AS PER THE DIRECTION OF THE ARCHITECT. THE VALUE OF THE UNEXPENDED BALANCE OF THESE MATERIALS SHALL BE REFUNDED TO THE OWNER.

2. BIDDERS SHALL PROVIDE A SEPARATE PRICE FOR 2 TONS OF ADDITIONAL STRUCTURAL STEEL (ASTM A992-50) TO BE USED ON THE PROJECT AS PER THE DIRECTION OF THE ARCHITECT. THIS STEEL WILL BE ADDED AS NEEDED PRIOR TO OR DURING THE SHOP DRAWING REVIEW PHASE. THE VALUE OF THE UNEXPENDED BALANCE OF THIS STEEL SHALL BE REFUNDED TO THE OWNER.

SPECIAL INSPECTION NOTES:

1. SPECIAL INSPECTION ITEMS REQUIRED BY NYC BUILDING CODE RELATED TO STRUCTURAL WORK SHOWN ON GACE DRAWINGS.

A. STRUCTURAL STEEL – WELDING
B. STRUCTURAL STEEL – DETAILS
C. STRUCTURAL STEEL – HIGH STRENGTH BOLTING
D. CONCRETE – CAST-IN-PLACE
E. CONCRETE SAMPLING AND TESTING
F. CONCRETE DESIGN MIX
G. POST-INSTALLED ANCHORS (BB# 2014-018, 2014-019, 2015-027, 2016-005)
H. FINAL (PROGRESS INSPECTION)

THE CONTRACTOR IS OBLIGATED TO NOTIFY THE INSPECTOR AT LEAST 72 HOURS BEFORE INSTALLATION OF SUCH ITEMS SO THAT PROPER INSPECTION CAN BE MADE. IN NO CASE SHALL SUCH ITEMS BE INSTALLED OR CONSTRUCTED WITHOUT COMPLETE APPROVAL OF THE INSPECTOR. UNAPPROVED INSTALLATION IS SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S SOLE EXPENSE.

ALL SPECIAL INSPECTIONS SHALL BE PERFORMED BASED ON APPROVED SHOP DRAWINGS. INSPECTIONS PERFORMED BASED ON UNAPPROVED DRAWINGS SHALL BE CONSIDERED INVALID AND SHALL BE REJECTED.

BIDDER'S WARRANTY:

BY THE ACT OF SUBMITTING A BID FOR THE PROPOSED CONTRACT, THE BIDDER WARRANTS THAT:

1. THE BIDDER AND ALL SUBCONTRACTORS HE INTENDS TO USE HAVE CAREFULLY AND THOROUGHLY REVIEWED THE DRAWINGS, SPECIFICATIONS AND OTHER CONSTRUCTION CONTRACT DOCUMENTS AND HAVE FOUND THEM COMPLETE AND FREE FROM AMBIGUITIES AND SUFFICIENT FOR THE CONTRACTOR TO BID, FABRICATE, AND INSTALL THE WORK ON TIME, FURTHER THAT,

2. THE BIDDER AND ALL WORKMEN, EMPLOYEES AND SUBCONTRACTORS HE INTENDS TO USE ARE SKILLED AND EXPERIENCED IN THE TYPE OF CONSTRUCTION REPRESENTED BY THE CONSTRUCTION CONTRACT DOCUMENTS BID UPON; FURTHER THAT,

3. NEITHER THE BIDDER NOR ANY OF HIS EMPLOYEES, AGENTS INTENDED SUPPLIERS OR SUBCONTRACTORS HAVE RELIED UPON ANY VERBAL REPRESENTATIONS, ALLEGEDLY AUTHORIZED OR UNAUTHORIZED FROM THE OWNER, HIS EMPLOYEES OR AGENTS INCLUDING ARCHITECTS, ENGINEERS OR CONSULTANTS, IN ASSEMBLING THE BID FIGURE; AND FURTHER THAT,THE BID FIGURE IS BASED SOLELY UPON THE CONSTRUCTION CONTRACT DOCUMENTS AND PROPERLY ISSUED WRITTEN ADDENDA AND NOT UPON ANY OTHER WRITTEN REPRESENTATION.

4. THE BIDDER ALSO WARRANTS THAT HE HAS CAREFULLY EXAMINED THE SITE OF THE WORK AND THAT FROM HIS OWN INVESTIGATIONS HE HAS SATISFIED HIMSELF AS TO THE NATURE AND LOCATION OF THE WORK AND THE CHARACTER, QUALITY, QUANTITIES OF MATERIALS AND DIFFICULTIES TO BE ENCOUNTERED, THE KIND AND EXTENT OF EQUIPMENT AND OTHER FACILITIES NEEDED FOR THE PERFORMANCE OF THE WORK, THE GENERAL AND LOCAL CONDITIONS, AND OTHER ITEMS WHICH MAY, IN ANY WAY, AFFECT THE WORK OR ITS PERFORMANCE.

SHORING NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE TEMPORARY SUPPORT AND ADEQUATE PROTECTION FOR THE STABILITY AND INTEGRITY OF THE STRUCTURE (OR PORTIONS THEREOF) DURING THE ENTIRE CONSTRUCTION PERIOD AND TO MAINTAIN IT AT LEVELS ACCEPTABLE WITHIN THE CONSTRUCTION INDUSTRY BY THE USE OF ALL MEANS AVAILABLE, INCLUDING BUT NOT LIMITED TO TEMPORARY BRACING AND SHORING (SHORING SYSTEM). IN NO CASE SHALL THE STRUCTURE BE ALLOWED TO BECOME UNSTABLE AND/OR UNSAFE, AS DEFINED BY LOCAL GOVERNMENTAL AGENCIES.

2. THE SHORING SYSTEM SHALL BE DESIGNED TO SUPPORT ALL APPLICABLE LOADS THAT MAY BE IMPOSED ON THE STRUCTURE DURING CONSTRUCTION IN ACCORDANCE WITH INDUSTRY STANDARDS AND GENERALLY ACCEPTED ENGINEERING PRINCIPLES.

3. THE SHORING SYSTEM, INCLUDING ALL DETAILS AND SEQUENCING, SHALL BE DESIGNED AND DETAILED BY A SPECIALTY STRUCTURAL ENGINEER (SSE) LICENSED AND REGISTERED IN THE STATE OF NEW YORK. THE SSE SHALL SIGN AND SEAL ITS DRAWINGS ILLUSTRATING THE SHORING SYSTEM AND SEQUENCING, WHICH MAY NEED TO BE FILED AND APPROVED BY ALL APPLICABLE GOVERNMENTAL AUTHORITIES, INCLUDING THE NYC DOB.

4. REFERENCES TO SHORING IN THE STRUCTURAL DRAWINGS BY GACE ARE SOLELY FOR THE PURPOSE OF COORDINATION WITH GACE'S DESIGN. THE SHORING ENGINEER SHALL SUBMIT SHORING AND BRACING DRAWINGS TO THE ARCHITECT FOR REVIEW OF EFFECT ON THE PERMANENT STRUCTURAL ELEMENTS THAT ARE DESIGNED BY THIS OFFICE. GACE IS NOT RESPONSIBLE FOR THE DESIGN, DETAILING, REVIEW, INSPECTION, OR APPROVAL OF THE SHORING DESIGN OR PROPOSED SEQUENCING.

5. THE SHORING SYSTEM SHALL BE INSPECTED BY THE SSE WHO PREPARED THE DRAWINGS/SPECIFICATIONS AND SEQUENCING OR A THIRD-PARTY SPECIAL INSPECTOR. THE SSE OR SPECIAL INSPECTOR SHALL CERTIFY IN A WRITTEN STATEMENT THAT THE WORK WAS PERFORMED IN ACCORDANCE WITH THE SIGNED AND SEALED DRAWINGS/SPECIFICATIONS.

SUBMITTAL NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING, PREPARING AND DELIVERING ALL SHOP DRAWINGS AND OTHER SUBMITTALS ("SUBMITTALS") REQUIRED BY THE CONTRACT DOCUMENTS IN A TIMELY MANNER. ALL MATERIAL SHALL BE DELIVERED GRADUALLY SO AS TO AVOID SUBMISSION OF LARGE NUMBER OF SUBMITTALS NOT ALLOWING THE ENGINEER TIMELY REVIEW.

2. THE STRUCTURAL ENGINEER OF RECORD ("EOR") SHALL REVIEW SUBMITTALS PERTINENT TO STRUCTURAL DESIGN (SHOP DRAWINGS AND OTHER PERTINENT DOCUMENTS SUCH AS MATERIAL, PRODUCT, ASSEMBLY INFORMATION, ETC.) SUBMITTED BY THE CONTRACTOR. THE ENGINEER SHALL COMMENT ON THE SUBMITTALS AND APPROVE OR DISAPPROVE WITH COMMENTS, AS APPROPRIATE, FOR GENERAL CONFORMANCE WITH THE INFORMATION GIVEN AND THE DESIGN CONCEPT EXPRESSED IN THE CONTRACT DOCUMENTS. REVIEW OF SUCH SUBMITTALS SHALL NOT BE FOR THE PURPOSE OF DETERMINING THE ACCURACY AND COMPLETENESS OF OTHER INFORMATION SUCH AS DIMENSIONS, QUANTITIES, INSTALLATION OR PERFORMANCE OF EQUIPMENT OR SYSTEMS, ETC. WHICH SHALL BE THE CONTRACTOR'S RESPONSIBILITY. ENGINEER'S REVIEW SHALL NOT IN ANY WAY RELIEVE THE CONTRACTOR OF HIS/HER RESPONSIBILITY TO ACCURATELY AND COMPLETELY INTERPRET THE CONTRACT DOCUMENTS.

3. IF REQUIRED BY SPECIFICATIONS, SHOP DRAWINGS AND OTHER DOCUMENTS SHALL BEAR THE SEAL AND SIGNATURE OF A PROFESSIONAL ENGINEER LICENSED IN THE STATE WHERE THE PROJECT IS TO BE CONSTRUCTED.

4. BEFORE SUBMITTING A SHOP DRAWING OR ANY OTHER DOCUMENT TO THE ENGINEER, THE CONTRACTOR SHALL REVIEW AND APPROVE EACH SUCH SUBMITTAL FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS. EVERY COPY OF EACH SUBMITTAL SHALL BEAR THE CONTRACTOR'S REVIEW STAMP SHOWING THAT THEY HAVE BEEN REVIEWED AND APPROVED. THE ENGINEER SHALL RETURN WITHOUT REVIEW MATERIAL WHICH HAS NOT BEEN APPROVED BY THE CONTRACTOR.

5. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, SEQUENCES AND OPERATIONS OF CONSTRUCTION, SAFETY PRECAUTIONS AND PROGRAMS INCIDENTAL THERETO, INCLUDING REFLECTION OF EXISTING FIELD CONDITIONS. APPROVAL OF ANY SUBMITTAL BY THE ENGINEER SHALL NOT BE CONSTRUED AS ACCEPTANCE OF ANY OF THE FOREMENTIONED ASPECTS OF CONTRACTOR'S WORK.

6. THE ENGINEER SHALL ASSUME THAT NO SUBMITTED SHOP DRAWING OR OTHER DOCUMENT COMPRISES A VARIATION FROM THE CONTRACT UNLESS THE CONTRACTOR ADVISES THE ENGINEER OTHERWISE IN WRITING. THE CONTRACTOR SHALL NOT PROCEED WITH ANY WORK RELATED TO SUCH VARIATION BEFORE RECEIPT OF ENGINEER'S WRITTEN ACCEPTANCE.

7. IN CASE RESUBMISSION OF

ABBREVIATIONS

@	= AT	KSI	= KIP(S) PER SQUARE INCH
ADJ.	= ADJACENT	L.L.	= LIVE LOAD
ADD'L.	= ADDITIONAL	L.L.H.	= LONG LEG HORIZONTAL
ALT.	= ALTERNATE	L.L.V.	= LONG LEG VERTICAL
ARCH.	= ARCHITECTURAL	Ldc	= COMPRESSION DEVELOPMENT LENGTH
B, BOT.	= BOTTOM		
B.F.	= BRACED FRAME	Ldh	= HOOKED BAR TENSION DEVELOPMENT LENGTH
B.P.	= BASE PLATE, BEARING PLATE	Ldt	= TENSION DEVELOPMENT LENGTH
B.H.	= BULKHEAD		
BLDG.	= BUILDING	Lsc	= COMPRESSION SPLICE LENGTH
BM.	= BEAM	LSL.	= LONG SLOTTED
BRDG.	= BRIDGING	Lst	= TENSION SPLICE LENGTH
BRNG.	= BEARING	LB(S).	= POUND(S)
BSMT.	= BASEMENT	LG.	= LONG
℄, CL.	= CENTERLINE	LT.	= LIGHT
C.A.	= COLUMN ABOVE	M.C.	= MOMENT CONNECTION
C.B.	= COLUMN BELOW	M.D.	= METAL DECK
C.J.	= CONSTRUCTION JOINT, CONTROL JOINT	MAX.	= MAXIMUM
		MECH.	= MECHANICAL
CANT.	= CANTILEVER	MEZZ.	= MEZZANINE
CLR.	= CLEARANCE, CLEAR	MFR.	= MANUFACTURER
COL.	= COLUMN	MIN.	= MINIMUM
CONC.	= CONCRETE	MISC.	= MISCELLANEOUS
CONN.	= CONNECTION	MOM.	= MOMENT
CONST.	= CONSTRUCTION	N.I.C.	= NOT IN CONTRACT
CONT.	= CONTINUOUS	N.F.	= NEAR FACE
ø, DIA.	= DIAMETER	N.S.	= NON-SHRINK
D.L.	= DEAD LOAD	N.T.S.	= NOT TO SCALE
DET.	= DETAIL	NO.	= NUMBER
DIAG.	= DIAGONAL	N-S	= NORTH - SOUTH
DIM.	= DIMENSION	O.C.	= ON CENTER
DWG(S).	= DRAWING(S)	O.F.	= OUTSIDE FACE
DWL(S).	= DOWEL(S)	OPNG.	= OPENING
E.E.	= EACH END	P.C.	= PRECAST, PILE CAP
E.F.	= EACH FACE	PL, PL.	= PLATE
E.J.	= EXPANSION JOINT	PLF	= POUND(S) PER FOOT
E.M.R.	= ELEVATOR MACHINE ROOM	PSF	= POUND(S) PER SQUARE FOOT
E.S.	= EACH SIDE	PSI	= POUND(S) PER SQUARE INCH
E.W.	= EACH WAY	R	= RADIUS
EA.	= EACH	REF.	= REFERENCE
EL.	= ELEVATION	REINF.	= REINFORCEMENT
ELECT.	= ELECTRICAL	REQ'D	= REQUIRED
Em	= DEVELOPMENT LENGTH IN MASONRY	REV.	= REVISION, REVISED
		S.F.	= SQUARE FOOT
EMBED.	= EMBEDMENT	S.L.H.	= SHORT LEG HORIZONTAL
EQ.	= EQUAL	S.L.V.	= SHORT LEG VERTICAL
EXIST.	= EXISTING	S.O.G.	= SLAB ON GRADE
EXP.	= EXPANSION	SEC.	= SECTION
EXT.	= EXTERIOR	SL.	= SLAB, SLOPE
E-W	= EAST - WEST	Sm	= SPLICE LENGTH IN MASONRY
F.F.	= FAR FACE	SPEC(S).	= SPECIFICATION(S)
FDN.	= FOUNDATION	SQ.	= SQUARE
FIN.	= FINISHED	SSL.	= SHORT SLOTTED
FL./ FLR.	= FLOOR	STD.	= STANDARD
FT.	= FOOT	STL.	= STEEL
FTG.	= FOOTING	STRUCT	= STRUCTURAL
FT-K	= FOOT - KIP	T	= TOP
GA.	= GAUGE	T.O.S.	= TOP OF SLAB
GALV.	= GALVANIZED	TEMP.	= TEMPORARY
GEN.	= GENERAL	THK.	= THICKNESS, THICK
HORIZ.	= HORIZONTAL	TYP.	= TYPICAL
I.F.	= INSIDE FACE	U.O.N.	= UNLESS OTHERWISE NOTED
IN.	= INCH	VERT.	= VERTICAL
INT.	= INTERIOR	W.P.	= WATERPROOFING, WORK POINT
JT.	= JOINT	W.W.F.	= WELDED WIRE FABRIC
K, KIP	= 1000 LBS	WF.	= WIDE FLANGE
KLF	= KIP(S) PER FOOT	WD.	= WOOD
KSF	= KIP(S) PER SQUARE FOOT	WT.	= WEIGHT

BUILDING DESIGN INFORMATION SUMMARY 2014 NEW YORK CITY BUILDING CODE

NO.	TOPIC	CODE SECTION
1.	SNOW LOADING CRITERIA	GROUND SNOW LOAD, P_g = 20 psf
		FLAT-ROOF SNOW LOAD, P_f = 20 psf
		SNOW EXPOSURE FACTOR, C_e = 0.9
		SNOW IMPORTANCE FACTOR, I_s = 1.0
		THERMAL EXPOSURE FACTOR, C_t = 1.0
2.	SEISMIC LOADING CRITERIA	SEISMIC IMPORTANCE FACTOR, I = 1.0
		SEISMIC OCCUPANCY CATEGORY = II
		S_S = 0.281 S_1 = 0.073
		SITE CLASS = A
		SHORT PERIOD DESIGN SPECTRAL RESPONSE, SDS = 0.150 g
		ONE SECOND DESIGN SPECTRAL RESPONSE, SD1 = 0.039 g
		SEISMIC DESIGN CATEGORY = A
		BASIC SEISMIC FORCE RESISTING SYSTEM =
		ORDINARY REINFORCED CONCRETE SHEAR WALLS
		DESIGN SEISMIC BASE SHEAR, V = 382 kips
		SEISMIC RESPONSE COEFFICIENT, C_S = 0.01
		RESPONSE MODIFICATION FACTOR, R = 5
		ANALYSIS METHOD USED = EQUIVALENT LATERAL FORCE PROCEDURE
3.	WIND LOADING CRITERIA	BASIC WIND SPEED (3 SECOND GUST) = 90 mph
		WIND IMPORTANCE FACTOR = 1.0
		OCCUPANCY CATEGORY = II
		WIND EXPOSURE CATEGORY = B
		DESIGN WIND BASE SHEAR - E-W, V = 358 kips N-S, V = 434 kips
		INTERNAL PRESSURE COEFFICIENT GC_{pi} = +/- 0.18
		COMPONENTS & CLADDING DESIGN WIND PRESSURE: ZONE 4 = + 23 psf / - 23 psf ZONE 5 = + 23 psf / - 42 psf
4.	HYDROSTATIC & FLOOD LOADING CRITERIA	DESIGN GROUND WATER ELEVATION = +/- 54.54'
		FLOOD ZONE = X
		100 YEAR DESIGN FLOOD ELEVATION = N/A

LOADING SCHEDULE

LEVEL	OCCUPANCY	LIVE LOAD REDUCTION	DEAD LOAD						LIVE LOAD	TOTAL
			SLAB	CLNG./ MECH.	FIN.	PART.	RFG. & INSUL.	TOTAL		
CELLAR	YOUTH CENTER	-	100	-	20	-	-	120	100	220
	STORAGE	-	100	-	10	-	-	110	125	235
	MECHANICAL	-	100	-	-	-	-	100	75	175
1ST FL.	RESIDENTIAL	Y	100	5	10	12	-	127	40	167
	LOBBY	-	100	5	15	-	-	120	100	220
	AMENITY	-	100	5	10	12	-	127	100	227
	STORAGE	-	100	5	-	-	-	105	125	230
	OFFICE	Y	100	5	5	12	-	122	50	172
2ND-6TH FL.	RESIDENTIAL	Y	100	5	10	12	-	127	40	167
	GREEN ROOF	-	100	5	35	-	10	150	30	180
7TH FL.	RESIDENTIAL	Y	100/225	5	10	12	-	127/252	40	167/292
	GREEN ROOF	-	100/225	5	35	-	10	150/275	20	170/295
8TH FL.	RESIDENTIAL	Y	100	5	10	12	-	127	40	167
ROOF	MECHANICAL ROOF	-	150	5	25	-	10	190	20	210
	MECHANICAL	Y	150	5	-	-	-	155	75	230
BULKHEAD	ROOF	-	100	5	25	-	10	140	20	160

NOTES:

1. LIVE LOADS HAVE BEEN REDUCED FOR THE INDICATED OCCUPANCIES IN ACCORDANCE WITH SECTION 1607.9 OF THE BUILDING CODE.
2. DESIGN LOADS COMPLY WITH BC1017.1, BC1604.
3. EXTERIOR WALLS: 6" CFS - 12 PSF, 4" BRICK - 45 PSF
4. ROOFTOP SOLAR ARRAY - 5 PSF

LAP SPLICE LENGTHS FOR CONCRETE 'Ls' (in.)

SIZE	f_y (ksi)	4000 psi			6000 psi		
		TENSION		COMP.	TENSION		COMP.
		TYP.	TOP		TYP.	TOP	
#3	60	18	24	12	17	20	12
#4	60	25	32	15	20	26	15
#5	60	31	40	19	25	33	19
#6	60	37	49	23	31	40	23
#7	60	54	70	27	45	58	27
#8	60	62	80	30	51	66	30
#9	60	70	91	34	57	74	34
#10	60	79	102	39	64	84	39
#11	60	87	114	43	71	93	43
	75	109	142	52	89	116	52
#14	75	MECHANICAL SPLICES ONLY					
#18	75						
#20	80						

HOOKED BAR TENSION DEVELOPMENT LENGTHS FOR CONCRETE 'Ldh' (in.)

SIZE	f_y (ksi)	4000 psi	6000 psi
#3	60	8	6
#4	60	10	8
#5	60	12	10
#6	60	15	12
#7	60	17	14
#8	60	19	16
#9	60	22	18
#10	60	25	20
#11	60	27	22
	75	34	28
#14	75	NOT PERMITTED	
#18	75		
#20	80		

STRAIGHT BAR DEVELOPMENT LENGTHS FOR CONCRETE 'Ld' (in.)

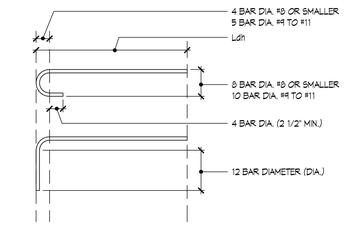
SIZE	f_y (ksi)	4000 psi			6000 psi		
		TENSION		COMP.	TENSION		COMP.
		TYP.	TOP		TYP.	TOP	
#3	60	15	19	8	12	16	8
#4	60	19	25	10	16	21	9
#5	60	24	31	12	20	26	12
#6	60	29	38	15	24	31	14
#7	60	42	54	17	34	45	16
#8	60	48	62	19	39	51	18
#9	60	54	70	22	44	57	21
#10	60	61	79	24	50	64	23
#11	60	67	87	27	55	71	25
	75	84	109	33	69	89	31
#14	75	104	135	42	85	111	40
#18	75	134	174	54	110	143	51
#20	80	159	206	64	130	168	60

NOTES:

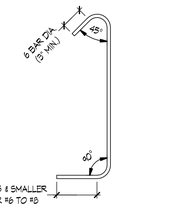
1. THESE DEVELOPMENT AND SPLICE LENGTHS ARE COMPUTED FOR UNCOATED BARS IN ELEMENTS OF NORMAL WEIGHT CONCRETE.
2. THESE DEVELOPMENT AND SPLICE LENGTHS SHALL BE MULTIPLIED BY ALL OF THE APPLICABLE FACTORS THAT FOLLOW:

EPOXY-COATED REINFORCING (FOR TYP. REINF.) x1.50
EPOXY-COATED REINFORCING (FOR TOP REINF.) x1.31
REINFORCING PLACED IN LIGHTWEIGHT CONCRETE x1.34

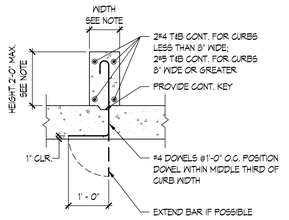
3. 'Ld' CAN BE USED AS ACI CLASS A SPLICE. 'Ls' CAN BE USED AS ACI CLASS B SPLICE.
4. USE TOP CONDITION FOR ANY HORIZONTAL BARS WITH MORE THAN 12 INCHES OF FRESH CONCRETE BELOW.
5. WHEN BARS OF DIFFERENT SIZE ARE SPLICED, SPLICE LENGTH SHALL BE THE LARGER OF THE DEVELOPMENT LENGTH OF LARGER BAR AND LAP SPLICE LENGTH OF SMALLER BAR.



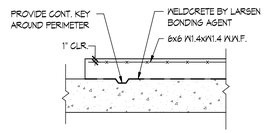
1 TYPICAL STANDARD HOOK
3/4" = 1'-0"
NOTE: FOR DEVELOPMENT LENGTH Ldh SEE SCHEDULE.



2 TYPICAL TIE HOOK (HAIR PIN)
3/4" = 1'-0"



3 TYPICAL CONCRETE CURB
3/4" = 1'-0"
NOTE: FOR CURB HEIGHT & WIDTH SEE ARCHITECTURAL DRAWINGS.



4 TYPICAL CONCRETE PAD
3/4" = 1'-0"

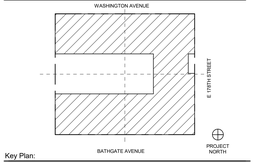
ST. JOSEPH APARTMENTS

484 E 178th Sreet, The Bronx, NY 10457

Owner:
CATHOLIC HOMES NEW YORK
Association of New York Catholic Homes
40 Maiden Lane, 13th Floor
New York NY 10038
Tel (646) 794 3167

BLOCK: 3043 LOT: 10, 16, 22, 23

NYC DOB # :



Key Plan:

NUMBER	DATE	DESCRIPTION
	10.14.2022	ISSUED FOR DOB SUBMISSION
	11.30.2022	100% DD SET
	07.26.2024	DOB FILING
	08.09.2024	PROGRESS SET
	08.30.2024	CD ESTIMATING SET

NOT FOR CONSTRUCTION

Revisions:

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New York NY 10018
Tel (212) 253 7820 Fax (212) 253 1276

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105 Madison Avenue
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New York NY 10006
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Landscape Architect:
Terrain-NYC Landscape Architecture PC
200 Park Avenue South, Suite 1401
New York NY 10003
Tel (212) 537 6080

Client Representative:

Filing Representative:
CORE Consultants NYC LLP
254 36th Street Suite C663
Brooklyn NY 11232
Tel (212) 796 2529

Do Not Scale Plans
Contractor to promptly notify Architect of any material variations between field conditions and existing conditions as indicated in Contract documents

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DESIGN CRITERIA

STRUCTURAL JOB # X08026211-I1

SEAL & SIGNATURE:

PROJECT No:	B9142.00
DRAWING BY:	CA
CHK BY:	AM
DWG No:	S-002.00
SCALE: As indicated	2 OF 10

FOUNDATION NOTES:

1. FOUNDATION DESIGN HAS BEEN BASED ON GEOTECHNICAL REPORT PREPARED BY PILLORI ASSOCIATES, P.A. DATED MAY 2021. A COPY OF THIS REPORT SHALL BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES.

2. ALL EARTHWORK, SUBGRADE PREPARATION AND FOUNDATION WORK SHALL BE DONE ACCORDING TO THE GEOTECHNICAL REPORT AND UNDER SUPERVISION OF LICENSED GEOTECHNICAL ENGINEER IN OWNER'S DIRECT EMPLOY.

3. SPREAD FOOTINGS SHALL BEAR ON ROCK WITH A MINIMUM BEARING CAPACITY OF 6 TONS PER SQUARE FOOT. IF MATERIAL OF THIS CAPACITY IS NOT FOUND AT THE ELEVATIONS INDICATED THE FOOTINGS SHALL BE LOWERED AT THE DIRECTION OF THE LICENSED GEOTECHNICAL ENGINEER IN OWNER'S DIRECT EMPLOY.

4. MAKE NO EXCAVATION TO THE FULL DEPTH INDICATED WHEN FREEZING TEMPERATURES MAY BE EXPECTED UNLESS THE FOOTINGS OR SLABS CAN BE PLACED IMMEDIATELY AFTER THE EXCAVATION HAS BEEN COMPLETED. PROTECT THE BOTTOM OF EXCAVATION FROM FROST IF PLACING OF CONCRETE IS DELAYED. SHOULD PROTECTION FAIL, REMOVE FROZEN MATERIALS AND REPLACE WITH CONCRETE OR GRAVEL FILL.

5. WALLS SHALL BE TEMPORARILY BRACED AGAINST EARTH PRESSURE AND OTHER FORCES UNTIL SLABS, BEAMS AND OTHER MEMBERS DESIGNED TO BRACE THE FINISHED STRUCTURE HAVE BEEN IN PLACE AND HAVE ATTAINED REQUIRED CONCRETE ULTIMATE STRENGTH.

6. UNLESS OTHERWISE RECOMMENDED BY THE GEOTECHNICAL ENGINEER'S REPORT, SLABS ON GRADE SHALL BE SUPPORTED BY A COMPACTED POROUS FILL AT LEAST 8 INCHES THICK. AT INTERIOR SLABS A VAPOR BARRIER AT LEAST 15 MILS THICK SHALL BE PLACED BETWEEN THE SLAB AND THE POROUS FILL. THE POROUS FILL SHALL, IN TURN, BE SUPPORTED BY EITHER CLEAN, INORGANIC ORIGINAL SOIL OR A COMPACTED FILL WITH A MODIFIED PROCTOR DENSITY OF 90.

SUPPORT OF EXCAVATION:

1. SUPPORT OF EXCAVATION, (SHEETING, SHORING, BRACING ETC.)SHALL BE DESIGNED BY A QUALIFIED PROFESSIONAL ENGINEER EXPERIENCED IN THIS TYPE OF WORK, EMPLOYED BY THE OWNER. THIS ENGINEER, FURTHER REFERRED TO AS THE SUPPORT OF EXCAVATION (SOE) ENGINEER SHALL BE RESPONSIBLE FOR INSPECTION OF THIS WORK AS REQUIRED BY THE PERTINENT BUILDING CODE.

2. THE SOE ENGINEER SHALL SUBMIT SHEETING, SHORING AND BRACING DRAWINGS TO THE ARCHITECT FOR COORDINATION WITH DESIGN DRAWINGS. SUCH DRAWINGS SHALL BE SUBMITTED PRIOR TO FILING OF THE STRUCTURAL DRAWINGS BY THE OFFICE FOR APPROVAL BY DOB.

3. THE SOE ENGINEER SHALL CARRY PROPER PROFESSIONAL AND GENERAL LIABILITY INSURANCE. GACE SHALL BE NAMED AS AN "ADDITIONAL INSURED" ON AND UNDER SOE ENGINEER'S INSURANCE POLICIES FOR GACE'S BENEFIT.

4. SHEETING, SHORING AND BRACING, AS WELL AS OTHER ELEMENTS OF SUPPORT OF EXCAVATION (SOE) SHALL BE SHOWN ON PLANS AND DETAILED BY THE SOE ENGINEER. THE SOE ENGINEER SHALL FILE SUCH PLANS AND OBTAIN APPROVAL FROM THE DEPARTMENT OF BUILDINGS AS PART OF THE FILING FOR THE FOUNDATION PERMIT.

SPECIAL INSPECTION NOTES:

1. SPECIAL INSPECTION ITEMS REQUIRED BY NYC BUILDING CODE RELATED TO STRUCTURAL WORK SHOWN ON GACE DRAWINGS.

A. CONCRETE - CAST-IN-PLACE
B. CONCRETE SAMPLING AND TESTING
C. CONCRETE DESIGN MIX
D. POST-INSTALLED ANCHORS (BB# 2014-018, 2014-019, 2015-027, 2016-005)
F. FOOTING AND FOUNDATION (PROGRESS INSPECTION)
G. FINAL (PROGRESS INSPECTION)

THE CONTRACTOR IS OBLIGATED TO NOTIFY THE INSPECTOR AT LEAST 72 HOURS BEFORE INSTALLATION OF SUCH ITEMS SO THAT PROPER INSPECTION CAN BE MADE. IN NO CASE SHALL SUCH ITEMS BE INSTALLED OR CONSTRUCTED WITHOUT COMPLETE APPROVAL OF THE INSPECTOR. UNAPPROVED INSTALLATION IS SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S SOLE EXPENSE.

ALL SPECIAL INSPECTIONS SHALL BE PERFORMED BASED ON APPROVED SHOP DRAWINGS. INSPECTIONS PERFORMED BASED ON UNAPPROVED DRAWINGS SHALL BE CONSIDERED INVALID AND SHALL BE REJECTED.

NEW YORK CITY CODE NOTES

SCOPE OF WORK:
FOUNDATION WORK PROPOSED FOR NEW BUILDING AS SHOWN ON PLANS HEREIN.

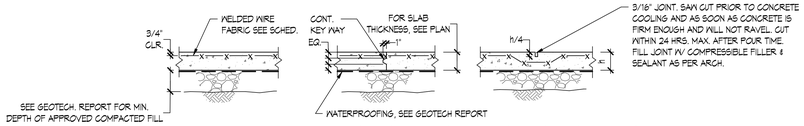
FOUNDATION DRAWINGS ARE IN COMPLIANCE WITH BC107.1.1, AND BC CHAPTERS 16, 18, AND 19

RELATED JOB APPLICATION NUMBERS:

MECHANICAL:	X08026188-I1
PLUMBING:	X08026146-I1
SPRINKLER / STANDPIPE:	X08026201-I1
CIVIL:	X08026209-I1
FOUNDATION / EARTHWORK:	X08026216-I1
STRUCTURAL:	X08026211-I1

REINFORCEMENT SCHEDULE

SLAB THICKNESS	REINFORCEMENT	MAX. JOINT SPACING (@ INTERIOR SLABS)	MAX. JOINT SPACING (@ EXTERIOR SLABS)
5"	6x6-W2.1xW2.1	12'-0" E.W.	10'-0" E.W.



TYPICAL SLAB-ON-GRADE

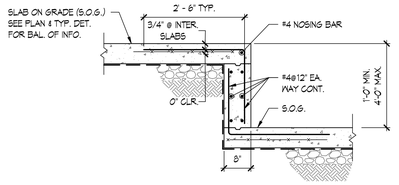
CONSTRUCTION JOINT

NOTE: PROVIDE CONTINUOUS WATERSTOP IN ALL JOINTS AS REQ'D. BY ARCHITECT.

SAW CUT CONTRACTION JOINT

NOTES:

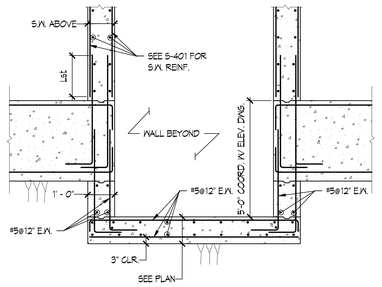
1. FOR MAXIMUM SPACING SEE TABLE ABOVE. PROVIDE JOINTS AT HALF THE INDICATED SPACING WHEN ADJACENT TO SLAB STEPS.
2. CONTRACTOR TO PROVIDE PROPOSED JOINT LAYOUT PLAN FOR REVIEW AND APPROVAL.



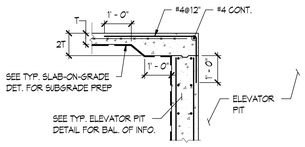
2 TYPICAL STEP IN SLAB-ON-GRADE
3/4" = 1'-0"

NOTE: PROVIDE CONTINUOUS WATERSTOPS IN ALL JOINTS ARE REQUIRED BY ARCHITECT.

1 TYPICAL SLAB-ON-GRADE
3/4" = 1'-0"

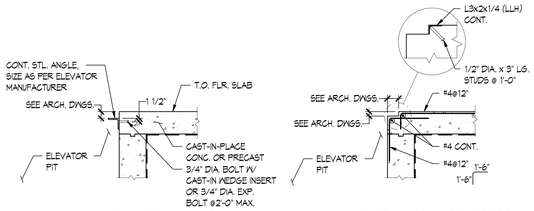


TYPICAL ELEVATOR PIT DETAIL



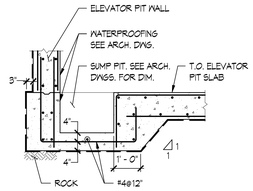
AT NEW UNREINFORCED SLAB

ELEVATOR PIT TO SLAB-ON-GRADE CONNECTION



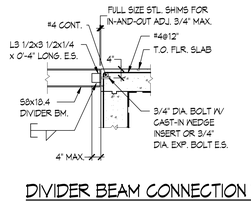
ON STEEL ANGLE

ON RECESS IN CONCRETE

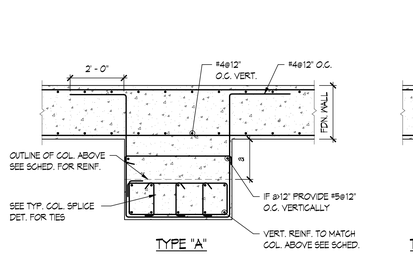


ELEVATOR SILL

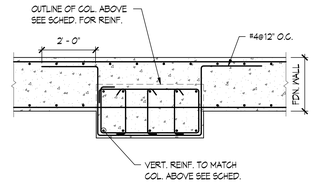
ELEVATOR SUMP-PIT



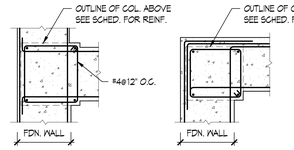
DIVIDER BEAM CONNECTION TO ELEVATOR PIT



TYPE "A"



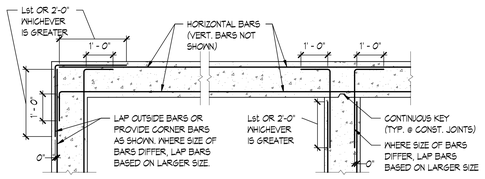
TYPE "B" COLUMN BUTTRESS WITHIN FOUNDATION WALL



TYPE "C" TYPE "D"

3 TYPICAL COLUMN BUTTRESS PLAN
1/2" = 1'-0"

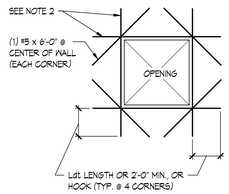
NOTE: FOR BALANCE OF WALL REINFORCEMENT & OTHER INFORMATION SEE TYPICAL WALL SECTIONS / PIER-BUTTRESS DETAIL.



AT CORNERS AT INTERSECTIONS

TYPICAL HORIZONTAL REINFORCING FOR CONCRETE WALLS (PLAN)
5 1/2" = 1'-0"

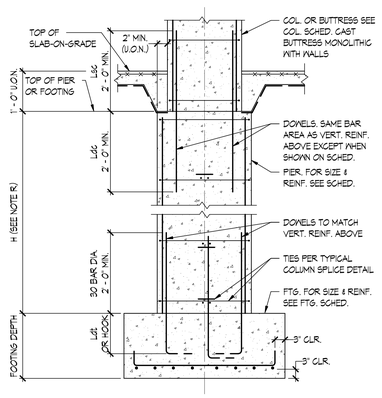
NOTE: PROVIDE CONTINUOUS WATERSTOPS IN ALL JOINTS AS REQUIRED BY ARCHITECT.



TYPICAL OPENING IN CONCRETE WALL
6 1/2" = 1'-0"

NOTES:

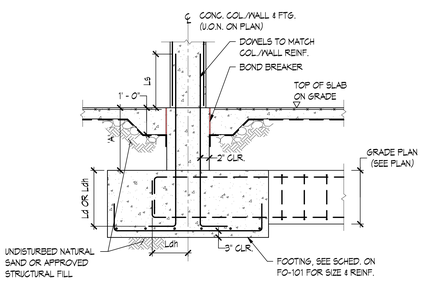
1. HOOK ALL INTERRUPTED CONTINUOUS BARS.
2. PLACE ONE-HALF OF REINFORCING BAR AREA INTERRUPTED BY OPENING IN THE SAME FACE AT BOTH SIDES OF OPENING. TWO #5 EACH SIDE MIN.



TYPICAL CONCRETE COLUMN, PIER OR BUTTRESS AND FOOTING (NON-SEISMIC)
7 3/4" = 1'-0"

NOTE R:
WHERE H IS LESS THAN 1'-0" EXTEND COLUMN DOWELS THROUGH PIER AND Ld: INTO FOOTING AND OMIT PIER DOWELS. CAST COLUMN MONOLITHIC WITH FOOTING AND OMIT PIER.

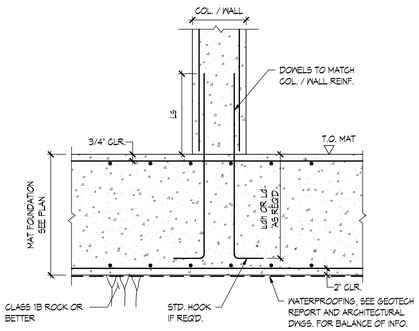
4 TYPICAL ELEVATOR PIT
1/2" = 1'-0"



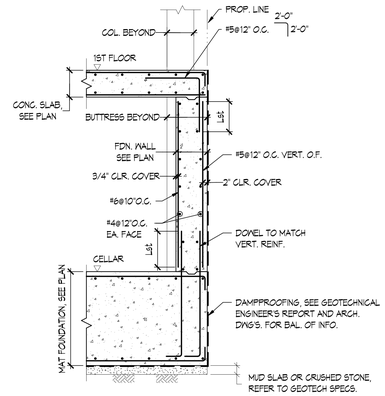
TYPICAL FOOTING (SLAB ON GRADE)
8 1/2" = 1'-0"

NOTES:

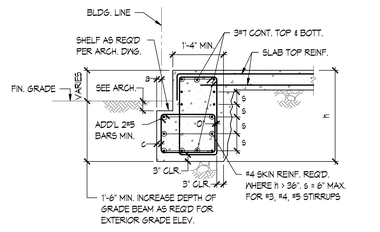
1. HAUNCH SLAB ON GRADE TO TOP OF FOOTING WHERE 'A' IS LESS THAN 12" AND PROVIDE BOND BREAKER BETWEEN TOP OF FOOTING AND SLAB.
2. GRADE BEAM(S) TO BE POURED MONOLITHICALLY WITH PILE CAP. ALTERNATIVELY, CONTRACTOR TO SUBMIT PROPOSED CONSTRUCTION JOINT LOCATION(S) FOR APPROVAL.



TYPICAL MAT FOUNDATION
9 3/4" = 1'-0"



TYPICAL FOUNDATION WALL
10 1/2" = 1'-0"



TYPICAL EXTERIOR GRADE BEAM WITH FRAMED SLAB (UNFORMED)
11 1/2" = 1'-0"

NOTES:
1. BEAM SIZES ON PLANS AND IN BEAM SCHEDULES ARE DESCRIBED THUS: bXh WHERE b AND h ARE GIVEN IN INCHES.
2. INCREASE h BY 1 1/2" FROM SCHEDULE FOR GRADE BEAM WITH EARTH FORM.
3. 3#07 & c/-2" CLEAR WITH FORM WORK.
   8#11 & c/-3" CLEAR WITH EARTH FORM.

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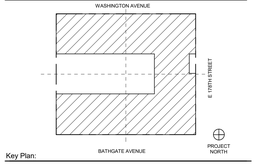

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FOUNDATION NOTES & TYPICAL DETAILS 1

STRUCTURAL JOB # X08026211-I1

SEAL & SIGNATURE:

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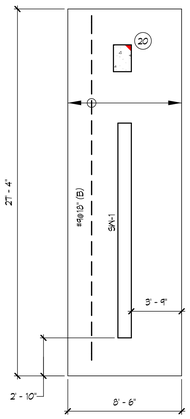
DRAWING BY:	CA
CHK BY:	AM
DWG No:	FO-001.00
SCALE: As indicated	3 OF 10



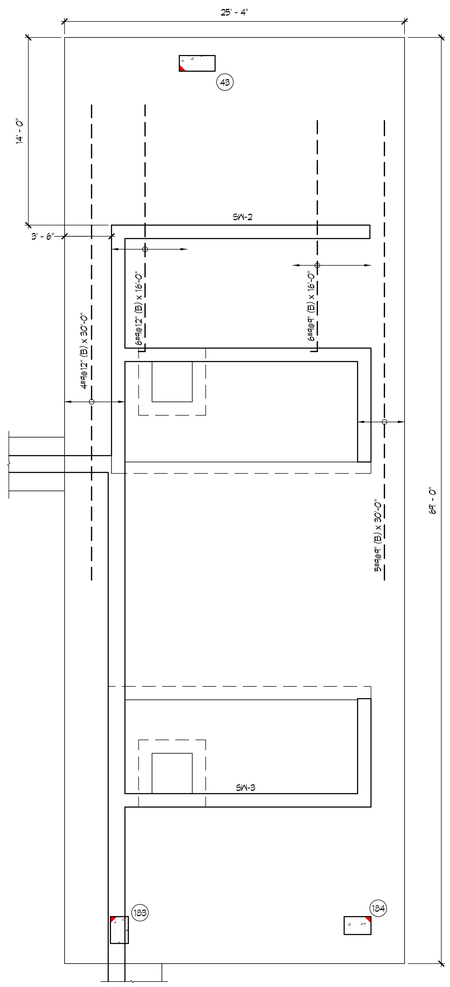
SHEAR WALL 1
MAT FDN PART PLAN

1 — 1/4" = 1'-0"

NOTE:

1. ALL REINFORCEMENT SHOWN ON MAT FOUNDATION IS TO BE PLACED IN ADDITION TO TYPICAL CONTINUOUS REINFORCEMENT OF:

   #5@12" TOP EACH WAY
   #4@12" BOTTOM EACH WAY



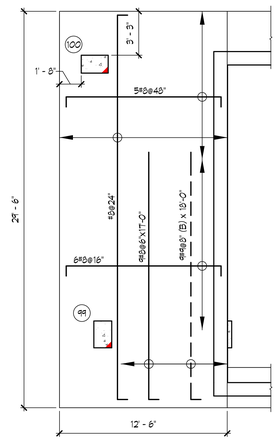
SHEAR WALLS 2 & 3
MAT FDN. PART PLAN

2 — 1/4" = 1'-0"

NOTE:

1. ALL REINFORCEMENT SHOWN ON MAT FOUNDATION IS TO BE PLACED IN ADDITION TO TYPICAL CONTINUOUS REINFORCEMENT OF:

   #4@12" TOP EACH WAY
   #4@10" BOTTOM EACH WAY



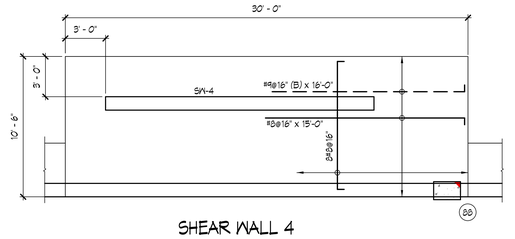
SHEAR WALL 5
MAT FDN PART PLAN

3 — 1/4" = 1'-0"

NOTE:

1. ALL REINFORCEMENT SHOWN ON MAT FOUNDATION IS TO BE PLACED IN ADDITION TO TYPICAL CONTINUOUS REINFORCEMENT OF:

   #5@12" TOP EACH WAY
   #4@12" BOTTOM EACH WAY



SHEAR WALL 4
MAT FDN PART PLAN

4 — 1/4" = 1'-0"

NOTE:

1. ALL REINFORCEMENT SHOWN ON MAT FOUNDATION IS TO BE PLACED IN ADDITION TO TYPICAL CONTINUOUS REINFORCEMENT OF:

   #5@12" TOP EACH WAY
   #5@12" BOTTOM EACH WAY

FOUNDATION PART PLANS

1/8" = 1'-0"

NOTES:

1. [X" MAT] DENOTES CONCRETE MAT OF THICKNESS 'X'. MAT TO BEAR ON 6 TSF SOIL, OR BETTER. SEE CONCRETE NOTES ON DRAWING S-001 FOR BALANCE OF INFORMATION.
2. ——— DENOTES TOP REINFORCEMENT.
3. __ (B) __ DENOTES ADDITIONAL BOTTOM REINFORCEMENT.
4. PLACE EAST-WEST REINFORCEMENT IN THE OUTERMOST LAYER.

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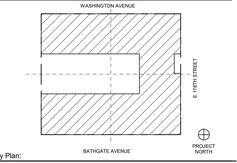

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FOUNDATION PART PLANS

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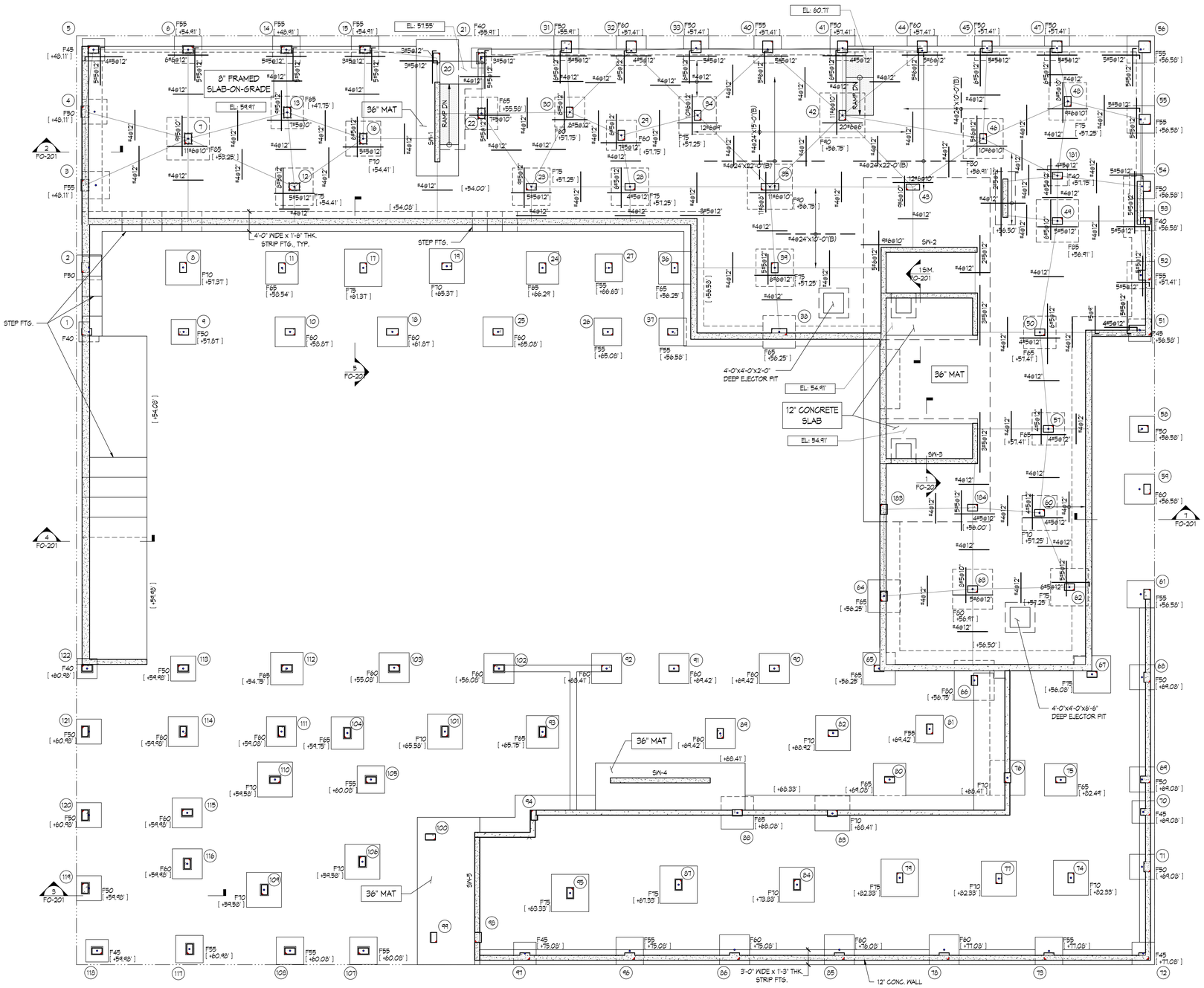
DWG No:

FO-002.00

SCALE: As indicated



CELLAR FRAMING PLAN

1/8" = 1'-0"

NOTES:

1. EL. XX'-XX' — DENOTES TOP OF SLAB ELEVATION WITH RESPECT TO NAVD88 DATUM ELEVATION.
2. X" SLAB ON GRADE — DENOTES CONCRETE SLAB ON GRADE OF THICKNESS 'X'. SEE TYPICAL SLAB ON GRADE DETAIL ON DRAWING FO-001 FOR BALANCE OF INFORMATION. SLOPE TOP OF TO DRAINS AS REQUIRED. REFER TO ARCH. & MEP. DRAWINGS FOR SLAB PITCH AND DRAIN LOCATIONS.
3. X" MAT — DENOTES CONCRETE MAT OF THICKNESS 'X'. MAT TO BEAR ON 6 TSF SOIL, OR BETTER. SEE CONCRETE NOTES ON DRAWING S-001 FOR BALANCE OF INFORMATION.
4. FXX — DENOTES SPREAD FOOTING. FOR SIZE & REINFORCEMENT, SEE SCHEDULE ON THIS SHEET.
5. [XX'] — DENOTES BOTTOM OF FOOTING ELEVATION WITH RESPECT TO NAVD88 DATUM ELEVATION. IF PROPER BEARING MATERIAL IS NOT FOUND AT THE ELEVATION INDICATED, LOWER THE BOTTOM OF FOOTING AS NECESSARY. A [1H:1V] INFLUENCE LINE SHALL BE MAINTANED BETWEEN BOTTOM OF ADJACENT FOOTINGS.
6. FOOTINGS TO BE CENTERED ON COLUMNS ABOVE, UNLESS OTHERWISE NOTED.
7. FOR GRADE BEAM REINFORCEMENT, SEE SCHEDULE ON FO-001.
8. BOTTOM OF GRADE BEAM ELEVATION DENOTED THUS (X'-X").
9. CENTERLINE OF GRADE BEAMS TO ALIGN WITH CENTROID OF FOOTING & COLUMN, UNLESS OTHERWISE NOTED.
10. FOR COLUMN DIMENSIONS & REINFORCEMENT, SEE COLUMN SCHEDULE ON DRAWING S-301 THRU S-303.
11. SW-XX — DENOTES CONCRETE SHEAR WALL. SEE DRAWING S-401 FOR BALANCE OF INFORMATION.
12. DENOTED RAISED SLAB/ RAMP. SEE DETAIL 1 ON S-004

FOOTING SCHEDULE

MARK	WIDTH	LENGTH	THICKNESS	REINFORCING (EACH WAY)
F40	4' - 0"	4' - 0"	1' - 6"	#6@12"
F45	4' - 6"	4' - 6"	1' - 6"	#6@12"
F50	5' - 0"	5' - 0"	1' - 6"	#6@12"
F55	5' - 6"	5' - 6"	1' - 6"	#6@5"
F60	6' - 0"	6' - 0"	1' - 6"	#7@10"
F65	6' - 6"	6' - 6"	1' - 10"	#7@10"
F70	7' - 0"	7' - 0"	2' - 0"	#7@10"
F75	7' - 6"	7' - 6"	2' - 0"	#7@5"
F80	8' - 0"	8' - 0"	2' - 4"	#7@5"
F85	8' - 6"	8' - 6"	2' - 4"	#7@5"
F40	9' - 0"	9' - 0"	2' - 6"	#8@10"

GRAPHIC SCALE 8' 0' 8' 16'

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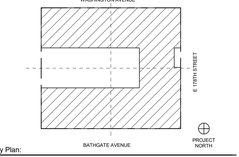

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DWG No:	FO-101.00
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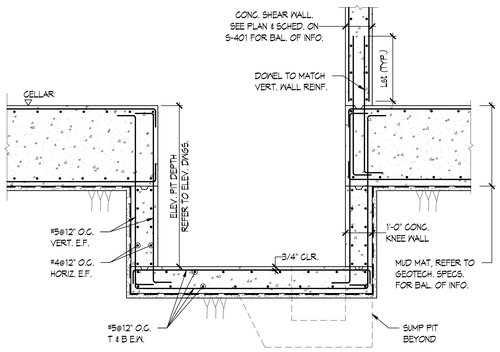
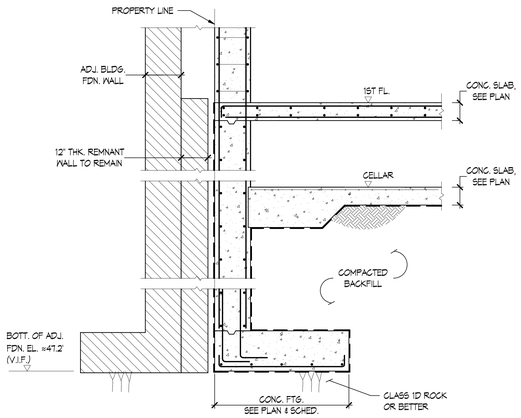


1 SECTION
1/2" = 1'-0"



2 SECTION
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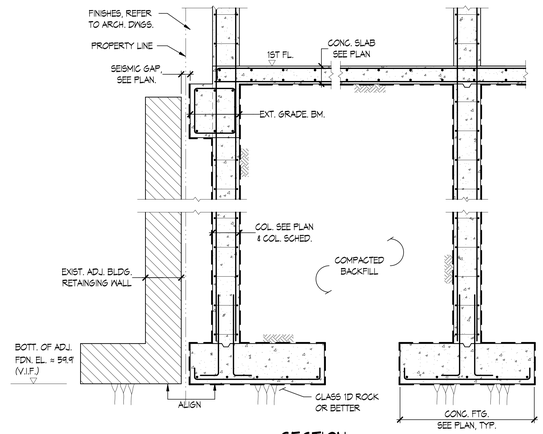
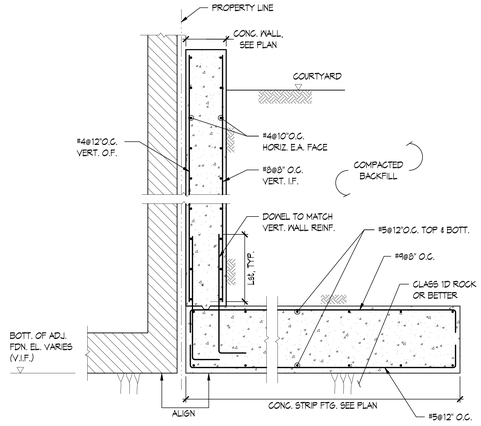
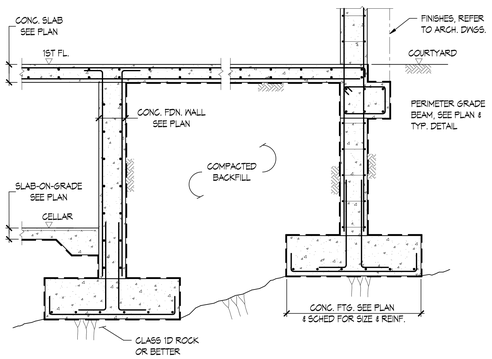


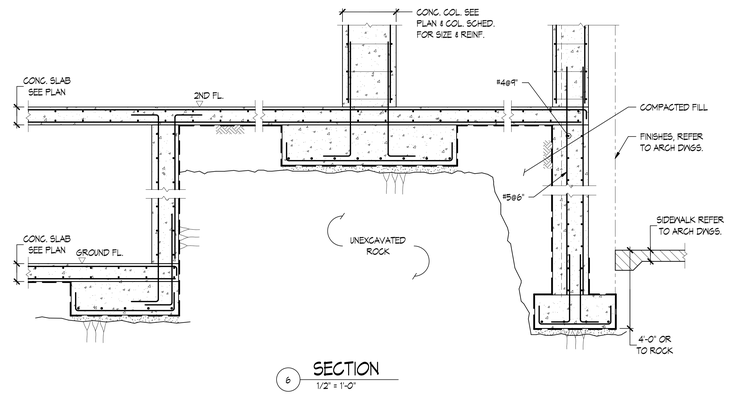
3 SECTION
1/2" = 1'-0"



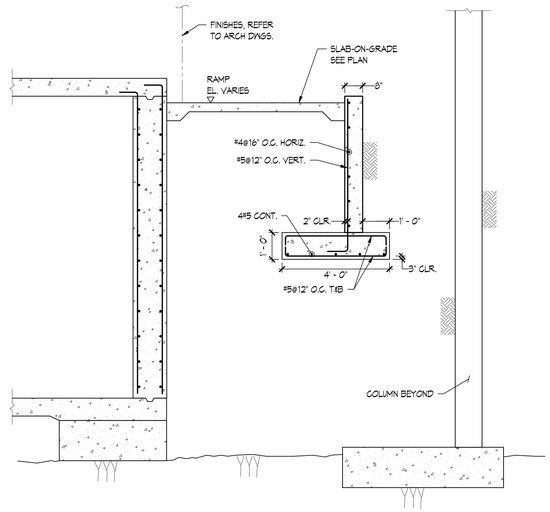
4 SECTION
1/2" = 1'-0"



5 SECTION
1/2" = 1'-0"



6 SECTION
1/2" = 1'-0"



7 SECTION
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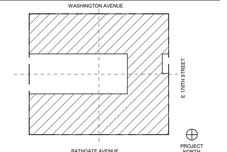

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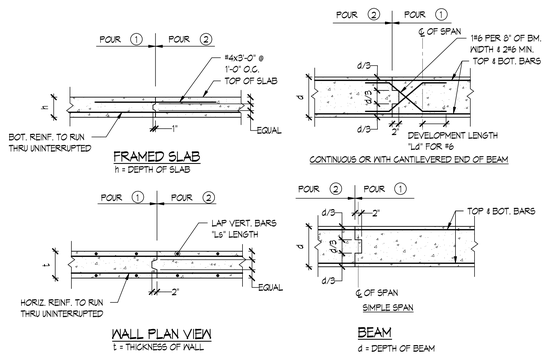
FOUNDATION SECTIONS

STRUCTURAL JOB # X08026211-I1

SEAL & SIGNATURE:

PROJECT No:	B9142.00
DRAWING BY:	CA
CHK BY:	AM
DWG No:	FO-201.00
SCALE: 1/2" = 1'-0"	6 OF 10

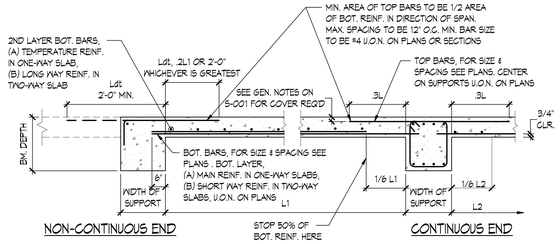


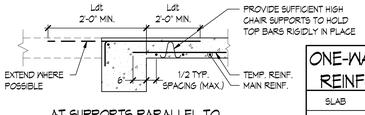
1 TYPICAL CONSTRUCTION JOINT

3/4" = 1'-0"

NOTES:

1. CONSTRUCTION JOINTS SHALL NOT BE PERMITTED FOR BEAMS WITH CONCENTRATED LOADS. CONSULT WITH ENGINEER FOR SPECIAL CASES.
2. CONTRACTOR SHALL SUBMIT ALL PROPOSED CONSTRUCTION JOINTS FOR APPROVAL.
3. PROVIDE CONTINUOUS WATERSTOPS IN ALL JOINTS AS REQUIRED BY ARCHITECT.





AT SUPPORTS PARALLEL TO MAIN REINFORCEMENT IN ONE-WAY SLABS

ONE-WAY SLAB TEMPERATURE REINFORCEMENT SCHEDULE

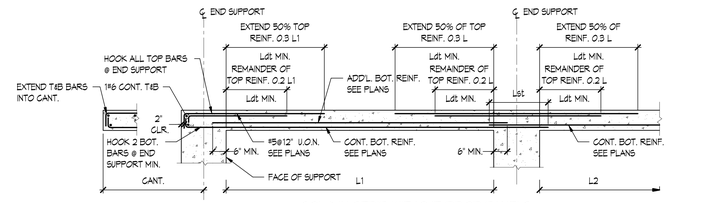
SLAB	REINF.	SLAB	REINF.
5"	#4@18"	9"	#4@12"
6"	#4@18"	10"	#5@17"
7"	#4@15"	11"	#5@15"
8"	#4@13"	12"	#5@14"

2 TYPICAL ONE-WAY AND TWO-WAY SLABS

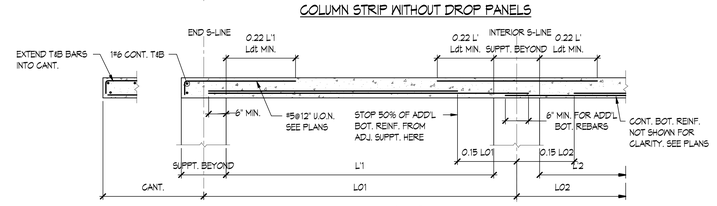
1/2" = 1'-0"

NOTE:

1. L = LONGER ADJACENT SPAN L1 OR L2.



COLUMN STRIP WITHOUT DROP PANELS



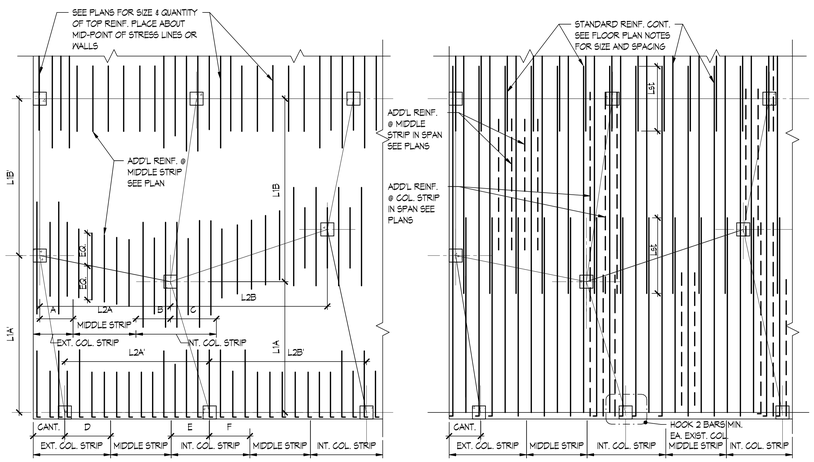
MIDDLE STRIP

3 TYPICAL FLAT PLATE REINFORCING PLACEMENT

1/2" = 1'-0"

NOTES:

1. L'1 = THE GREATER OF L1 FOR EITHER OF TWO ADJACENT COLUMN STRIPS.
2. L'2 = THE GREATER OF L2 FOR EITHER OF TWO ADJACENT COLUMN STRIPS.
3. L = THE GREATER OF L1 OR L2.
4. L' = THE GREATER OF L'1 OR L'2.



TOP BAR PLACEMENT

NOTES:
1. REINFORCEMENT SHOWN IS TYPICAL FOR BOTH DIRECTIONS.
2. COLUMN STRIP WIDTH GREATER THAN OR EQUAL TO COLUMN, WALL, OR PILE CAP DIMENSION PERPENDICULAR TO COLUMN STRIP SPAN.
3. 'A' = THE LESSER OF: L1A/4, L1B/4 OR L2A/4
   'B' = THE LESSER OF: L1A/4, L1B/4, OR L2A/4
   'C' = THE LESSER OF: L1A/4, L1B/4, OR L2B/4
   'D' = THE LESSER OF: L1A'/4 OR L2A'/4
   'E' = THE LESSER OF: L1A/4 OR L2A/4
   'F' = THE LESSER OF: L1A/4 OR L2B/4
4. ——— DENOTES STRESS LINE.

BOTTOM BAR PLACEMENT

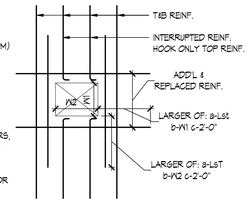
NOTES:
1. REINFORCEMENT SHOWN IS TYPICAL FOR BOTH DIRECTIONS.
2. FOR COLUMN STRIP AND MIDDLE STRIP MEASUREMENTS SEE 'TYPICAL TOP BAR PLACEMENT FOR FLAT SLAB CONSTRUCTION' DETAIL.
3. COLUMN STRIP WIDTH GREATER THAN OR EQUAL TO COLUMN, WALL, OR PILE CAP DIMENSION PERPENDICULAR TO COLUMN STRIP SPAN.

4 TYPICAL BAR PLACEMENT FOR FLAT PLATE CONSTRUCTION

12" = 1'-0"

NOTES:

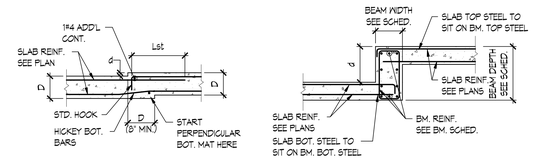
1. IF REINFORCEMENT IS INTERRUPTED (TOP OR BOTTOM) 1/2 THE EQUIVALENT AREA SHALL BE REPLACED ON EACH SIDE OF OPENING. 1#4 MIN. EACH SIDE.
2. IF OPENING IS LOCATED IN AREA OF NO TOP REINFORCEMENT & OPENING IS LARGER THAN 16"X16" PROVIDE 1#4 TOP SIDE OF OPENING.
3. IF OPENING IS SMALLER THAN SPACING OF SLAB BARS, NO ADDITIONAL REINFORCEMENT IS REQUIRED. SLAB BARS TO BE PLACED AT EDGES OF OPENING.
4. IF OPENING IS NEAR OR AGAINST EXTERIOR BEAMS OR COLUMNS & REINFORCEMENT CANNOT BE EXTENDED, HOOK ADDITIONAL BARS.

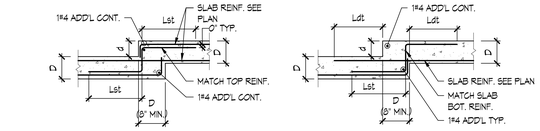


5 TYPICAL ADDED REINFORCING AT OPENINGS IN CONCRETE SLAB

1/4" = 1'-0"

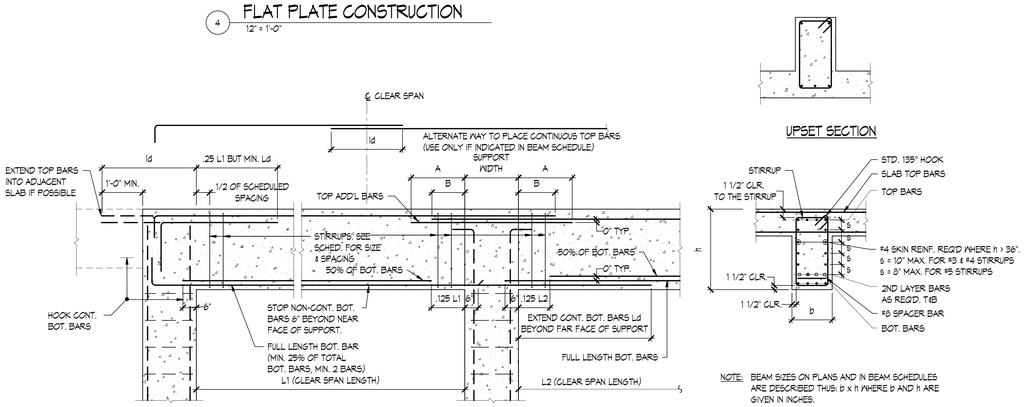
NOTE: MINIMUM REQUIREMENTS ARE SHOWN IN THESE DETAILS. SEE PLAN FOR ADDITIONAL REQUIREMENTS.





6 TYPICAL STEPS IN SLAB

1/2" = 1'-0"



ABBREVIATIONS:

A = .33 L1 OR L2 WHICHEVER IS GREATER BUT MIN. Id

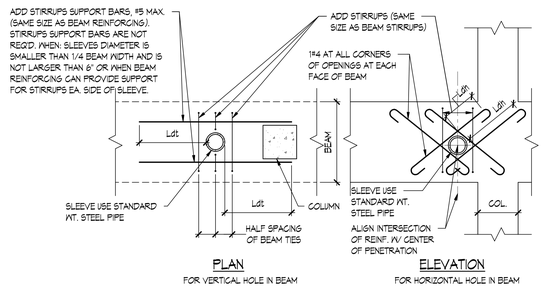
B = .2 L1 OR L2 WHICHEVER IS GREATER BUT MIN. Id

7 TYPICAL CONCRETE BEAM

1/2" = 1'-0"

NOTES:

1. THIS DETAIL REPRESENTS TYPICAL CONDITION ONLY. SEE PLANS AND BEAM SCHEDULE FOR NON-TYPICAL REINFORCING DETAILS.
2. ALL BOTTOM BARS TO BE NON-CONTINUOUS UNLESS SPECIFICALLY DESCRIBED AS CONT. ON PLANS OR IN SCHEDULE.

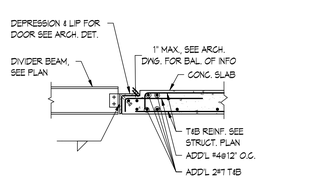


8 TYPICAL OPENINGS IN CONCRETE BEAMS

3/4" = 1'-0"

NOTES:

1. ALL OPENINGS REGARDLESS OF SIZE ARE SUBJECT TO APPROVAL OF STRUCTURAL ENGINEER. ALL PROPOSED OPENING SIZES, LOCATION & ELEVATIONS TO BE SUBMITTED FOR REVIEW. OPENINGS THAT REQUIRE SPECIFIED LONGITUDINAL REINFORCEMENT BE PLACED IN ADDITIONAL LAYERS WILL NOT BE PERMITTED.
2. NO OPENINGS ARE PERMITTED IN CONCRETE BEAMS LARGER THAN 2" DIA. UNLESS SPECIFICALLY INDICATED ON STRUCTURAL PLANS. ALL BEAM REINFORGMENT TO RUN THROUGH.



9 ELEVATOR DIVIDER BEAM TO CONCRETE SLAB CONNECTION

3/4" = 1'-0"

ST. JOSEPH APARTMENTS

484 E 178th Sreet, The Bronx, NY 10457

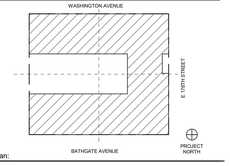
Owner:

CATHOLIC HOMES NEW YORK

Association of New York Catholic Homes
40 Maiden Lane, 13th Floor
New York NY 10038
Tel (646) 794 3167

BLOCK: 3043 LOT: 10, 16, 22, 23

NYC DOB # :



Key Plan:

NUMBER	DATE	DESCRIPTION
	10.14.2022	ISSUED FOR DOB SUBMISSION
	11.30.2022	100% DD SET
	07.26.2024	DOB FILING
	08.09.2024	PROGRESS SET
	08.30.2024	CD ESTIMATING SET

NOT FOR CONSTRUCTION

Revisions:

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New York NY 10018
Tel (212) 253 7820 Fax (212) 253 1276

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GACE Consulting Engineers DPC
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New York NY 10016
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MEP Engineer:

Dagher Engineering, PLLC
29 Broadway
New York NY 10006
Tel (212) 480 2591

Landscape Architect:

Terrain-NYC Landscape Architecture PC
200 Park Avenue South, Suite 1401
New York NY 10003
Tel (212) 537 6080

Client Representative:

Filing Representative:

CORE Consultants NYC LLP
254 36th Screet Suite C663
Brooklyn NY 11232
Tel (212) 796 2529

Do Not Scale Plans
Contractor to promptly notify Architect of any material variations between field conditions and existing conditions as indicated in Contract documents

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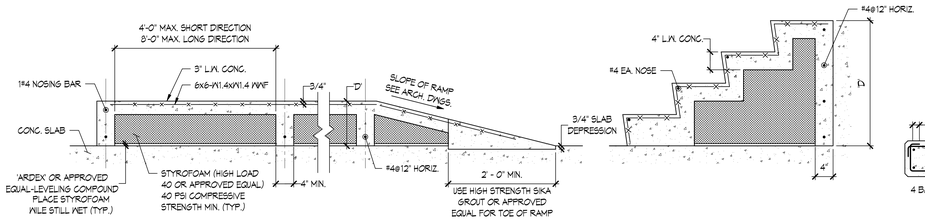
TYPICAL DETAILS 1

STRUCTURAL JOB # X0802621I-I1

SEAL & SIGNATURE:

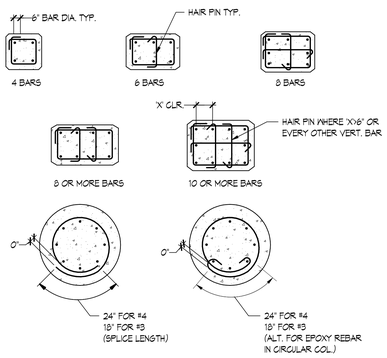
PROJECT No:	B9142.00
DRAWING BY:	CA
CHK BY:	AM
DWG No:	S-003.00
SCALE: As indicated	7 OF 10



1 TYPICAL INFILL OF DEPRESSED SLAB
1" = 1'-0"

NOTES:

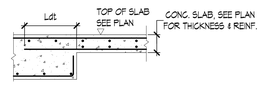
1. WHERE DEPTH 'D' IS 4" OR LESS, OMIT STYROFOAM.
2. MAX. TOTAL DEPTH 'D' IS 4'-0".



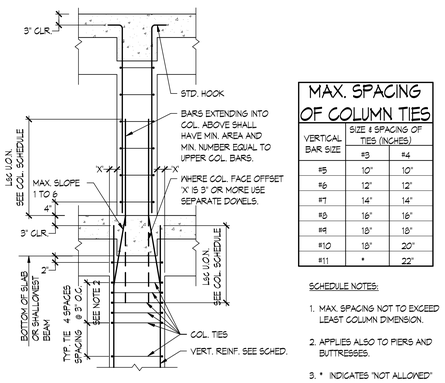
2 TYPICAL TIED COLUMNS
1/2" = 1'-0"

NOTES:

1. TOTAL NUMBER OF BARS SHOULD BE SPACED AROUND PERIMETER IN SUCH A WAY AS TO ACHIEVE APPROXIMATELY EQUAL SPACING.
2. USE THESE DETAILS AT PIERS AND BUTTRESSES.



6 TYPICAL SECTION THRU CHANGE IN SLAB THICKNESS - BOTTOM STEP
1/2" = 1'-0"



MAX. SPACING OF COLUMN TIES		
VERTICAL BAR SIZE	SIZE & SPACING OF TIES (INCHES)	
	#3	#4
#5	10"	10"
#6	12"	12"
#7	14"	14"
#8	16"	16"
#9	18"	18"
#10	18"	20"
#11	*	22"

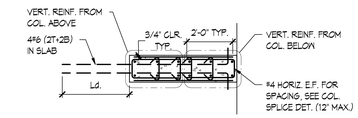
SCHEDULE NOTES:

1. MAX. SPACING NOT TO EXCEED LEAST COLUMN DIMENSION.
2. APPLIES ALSO TO PIERS AND BUTTRESSES.
3. * INDICATES 'NOT ALLOWED'

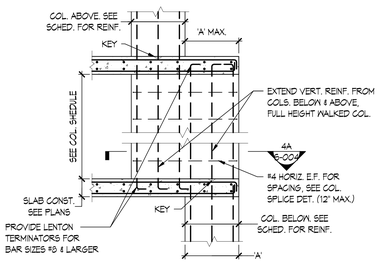
3 TYPICAL COLUMN SPLICE (NON-SEISMIC)
3/4" = 1'-0"

NOTES:

1. TIES SHALL START 4" FROM TOP OF FOOTING OR FLOOR SLAB AND SHALL EXTEND TO WITHIN 2" OF THE BOTTOM OF THE SHALLOWEST BEAM OR TO WITHIN 2" OF THE BOTTOM OF THE SLAB WHEN BEAMS DO NOT FRAME INTO ALL FOUR FACES OR THE COLUMN.
2. WHEN COLUMN BARS ARE OFFSET THE TIES SHALL BE SPACED NOT OVER 3" O.C. FOR A DISTANCE OF 1'-0" BELOW THE POINT OF OFFSET.



4A SECTION
1/2" = 1'-0"

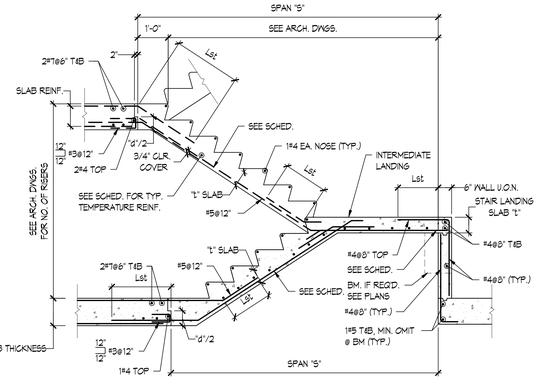


4 TYPICAL WALKED COLUMN (ELEVATION)
1/2" = 1'-0"

STAIR SCHEDULE				
SPAN 'S'	SLAB THICK 't'	REINFORCING **		TEMPERATURE REINFORCEMENT
		SIZE	SPACING	
9'-0" OR LESS	5 1/2"	#4	12"	#4 @ 18"
10'-0"	6"	#4	12"	#4 @ 18"
11'-6"	7"	#4	10"	#4 @ 16"
13'-0"	8"	#5	12"	#4 @ 12"
15'-0"	9"	#5	10"	#4 @ 12"

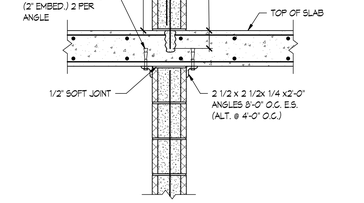
STAIR NOTES:

1. FOR ORIENTATION, DIMENSIONS, NUMBER OF TREADS AND RISERS IN EACH RUN, SEE STAIR SECTION AND / OR ARCHITECTURAL DRAWINGS.
2. EXTEND STAIR WIDTH FOR MASONRY SUPPORT WHERE CALLED FOR ON ARCHITECTURAL DRAWINGS.
3. FOR PORTIONS OF STAIRS POURED WITH FLOOR SLAB SEE PLANS FOR SECTIONS AND DETAILS.
4. ALL NON-CONTACT SPLICES MUST BE LESS THAN 6" APART.

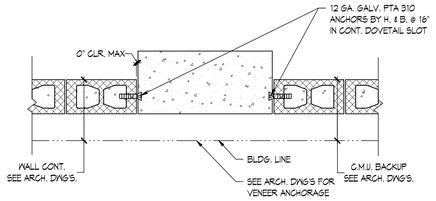


5 TYPICAL CONCRETE STAIRS
1/2" = 1'-0"

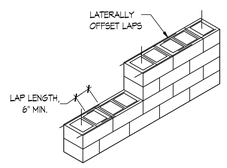
7 TYPICAL EXTERIOR CMU
1" = 1'-0"



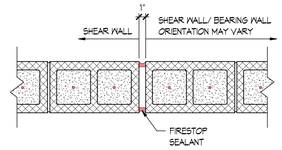
8 TYPICAL NON-LOAD BEARING INTERIOR MASONRY PARTITIONS
1" = 1'-0"



9 TYPICAL C.M.U WALL ANCHORAGE DETAIL INTERIOR MASONRY PARTITIONS
1" = 1'-0"



10 TYPICAL VERTICAL AND HORIZONTAL WALL REINFORCEMENT
3/4" = 1'-0"
NOTE: SEE SCHEDULES AND GENERAL NOTES FOR HORIZONTAL AND VERTICAL WALL REINFORCEMENT.



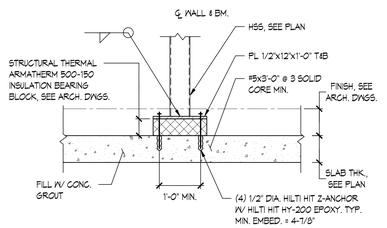
11 TYPICAL CMU WALL JOINT
1 1/2" = 1'-0"

1/8" = 1'-0"

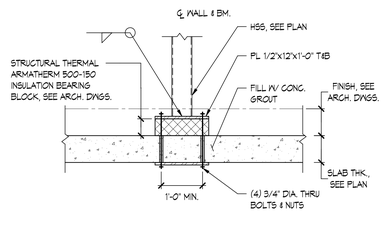
MASONRY DEVELOPMENT AND SPLICE LENGTH							
BAR/ WIRE SIZE	DIAMETER	f'm = 1,500 PSI		f'm = 2,000 PSI		f'm = 3,000 PSI	
		DEVELOPMENT LENGTH (Em) IN.	TENSION SPLICE LENGTH (Sm) IN.	DEVELOPMENT LENGTH (Em) IN.	TENSION SPLICE LENGTH (Sm) IN.	DEVELOPMENT LENGTH (Em) IN.	TENSION SPLICE LENGTH (Sm) IN.
W1.7	0.148	9	14	9	14	9	14
W2.1	0.162	10	15	10	15	10	15
W2.8	0.189	12	18	12	18	12	18
#3	0.375	16	27	14	27	12	27
#4	0.5	21	36	18	36	15	36
#5	0.625	26	45	22	45	18	45
#6	0.75	43	54	38	54	31	54
#7	0.875	60	63	52	63	42	63
#8	1	82	72	71	72	65	72

NOTE:

**MECHANICAL SPLICES SHALL HAVE THE BARS CONNECTED TO DEVELOP IN TENSION OR COMPRESSION, AS REQUIRED, AT LEAST 125% OF THE SPECIFIED YIELDSTRENGTH OF THE BAR.EPOXY-COATED BAR LENGTHS SHALL BE INCREASE BY 50 PERCENT.STEEL YIELD STRENGTH Fy = 60,000 PSI.

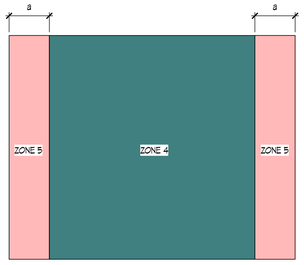


OPTION A



OPTION B

12 TYPICAL SOLAR PANEL FRAMING POST BASE CONNECTION DETAIL
3/4" = 1'-0"



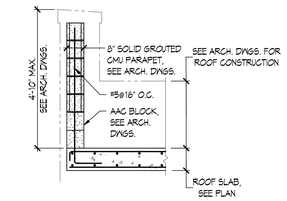
13 CMU EXTERIOR BACKUP WALL ELEVATION, COMPONENT AND CLADDING WIND ZONE
1/4" = 1'-0"
NOTE: a = 10% OF L, BUT NOT LESS THAN 3'-0"

1/8" = 1'-0"

CMU EXTERIOR BACKUP WALL SCHEDULE				
MAX. WALL SPAN/HEIGHT	MINIMUM f'm	WALL THICKNESS	ZONE	GROUT & REBAR SPACING
12'-1" TO 15'-0"	2,000 PSI	8"	4"	#4@24" O.C.
			5"	#5@32" O.C.
10'-1" TO 12'-0"	2,000 PSI	8"	4"	#4@40" O.C.
			5"	#4@32" O.C.
UP TO 10'-0"	2,000 PSI	8"	4"	#4@48" O.C.
			5"	#4@40" O.C.
12'-1" TO 15'-0"	2,000 PSI	6"	4"	#5@32" O.C.
			5"	#5@16" O.C.
10'-1" TO 12'-0"	2,000 PSI	6"	4"	#5@48" O.C.
			5"	#5@32" O.C.
UP TO 10'-0"	2,000 PSI	6"	4"	#4@48" O.C.
			5"	#4@32" O.C.

(1/8" = 1'-0")

CMU INTERIOR PARTITION SCHEDULE			
MAX. WALL SPAN/HEIGHT	MINIMUM f'm	WALL THICKNESS	GROUT & REBAR SPACING
UP TO 15'-0"	1,500 PSI	6" / 8"	#4@48" O.C.



14 TYPICAL CMU PARAPET
1/2" = 1'-0"

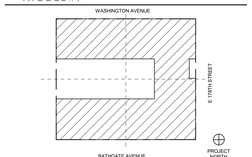
ST. JOSEPH APARTMENTS

484 E 178th Sreet, The Bronx, NY 10457

Owner:
CATHOLIC HOMES NEW YORK
Association of New York Catholic Homes
40 Maiden Lane, 13th Floor
New York NY 10038
Tel (646) 794 3167

BLOCK: 3043 LOT: 10, 16, 22, 23

NYC DOB # :



Key Plan:

NUMBER	DATE	DESCRIPTION
	10.14.2022	ISSUED FOR DOB SUBMISSION
	11.30.2022	100% DD SET
	07.26.2024	DOB FILING
	08.09.2024	PROGRESS SET
	08.30.2024	CD ESTIMATING SET

NOT FOR CONSTRUCTION

Revisions:

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Magnusson Architecture & Planning PC
42 West 39th Street, 15th Floor
New York NY 10018
Tel (212) 253 7820 Fax (212) 253 1276

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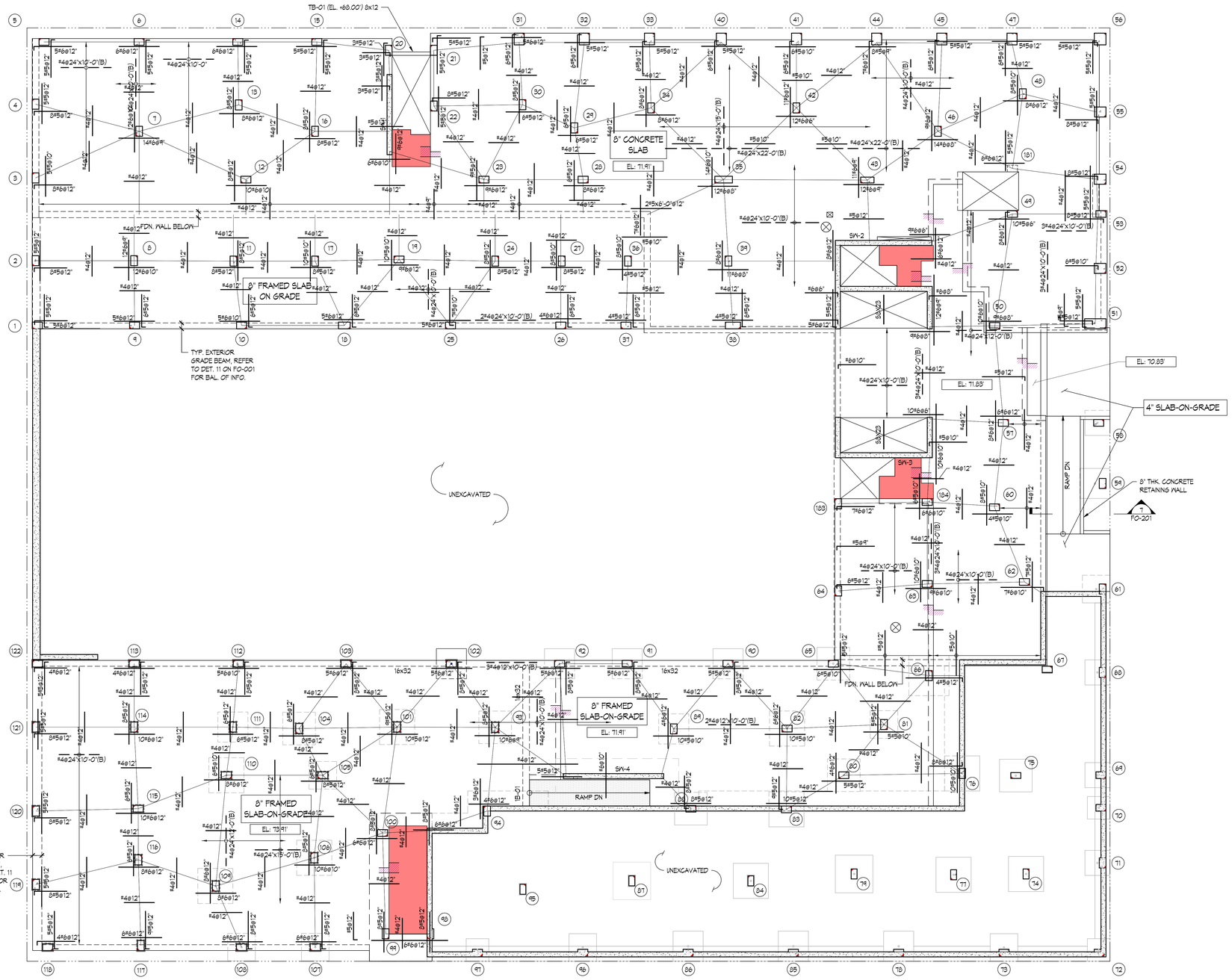
TYPICAL DETAILS 2

STRUCTURAL JOB # X08026211-I1

SEAL & SIGNATURE:

PROJECT No:	B9142.00
DRAWING BY:	CA
CHK BY:	AM
DWG No:	S-004.00
SCALE: As indicated	8 OF 10



GROUND FLOOR FRAMING PLAN

1/8" = 1'-0"

NOTES:

1. EL. XX'-XX" — DENOTES TOP OF SLAB ELEVATION WITH RESPECT TO NAVD88 DATUM ELEVATION.
2. X" SLAB ON GRADE — DENOTES CONCRETE SLAB ON GRADE OF THICKNESS 'X', SEE TYPICAL SLAB ON GRADE DETAIL ON DRAWING FO-001 FOR BALANCE OF INFORMATION. SLOPE TOP OF TO DRAINS AS REQUIRED. REFER TO ARCH. & MEP. DRAWINGS FOR SLAB PITCH AND DRAIN LOCATIONS.
3. X" CONCRETE SLAB — DENOTES CONCRETE SLAB OF THICKNESS 'X'. SEE CONCRETE NOTES ON DRAWINGS S-001 FOR BALANCE OF INFORMATION.
4. REINFORCING BARS SHOWN ON PLAN TO BE PLACED IN ACCORDANCE WITH TYPICAL FLAT PLATE DETAILS ON DRAWING S-003 AND IN ADDITION TO ANY STANDARD REINFORCEMENT CALLED FOR IN THOSE DETAILS. ALL REINFORCING SHOWN ON PLAN IS TO BE PLACED IN ADDITION TO TYPICAL BOTTOM REINFORCEMENT OF #4@12" EACH WAY CONTINUOUS.
5. ——— DENOTES TOP REINFORCEMENT.
6. ___ (B) ___ DENOTES ADDITIONAL BOTTOM REINFORCEMENT.
7. PLACE EAST-WEST REINFORCEMENT IN THE OUTERMOST LAYER.
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10. FOR COLUMN DIMENSIONS & REINFORCEMENT, SEE COLUMN SCHEDULE ON DRAWING S-301 THRU S-303.
11. SW-XX — DENOTES CONCRETE SHEAR WALL. SEE DRAWING S-401 FOR BALANCE OF INFORMATION.
12. S-x-- — DENOTES STEEL FRAMING.
13. ▭ — DENOTED RAISED SLAB/ RAMP. SEE DETAIL 1 ON S-004.

GRAPHIC SCALE 8' 0' 8' 16'

ST. JOSEPH APARTMENTS

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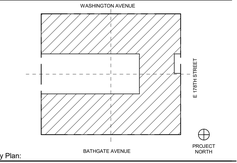

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GROUND FLOOR FRAMING PLAN

STRUCTURAL JOB # X08026211-I1

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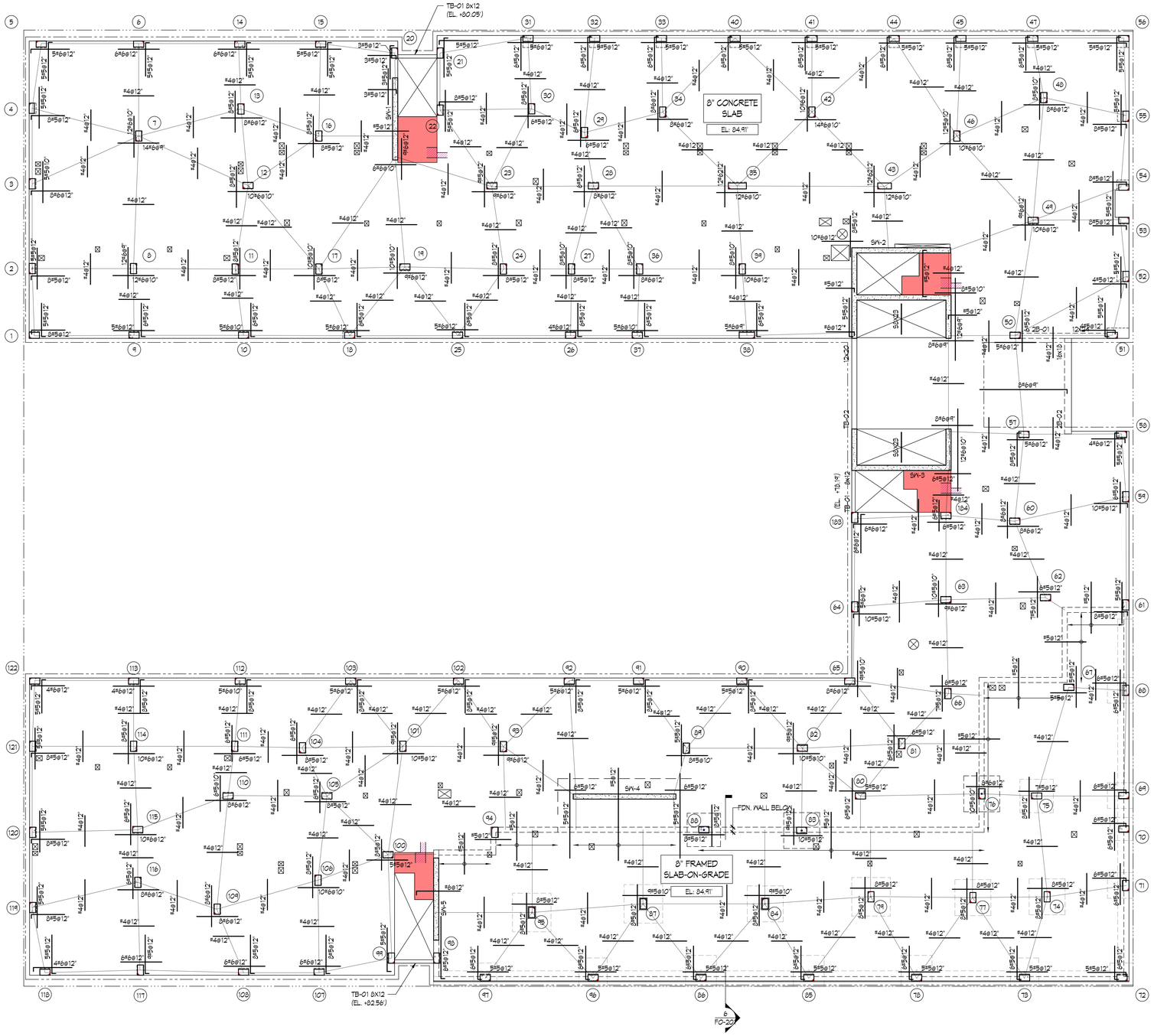
CHK BY:	AM
DWG No:	S-101.00
SCALE: 1/8" = 1'-0"	9 OF 10



2ND FLOOR FRAMING PLAN

1/8" = 1'-0"

NOTES:

1. EL. XX'-XX" — DENOTES TOP OF SLAB ELEVATION WITH RESPECT TO NAVD88 DATUM ELEVATION.
2. X" CONCRETE SLAB — DENOTES CONCRETE SLAB OF THICKNESS 'X'. SEE CONCRETE NOTES ON DRAWINGS S-001 FOR BALANCE OF INFORMATION.
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7. SLAB OPENINGS AND PENETRATIONS SHOWN SHALL BE COORDINATED WITH ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING & SPRINKLER DRAWINGS.
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9. FOR COLUMN DIMENSIONS & REINFORCEMENT, SEE COLUMN SCHEDULE ON DRAWING S-301 THRU S-303.
10. SW-XX — DENOTES CONCRETE SHEAR WALL. SEE DRAWING S-401 FOR BALANCE OF INFORMATION.
11. S-X— DENOTES STEEL FRAMING.
12. [X'-X"] — DENOTES DENOTES BOTTOM OF FOOTING ELEVATION WITH RESPECT TO THE TOP OF THE 2ND FLOOR SLAB EL. 84.00' (NAVD88). IF PROPER BEARING MATERIAL IS NOT FOUND AT THE ELEVATION INDICATED, LOWER THE BOTTOM OF FOOTING AS NECESSARY. A [1H:1V] INFLUENCE LINE SHALL BE MAINTAINED BETWEEN BOTTOM OF ADJACENT FOOTINGS.
13. ▭ DENOTES 1" CONCRETE TOPPING POURED MONOLITHICALLY.

5' 0' 5' 15'

GRAPHIC SCALE

ST. JOSEPH APARTMENTS

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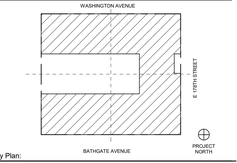

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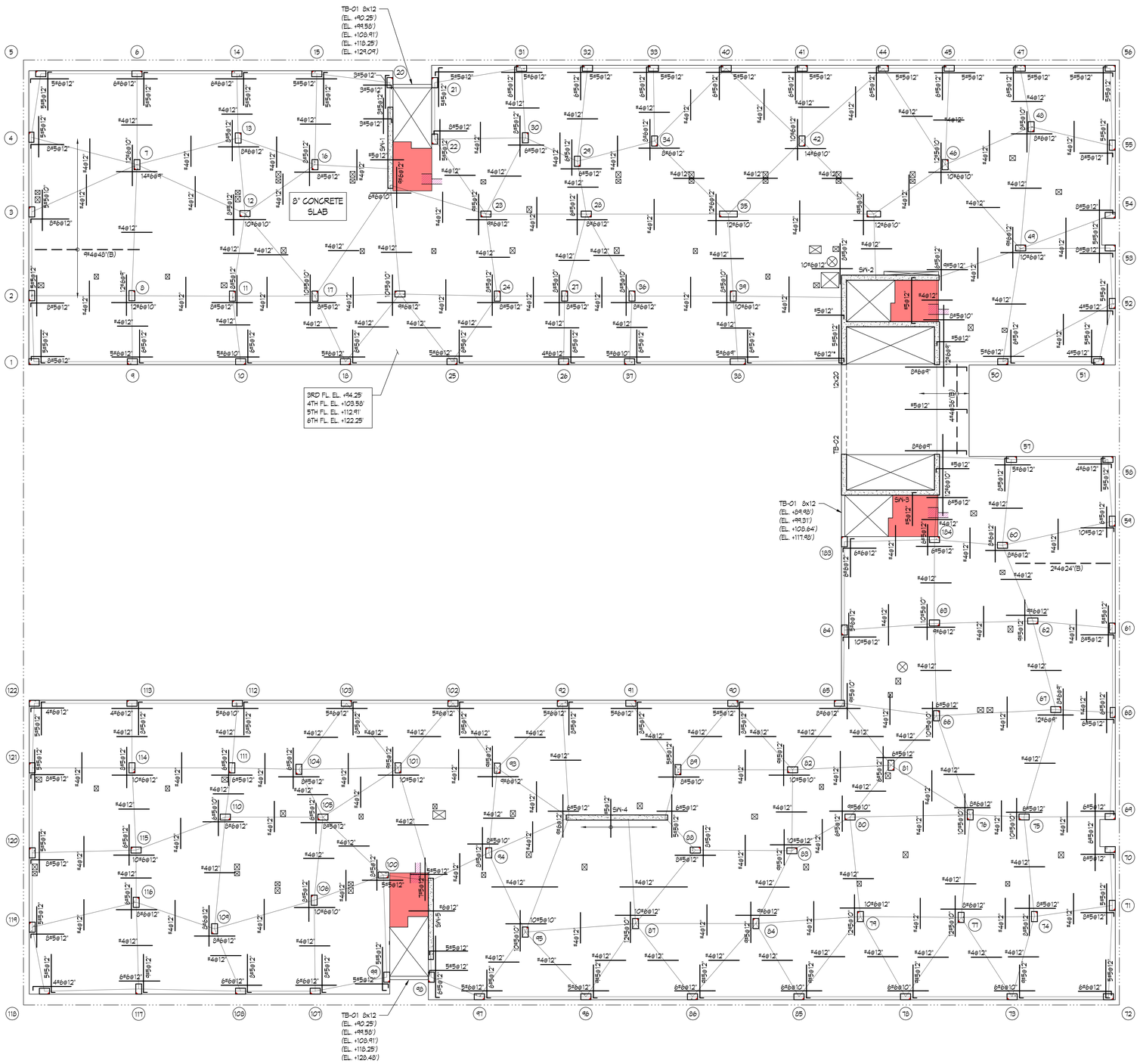
2ND FLOOR FRAMING PLAN

STRUCTURAL JOB # X08026211-I1

SEAL & SIGNATURE:

PROJECT No:	B9142.00
DRAWING BY:	CA
CHK BY:	AM
DWG No:	S-102.00
SCALE: 1/8" = 1'-0"	10 OF 10



3RD-6TH FLOOR FRAMING PLAN

1/8" = 1'-0"

NOTES:

1. EL. XX'-XX" — DENOTES TOP OF SLAB ELEVATION WITH RESPECT TO NAVD88 DATUM ELEVATION.
2. X" CONCRETE SLAB — DENOTES CONCRETE SLAB OF THICKNESS 'X'. SEE CONCRETE NOTES ON DRAWINGS S-001 FOR BALANCE OF INFORMATION.
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9. FOR COLUMN DIMENSIONS & REINFORCEMENT, SEE COLUMN SCHEDULE ON DRAWING S-301 THRU S-303.
10. SW-XX — DENOTES CONCRETE SHEAR WALL. SEE DRAWING S-401 FOR BALANCE OF INFORMATION.
11. S-x-- — DENOTES STEEL FRAMING.
12. DENOTES 1" CONCRETE TOPPING POURED MONOLITHICALLY.

8' 0' 8' 16'

GRAPHIC SCALE

NOT FOR CONSTRUCTION

ST. JOSEPH APARTMENTS

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Owner:

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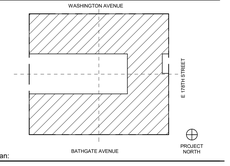
Tel (646) 794 3167

BLOCK: 3043 LOT: 10, 16, 22, 23

NYC DOB # :



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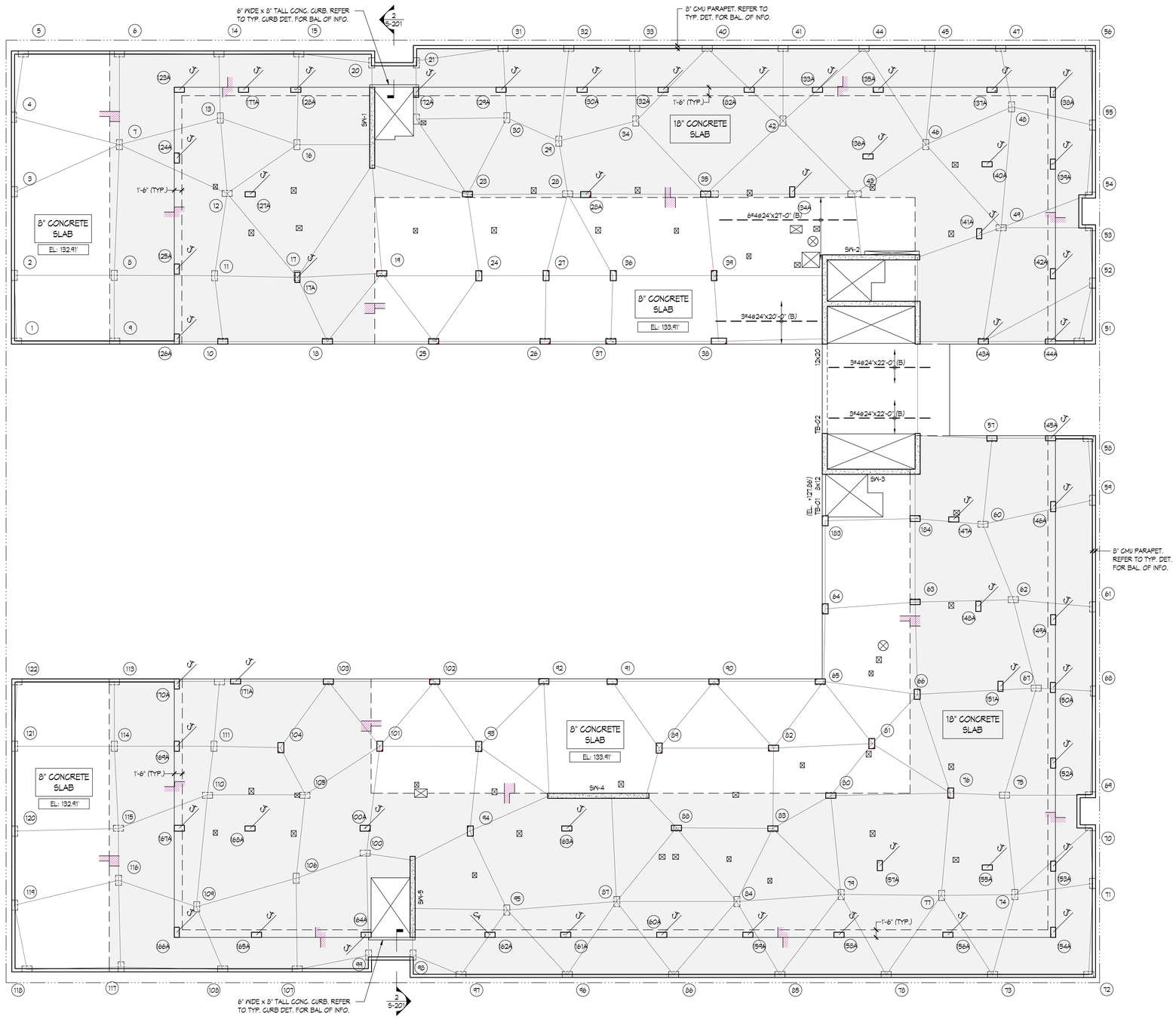
3RD-6TH FLOOR FRAMING PLAN

STRUCTURAL JOB # X08026211-I1

SEAL & SIGNATURE:

PROJECT No:	B9142.00
DRAWING BY:	CA
CHK BY:	AM
DWG No:	S-103.00
SCALE: 1/8" = 1'-0"	11 OF 10



7TH FLOOR FRAMING PLAN BOTTOM REINFORCEMENT

1/8" = 1'-0"

NOTES:

1. EL. XX'-XX" — DENOTES TOP OF SLAB ELEVATION WITH RESPECT TO NAVD88 DATUM ELEVATION.
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10. SW-XX — DENOTES CONCRETE SHEAR WALL. SEE DRAWING S-401 FOR BALANCE OF INFORMATION.
11. S-x-- — DENOTES STEEL FRAMING.
12. ▭ — DENOTES EXTENT OF TRANSFER SLAB
13. CA — DENOTES CONCRETE COLUMN ABOVE.
14. * — DENOTES REINFORCEMENT IN LIEU OF TYPICAL #5@12" O.C. EDGE REINFORCEMENT CALLED FOR IN FLAT PLATE DETAILS ON DRAWING S-003.

8' 0' 8' 16'

GRAPHIC SCALE

ST. JOSEPH APARTMENTS

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Owner:

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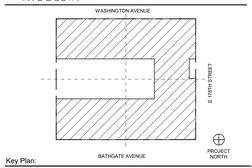

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7TH FLOOR FRAMING PLAN BOTTOM REINFORCEMENT

STRUCTURAL JOB # X08026211-I1

SEAL & SIGNATURE:

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CHK BY:	AM
DWG No:	S-104.00
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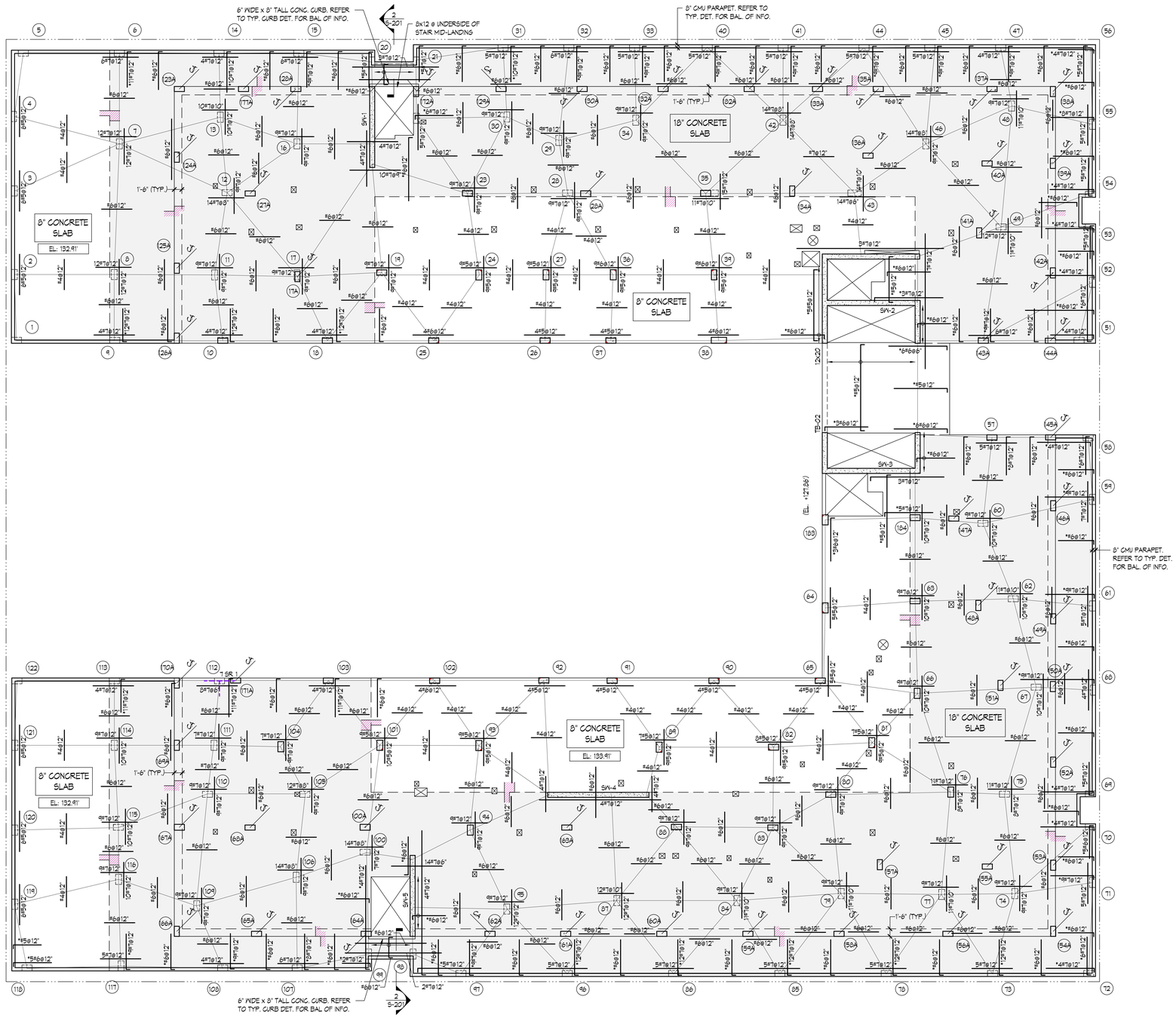

7TH FLOOR FRAMING PLAN TOP REINFORCEMENT

1/8" = 1'-0"

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8' 0' 8' 16'

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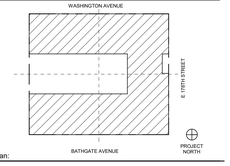

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7TH FLOOR FRAMING PLAN TOP REINFORCEMENT

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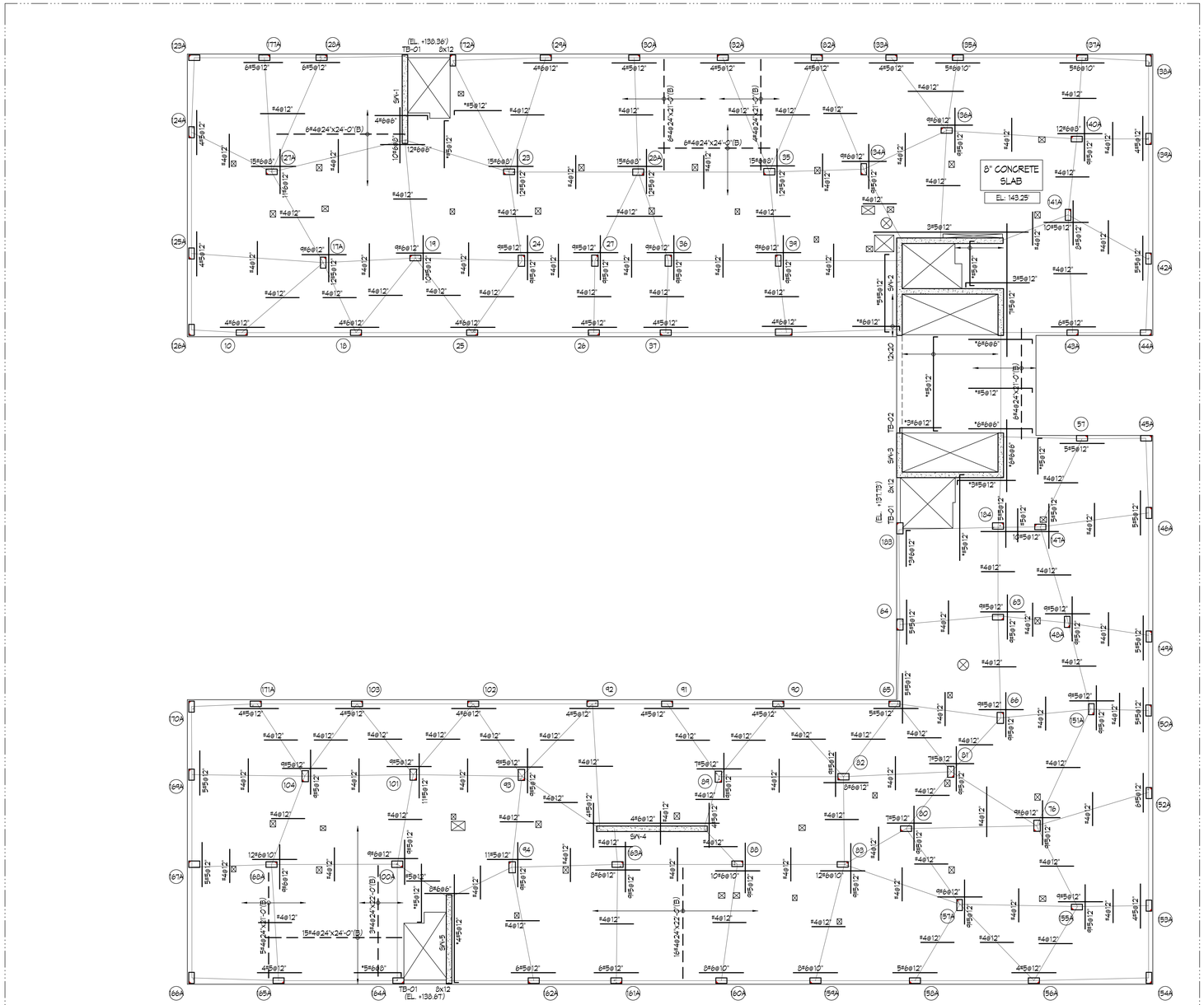


8TH FLOOR FRAMING PLAN

1/8" = 1'-0"

NOTES:

1. EL. XX'-XX" — DENOTES TOP OF SLAB ELEVATION WITH RESPECT TO NAVD88 DATUM ELEVATION.
2. X" CONCRETE SLAB — DENOTES CONCRETE SLAB OF THICKNESS 'X'. SEE CONCRETE NOTES ON DRAWINGS S-001 FOR BALANCE OF INFORMATION.
3. REINFORCING BARS SHOWN ON PLAN TO BE PLACED IN ACCORDANCE WITH TYPICAL FLAT PLATE DETAILS ON DRAWING S-003 AND IN ADDITION TO ANY STANDARD REINFORCEMENT CALLED FOR IN THOSE DETAILS. ALL REINFORCING SHOWN ON PLAN IS TO BE PLACED IN ADDITION TO TYPICAL BOTTOM REINFORCEMENT OF #4@12" EACH WAY CONTINUOUS.
4. _____ DENOTES TOP REINFORCEMENT.
5. __ (B) __ DENOTES ADDITIONAL BOTTOM REINFORCEMENT.
6. PLACE EAST-WEST REINFORCEMENT IN THE OUTERMOST LAYER.
7. SLAB OPENINGS AND PENETRATIONS SHOWN SHALL BE COORDINATED WITH ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING & SPRINKLER DRAWINGS.
8. FOR BEAM REINFORCEMENT, SEE BEAM SCHEDULES ON DRAWING S-304. TOP OF BEAMS TO BE EVEN WITH TOP OF SLAB, UNLESS OTHERWISE NOTED THUS (X-X")
9. FOR COLUMN DIMENSIONS & REINFORCEMENT, SEE COLUMN SCHEDULE ON DRAWING S-301 THRU S-303.
10. SW-XX — DENOTES CONCRETE SHEAR WALL. SEE DRAWING S-401 FOR BALANCE OF INFORMATION.
11. S-X-- — DENOTES STEEL FRAMING.
12. * — DENOTES REINFORCEMENT IN LIEU OF TYPICAL #5@12" EDGE REINFORCEMENT CALLED FOR IN FLAT PLATE DETAILS ON DRAWING S-003.

8' 0' 8' 16'

GRAPHIC SCALE

NOT FOR CONSTRUCTION

ST. JOSEPH APARTMENTS

484 E 178th Sreet, The Bronx, NY 10457

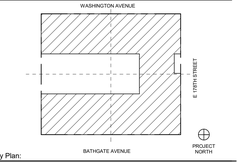
Owner:

CATHOLIC HOMES NEW YORK

Association of New York Catholic Homes
40 Maiden Lane, 13th Floor
New York NY 10038
Tel (646) 794 3167

BLOCK: 3043 LOT: 10, 16, 22, 23

NYC DOB # :



Key Plan:

NUMBER	DATE	DESCRIPTION
	10.14.2022	ISSUED FOR DOB SUBMISSION
	11.30.2022	100% DD SET
	05.24.24	PROGRESS SET
	07.26.2024	DOB FILING
	08.09.2024	PROGRESS SET
	08.30.2024	CD ESTIMATING SET

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Landscape Architect:

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Tel (212) 537 6080

Client Representative:

Filing Representative:

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254 36th Screet Suite C663
Brooklyn NY 11232
Tel (212) 796 2529

Do Not Scale Plans
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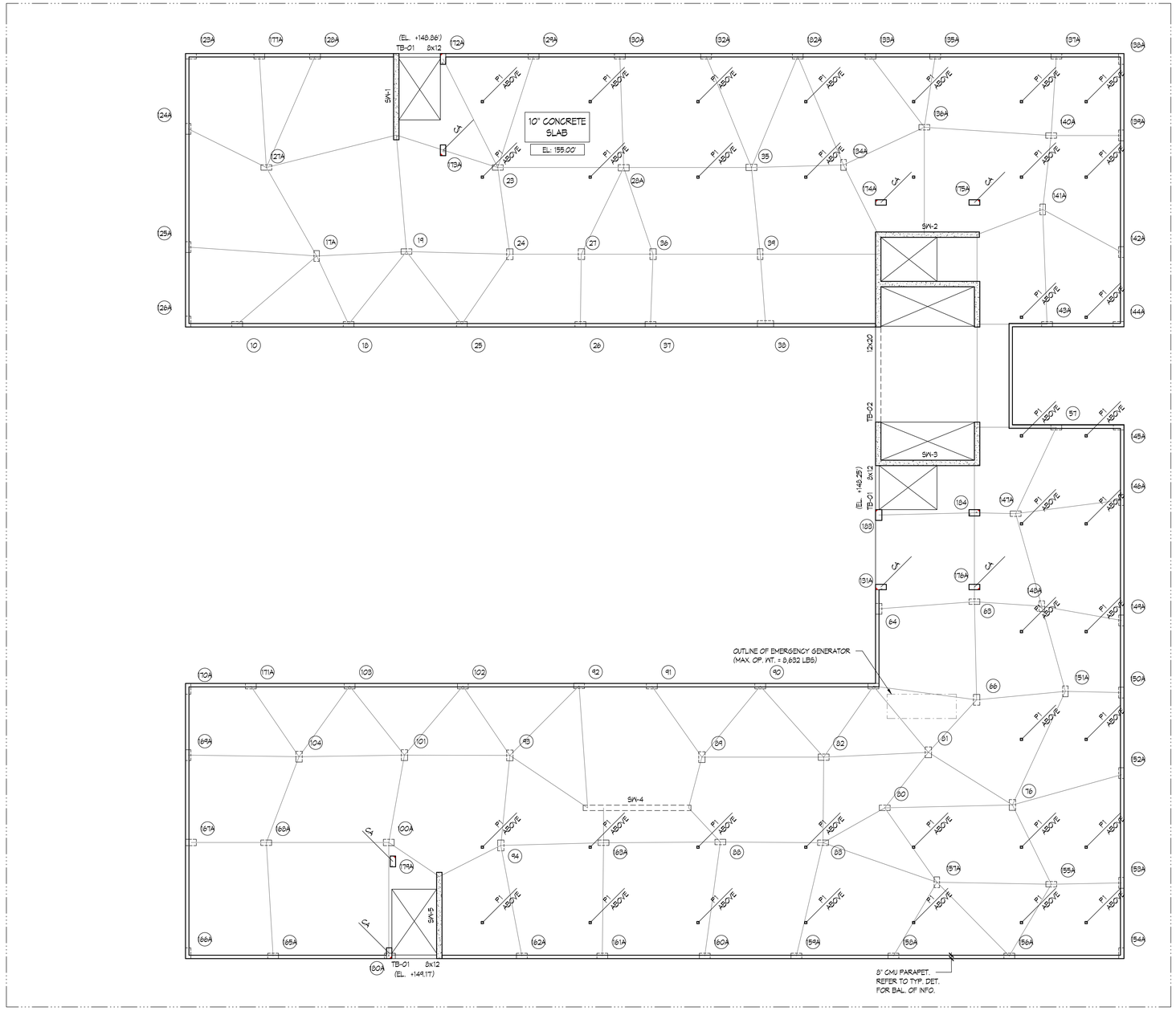
8TH FLOOR FRAMING PLAN

STRUCTURAL JOB # X08026211-I1

SEAL & SIGNATURE:

PROJECT No:	B9142.00
DRAWING BY:	CA
CHK BY:	AM
DWG No:	S-106.00
SCALE: 1/8" = 1'-0"	13 OF 10



ROOF FRAMING PLAN

1/8" = 1'-0"

NOTES:

1. EL. XX-XX" — DENOTES TOP OF SLAB ELEVATION WITH RESPECT TO NAVD88 DATUM ELEVATION.
2. X" CONCRETE SLAB — DENOTES CONCRETE SLAB OF THICKNESS 'X'. SEE CONCRETE NOTES ON DRAWINGS S-001 FOR BALANCE OF INFORMATION.
3. REINFORCING BARS SHOWN ON PLAN TO BE PLACED IN ACCORDANCE WITH TYPICAL FLAT PLATE DETAILS ON DRAWING S-003 AND IN ADDITION TO ANY STANDARD REINFORCEMENT CALLED FOR IN THOSE DETAILS. ALL REINFORCING SHOWN ON PLAN IS TO BE PLACED IN ADDITION TO TYPICAL TOP & BOTTOM REINFORCEMENT OF #5@12" EACH WAY CONTINUOUS.
4. ———— DENOTES TOP REINFORCEMENT.
5. __ (B) __ DENOTES ADDITIONAL BOTTOM REINFORCEMENT.
6. PLACE EAST-WEST REINFORCEMENT IN THE OUTERMOST LAYER.
7. SLAB OPENINGS AND PENETRATIONS SHOWN SHALL BE COORDINATED WITH ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING & SPRINKLER DRAWINGS.
8. FOR BEAM REINFORCEMENT, SEE BEAM SCHEDULES ON DRAWING S-304. TOP OF BEAMS TO BE EVEN WITH TOP OF SLAB, UNLESS OTHERWISE NOTED THUS (X-X")
9. FOR COLUMN DIMENSIONS & REINFORCEMENT, SEE COLUMN SCHEDULE ON DRAWING S-301 THRU S-303.
10. SW-XX — DENOTES CONCRETE SHEAR WALL. SEE DRAWING S-401 FOR BALANCE OF INFORMATION.
11. S-X-- — DENOTES STEEL FRAMING.
12. CA — DENOTES CONCRETE COLUMN ABOVE
13. P1 — DENOTES HSS5X5X5/16 GALV. POST FOR SOLAR ARRAY.

GRAPHIC SCALE 8' 0' 8' 16'

NOT FOR CONSTRUCTION

ST. JOSEPH APARTMENTS

484 E 178th Sreet, The Bronx, NY 10457

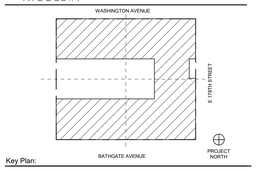
Owner:

CATHOLIC HOMES NEW YORK

Association of New York Catholic Homes
40 Maiden Lane, 13th Floor
New York NY 10038
Tel (646) 794 3167

BLOCK: 3043 LOT: 10, 16, 22, 23

NYC DOB # :



Key Plan:

NUMBER	DATE	DESCRIPTION
	10.14.2022	ISSUED FOR DOB SUBMISSION
	11.30.2022	100% DD SET
	05.24.24	PROGRESS SET
	07.26.2024	DOB FILING
	08.09.2024	PROGRESS SET
	08.30.2024	CD ESTIMATING SET

Revisions:

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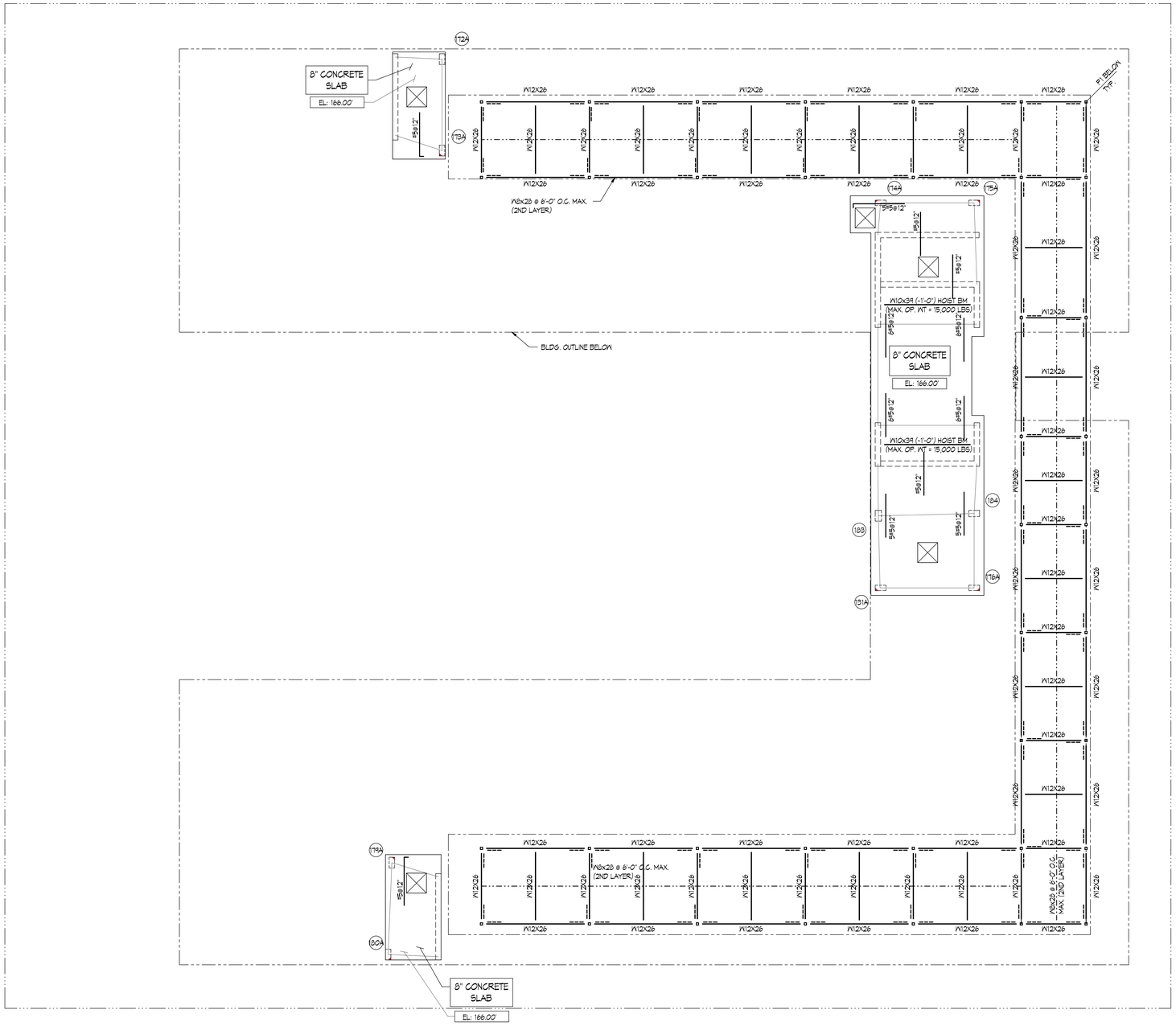
ROOF FRAMING PLAN

STRUCTURAL JOB # X08026211-I1

SEAL & SIGNATURE:

PROJECT No:	B9142.00
DRAWING BY:	CA
CHK BY:	AM
DWG No:	S-107.00
SCALE: 1/8" = 1'-0"	14 OF 10



BULKHEAD FRAMING PLAN

1/8" = 1'-0"

NOTES:

1. EL. XX'-XX" — DENOTES TOP OF SLAB ELEVATION WITH RESPECT TO NAVD88 DATUM ELEVATION.
2. 'X" CONCRETE SLAB — DENOTES CONCRETE SLAB OF THICKNESS 'X'. SEE CONCRETE NOTES ON DRAWINGS S-001 FOR BALANCE OF INFORMATION.
3. REINFORCING BARS SHOWN ON PLAN TO BE PLACED IN ACCORDANCE WITH TYPICAL FLAT PLATE DETAILS ON DRAWING S-003 AND IN ADDITION TO ANY STANDARD REINFORCEMENT CALLED FOR IN THOSE DETAILS. ALL REINFORCING SHOWN ON PLAN IS TO BE PLACED IN ADDITION TO TYPICAL BOTTOM REINFORCEMENT OF #4@12" EACH WAY CONTINUOUS.
4. _____ DENOTES TOP REINFORCEMENT.
5. __ (B) __ DENOTES ADDITIONAL BOTTOM REINFORCEMENT.
6. PLACE EAST-WEST REINFORCEMENT IN THE OUTERMOST LAYER.
7. ⟷ DENOTES DIRECTION OF 8" ONE-WAY SLAB #4@12" O.C. BOTTOM. SEE TYPICAL DETAIL FOR BALANCE OF INFORMATION.
8. SLAB OPENINGS AND PENETRATIONS SHOWN SHALL BE COORDINATED WITH ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING & SPRINKLER DRAWINGS.
9. FOR BEAM REINFORCEMENT, SEE BEAM SCHEDULES ON DRAWING S-304. TOP OF BEAMS TO BE EVEN WITH TOP OF SLAB, UNLESS OTHERWISE NOTED THUS (X'-X")
10. FOR COLUMN DIMENSIONS & REINFORCEMENT, SEE COLUMN SCHEDULE ON DRAWING S-301 THRU S-303.
11. SW-XX — DENOTES CONCRETE SHEAR WALL. SEE DRAWING S-401 FOR BALANCE OF INFORMATION.
12. S-x-- — DENOTES STEEL FRAMING. TOP OF STEEL FOR SOLAR CANOPY TO BE ELEVATION 169'-6" (1ST LAYER). REFER TO SECTION 2 ON S-201 FOR BALANCE OF INFORMATION. ALL SOLAR ARRAY FRAMING TO BE HOT DIPPED GALVANIZED.

GRAPHIC SCALE 8' 0' 8' 16'

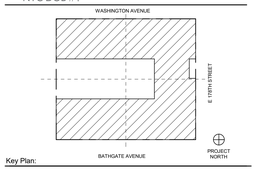
ST. JOSEPH APARTMENTS

484 E 178th Sreet, The Bronx, NY 10457

Owner:
CATHOLIC HOMES NEW YORK
Association of New York Catholic Homes
40 Maiden Lane, 13th Floor
New York NY 10038
Tel (646) 794 3167

BLOCK: 3043 LOT: 10, 16, 22, 23

NYC DOB # :



Key Plan:

NUMBER	DATE	DESCRIPTION
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	11.30.2022	100% DD SET
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NOT FOR CONSTRUCTION

Revisions:

Architect:
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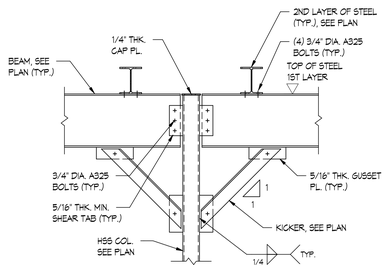
BULKHEAD FRAMING PLAN

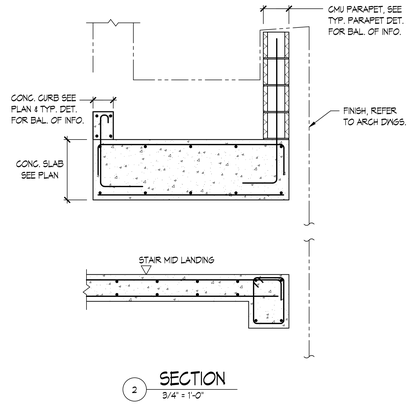
STRUCTURAL JOB # X08026211-I1

SEAL & SIGNATURE:

PROJECT No:	B9142.00
DRAWING BY:	CA
CHK BY:	AM
DWG No:	S-108.00
SCALE: 1/8" = 1'-0"	15 OF 10



1 SECTION
3/4" = 1'-0"



2 SECTION
3/4" = 1'-0"

ST. JOSEPH APARTMENTS

484 E 178th Sreet, The Bronx, NY 10457

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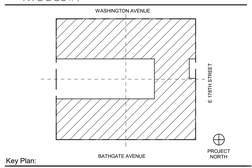
New York NY 10038
Tel (646) 794 3167

BLOCK: 3043 LOT: 10, 16, 22, 23

NYC DOB # :



Key Plan:

NUMBER	DATE	DESCRIPTION
	10.14.2022	ISSUED FOR DOB SUBMISSION
	11.30.2022	100% DD SET
	07.26.2024	DOB FILING
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Revisions:

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SECTIONS

STRUCTURAL JOB # X08026211-I1

SEAL & SIGNATURE:

PROJECT No:	B9142.00
DRAWING BY:	CA
CHK BY:	AM

DWG No:

S-201.00

SCALE: 3/4" = 1'-0"

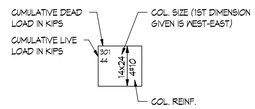
COLUMN SCHEDULE

FLOOR	FLOOR HEIGHT	CONC. STRENGTH (PSI)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	17A	18	19	20	21	22	23	24	25	26	27	28	28A	29	30	31	32	33	34	35	36	37	38	39	40
ROOF	11'-0"											XX XX								XX XX 14x24 6#5	XX XX	XX XX			XX XX	XX XX	XX XX	XX XX	XX XX	XX XX		XX XX 24x14 6#5							XX XX	XX XX	XX XX	XX XX		
8TH	11'-8"											XX XX								XX XX	XX XX	XX XX			XX XX	XX XX	XX XX	XX XX	XX XX	XX XX		XX XX							XX XX	XX XX	XX XX	XX XX		
7TH	9'-4"		XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX
6TH	11'-3"		XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XFER SLAB	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XFER SLAB	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX
5TH	9'-4"		XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX 24x14 6#5	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX		XX XX	XX XX 14x24 6#5	XX XX	XX XX	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5		XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX 42x14 8#6	XX XX 14x24 6#5	XX XX	XX XX 24x14 6#5	XX XX	XX XX 36x14 8#6	XX XX 14x24 6#5	XX XX	XX XX
4TH	9'-4"	6,000	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 14x24 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 14x24 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX	XX XX 14x24 6#5	XX XX 14x24 6#5	XX XX 14x24 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 14x24 6#5		XX XX	XX XX	XX XX	XX XX	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX	XX XX 24x14 6#5	XX XX	XX XX	XX XX 24x14 6#5		XX XX 14x24 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5
3RD	9'-4"		XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX		XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX		XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX
2ND	9'-4"		XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX		XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX		XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX
1ST	VARIES		XX XX 24x16 6#6	XX XX 18x24 6#6	XX XX 18x24 6#6	XX XX 18x24 6#6	XX XX 24x16 6#6	XX XX 24x16 6#6	XX XX 18x24 6#6	XX XX 18x24 6#6	XX XX 24x16 6#6	XX XX 24x16 6#6	XX XX 18x24 6#6	XX XX 24x16 6#6	XX XX 18x24 6#6	XX XX 18x24 6#6	XX XX 24x16 6#6	XX XX 18x24 6#6	XX XX 18x24 6#6	XX XX 18x24 6#6		XX XX 24x16 6#6	XX XX 18x24 6#6	XX XX 24x16 6#6	XX XX 18x24 6#6	XX XX 18x24 6#6	XX XX 24x16 6#6	XX XX 18x24 6#6	XX XX 24x16 6#6	XX XX 24x16 6#6	XX XX 24x16 6#6	XX XX 24x16 6#6		XX XX 18x24 6#6	XX XX 18x24 6#6	XX XX 24x20 6#6	XX XX 24x20 6#6	XX XX 24x20 6#6	XX XX 24x16 6#6	XX XX 18x24 6#6	XX XX 18x24 6#6	XX XX 24x16 6#6	XX XX 36x16 8#6	XX XX 18x24 6#6	XX XX 24x16 6#6	XX XX 18x24 6#6	XX XX 24x20 6#6
CELLAR	VARIES		XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX		XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX		XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX		XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX 42x14 8#6	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX
PIER (P) OR BUTTRESS (B)	VARIES		24x16 (B) 6#6	18x24 (B) 6#6	18x24 (B) 6#6	18x24 (B) 6#6	24x16 (B) 6#6	24x16 (P) 6#6		18x24(P) 6#6	24x16 (P) 6#6	24x16 (P) 6#6	18x24(P) 6#6		18x24(P) 6#6	24x16 (P) 6#6	24x16 (P) 6#6	24x16 (P) 6#6	18x24(P) 6#6		24x16(P) 6#6	18x24(P) 6#6		18x24(P) 6#6	24x16(B) 6#6	24x16(B) 6#6	18x24(P) 6#6	24x16(B) 6#6	24x16(B) 6#6	18x24(P) 6#6			24x20(P) 6#6	24x20(P) 6#6	24x20(P) 6#6			18x24(P) 6#6	24x16(P) 6#6	24x16(B) 6#6	18x24(P) 6#6	24x16(B) 6#6	24x20(P) 6#6
FLOOR / COLUMN	FLOOR HEIGHT	CONC. STRENGTH (PSI)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	17A	18	19	20	21	22	23	24	25	26	27	28	28A	29	30	31	32	33	34	35	36	37	38	39	40

COLUMN SCHEDULE

FLOOR	FLOOR HEIGHT	CONC. STRENGTH (PSI)	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82
ROOF	11'-0"																																												
8TH	11'-8"																		XX XX						XX XX	XX XX	XX XX	XX XX									XX XX				XX XX	XX XX	XX XX
7TH	9'-4"																		XX XX						XX XX	XX XX	XX XX	XX XX									XX XX				XX XX	XX XX	XX XX
6TH	11'-3"		XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX
5TH	9'-4"		XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5
4TH	9'-4"	6,000	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 32x14 8#6	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5
3RD	9'-4"		XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX
2ND	9'-4"		XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX
1ST	VARIES		XX XX 24x20 8#6	XX XX 16x24 6#6	XX XX 32x16 8#6	XX XX 24x20 8#6	XX XX 24x20 8#6	XX XX 18x24 6#6	XX XX 24x20 8#6	XX XX 18x24 6#6	XX XX 24x16 6#6	XX XX 24x16 6#6	XX XX 28x24 8#6	XX XX 27x24 10#6	XX XX 28x24 8#6	XX XX 28x24 8#6	XX XX 27x24 10#6	XX XX 28x20 10#6	XX XX 24x16 6#6	XX XX 24x16 6#6	XX XX 24x16 6#6	XX XX 24x16 6#6	XX XX 18x24 6#6	XX XX 24x16 6#6	XX XX 18x24 6#6	XX XX 24x16 6#6	XX XX 24x16 6#6	XX XX 18x24 6#6																								
CELLAR	VARIES		XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX		XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX		XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX																				
PIER (P) OR BUTTRESS (B)	VARIES		24x20(P) 8#6			24x20(P) 8#6	24x20(P) 8#6		24x20(P) 8#6				20x24(B) 8#6	27x24(B) 10#6	20x24(B) 8#6	20x24(B) 8#6	27x24(P) 10#6	20x20(P) 10#6		24x16(P) 6#6	18x24(B) 6#6	16x24(P) 6#6		16x24(P) 6#6	18x24(B) 6#6	24x16(B) 6#6	16x24(P) 6#6	24x16(B) 6#6	16x24(B) 6#6	24x16(P) 6#6	24x16(P) 6#6	16x24(P) 6#6	24x16(P) 6#6	24x16(P) 6#6			16x24(B) 6#6		24x16(B) 6#6		24x16(P) 6#6	24x16(P) 6#6	24x16(B) 6#6
FLOOR / COLUMN	FLOOR HEIGHT	CONC. STRENGTH (PSI)	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82

NOTES:
1. COLUMN SCHEDULE KEY:



NOT FOR CONSTRUCTION

ST. JOSEPH APARTMENTS

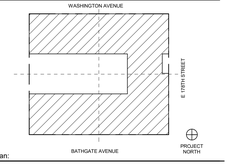
484 E 178th Sreet, The Bronx, NY 10457

Owner:
CATHOLIC HOMES NEW YORK

Association of New York Catholic Homes
40 Maiden Lane, 13th Floor
New York NY 10038
Tel (646) 794 3167

BLOCK: 3043 LOT: 10, 16, 22, 23

NYC DOB # :



Key Plan:

NUMBER	DATE	DESCRIPTION
	10.14.2022	ISSUED FOR DOB SUBMISSION
	11.30.2022	100% DD SET
	07.26.2024	DOB FILING
	08.09.2024	PROGRESS SET
	08.30.2024	CD ESTIMATING SET

Revisions:

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New York NY 10003
Tel (212) 537 6080

Client Representative:

Filing Representative:

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Brooklyn NY 11232
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Do Not Scale Plans
Contractor to promptly notify Architect of any material variations between field conditions and existing conditions as indicated in Contract documents

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COLUMN SCHEDULES 1

STRUCTURAL JOB # X08026211-I1

SEAL & SIGNATURE:

PROJECT No:	B9142.00
DRAWING BY:	CA
CHK BY:	AM
DWG No:	S-301.00
SCALE: 1/8" = 1'-0"	17 OF 10

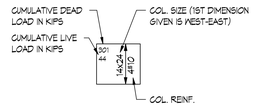
COLUMN SCHEDULE

FLOOR \ COLUMN	FLOOR HEIGHT	CONC. STRENGTH (PSI)	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	100A	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123A	COLUMN \ FLOOR
ROOF	11'-0"																																												ROOF
8TH	11'-8"		XX XX					XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX							XX XX 24x14 6#5	XX XX	XX XX	XX XX	XX XX																			XX XX 24x14 6#5	8TH
7TH	9'-4"		XX XX					XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX							XX XX	XX XX	XX XX	XX XX	XX XX																			XX XX	7TH
6TH	11'-3"		XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XFER SLAB	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XFER SLAB	6TH
5TH	9'-4"		XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 14x24 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5		XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	5TH
4TH	9'-4"	6,000	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX		XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX		4TH
3RD	9'-4"		XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX		XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX		3RD
2ND	9'-4"		XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX		XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX	XX XX		2ND
1ST	VARES		XX XX 18x24 6#6	XX XX 24x16 6#6	XX XX 24x16 6#6	XX XX 24x16 6#6	XX XX 24x16 6#6	XX XX 18x24 6#6	XX XX 18x24 6#6	XX XX 24x16 6#6	XX XX 24x16 6#6	XX XX 24x16 6#6	XX XX 24x16 6#6	XX XX 18x24 6#6					XX XX 18x24 6#6	XX XX 24x16 6#6	XX XX 18x24 6#6	XX XX 18x24 6#6	XX XX 24x16 6#6	XX XX 24x16 6#6	XX XX 24x16 6#6	XX XX 18x24 6#6	XX XX 24x16 6#6	XX XX 24x16 6#6	XX XX 24x16 6#6	XX XX 24x16 6#6	XX XX 18x24 6#6	XX XX 24x16 6#6	XX XX 24x16 6#6	XX XX 18x24 6#6	XX XX 24x16 6#6	XX XX 24x16 6#6	XX XX 24x16 6#6	XX XX 18x24 6#6	XX XX 18x24 6#6	XX XX 18x24 6#6	XX XX 18x24 6#6	XX XX 24x16 6#6	1ST
CELLAR	VARES																																											CELLAR
PIER (P) OR BUTTRESS (B)	VARES		24x16 (B) 6#6	18x24 (P) 6#6	24x16 (P) 6#6	24x16 (P) 6#6	18x24 (P) 6#6	24x16 (B) 6#6	18x24 (P) 6#6	24x16 (P) 6#6	24x16 (P) 6#6	24x16 (P) 6#6	24x16 (P) 6#6	18x24 (B) 6#6	18x24 (P) 6#6	24x16 (P) 6#6	24x16 (P) 6#6	18x24 (P) 6#6	18x24 (B) 6#6	24x16 (P) 6#6		18x24 (P) 6#6	24x16 (P) 6#6	24x16 (P) 6#6	18x24 (P) 6#6	24x16 (P) 6#6	24x16 (P) 6#6	24x16 (P) 6#6	24x16 (P) 6#6	18x24 (P) 6#6	24x16 (P) 6#6	24x16 (P) 6#6	18x24 (P) 6#6	24x16 (P) 6#6	24x16 (P) 6#6	24x16 (P) 6#6	18x24 (P) 6#6	24x16 (P) 6#6	24x16 (P) 6#6	18x24 (P) 6#6	18x24 (P) 6#6	24x16 (P) 6#6	PIER (P) OR BUTTRESS (B)
FLOOR \ COLUMN	FLOOR HEIGHT	CONC. STRENGTH (PSI)	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	100A	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123A	COLUMN \ FLOOR

COLUMN SCHEDULE

FLOOR \ COLUMN	FLOOR HEIGHT	CONC. STRENGTH (PSI)	124A	125A	126	127A	128A	129A	130A	131A	132A	133A	134A	135A	136A	137A	138A	139A	140A	141A	142A	143A	144A	145A	146A	147A	148A	149A	150A	151A	152A	153A	154A	155A	156A	157A	158A	159A	160A	161A	162A	163A	164A	165A	COLUMN \ FLOOR
ROOF	11'-0"																																													ROOF
8TH	11'-8"		XX XX 14x24 6#5	XX XX 14x24 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	8TH
7TH	9'-4"		XX XX 14x24 6#5	XX XX 14x24 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 14x24 6#5	XX XX 14x24 6#5	XX XX 14x24 6#5	XX XX 14x24 6#5	XX XX 14x24 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	XX XX 24x14 6#5	7TH
6TH	11'-3"		XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	6TH
5TH	9'-4"																																												5TH
4TH	9'-4"	6,000																																											4TH
3RD	9'-4"																																												3RD
2ND	9'-4"																																												2ND
1ST	VARES																																												1ST
CELLAR	VARES																																												CELLAR
PIER (P) OR BUTTRESS (B)	VARES																																												PIER (P) OR BUTTRESS (B)
FLOOR \ COLUMN	FLOOR HEIGHT	CONC. STRENGTH (PSI)	124A	125A	126	127A	128A	129A	130A	131A	132A	133A	134A	135A	136A	137A	138A	139A	140A	141A	142A	143A	144A	145A	146A	147A	148A	149A	150A	151A	152A	153A	154A	155A	156A	157A	158A	159A	160A	161A	162A	163A	164A	165A	FLOOR \ COLUMN

NOTES:
1. COLUMN SCHEDULE KEY:



ST. JOSEPH APARTMENTS

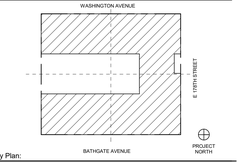
484 E 178th Sreet, The Bronx, NY 10457

Owner:
CATHOLIC HOMES NEW YORK

Association of New York Catholic Homes
40 Maiden Lane, 13th Floor
New York NY 10038
Tel (646) 794 3167

BLOCK: 3043 LOT: 10, 16, 22, 23

NYC DOB # :



Key Plan:

NUMBER	DATE	DESCRIPTION
	10.14.2022	ISSUED FOR DOB SUBMISSION
	11.30.2022	100% DD SET
	07.26.2024	DOB FILING
	08.09.2024	PROGRESS SET
	08.30.2024	CD ESTIMATING SET

NOT FOR CONSTRUCTION

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Client Representative:

Filing Representative:
CORE Consultants NYC LLP
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Brooklyn NY 11232
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Do Not Scale Plans
Contractor to promptly notify Architect of any material variations between field conditions and existing conditions as indicated in Contract documents

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COLUMN SCHEDULES 2

STRUCTURAL JOB # X08026211-I1

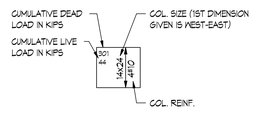
SEAL & SIGNATURE:

PROJECT No:	B9142.00
DRAWING BY:	CA
CHK BY:	AM
DWG No:	S-302.00
SCALE: 1/8" = 1'-0"	18 OF 10

COLUMN SCHEDULE

FLOOR	FLOOR HEIGHT	CONC. STRENGTH (PSI)	166A	167A	168	169A	170A	171A	172A	173A	174A	175A	176A	177A	178A	179A	180A	181	182A	183	184	FLOOR
ROOF	11'-0"								XX XX 14x24 8#5	XX XX 14x24 8#5	XX XX 14x24 8#5	XX XX 24x14 8#5	XX XX 14x24 8#5	XX XX 14x24 8#5	XX XX 14x24 8#5	XX XX 14x24 8#5	XX XX 14x24 8#5			XX XX	XX XX	ROOF
8TH	11'-8"		XX XX 14x24 8#5	XX XX 14x24 8#5	XX XX 24x14 8#5	XX XX 14x24 8#5	XX XX 14x24 X#5	XX XX 14x24 8#5	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB		XX XX 24x14 8#5	XX XX	XX XX	8TH
7TH	9'-4"		XX XX	XX XX	XX XX	XX XX	XX XX	XX XX											XX XX	XX XX	XX XX	7TH
6TH	11'-3"		XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB	XFER SLAB											XFER SLAB	XX XX 14x24 8#5	XX XX 24x14 8#5	6TH
5TH	9'-4"																			XX XX	XX XX	5TH
4TH	9'-4"	6,000																		XX XX	XX XX	4TH
3RD	9'-4"																			XX XX	XX XX	3RD
2ND	9'-4"																			XX XX	XX XX	2ND
1ST	VARIES																			XX XX	XX XX	1ST
CELLAR	VARIES																	XX XX 24x16 8#6		XX XX 16x24 8#6	XX XX 24x16 8#6	CELLAR
PIER (P) OR BUTTRESS (B)	VARIES																					PIER (P) OR BUTTRESS (B)
FLOOR	FLOOR HEIGHT	CONC. STRENGTH (PSI)	166A	167A	168	169A	170A	171A	172A	173A	174A	175A	176A	177A	178A	179A	180A	181	182A	183	184	FLOOR

NOTES:
1. COLUMN SCHEDULE KEY:



ST. JOSEPH APARTMENTS

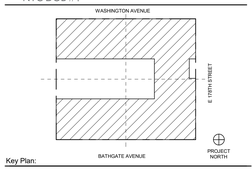
484 E 178th Sreet, The Bronx, NY 10457

Owner:
CATHOLIC HOMES NEW YORK
Association of New York Catholic Homes
40 Maiden Lane, 13th Floor
New York NY 10038
Tel (646) 794 3167

BLOCK: 3043 LOT: 10, 16, 22, 23

NYC DOB # :

Key Plan:



NUMBER	DATE	DESCRIPTION
	10.14.2022	ISSUED FOR DOB SUBMISSION
	11.30.2022	100% DD SET
	07.26.2024	DOB FILING
	08.09.2024	PROGRESS SET
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NOT FOR CONSTRUCTION

Revisions:

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MEP Engineer:
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Landscape Architect:
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New York NY 10003
Tel (212) 537 6080

Client Representative:

Filing Representative:
CORE Consultants NYC LLP
254 36th Street Suite C663
Brooklyn NY 11232
Tel (212) 796 2529

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COLUMN SCHEDULES 3

STRUCTURAL JOB # X08026211-I1

SEAL & SIGNATURE:

PROJECT No:	B9142.00
DRAWING BY:	CA
CHK BY:	AM
DWG No:	S-303.00
SCALE: 1/8" = 1'-0"	18 OF 10

CONCRETE BEAM SCHEDULE

BEAM NO.	SIZE (WIDTH x DEPTH)	REINFORCEMENT @ CL SUPPORTS	STIRRUPS TYPE	STIRRUPS SPACING FROM EACH END	REMARKS/ NOTES
TB-01	8x12	2#5 / 2#6	2 LEGS	8#3 @ 4 1/2" O.C. E.S. #3 @12" O.C. BAL.	
TB-02	12x20	2#7 / 2#8	2 LEGS	10#3 @ 8" O.C. E.S. #3 @ 12" O.C. BAL.	
1B-01	16x32	2#6 / 3#8	2 LEGS	#3 @ 16" O.C.	
1B-02	16x32	3#7 / 3#7	2 LEGS	#3 @ 12" O.C.	
2B-01	12x24	2#6 / 2#7	2 LEGS	6#3 @ 9" O.C. E.S. #3 @ 12" O.C. BAL.	
2B-02	16x18	2#5 / 3#7	2 LEGS	#3 @ 12" O.C.	

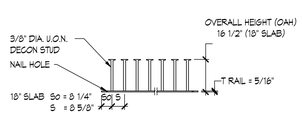
BEAM SCHEDULE NOTES:

1. BM. NO. _ _ _ _ _ BM. SIZE
   LHS BALANCE RHS
2. BM. NO. _ _ _ _ _ _ BM. SIZE BM. NO. _ _ _ _ _ _ BM. SIZE
   DISCONT. BALANCE CONT. BALANCE DISCONT.
3. BM. NO. _ _ _ _ _ _ _ _ BM. SIZE
   DISCONT. BALANCE CANT.
4. EACH END INDICATES SAME REINFORCEMENT TO BE PLACED AT LEFT HAND SIDE (LHS) & RIGHT HAND SIDE (RHS). LHS COINCIDES WITH PROJECT "EAST" AND PROJECT "SOUTH"
5. WHERE ONLY ONE SIDE OF STIRRUP REINFORCEMENT IS SPECIFIED, BALANCE REINFORCEMENT SHALL BE CONTINUED TO OTHER END.
6. SEISMIC DENOTES STIRRUPS TO RUN CONTINOUS OVER SUPPORTS. SEE TYPICAL BEAM REINFORCEMENT DETAILS FOR BALANCE OF INFORMATION.
7. SEE GENERAL NOTES ON DRAWING S-001 FOR CONCRETE STRENGTH.
8. ===== DENOTES CONTINUOUS REINFORCEMENT FROM ADJACENT BEAM.

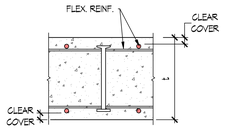
1/8" = 1'-0"

TYPICAL STUDRAIL SCHEDULE

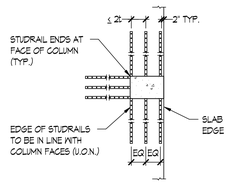
SR NO.	LOCATION	NS	EW	NOTES
		LEGS x NO. OF STUDS PER LEG		
T SR 1	E	2xT	4xT	



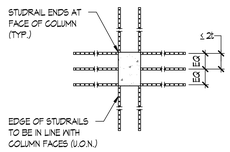
TYPICAL STUDRAIL LEG



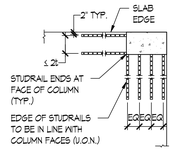
POSITION IN SLAB



EDGE COLUMN (E)



INTERIOR COLUMN (I)



CORNER COLUMN (C)

1 STUDRAIL DETAILS
1/4" = 1'-0"

ST. JOSEPH APARTMENTS

484 E 178th Sreet, The Bronx, NY 10457

Owner:
CATHOLIC HOMES NEW YORK

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BLOCK: 3043 LOT: 10, 16, 22, 23

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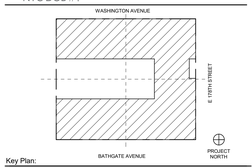

Key Plan:

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SCHEDULES

STRUCTURAL JOB # X08026211-I1

SEAL & SIGNATURE:

PROJECT No:	B9142.00
DRAWING BY:	CA
CHK BY:	AM

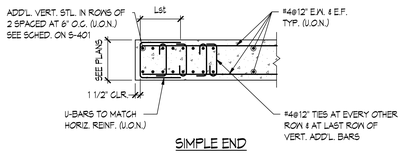
DWG No:
S-304.00

SCALE: As indicated

SHEAR WALL SCHEDULE											
GROUP / FLOOR	ADDITIONAL VERTICAL REINFORCEMENT GROUPS										
	GROUP 1A	GROUP 2A	GROUP 2B	GROUP 2C	GROUP 2D	GROUP 2E	GROUP 2F	GROUP 3A	GROUP 3B	GROUP 4A	GROUP 5A
ROOF	2#6	2#6	4#6	2#6	2#6	4#6	2#6	2#6	4#6	-	2#6
8TH	2#6	2#6	4#6	2#6	2#6	4#6	2#6	2#6	4#6	2#6	2#6
7TH	2#6	2#6	4#6	2#6	2#6	4#6	2#6	2#6	4#6	2#6	2#6
6TH	2#6	2#6	4#6	2#6	2#6	4#6	2#6	2#6	4#6	4#6	4#6
5TH	2#6	4#6	8#6	2#6	4#6	4#6	2#6	2#6	4#6	4#6	4#6
4TH	4#6	4#6	8#6	4#6	4#6	8#6	4#6	4#6	8#6	6#6	6#6
3RD	4#6	4#6	8#6	4#6	4#6	8#6	4#6	4#6	8#6	6#6	6#6
2ND	4#6	4#6	8#6	4#6	4#6	8#6	4#6	4#6	8#6	6#6	6#6
GROUND / 1ST	4#6	6#6	12#6	6#6	6#6	8#6	4#6	6#6	12#6	6#6	6#6
CELLAR	6#6	6#6	12#6	6#6	6#6	8#6	4#6	6#6	12#6	-	-

NOTES:

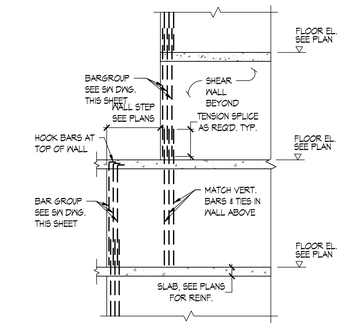
1. ALL BARS USED IN SHEAR WALLS MUST BE TENSION SPLICED. SEE SCHEDULE ON S-002.
2. STANDARD MATS TO BE PLACED AT EACH FACE OF WALLS.
3. ADDITIONAL VERTICAL GROUP REINFORCEMENT IN WALLS SHALL BE TIED WITH TIE HOOKS SEE DETAIL 1 ON THIS SHEET.
4. THE CONTRACTOR SHALL NOT TROWEL CONSTRUCTION JOINTS BETWEEN SLABS AND SHEAR WALLS.
5. OPENINGS AND PENETRATIONS ARE SHOWN SCHEMATICALLY TO PROVIDE GOVERNING CRITERIA WHERE REQUIRED FOR STRUCTURAL REASONS ONLY. REFER TO MECHANICAL, ELECTRICAL & PLUMBING DRAWINGS FOR BALANCE OF INFO.
6. SEE DETAIL 1 ON THIS SHEET FOR TYPICAL DETAIL AT SHEAR WALL EXTREMITIES.
7. SEE PLANS FOR LOCATION OF SHEAR WALLS.



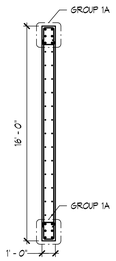
2 TYPICAL DETAIL AT SHEAR WALL EXTREMITIES
3/4" = 1'-0"

NOTE:

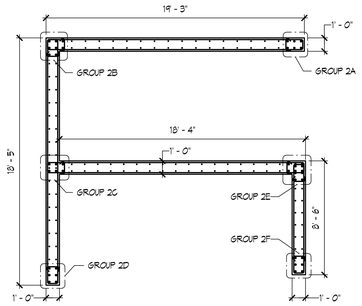
1. SEE SHEAR WALL PLANS FOR BALANCE OF INFORMATION.



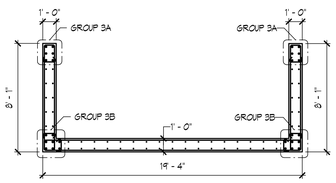
1 ELEVATION OF STEPPED SHEAR WALL
1/4" = 1'-0"



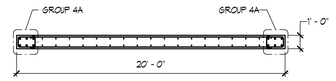
4 SW-1 @ CELLAR THRU BULKHEAD
1/4" = 1'-0"



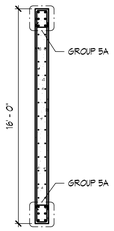
5 SW-2 @ CELLAR THRU BULKHEAD
1/4" = 1'-0"



6 SW-3 @ CELLAR THRU BULKHEAD
1/4" = 1'-0"



7 SW-4 @ GROUND FLOOR THRU 8TH FLOOR
1/4" = 1'-0"



9 SW-5 @ GROUND FLOOR THRU BULKHEAD
1/4" = 1'-0"

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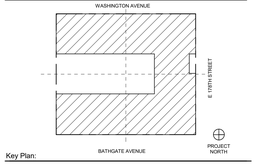

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SHEAR WALL DETAILS

STRUCTURAL JOB # X08026211-I1

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PROJECT No:	B9142.00
DRAWING BY:	CA
CHK BY:	AM
DWG No:	S-401.00
SCALE: As indicated	20 OF 10

APPENDIX B

PREVIOUS REPORTS

484 EAST 178TH STREET/ ST. JOSEPH'S

BRONX, NEW YORK

Phase II Environmental Site Investigation

NYC OER Site Number: 23TMP0776X/23EH-A129X

Prepared for:

Association of New York Catholic Homes

80 Maiden Lane, 13th Floor, New York, NY 10038

646.794.3167

Prepared by:

One Penn Plaza, Suite 715, New York, NY 10119

212.867.7381

February 2024

PHASE II ENVIRONMENTAL SITE INVESTIGATION

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FIGURES

Figure 1: Site Location Map

Figure 2: Proposed Development Layout

Figure 3: Land Use Map

Figure 4: Ground-penetrating Radar Survey

Figure 5: Location of Soil Borings and Soil Vapor Samples

Figure 6a: Map of Soil Chemistry Results (SVOCs)

Figure 6b: Map of Soil Chemistry Results (Pesticides)

Figure 6c: Map of Soil Chemistry Results (Metals)

Figure 7: Map of Soil Vapor Chemistry Results

TABLES

Table 1: Soil Analytical Data Summary

Table 2: Soil Vapor Analytical Data Summary

APPENDICES

Appendix A: Phase I ESA

Appendix B: Soil Boring Geologic Logs

Appendix C: Soil Vapor Sampling Logs

Appendix D: Laboratory Data Deliverables for Soil Analytical Data

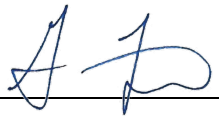
Appendix E: Laboratory Data Deliverables for Soil Vapor Analytical Data

LIST OF ACRONYMS

Acronym	Definition
AOC	Area of Concern
CAMP	Community Air Monitoring Plan
COC	Contaminant of Concern
CPP	Citizen Participation Plan
CSM	Conceptual Site Model
DER-10	New York State Department of Environmental Conservation Technical Guide 10
ESI	Environmental Site Investigation
FID	Flame Ionization Detector
GPS	Global Positioning System
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
IRM	Interim Remedial Measure
NAPL	Non-aqueous Phase Liquid
NYC VCP	New York City Voluntary Cleanup Program
NYC DOHMH	New York City Department of Health and Mental Hygiene
NYC OER	New York City Office of Environmental Remediation
NYS DOH ELAP	New York State Department of Health Environmental Laboratory Accreditation Program
OSHA	Occupational Safety and Health Administration
PID	Photoionization Detector
QEP	Qualified Environmental Professional
SCO	Soil Cleanup Objective
SPEED	Searchable Property Environmental Electronic Database

CERTIFICATION

I, George Lester, am a Qualified Environmental Professional, as defined in RCNY § 43-1402(ar). I have primary direct responsibility for implementation of the Site Investigation for the 484 East 178th Street/ St. Joseph's Site (NYC OER Site No. 23TMP0776X/23EH-A129X). I am responsible for the content of this Phase II Environmental Site Investigation (ESI), have reviewed its contents and certify that this Phase II ESI is accurate to the best of my knowledge and contains all available environmental information and data regarding the property.

George Lester, PE	2/11/24	
Qualified Environmental Professional	Date	Signature

EXECUTIVE SUMMARY

The Phase II Environmental Site Investigation (ESI) provides sufficient information for establishment of remedial action objectives, evaluation of remedial action alternatives, and selection of a remedy pursuant to RCNY§ 43-1407(f). The site investigation described in this document is consistent with applicable guidance.

Site Location and Current Usage

The Site is located at 484 East 178th Street in the Tremont section of the Bronx, New York and is identified as Block 3043 and Lots 10, 16, 22, and 23 on the New York City Tax Map; these lots have been merged into a single lot (Lot 10) to facilitate the Site development. Figure 1 shows the Site location. The Site is 40,102-square feet and is bounded by East 178th Street to the north, a four-story commercial and office building as well as a three-story preschool to the south, Bathgate Avenue to the east, and Washington Avenue to the west. A map of the site boundary is shown in Figure 1. Currently, the Site is vacant and contains a ramp, staircase, and retaining walls around its elevated northeastern section. The Site slopes from the elevated northeastern section downward to the west and south, the elevation ranges from approximately 79 feet (NAVD 88) in the northeast to approximately 58 feet (NAVD 88) in the southwest.

Summary of Proposed Redevelopment Plan

The proposed future use of the Site will consist of a 100% affordable, approximately 230,875 gsf, eight-story (82-foot tall; 95-foot tall measured from Washington Avenue) multi-family residential building with a total of 251 dwelling units (inclusive of one building superintendent unit). The building will have a U-shape design with landscaped inner courtyard and a partial basement used for building superintendent housing, bicycle storage, community facility space, storage, and utilities. At grade, the building will have residential, residential amenity, and community facility spaces, as well as offices and lobbies.

The open courtyard will be at grade level and consist of concrete pavers, planting soil, timber decking, and artificial turf. It will be used for outdoor recreation. The entryway on East 178th Street will also feature a small open space area with pavers on slab and planting soil. The proposed building footprint spans about 33,300 square feet, while the cellar spans about 15,600 square feet. The proposed development will achieve a full build-out to the property boundaries with an interior courtyard. Excavation depth ranges from 6.5-19.5 feet below surface grade for

drainage features in the courtyard and structural footings beneath the building. If suitable for drainage and geotechnical purposes, existing site soils may remain in portions of the courtyard. Based on drilling refusal, bedrock is expected to be 2.0-14.0 feet below surface grade and follows the same general slope from the northeast down to the west and south as the surface grade. Excavation is not anticipated below the groundwater table. Demolition of existing the existing stair, ramp, and retaining walls will occur prior to construction. Layout of the proposed site development is presented in Figure 2. The current zoning designation is R7D, which promotes new medium-density contextual development along transit corridors. The proposed use is consistent with existing zoning for the property.

Summary of Past Uses of Site and Areas of Concern

VHB was able to establish a history for the Site dating back to 1896 when the Site was improved with an early iteration of "St. Joseph's Academy" on southern portions, a mixed-use building on northwestern portions and two dwellings on northeastern portions. The most recent church structure with basement for auditorium, meeting hall, cafeteria, dances, gym and school counseling was constructed by 1901 along with another rendition of the academy/convent building. The neo-Gothic church was built of white stone quarried from the lot and faced with polished granite on the front and rear ends.[1] When built, the church provided seating for about 1,500 persons. A six-story horseshoe-shaped building with a centrally located elevator was constructed on northwestern portions by 1915. The former rectory appeared by 1950. The mixed-use commercial and residential buildings were demolished by 1981, and the dwelling on northeastern portions was demolished circa 2012. The church was closed as of 2015 and remaining buildings on the Site were demolished in 2019 for redevelopment of the Site.

According to information maintained by the NYCDOF, the current owners of record are identified as Church of St. Joseph to Tremont for Lot 16 and St Joseph R C Church for Lots 10, 22 and 23. Previous owners of Lot 16 include St. Barnabas Hospital and the City of New York, according to the Automated City Register Information System (ACRIS).

The AOCs identified for this site include:

[1] A supplemental description of the subject property history was obtained from the New York City American Guild of Organists.

1. One 3,000-gal fuel oil aboveground storage tank is registered to Lot 10 and municipal records reference several underground storage tanks (USTs; two 275-gallon on Lot 23 and one 1,000-gallon on Lot 22). It is unknown if these USTs remain on-site or have been removed. The AST was removed during demolition of the former church on site.

2. Demolition of former structures (particularly on Lots 16 [formerly occupied by a mixed-use elevator building] and Lot 22 [formerly occupied by a two-story dwelling]) indicating the potential presence of historic fill.

These AOCs are related to Recognized Environmental Conditions identified in the Phase I Report.

Summary of the Work Performed under the Environmental Site Investigation

VHB, at the direction of Catholic Homes, performed the following scope of work:

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);

2. Installed eleven (11) soil borings across the entire project Site, and collected seventeen (17) soil samples for chemical analysis from the soil borings to evaluate soil quality;

3. Installed ten (10) soil vapor probes around Site perimeter and collected ten (10) samples for chemical analysis.

Installation of groundwater monitoring wells was attempted at six of the boring locations, however refusal was encountered (assumed bedrock) above the groundwater surface at each location. As a result, groundwater samples could not be collected to evaluate groundwater quality.[2]

Summary of Environmental Findings

1. Elevation of the property ranges from approximately 65 to 80 feet above mean sea level.

[2] VHB corresponded with OER regarding the sampling issues on site and OER accepted forgoing collection of groundwater in an email dated March 29, 2023.

2. Depth to groundwater assumed to be within 80 feet below ground surface (bgs) at the Site.

3. Groundwater flow is expected to be generally from north to south beneath the Site.

4. Depth to bedrock is approximately two to 14 feet bgs at the Site.

5. The stratigraphy of the site, from the surface down, consists of two to 14 feet of urban fill, sand, and gravel underlain by bedrock.

6. Soil/fill samples collected during the Phase II ESI showed:

    - VOCs were not detected above UUSCOs.
    - PFAS compounds were measured in a single sample. No PFAS compounds were detected above NYSDEC Guidance Values. Perfluorooctanesulfonic acid (PFOS) was detected at a concentration of 0.212 ng/g, perfluorodecanesulfonic acid (PFDS) was detected at a concentration of 0.055 ng/g, and total perfluorooctanoic acid (PFOA)/PFOS was detected at a concentration of 0.212 ng/g in SB-6.
    - Several SVOCs were detected above RUSCOs and RRSCOS in SB-4 and SB-5, including benzo(a)anthracene (max. 3.4 mg/kg), benzo(a)pyrene (max. 3.1 mg/kg), benzo(b)fluoranthene (max. 3.7 mg/kg), benzo(k)fluoranthene (1.4 mg/kg), chrysene (max. 3 mg/kg), dibenzo(a,h)anthracene (0.62 mg/kg), and indeno(1,2,3-cd)pyrene (max. 1.8 mg/kg).
    - Several pesticides were detected above UUSCOS but below RUSCOS and RRSCOs, including 4,4'-DDE (max. 0.181 mg/kg), 4,4'-DDD (max. 0.0268 mg/kg), and 4,4'-DDT (max. 0.806 mg/kg). Heptachlor (0.849 mg/kg), dieldrin (max. 0.069 mg/kg), and cis-chlordane (max. 3.47 mg/kg) were detected above RUSCOS but below RRSCOs in SB-4, SB-5, and SB-11. Pesticides were not detected above RRSCOs.
    - PCBs were not detected above UUSCOs.
    - Several metals were detected above UUSCOs but below RUSCOs and RRSCOs, including mercury (0.214 mg/kg), zinc (max. 1,500 mg/kg), and copper (max. 55.3 mg/kg). Barium (max. 522 mg/kg), lead (max. 1,370 mg/kg), and arsenic (max. 93.8 mg/kg) were detected above RRSCOs in SB-5 and SB-11.

7. Soil vapor samples collected during the Phase II ESI showed 1,1,1-Trichloroethane was detected in one soil vapor sample at a concentration of 2.74 $\mu g/m^3$ in SV-4. Based on the

NYSDOH Soil Vapor/Indoor Air Matrices, concentrations of 1,1,1-Trichloroethane were detected within the "No Further Action" range. Tetrachloroethene (PCE) was detected in all soil vapor samples at concentrations ranging from 59.7 $\mu g/m^3$ in SV-1 to 658 $\mu g/m^3$ in SV-5. Based on the NYSDOH Soil Vapor/Indoor Air Matrices, concentrations of PCE reported in soil vapor samples SV-2, SV-3, and SV-5 through SV-10 were detected above the "No Further Action" range and require mitigation.

PHASE II ENVIRONMENTAL SITE INVESTIGATION

1.0 SITE BACKGROUND

Association of New York Catholic Homes (Catholic Homes) is considering enrollment in the New York City Voluntary Cleanup Program (NYC VCP) to investigate and remediate a 0.9-acre site located at 484 East 178th Street in the Tremont section of the Bronx, New York. Residential use is proposed for the property. The proposed building will have a U-shape design with landscaped inner courtyard and a partial basement used for building superintendent housing, bicycle storage, community facility space, storage, and utilities. At grade, the building will have residential, residential amenity, and community facility spaces, as well as offices and lobbies. The Phase II ESI work was performed between March 29 and 30, 2023. This Phase II ESI summarizes the nature and extent of contamination and provides sufficient information for establishment of remedial action objectives, evaluation of remedial action alternatives, and selection of a remedy that is protective of human health and the environment consistent with the use of the property pursuant to RCNY§ 43-1407(f).

1.1 Site Location and Current Usage

The Site is located at 484 East 178th Street in the Tremont section of the Bronx, New York and is identified as Block 3043 and Lots 10, 16, 22, and 23 on the New York City Tax Map; these lots have been merged into a single lot (Lot 10) to facilitate the Site development. Figure 1 shows the Site location. The Site is 40,102-square feet and is bounded by East 178th Street to the north, a four-story commercial and office building as well as a three-story preschool to the south, Bathgate Avenue to the east, and Washington Avenue to the west. A map of the site boundary is shown in Figure 1. Currently, the Site is vacant and contains a ramp, staircase, and retaining walls around its elevated northeastern section. The Site slopes from the elevated northeastern section downward to the west and south, the elevation ranges from approximately 79 feet (NAVD 88) in the northeast to approximately 58 feet (NAVD 88) in the southwest.

1.2 Proposed Redevelopment Plan

The proposed future use of the Site will consist of a 100% affordable, approximately 230,875 gross square feet (gsf), eight-story (82-foot tall; 95-foot tall measured from Washington Avenue) multi-family residential building with a total of 251 dwelling units (inclusive of one

building superintendent unit). The building will have a U-shape design with landscaped inner courtyard and a partial basement used for building superintendent housing, bicycle storage, community facility space, storage, and utilities. At grade, the building will have residential, residential amenity, and community facility spaces, as well as offices and lobbies.

The open courtyard will be at grade level and consist of concrete pavers, planting soil, timber decking, and artificial turf. It will be used for outdoor recreation. The entryway on East 178th Street will also feature a small open space area with pavers on slab and planting soil. The proposed building footprint spans about 33,300 square feet, while the cellar spans about 15,600 square feet. The proposed development will achieve a full build-out to the property boundaries with an interior courtyard. Excavation depth ranges from 6.5-19.5 feet below surface grade for drainage features in the courtyard and structural footings beneath the building. If suitable for drainage and geotechnical purposes, existing site soils may remain in portions of the courtyard. Based on drilling refusal, bedrock is expected to be 2.0-14.0 feet below surface grade and follows the same general slope from the northeast down to the west and south as the surface grade. Excavation is not anticipated below the groundwater table. Demolition of existing the existing stair, ramp, and retaining walls will occur prior to construction. Layout of the proposed site development is presented in Figure 2. The current zoning designation is R7D, which promotes new medium-density contextual development along transit corridors. The proposed use is consistent with existing zoning for the property.

1.3 Description of Surrounding Property

Adjoining properties include a three-story preschool (Sharon Baptist Head Start; 1925 Bathgate Avenue) and a four-story commercial and office building (1932 Washington Avenue). The neighborhood is primarily zoned for residential use, with a commercial district along East Tremont Avenue. Nearby sensitive receptors such as schools, hospitals, and day care facilities within a 250 to 500-foot radius identified by OER's *SPEED* application include the following:

- 1925 Bathgate Avenue, Sharon Baptist Head Start
- 1946 Bathgate Avenue, Bronx Charter School for Excellence 5
- 1956 Bathgate Avenue, El Batey de Dona Provi Garden
- 514 East 178th Street, Project Renewal Inc. Mobile Medical Van

- 4215 Third Avenue, Community Healthcare Network – Tremont
- 4226 3rd Avenue, Loyalty Daycare LLC

Figure 3 shows the surrounding land usage.

2.0 SITE HISTORY

2.1 Past Uses and Ownership

VHB was able to establish a history for the Site dating back to 1896 when the Site was improved with an early iteration of "St. Joseph's Academy" on southern portions, a mixed-use building on northwestern portions and two dwellings on northeastern portions. The most recent church structure with basement for auditorium, meeting hall, cafeteria, dances, gym and school counseling was constructed by 1901 along with another rendition of the academy/convent building. The neo-Gothic church was built of white stone quarried from the lot and faced with polished granite on the front and rear ends.[3] When built, the church provided seating for about 1,500 persons. A six-story horseshoe-shaped building with a centrally located elevator was constructed on northwestern portions by 1915. The former rectory appeared by 1950. The mixed-use commercial and residential buildings were demolished by 1981, and the dwelling on northeastern portions was demolished circa 2012. The church was closed as of 2015 and remaining buildings on the Site were demolished in 2019 for redevelopment of the Site.

According to information maintained by the NYCDOF, the current owners of record are identified as Church of St. Joseph to Tremont for Lot 16 and St Joseph R C Church for Lots 10, 22 and 23. Previous owners of Lot 16 include St. Barnabas Hospital and the City of New York, according to the Automated City Register Information System (ACRIS).

2.2 Previous Investigations

No previous ESIs or information regarding previous environmental investigations for the Site were provided to VHB for review at the time of preparation of this Phase II ESI .

2.3 Site Inspection

Isabel Mielczarek of VHB performed a site inspection on March 29, 2023. The Site was vacant at the time of inspection. No evidence of petroleum storage or gross contamination was observed at the time. A piezometer well from a previous geotechnical investigation was observed. Depth to water within the well was measured to be approximately 12.25 feet bgs,

[3] A supplemental description of the subject property history was obtained from the New York City American Guild of Organists.

however it is suspected that this was perched water above bedrock, as the well bottom was measured at approximately 12.45 feet bgs.

2.4 Areas of Concern

The AOCs identified for this site include:

3. One 3,000-gal fuel oil aboveground storage tank is registered to Lot 10 and municipal records reference several underground storage tanks (USTs; two 275-gallon on Lot 23 and one 1,000-gallon on Lot 22). It is unknown if these USTs remain on-site or have been removed. The AST was removed during demolition of the former church on site.
4. Demolition of former structures (particularly on Lots 16 [formerly occupied by a mixed-use elevator building] and Lot 22 [formerly occupied by a two-story dwelling]) indicating the potential presence of historic fill.

These AOCs are related to Recognized Environmental Conditions identified in the Phase I Report, which is presented in Appendix A.

3.0 PROJECT MANAGEMENT

3.1 Project Organization

The Qualified Environmental Profession (QEP) responsible for preparation of this Phase II ESI is Isabel Mielczarek.

3.2 Health and Safety

All work described in this Phase II ESI was performed in full compliance with applicable laws and regulations, including Site and OSHA worker safety requirements and HAZWOPER requirements.

3.3 Materials Management

All material encountered during the Phase II ESI was managed in accordance with applicable laws and regulations.

4.0 PHASE II ESI ACTIVITIES

VHB, at the direction of Catholic Homes, performed the following scope of work:

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
2. Installed eleven (11) soil borings across the entire project Site, and collected seventeen (17) soil samples for chemical analysis from the soil borings to evaluate soil quality;
3. Installed ten (10) soil vapor probes around Site perimeter and collected ten (10) samples for chemical analysis.

Installation of groundwater monitoring wells was attempted at six of the boring locations, however refusal was encountered above the groundwater interface at each location. As a result, groundwater samples could not be collected to evaluate groundwater quality.[4]

4.1 Geophysical Investigation

VHB and X-Ray Locators conducted a limited geophysical investigation (LGI) on March 29, 2023 within accessible areas of the Site that were within approximately ten feet of proposed boring locations. The purpose of the LGI was to attempt to identify potential utility interference at the soil boring and soil vapor sample locations prior to drilling activities. The LGI was conducted using an electromagnetic survey and ground-penetrating radar (GPR) Survey.

The results of the LGI identified sub-surface anomalies in the vicinity of proposed sample locations; however, sample locations did not need to be relocated as a result. During the investigation, VHB did not detect anomalies indicative of a UST(s).

4.2 Borings and Monitoring Wells

Drilling and Soil Logging

On March 29, 2023, eleven (11) soil borings (SB-1 through SB-11) were advanced at the Site. A Geoprobe direct-push drill rig supplied by AARCO Environmental (AARCO) of

[4] VHB corresponded with OER regarding the sampling issues on site and OER accepted forgoing collection of groundwater in an email dated March 29, 2023.

Lindenhurst, New York was used to collect all soil samples using a five-foot long Macro Core sampler fitted with a dedicated acetate liner. Soil samples were collected from the zero to two-foot bgs interval at each boring location. Deeper soil samples were collected where possible, as described in Section 4.3. Soil recovered from the boring locations was screened for evidence of anthropogenic impacts based on visual, olfactory, and photoionization detector (PID) methods. No evidence of gross contamination was identified in the soil borings.

Boring logs were prepared by a geologist and are attached in Appendix B. A map showing the location of soil borings and vapor points is shown in Figure 5.

Survey

Soil borings and soil vapor sampling locations were located to the nearest 0.10 foot with respect to two or more permanent site features using a digital measuring wheel.

4.3 Sample Collection and Chemical Analysis

Sampling performed as part of the field investigation was conducted for all AOCs and also considered other means for bias of sampling based on professional judgment, area history, discolored soil, stressed vegetation, drainage patterns, field instrument measurements, odor, or other field indicators. Soil and soil vapor have been sampled and evaluated in the Phase II ESI. Discrete (grab) samples have been used for final delineation of the nature and extent of contamination and to determine the impact of contaminants on public health and the environment. The sampling performed and presented in this Phase II ESI provides sufficient basis for evaluation of remedial action alternatives, establishment of a qualitative human health exposure assessment, and selection of a final remedy.

Soil Sampling

Seventeen (17) soil samples were collected for chemical analysis during this Phase II ESI from eleven (11) soil borings (SB1-SB11). All borings were advanced to refusal, which ranged from two (2) to fourteen (14) feet bgs across the site. One shallow interval (0-2’ bgs) soil sample was collected from each soil boring. Deeper soil samples were collected where possible at SB-1, SB-2, SB-3, SB-4, SB-5, and SB-11 from intervals ranging from 4-6’ bgs to 12-14’ bgs.

During sample collection, field personnel wore dedicated, disposable gloves, and all samples were directly collected from a driller-provided acetate sleeve and were placed in laboratory-

supplied containers. Following sample collection, the samples were placed in a cooler with ice and submitted under standard chain-of-custody protocol to Alpha Analytical Laboratory of Mansfield, Massachusetts (Alpha Analytical), a New York State Department of Health Environmental Laboratory Approval Program (NYSDOH ELAP)-certified laboratory. The samples were transported and analyzed within required holding times. Laboratories and analytical methods are shown below.

Data on soil sample collection for chemical analyses, including dates of collection and sample depths, is reported in Appendix B. Figure 5 shows the location of samples collected in this investigation. Laboratories and analytical methods are shown below.

Soil Vapor Sampling

Ten (10) soil vapor probes were installed and ten (10) soil vapor samples were collected for chemical analysis during this Phase II ESI. The vapor implants consisted of a field-decontaminated stainless retract-a-tip soil vapor screen attached to factory new polyethylene tubing. The sample points were sealed to the ground using non-toxic clay bentonite and areas immediately above each sample point were sealed with a canister, thus creating an annular space. The sub-slab soil vapor probes were installed to a depth of approximately 6 to 12" above the depth of refusal.

Prior to sample collection, a helium tracer gas test was performed at each soil vapor point to confirm the integrity of the seals. A grout-sealed helium shroud was constructed and placed over each soil vapor sample point. Helium gas was introduced into the shroud and was monitored with an MGD-2002 Helium Leak Detector. 24-hours following soil vapor probe installation, one to three implant volumes were purged prior to the collection of any soil-gas samples. Sampling occurred for the duration of approximately 2-hours. Flow rates for both purging and sampling did not exceed 0.2 L/min. Following purging, soil vapor samples were collected in 6-liter summa canisters and submitted under standard chain-of-custody protocol to Alpha Analytical. The samples were transported and analyzed within required holding times for volatile organic compounds (VOCs) via United States Environmental Protection Agency (USEPA) Method TO-15.

Soil vapor sampling locations are shown in Figure 5. Soil vapor sample collection data is reported in Table 2. Soil vapor sampling logs are included in Appendix C. Methodologies used

for soil vapor assessment conform to the *NYS DOH Final Guidance on Soil Vapor Intrusion, October 2006.*

Chemical Analysis

Chemical analytical work presented in this Phase II ESI has been performed in the following manner:

Factor	Description
Quality Assurance Officer	The chemical analytical quality assurance is directed by Isabel Mielczarek
Chemical Analytical Laboratory	Chemical analytical laboratory(s) used in the Phase II ESI is NYS ELAP certified and was Alpha Analytical
Chemical Analytical Methods	Soil analytical methods: • TAL Metals by EPA Method 6010C (rev. 2007); • VOCs by EPA Method 8260C (rev. 2006); • SVOCs by EPA Method 8270D (rev. 2007); • Pesticides by EPA Method 8081B (rev. 2000); • PCBs by EPA Method 8082A (rev. 2000); Soil vapor analytical methods: • VOCs by TO-15 VOC parameters.

Results of Chemical Analyses

Laboratory data for soil and soil vapor are summarized in Table 1 and 2, respectively. Laboratory data deliverables for all samples evaluated in this Phase II ESI are provided in digital form in Appendix D and E.

5.0 ENVIRONMENTAL EVALUATION

5.1 Geological and Hydrogeological Conditions

Stratigraphy

The stratigraphy of the Site consists of approximately two to fourteen feet of historic fill material, sand, and gravel underlain by bedrock. Soils contained traces of gravel, brick, glass, asphalt, and concrete.

Hydrogeology

Groundwater was not encountered during investigation. Groundwater is greater than 14 feet bgs and not present in the unconsolidated material above bedrock.

5.2 Soil Chemistry

Seventeen (17) soil sample results collected during the Phase II ESI were compared to the NYSDEC Unrestricted Use (UU) Soil Cleanup Objectives (SCOs), Residential Use (RU) and Restricted Residential (RR) Use SCOs as presented in 6NYCRR Part 375-6.8. Soil sample results revealed the following:

- VOCs were not detected above UUSCOs.
- PFAS compounds were measured in a single sample, SB-6 (0-2'). No PFAS compounds were detected above NYSDEC Guidance Values. Perfluorooctanesulfonic acid (PFOS) was detected at a concentration of 0.212 ng/g, perfluorodecanesulfonic acid (PFDS) was detected at a concentration of 0.055 ng/g, and total perfluorooctanoic acid (PFOA)/PFOS was detected at a concentration of 0.212 ng/g in SB-6.
- Several SVOCs were detected above RUSCOs and RRSCOS in SB-4 and SB-5, including benzo(a)anthracene (max. 3.4 mg/kg in SB-4 (4’-6’)), benzo(a)pyrene (max. 3.1 mg/kg in SB-4 (4’-6’)), benzo(b)fluoranthene (max. 3.7 mg/kg in SB-4 (4’-6’)), benzo(k)fluoranthene (1.4 mg/kg in SB-4 (4’-6’)), chrysene (max. 3 mg/kg in SB-4 (4’-6’)), dibenzo(a,h)anthracene (0.62 mg/kg in SB-4 (4’-6’)), and indeno(1,2,3-cd)pyrene (max. 1.8 mg/kg in SB-4 (4’-6’)).
- Several pesticides were detected above UUSCOS but below RUSCOS and RRSCOs, including 4,4’-DDE (max. 0.181 mg/kg in SB-4 (4’-6’)), 4,4’-DDD (max. 0.0268 mg/kg in SB-4(4’-6’)), and 4,4’-DDT (max. 0.806 mg/kg in SB-4 (4’-6’)). Heptachlor (0.849 mg/kg in SB-11 (6.5’-8.5')), dieldrin (max. 0.069 mg/kg in SB-5 (12’-14’)), and cis-

chlordane (max. 3.47 mg/kg in SB-11 (6.5'-8.5')) were detected above RUSCOS but below RRSCOs in SB-4, SB-5, and SB-11. Pesticides were not detected above RRSCOs.

- PCBs were not detected above UUSCOs.
- Several metals were detected above UUSCOs but below RUSCOs and RRSCOs, including mercury (0.214 mg/kg in SB-4 (4'-6')), zinc (max. 1,500 mg/kg in SB-5 (12'-14')), and copper (max. 55.3 mg/kg in SB-10 (0-2')). Barium (max. 522 mg/kg in SB-5 (12'-14')), lead (max. 1,370 mg/kg in SB-5 (12'-14')), and arsenic (max. 93.8 mg/kg in SB-11 (6.5'-8.5')) were detected above RRSCOs in SB-5 and SB-11.

Data collected during the Phase II ESI is sufficient to delineate the vertical and horizontal distribution of contaminants in soil/fill at the Site. A summary table of data for chemical analyses performed on soil samples is included in Table 1. Figure 6 shows the location and posts the values for soil/fill that exceed the 6NYCRR Part 375-6.8 Track 2 Soil Cleanup Objectives.

5.4 Soil Vapor Chemistry

Ten (10) soil vapor samples (SV-1 through SV-10) were collected during the Phase II ESI and were compared to the New York State Department of Health (NYSDOH) Final Guidance on Soil Vapor Intrusion October 2006, updated May 2017, Matrix A, B and C. Soil vapor results detected petroleum-related VOCs (BTEX and their associated derivatives) in the ten soil vapor samples. The total concentration of BTEX compounds in soil vapor range from 10.441 micrograms per cubic meter ($\mu g/m^3$) in SV-1 to 65.77 $\mu g/m^3$ in SV-5.

1,1,1-Trichloroethane was detected in one soil vapor sample at a concentration of 2.74 $\mu g/m^3$ in SV-4. Based on the NYSDOH Soil Vapor/Indoor Air Matrices, concentrations of 1,1,1-Trichloroethane were detected within the "No Further Action" range. Tetrachloroethene (PCE) was detected in all soil vapor samples at concentrations ranging from 59.7 $\mu g/m^3$ in SV-1 to 658 $\mu g/m^3$ in SV-5. Based on the NYSDOH Soil Vapor/Indoor Air Matrices, concentrations of PCE reported in soil vapor samples SV-2, SV-3, and SV-5 through SV-10 were detected above the "No Further Action" range and require mitigation.

Data collected during the Phase II ESI is sufficient to delineate the distribution of contaminants in soil vapor at the Site. The source of the soil vapor concentrations is unknown and may be originating off-site.

Figure 7 shows the location and posts the values for soil vapor samples with detected concentrations.

5.5 Prior Activity

Based on an evaluation of the data and information from the Phase II ESI, disposal of significant amounts of hazardous waste is not suspected at this site.

5.6 Impediments to Remedial Action

There are no known impediments to remedial action at this property. Special considerations regarding the shallow bedrock and presumed depth to groundwater should be made for development purposes.

FIGURES

Figure 1: Site Location Map

St. Joseph's Apartments | 484 East 178th Street, Bronx, New York

Source: Esri Community Maps Contributors, NYC OpenData.

Figure 2: Proposed Development Layout

St. Joseph's Apartments | 484 East 178th Street, Bronx, New York

Source: Esri Community Maps Contributors, NYC OpenData.

Figure 3: Land Use Map

St. Joseph's Apartments | 484 East 178th Street, Bronx, New York

Source: Esri Community Maps, NYC OpenData, MapPLUTO.

Figure 4: Ground-penetrating Radar Survey

St. Joseph's Apartments | 484 East 178th Street, Bronx, New York

Source: Esri Community Maps Contributors, NYC OpenData.

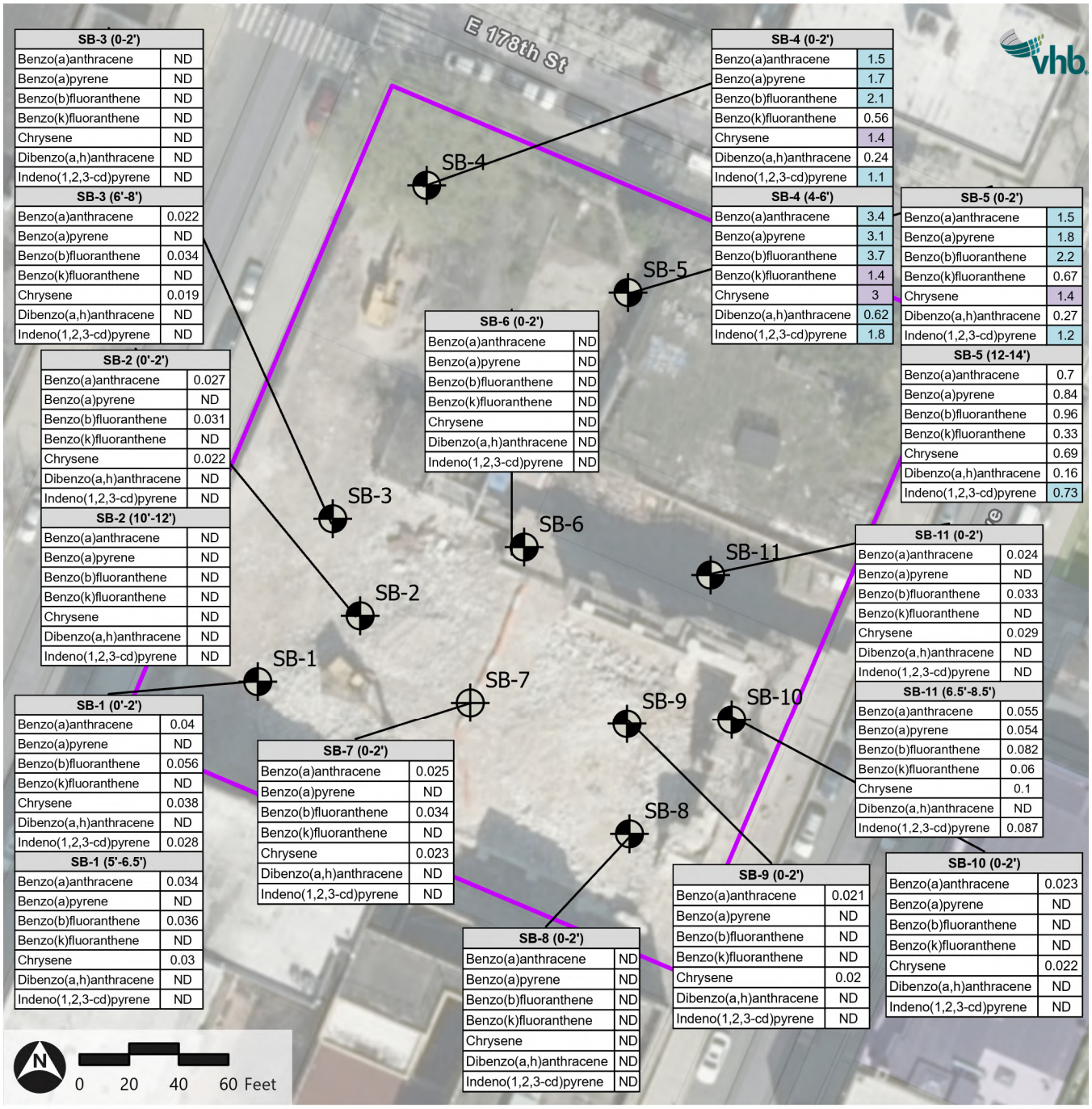
Figure 5: Location of Soil Borings and Soil Vapor Samples

St. Joseph's Apartments | 484 East 178th Street, Bronx, New York

Source: Esri Community Maps Contributors, NYC OpenData.

Figure 6a: Map of Soil Chemistry Results (SVOCs)

St. Joseph's Apartments | 484 East 178th Street, Bronx, New York



SB-3 (0-2')	
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	ND
Benzo(k)fluoranthene	ND
Chrysene	ND
Dibenzo(a,h)anthracene	ND
Indeno(1,2,3-cd)pyrene	ND

SB-3 (6'-8')	
Benzo(a)anthracene	0.022
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	0.034
Benzo(k)fluoranthene	ND
Chrysene	0.019
Dibenzo(a,h)anthracene	ND
Indeno(1,2,3-cd)pyrene	ND

SB-2 (0'-2')	
Benzo(a)anthracene	0.027
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	0.031
Benzo(k)fluoranthene	ND
Chrysene	0.022
Dibenzo(a,h)anthracene	ND
Indeno(1,2,3-cd)pyrene	ND

SB-2 (10'-12')	
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	ND
Benzo(k)fluoranthene	ND
Chrysene	ND
Dibenzo(a,h)anthracene	ND
Indeno(1,2,3-cd)pyrene	ND

SB-1 (0'-2')	
Benzo(a)anthracene	0.04
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	0.056
Benzo(k)fluoranthene	ND
Chrysene	0.038
Dibenzo(a,h)anthracene	ND
Indeno(1,2,3-cd)pyrene	0.028

SB-1 (5'-6.5')	
Benzo(a)anthracene	0.034
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	0.036
Benzo(k)fluoranthene	ND
Chrysene	0.03
Dibenzo(a,h)anthracene	ND
Indeno(1,2,3-cd)pyrene	ND

SB-7 (0-2')	
Benzo(a)anthracene	0.025
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	0.034
Benzo(k)fluoranthene	ND
Chrysene	0.023
Dibenzo(a,h)anthracene	ND
Indeno(1,2,3-cd)pyrene	ND

SB-6 (0-2')	
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	ND
Benzo(k)fluoranthene	ND
Chrysene	ND
Dibenzo(a,h)anthracene	ND
Indeno(1,2,3-cd)pyrene	ND

SB-8 (0-2')	
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	ND
Benzo(k)fluoranthene	ND
Chrysene	ND
Dibenzo(a,h)anthracene	ND
Indeno(1,2,3-cd)pyrene	ND

SB-4 (0-2')	
Benzo(a)anthracene	1.5
Benzo(a)pyrene	1.7
Benzo(b)fluoranthene	2.1
Benzo(k)fluoranthene	0.56
Chrysene	1.4
Dibenzo(a,h)anthracene	0.24
Indeno(1,2,3-cd)pyrene	1.1

SB-4 (4-6')	
Benzo(a)anthracene	3.4
Benzo(a)pyrene	3.1
Benzo(b)fluoranthene	3.7
Benzo(k)fluoranthene	1.4
Chrysene	3
Dibenzo(a,h)anthracene	0.62
Indeno(1,2,3-cd)pyrene	1.8

SB-9 (0-2')	
Benzo(a)anthracene	0.021
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	ND
Benzo(k)fluoranthene	ND
Chrysene	0.02
Dibenzo(a,h)anthracene	ND
Indeno(1,2,3-cd)pyrene	ND

SB-5 (0-2')	
Benzo(a)anthracene	1.5
Benzo(a)pyrene	1.8
Benzo(b)fluoranthene	2.2
Benzo(k)fluoranthene	0.67
Chrysene	1.4
Dibenzo(a,h)anthracene	0.27
Indeno(1,2,3-cd)pyrene	1.2

SB-5 (12-14')	
Benzo(a)anthracene	0.7
Benzo(a)pyrene	0.84
Benzo(b)fluoranthene	0.96
Benzo(k)fluoranthene	0.33
Chrysene	0.69
Dibenzo(a,h)anthracene	0.16
Indeno(1,2,3-cd)pyrene	0.73

SB-11 (0-2')	
Benzo(a)anthracene	0.024
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	0.033
Benzo(k)fluoranthene	ND
Chrysene	0.029
Dibenzo(a,h)anthracene	ND
Indeno(1,2,3-cd)pyrene	ND

SB-11 (6.5'-8.5')	
Benzo(a)anthracene	0.055
Benzo(a)pyrene	0.054
Benzo(b)fluoranthene	0.082
Benzo(k)fluoranthene	0.06
Chrysene	0.1
Dibenzo(a,h)anthracene	ND
Indeno(1,2,3-cd)pyrene	0.087

SB-10 (0-2')	
Benzo(a)anthracene	0.023
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	ND
Benzo(k)fluoranthene	ND
Chrysene	0.022
Dibenzo(a,h)anthracene	ND
Indeno(1,2,3-cd)pyrene	ND

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Approximate Site Boundary

Soil Boring and Soil Vapor Point Location

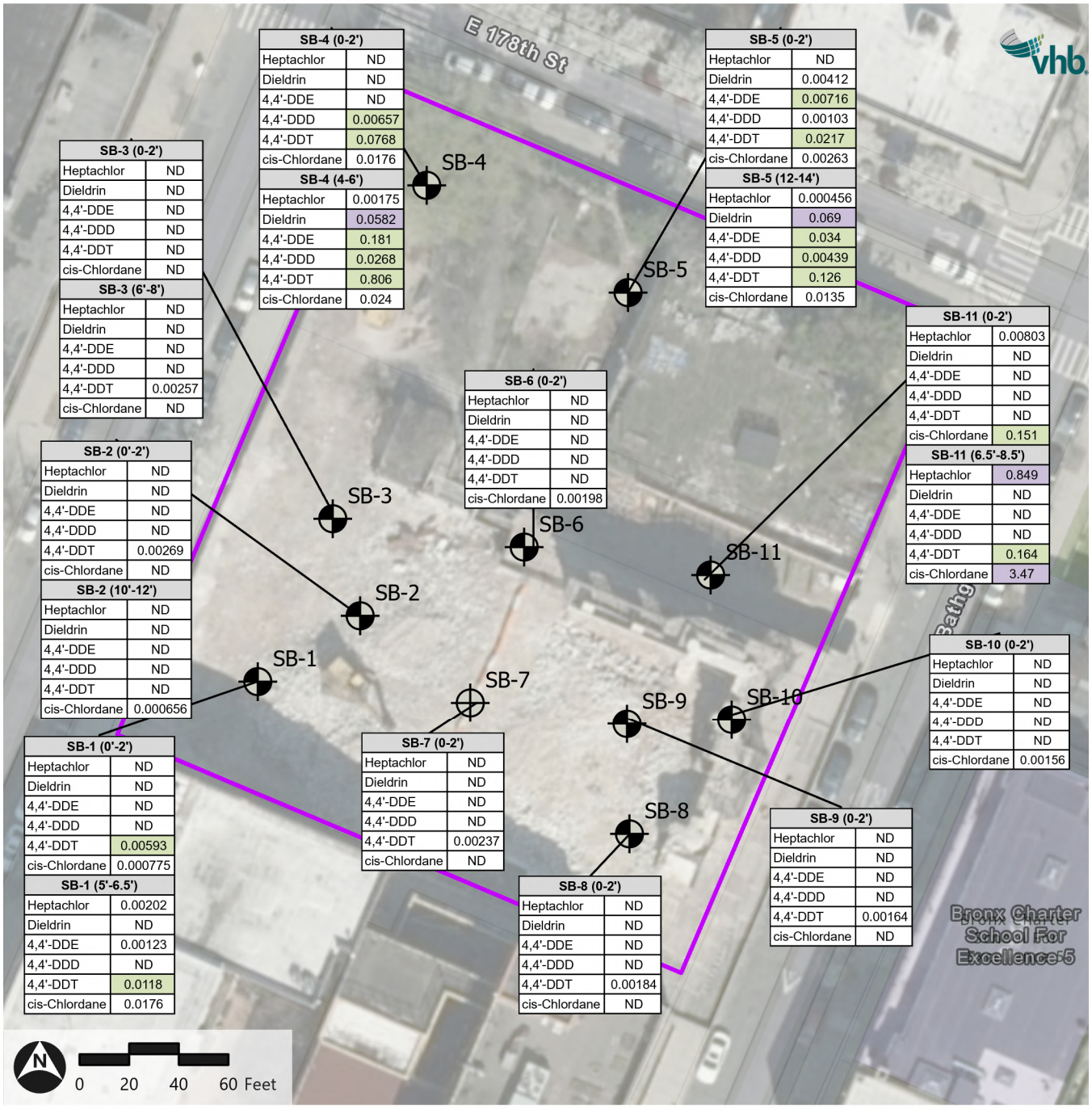
Soil Boring Location

Source: Esri Community Maps Contributors, NYC OpenData.
Note: Only compounds exceeding 6 NYCRR Part 375 Soil Cleanup Objectives in at least one sample shown.
RRSCOs = Restricted-Residential Use Soil Cleanup Objectives
RSCOS = Residential Use Soil Cleanup Objectives
UUSCOS = Unrestricted Use Soil Cleanup Objectives

6 NYCRR Part 375 Soil Cleanup Objectives (mg/kg)			
Semivolatile Organic Compound	**RRSCOs**	**RSCOs**	**UUSCOs**
Benzo(a)anthracene	1	1	1
Benzo(a)pyrene	1	1	1
Benzo(b)fluoranthene	1	1	1
Benzo(k)fluoranthene	3.9	1	0.8
Chrysene	3.9	1	1
Dibenzo(a,h)anthracene	0.33	0.33	0.33
Indeno(1,2,3-cd)pyrene	0.5	0.5	0.5

Figure 6b: Map of Soil Chemistry Results (Pesticides)

St. Joseph's Apartments | 484 East 178th Street, Bronx, New York



Approximate Site Boundary

Soil Boring and Soil Vapor Point Location

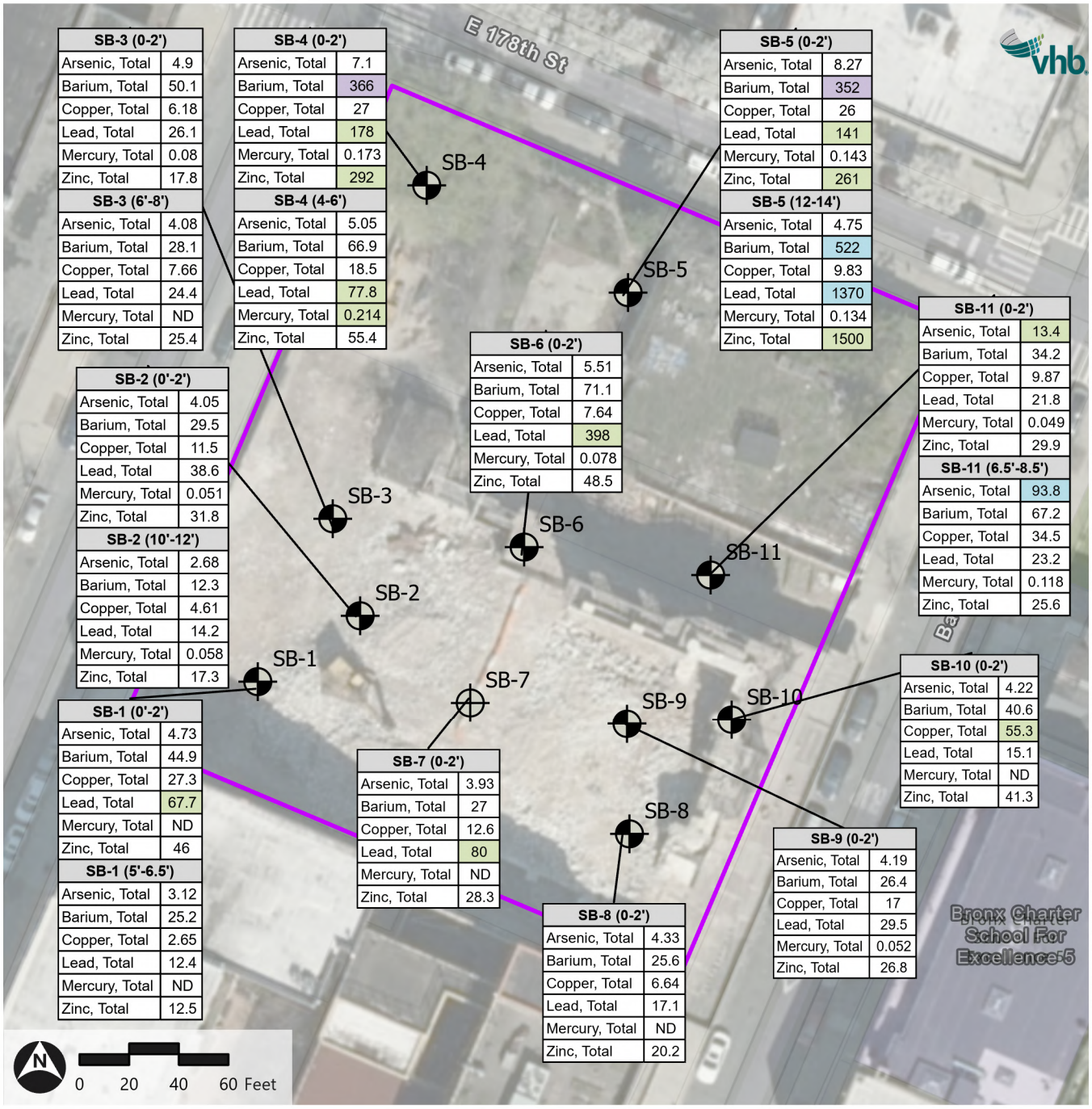
Soil Boring Location

6 NYCRR Part 375 Soil Cleanup Objectives (mg/kg)			
Pesticide	**RRSCOs**	**RSCOs**	**UUSCOs**
Heptachlor	2.1	0.42	0.042
Dieldrin	0.2	0.039	0.005
4,4'-DDE	8.9	1.8	0.0033
4,4'-DDD	13	2.6	0.0033
4,4'-DDT	7.9	1.7	0.0033
cis-Chlordane	4.2	0.91	0.094

Source: Esri Community Maps Contributors, NYC OpenData.
Note: Only compounds exceeding 6 NYCRR Part 375 Soil Cleanup Objectives in at least one sample shown.
RRSCOs = Restricted-Residential Use Soil Cleanup Objectives
RSCOS = Residential Use Soil Cleanup Objectives
UUSCOS = Unrestricted Use Soil Cleanup Objectives

Figure 6c: Map of Soil Chemistry Results (Metals)

St. Joseph's Apartments | 484 East 178th Street, Bronx, New York



SB-3 (0-2')	
Arsenic, Total	4.9
Barium, Total	50.1
Copper, Total	6.18
Lead, Total	26.1
Mercury, Total	0.08
Zinc, Total	17.8
SB-3 (6'-8')	
Arsenic, Total	4.08
Barium, Total	28.1
Copper, Total	7.66
Lead, Total	24.4
Mercury, Total	ND
Zinc, Total	25.4

SB-4 (0-2')	
Arsenic, Total	7.1
Barium, Total	366
Copper, Total	27
Lead, Total	178
Mercury, Total	0.173
Zinc, Total	292
SB-4 (4-6')	
Arsenic, Total	5.05
Barium, Total	66.9
Copper, Total	18.5
Lead, Total	77.8
Mercury, Total	0.214
Zinc, Total	55.4

SB-5 (0-2')	
Arsenic, Total	8.27
Barium, Total	352
Copper, Total	26
Lead, Total	141
Mercury, Total	0.143
Zinc, Total	261
SB-5 (12-14')	
Arsenic, Total	4.75
Barium, Total	522
Copper, Total	9.83
Lead, Total	1370
Mercury, Total	0.134
Zinc, Total	1500

SB-6 (0-2')	
Arsenic, Total	5.51
Barium, Total	71.1
Copper, Total	7.64
Lead, Total	398
Mercury, Total	0.078
Zinc, Total	48.5

SB-11 (0-2')	
Arsenic, Total	13.4
Barium, Total	34.2
Copper, Total	9.87
Lead, Total	21.8
Mercury, Total	0.049
Zinc, Total	29.9
SB-11 (6.5'-8.5')	
Arsenic, Total	93.8
Barium, Total	67.2
Copper, Total	34.5
Lead, Total	23.2
Mercury, Total	0.118
Zinc, Total	25.6

SB-2 (0'-2')	
Arsenic, Total	4.05
Barium, Total	29.5
Copper, Total	11.5
Lead, Total	38.6
Mercury, Total	0.051
Zinc, Total	31.8
SB-2 (10'-12')	
Arsenic, Total	2.68
Barium, Total	12.3
Copper, Total	4.61
Lead, Total	14.2
Mercury, Total	0.058
Zinc, Total	17.3

SB-10 (0-2')	
Arsenic, Total	4.22
Barium, Total	40.6
Copper, Total	55.3
Lead, Total	15.1
Mercury, Total	ND
Zinc, Total	41.3

SB-1 (0'-2')	
Arsenic, Total	4.73
Barium, Total	44.9
Copper, Total	27.3
Lead, Total	67.7
Mercury, Total	ND
Zinc, Total	46
SB-1 (5'-6.5')	
Arsenic, Total	3.12
Barium, Total	25.2
Copper, Total	2.65
Lead, Total	12.4
Mercury, Total	ND
Zinc, Total	12.5

SB-7 (0-2')	
Arsenic, Total	3.93
Barium, Total	27
Copper, Total	12.6
Lead, Total	80
Mercury, Total	ND
Zinc, Total	28.3

SB-8 (0-2')	
Arsenic, Total	4.33
Barium, Total	25.6
Copper, Total	6.64
Lead, Total	17.1
Mercury, Total	ND
Zinc, Total	20.2

SB-9 (0-2')	
Arsenic, Total	4.19
Barium, Total	26.4
Copper, Total	17
Lead, Total	29.5
Mercury, Total	0.052
Zinc, Total	26.8

Approximate Site Boundary

Soil Boring and Soil Vapor Point Location

Soil Boring Location

6 NYCRR Part 375 Soil Cleanup Objectives (mg/kg)			
Metal	**RRSCOs**	**RSCOs**	**UUSCOs**
Arsenic, Total	16	16	13
Barium, Total	400	350	350
Copper, Total	270	270	50
Lead, Total	400	400	63
Mercury, Total	0.81	0.81	0.18
Zinc, Total	10000	2200	109

Source: Esri Community Maps Contributors, NYC OpenData.
Note: Only compounds exceeding 6 NYCRR Part 375 Soil Cleanup Objectives in at least one sample shown.
RRSCOs = Restricted-Residential Use Soil Cleanup Objectives
RSCOS = Residential Use Soil Cleanup Objectives
UUSCOS = Unrestricted Use Soil Cleanup Objectives

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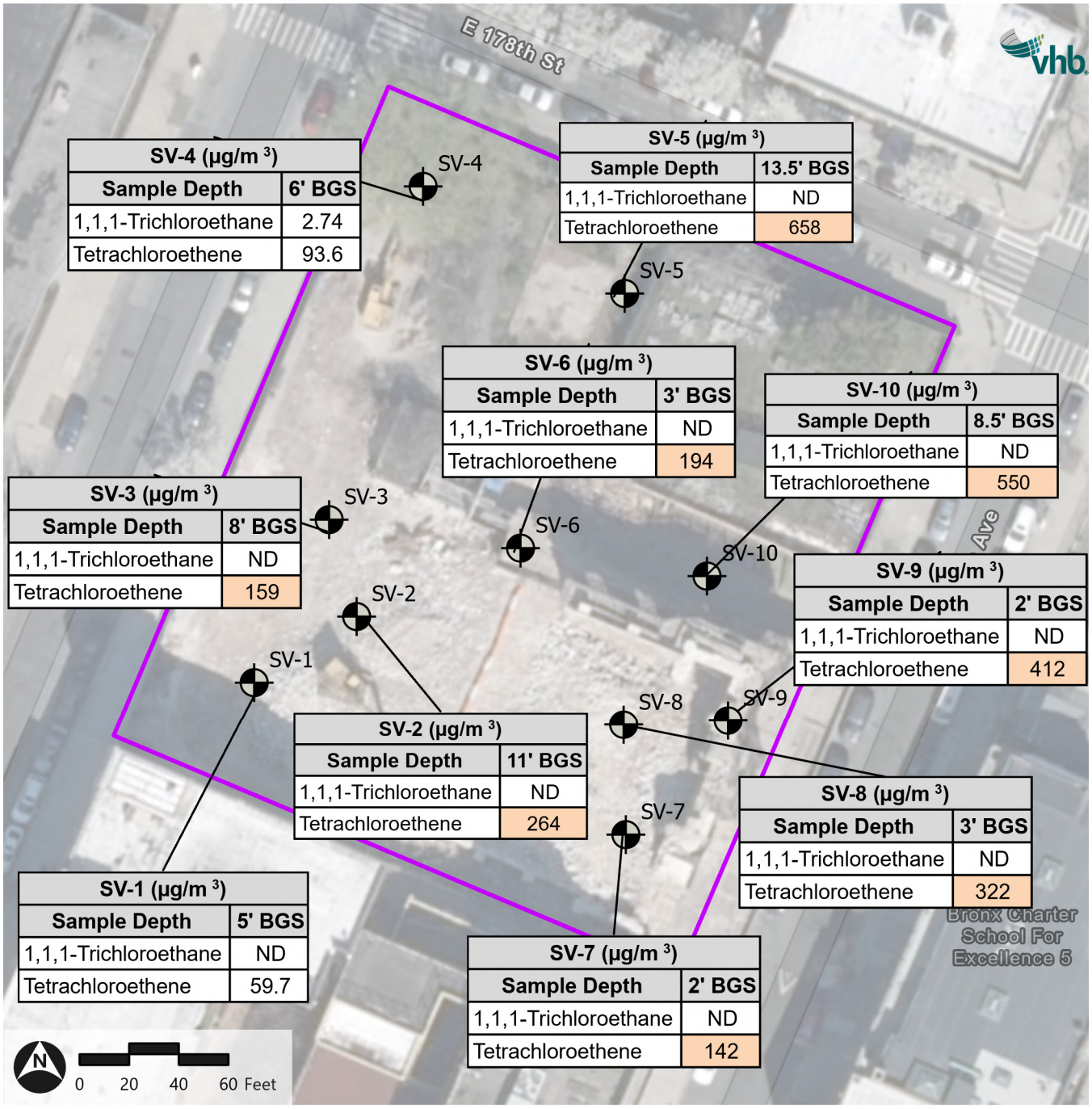
Figure 7: Map of Soil Vapor Chemistry Results

St. Joseph's Apartments | 484 East 178th Street, Bronx, New York



New York State Department of Health Soil Vapor/Indoor Air Matrices	
Volatile Organic Compound	**Guidance Value (µg/m3)**
1,1,1-Trichloroethane	100
Tetrachloroethene	100

Source: Esri Community Maps Contributors, NYC OpenData.

Note: Only compounds included in New York State Department of Health Soil Vapor/Indoor Air Matrices that were detected in at least one sample shown.

BGS = below ground surface

TABLES

Table 1
Soil Sample Analytical Results - VOCs
St. Joseph's Apartments
Phase II ESI

					Sample Location	SB-1 (0'-2')	SB-1 (5'-6.5')	SB-2 (0'-2')	SB-2 (10'-12')	SB-3 (0-2')
					Sample ID	L2316525-01	L2316525-02	L2316525-03	L2316525-04	L2316525-05
					Sample Date	3/29/2023	3/29/2023	3/29/2023	3/29/2023	3/29/2023
					Sample Matrix	SO	SO	SO	SO	SO
Analyte	CAS	Unrestricted Use SCO	Restricted Use SCO - Protection of Human Health - Residential	Restricted Use SCO - Protection of Human Health - Restricted Residential		Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)
VOCs by EPA 8260D										
Methylene chloride	75-09-2	0.05	51	100		ND	ND	ND	ND	ND
1,1-Dichloroethane	75-34-3	0.27	19	26		ND	ND	ND	ND	ND
Chloroform	67-66-3	0.37	10	49		ND	ND	ND	ND	ND
Carbon tetrachloride	56-23-5	0.76	1.4	2.4		ND	ND	ND	ND	ND
1,2-Dichloropropane	78-87-5					ND	ND	ND	ND	ND
Dibromochloromethane	124-48-1					ND	ND	ND	ND	ND
1,1,2-Trichloroethane	79-00-5					ND	ND	ND	ND	ND
Tetrachloroethene	127-18-4	1.3	5.5	19		ND	ND	ND	ND	ND
Chlorobenzene	108-90-7	1.1	100	100		ND	ND	ND	ND	ND
Trichlorofluoromethane	75-69-4					ND	ND	ND	ND	ND
1,2-Dichloroethane	107-06-2	0.02	2.3	3.1		ND	ND	ND	ND	ND
1,1,1-Trichloroethane	71-55-6	0.68	100	100		ND	ND	ND	ND	ND
Bromodichloromethane	75-27-4					ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	10061-02-6					ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	10061-01-5					ND	ND	ND	ND	ND
1,3-Dichloropropene, Total	542-75-6					ND	ND	ND	ND	ND
1,1-Dichloropropene	563-58-6					ND	ND	ND	ND	ND
Bromoform	75-25-2					ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	79-34-5					ND	ND	ND	ND	ND
Benzene	71-43-2	0.06	2.9	4.8		ND	ND	ND	ND	ND
Toluene	108-88-3	0.7	100	100		ND	ND	ND	ND	ND
Ethylbenzene	100-41-4	1	30	41		ND	ND	ND	ND	ND
Chloromethane	74-87-3					ND	ND	ND	ND	ND
Bromomethane	74-83-9					ND	ND	ND	ND	ND
Vinyl chloride	75-01-4	0.02	0.21	0.9		ND	ND	ND	ND	ND
Chloroethane	75-00-3					ND	ND	ND	ND	ND
1,1-Dichloroethene	75-35-4	0.33	100	100		ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	156-60-5	0.19	100	100		ND	ND	ND	ND	ND
Trichloroethene	79-01-6	0.47	10	21		ND	ND	ND	ND	ND
1,2-Dichlorobenzene	95-50-1	1.1	100	100		ND	ND	ND	ND	ND
1,3-Dichlorobenzene	541-73-1	2.4	17	49		ND	ND	ND	ND	ND
1,4-Dichlorobenzene	106-46-7	1.8	9.8	13		ND	ND	ND	ND	ND
Methyl tert butyl ether	1634-04-4	0.93	62	100		ND	ND	ND	ND	ND
p/m-Xylene	179601-23-1					ND	ND	ND	ND	ND
o-Xylene	95-47-6					ND	ND	ND	ND	ND
Xylenes, Total	1330-20-7	0.26	100	100		ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	156-59-2	0.25	59	100		ND	ND	ND	ND	ND
1,2-Dichloroethene, Total	540-59-0					ND	ND	ND	ND	ND
Dibromomethane	74-95-3					ND	ND	ND	ND	ND
Styrene	100-42-5					ND	ND	0.00042	ND	ND
Dichlorodifluoromethane	75-71-8					ND	ND	ND	ND	ND
Acetone	67-64-1	0.05	100	100		ND	ND	ND	ND	ND
Carbon disulfide	75-15-0					ND	ND	ND	ND	ND
2-Butanone	78-93-3	0.12	100	100		ND	ND	ND	ND	ND
Vinyl acetate	108-05-4					ND	ND	ND	ND	ND
4-Methyl-2-pentanone	108-10-1					ND	ND	ND	ND	ND
1,2,3-Trichloropropane	96-18-4					ND	ND	ND	ND	ND
2-Hexanone	591-78-6					ND	ND	ND	ND	ND
Bromochloromethane	74-97-5					ND	ND	ND	ND	ND
2,2-Dichloropropane	594-20-7					ND	ND	ND	ND	ND
1,2-Dibromoethane	106-93-4					ND	ND	ND	ND	ND
1,3-Dichloropropane	142-28-9					ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	630-20-6					ND	ND	ND	ND	ND
Bromobenzene	108-86-1					ND	ND	ND	ND	ND
n-Butylbenzene	104-51-8	12	100	100		ND	ND	ND	ND	ND
sec-Butylbenzene	135-98-8	11	100	100		ND	ND	ND	ND	ND
tert-Butylbenzene	98-06-6	5.9	100	100		ND	ND	ND	ND	ND
o-Chlorotoluene	95-49-8					ND	ND	ND	ND	ND
p-Chlorotoluene	106-43-4					ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	96-12-8					ND	ND	ND	ND	ND
Hexachlorobutadiene	87-68-3					ND	ND	ND	ND	ND
Isopropylbenzene	98-82-8					ND	ND	ND	ND	ND
p-Isopropyltoluene	99-87-6					ND	ND	ND	ND	ND
Naphthalene	91-20-3	12	100	100		ND	ND	ND	ND	ND
Acrylonitrile	107-13-1					ND	ND	ND	ND	ND
n-Propylbenzene	103-65-1	3.9	100	100		ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	87-61-6					ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	120-82-1					ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	108-67-8	8.4	47	52		ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	95-63-6	3.6	47	52		ND	ND	ND	ND	ND
1,4-Dioxane	123-91-1	0.1	9.8	13		ND	ND (RL>UUSCO)	ND	ND (RL>UUSCO)	ND (RL>UUSCO)
p-Diethylbenzene	105-05-5					ND	ND	ND	ND	ND
p-Ethyltoluene	622-96-8					ND	ND	ND	ND	ND
1,2,4,5-Tetramethylbenzene	95-93-2					ND	ND	ND	ND	ND
Ethyl ether	60-29-7					ND	ND	ND	ND	ND
trans-1,4-Dichloro-2-butene	110-57-6					ND	ND	ND	ND	ND
Total VOCs						-	-	0.00042	-	-

Screening Levels

Unrestricted Use Soil Cleanup Objective	Conc. Exceeds
Restricted Use Soil Cleanup Objective - Protection of Human Health - Residential	Conc. Exceeds
Restricted Use Soil Cleanup Objective - Protection of Human Health - Restricted Residential	Conc. Exceeds

Notes

1. ND < ## = compound not detected above the laboratory reporting limit (RL), limit provided.
2. NA = Compound not analyzed.
3. mg/kg = milligram per kilogram

Table 1
Soil Sample Analytical Results - VOCs
St. Joseph's Apartments
Phase II ESI

				Sample Location	SB-3 (6'-8')	SB-4 (0-2')	SB-4 (4-6')	SB-5 (0-2')	SB-5 (12-14')
				Sample ID	L2316525-06	L2316525-07	L2316525-08	L2316525-09	L2316525-10
				Sample Date	3/29/2023	3/29/2023	3/29/2023	3/29/2023	3/29/2023
				Sample Matrix	SO	SO	SO	SO	SO
Analyte	CAS	Unrestricted Use SCO	Restricted Use SCO - Protection of Human Health - Residential	Restricted Use SCO - Protection of Human Health - Restricted Residential	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)
VOCs by EPA 8260D									
Methylene chloride	75-09-2	0.05	51	100	ND	ND	ND	ND	ND
1,1-Dichloroethane	75-34-3	0.27	19	26	ND	ND	ND	ND	ND
Chloroform	67-66-3	0.37	10	49	ND	ND	ND	ND	ND
Carbon tetrachloride	56-23-5	0.76	1.4	2.4	ND	ND	ND	ND	ND
1,2-Dichloropropane	78-87-5				ND	ND	ND	ND	ND
Dibromochloromethane	124-48-1				ND	ND	ND	ND	ND
1,1,2-Trichloroethane	79-00-5				ND	ND	ND	ND	ND
Tetrachloroethene	127-18-4	1.3	5.5	19	ND	ND	ND	ND	ND
Chlorobenzene	108-90-7	1.1	100	100	ND	ND	ND	ND	ND
Trichlorofluoromethane	75-69-4				ND	ND	ND	ND	ND
1,2-Dichloroethane	107-06-2	0.02	2.3	3.1	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	71-55-6	0.68	100	100	ND	ND	ND	ND	ND
Bromodichloromethane	75-27-4				ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	10061-02-6				ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	10061-01-5				ND	ND	ND	ND	ND
1,3-Dichloropropene, Total	542-75-6				ND	ND	ND	ND	ND
1,1-Dichloropropene	563-58-6				ND	ND	ND	ND	ND
Bromoform	75-25-2				ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	79-34-5				ND	ND	ND	ND	ND
Benzene	71-43-2	0.06	2.9	4.8	ND	ND	ND	ND	ND
Toluene	108-88-3	0.7	100	100	ND	ND	ND	ND	ND
Ethylbenzene	100-41-4	1	30	41	ND	ND	ND	ND	ND
Chloromethane	74-87-3				ND	ND	ND	ND	ND
Bromomethane	74-83-9				ND	ND	ND	ND	ND
Vinyl chloride	75-01-4	0.02	0.21	0.9	ND	ND	ND	ND	ND
Chloroethane	75-00-3				ND	ND	ND	ND	ND
1,1-Dichloroethene	75-35-4	0.33	100	100	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	156-60-5	0.19	100	100	ND	ND	ND	ND	ND
Trichloroethene	79-01-6	0.47	10	21	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	95-50-1	1.1	100	100	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	541-73-1	2.4	17	49	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	106-46-7	1.8	9.8	13	ND	ND	ND	ND	ND
Methyl tert butyl ether	1634-04-4	0.93	62	100	ND	ND	ND	ND	ND
p/m-Xylene	179601-23-1				ND	ND	ND	ND	ND
o-Xylene	95-47-6				ND	ND	ND	ND	ND
Xylenes, Total	1330-20-7	0.26	100	100	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	156-59-2	0.25	59	100	ND	ND	ND	ND	ND
1,2-Dichloroethene, Total	540-59-0				ND	ND	ND	ND	ND
Dibromomethane	74-95-3				ND	ND	ND	ND	ND
Styrene	100-42-5				0.00053	ND	0.00068	ND	ND
Dichlorodifluoromethane	75-71-8				ND	ND	ND	ND	ND
Acetone	67-64-1	0.05	100	100	ND	ND	ND	ND	ND
Carbon disulfide	75-15-0				ND	ND	ND	ND	ND
2-Butanone	78-93-3	0.12	100	100	ND	ND	ND	ND	ND
Vinyl acetate	108-05-4				ND	ND	ND	ND	ND
4-Methyl-2-pentanone	108-10-1				ND	ND	ND	ND	ND
1,2,3-Trichloropropane	96-18-4				ND	ND	ND	ND	ND
2-Hexanone	591-78-6				ND	ND	ND	ND	ND
Bromochloromethane	74-97-5				ND	ND	ND	ND	ND
2,2-Dichloropropane	594-20-7				ND	ND	ND	ND	ND
1,2-Dibromoethane	106-93-4				ND	ND	ND	ND	ND
1,3-Dichloropropane	142-28-9				ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	630-20-6				ND	ND	ND	ND	ND
Bromobenzene	108-86-1				ND	ND	ND	ND	ND
n-Butylbenzene	104-51-8	12	100	100	ND	ND	ND	ND	ND
sec-Butylbenzene	135-98-8	11	100	100	ND	ND	ND	ND	ND
tert-Butylbenzene	98-06-6	5.9	100	100	ND	ND	ND	ND	ND
o-Chlorotoluene	95-49-8				ND	ND	ND	ND	ND
p-Chlorotoluene	106-43-4				ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	96-12-8				ND	ND	ND	ND	ND
Hexachlorobutadiene	87-68-3				ND	ND	ND	ND	ND
Isopropylbenzene	98-82-8				ND	ND	ND	ND	ND
p-Isopropyltoluene	99-87-6				ND	ND	ND	ND	ND
Naphthalene	91-20-3	12	100	100	ND	ND	ND	ND	ND
Acrylonitrile	107-13-1				ND	ND	ND	ND	ND
n-Propylbenzene	103-65-1	3.9	100	100	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	87-61-6				ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	120-82-1				ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	108-67-8	8.4	47	52	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	95-63-6	3.6	47	52	ND	ND	ND	ND	ND
1,4-Dioxane	123-91-1	0.1	9.8	13	ND (RL>UUSCO)	ND	ND (RL>UUSCO)	ND	ND (RL>UUSCO)
p-Diethylbenzene	105-05-5				ND	ND	ND	ND	ND
p-Ethyltoluene	622-96-8				ND	ND	ND	ND	ND
1,2,4,5-Tetramethylbenzene	95-93-2				ND	ND	ND	ND	ND
Ethyl ether	60-29-7				ND	ND	ND	ND	ND
trans-1,4-Dichloro-2-butene	110-57-6				ND	ND	ND	ND	ND
Total VOCs					0.00053	-	0.00068	-	-

Screening Levels

Unrestricted Use Soil Cleanup Objective	Conc. Exceeds
Restricted Use Soil Cleanup Objective - Protection of Human Health - Residential	Conc. Exceeds
Restricted Use Soil Cleanup Objective - Protection of Human Health - Restricted Residential	Conc. Exceeds

Notes

1. ND < ## = compound not detected above the laboratory reporting limit (RL), limit provided.
2. NA = Compound not analyzed.
3. mg/kg = milligram per kilogram

Table 1
Soil Sample Analytical Results - VOCs
St. Joseph's Apartments
Phase II ESI

				Sample Location	SB-6 (0-2')	SB-7 (0-2')	SB-8 (0-2')	SB-9 (0-2')	SB-10 (0-2')
				Sample ID	L2316525-16	L2316525-11	L2316525-17	L2316525-12	L2316525-13
				Sample Date	3/29/2023	3/29/2023	3/29/2023	3/29/2023	3/29/2023
				Sample Matrix	SO	SO	SO	SO	SO
Analyte	CAS	Unrestricted Use SCO	Restricted Use SCO - Protection of Human Health - Residential	Restricted Use SCO - Protection of Human Health - Restricted Residential	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)
VOCs by EPA 8260D									
Methylene chloride	75-09-2	0.05	51	100	ND	ND	ND	ND	ND
1,1-Dichloroethane	75-34-3	0.27	19	26	ND	ND	ND	ND	ND
Chloroform	67-66-3	0.37	10	49	ND	ND	ND	ND	ND
Carbon tetrachloride	56-23-5	0.76	1.4	2.4	ND	ND	ND	ND	ND
1,2-Dichloropropane	78-87-5				ND	ND	ND	ND	ND
Dibromochloromethane	124-48-1				ND	ND	ND	ND	ND
1,1,2-Trichloroethane	79-00-5				ND	ND	ND	ND	ND
Tetrachloroethene	127-18-4	1.3	5.5	19	ND	ND	ND	ND	ND
Chlorobenzene	108-90-7	1.1	100	100	ND	ND	ND	ND	ND
Trichlorofluoromethane	75-69-4				ND	ND	ND	ND	ND
1,2-Dichloroethane	107-06-2	0.02	2.3	3.1	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	71-55-6	0.68	100	100	ND	ND	ND	ND	ND
Bromodichloromethane	75-27-4				ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	10061-02-6				ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	10061-01-5				ND	ND	ND	ND	ND
1,3-Dichloropropene, Total	542-75-6				ND	ND	ND	ND	ND
1,1-Dichloropropene	563-58-6				ND	ND	ND	ND	ND
Bromoform	75-25-2				ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	79-34-5				ND	ND	ND	ND	ND
Benzene	71-43-2	0.06	2.9	4.8	ND	ND	ND	ND	ND
Toluene	108-88-3	0.7	100	100	ND	ND	ND	ND	ND
Ethylbenzene	100-41-4	1	30	41	ND	ND	ND	ND	ND
Chloromethane	74-87-3				ND	ND	ND	ND	ND
Bromomethane	74-83-9				ND	ND	ND	ND	ND
Vinyl chloride	75-01-4	0.02	0.21	0.9	ND	ND	ND	ND	ND
Chloroethane	75-00-3				ND	ND	ND	ND	ND
1,1-Dichloroethene	75-35-4	0.33	100	100	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	156-60-5	0.19	100	100	ND	ND	ND	ND	ND
Trichloroethene	79-01-6	0.47	10	21	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	95-50-1	1.1	100	100	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	541-73-1	2.4	17	49	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	106-46-7	1.8	9.8	13	ND	ND	ND	ND	ND
Methyl tert butyl ether	1634-04-4	0.93	62	100	ND	ND	ND	ND	ND
p/m-Xylene	179601-23-1				ND	ND	ND	ND	ND
o-Xylene	95-47-6				ND	ND	ND	ND	ND
Xylenes, Total	1330-20-7	0.26	100	100	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	156-59-2	0.25	59	100	ND	ND	ND	ND	ND
1,2-Dichloroethene, Total	540-59-0				ND	ND	ND	ND	ND
Dibromomethane	74-95-3				ND	ND	ND	ND	ND
Styrene	100-42-5				ND	0.00058	ND	ND	ND
Dichlorodifluoromethane	75-71-8				ND	ND	ND	ND	ND
Acetone	67-64-1	0.05	100	100	ND	ND	ND	ND	ND
Carbon disulfide	75-15-0				ND	ND	ND	ND	ND
2-Butanone	78-93-3	0.12	100	100	ND	ND	ND	ND	ND
Vinyl acetate	108-05-4				ND	ND	ND	ND	ND
4-Methyl-2-pentanone	108-10-1				ND	ND	ND	ND	ND
1,2,3-Trichloropropane	96-18-4				ND	ND	ND	ND	ND
2-Hexanone	591-78-6				ND	ND	ND	ND	ND
Bromochloromethane	74-97-5				ND	ND	ND	ND	ND
2,2-Dichloropropane	594-20-7				ND	ND	ND	ND	ND
1,2-Dibromoethane	106-93-4				ND	ND	ND	ND	ND
1,3-Dichloropropane	142-28-9				ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	630-20-6				ND	ND	ND	ND	ND
Bromobenzene	108-86-1				ND	ND	ND	ND	ND
n-Butylbenzene	104-51-8	12	100	100	ND	ND	ND	ND	ND
sec-Butylbenzene	135-98-8	11	100	100	ND	ND	ND	ND	ND
tert-Butylbenzene	98-06-6	5.9	100	100	ND	ND	ND	ND	ND
o-Chlorotoluene	95-49-8				ND	ND	ND	ND	ND
p-Chlorotoluene	106-43-4				ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	96-12-8				ND	ND	ND	ND	ND
Hexachlorobutadiene	87-68-3				ND	ND	ND	ND	ND
Isopropylbenzene	98-82-8				ND	ND	ND	ND	ND
p-Isopropyltoluene	99-87-6				ND	ND	ND	ND	ND
Naphthalene	91-20-3	12	100	100	ND	ND	ND	ND	ND
Acrylonitrile	107-13-1				ND	ND	ND	ND	ND
n-Propylbenzene	103-65-1	3.9	100	100	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	87-61-6				ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	120-82-1				ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	108-67-8	8.4	47	52	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	95-63-6	3.6	47	52	ND	ND	ND	ND	ND
1,4-Dioxane	123-91-1	0.1	9.8	13	ND (RL>UUSCO)	ND (RL>UUSCO)	ND (RL>UUSCO)	ND	ND (RL>UUSCO)
p-Diethylbenzene	105-05-5				ND	ND	ND	ND	ND
p-Ethyltoluene	622-96-8				ND	ND	ND	ND	ND
1,2,4,5-Tetramethylbenzene	95-93-2				ND	ND	ND	ND	ND
Ethyl ether	60-29-7				ND	ND	ND	ND	ND
trans-1,4-Dichloro-2-butene	110-57-6				ND	ND	ND	ND	ND
Total VOCs					-	0.00058	-	-	-

Screening Levels

Unrestricted Use Soil Cleanup Objective	Conc. Exceeds
Restricted Use Soil Cleanup Objective - Protection of Human Health - Residential	Conc. Exceeds
Restricted Use Soil Cleanup Objective - Protection of Human Health - Restricted Residential	Conc. Exceeds

Notes

1. ND < ## = compound not detected above the laboratory reporting limit (RL), limit provided.
2. NA = Compound not analyzed.
3. mg/kg = milligram per kilogram

Table 1
Soil Sample Analytical Results - VOCs
St. Joseph's Apartments
Phase II ESI

					Sample Location	SB-11 (0-2')	SB-11 (6.5'-8.5')
					Sample ID	L2316525-14	L2316525-15
					Sample Date	3/29/2023	3/29/2023
					Sample Matrix	SO	SO
Analyte	CAS	Unrestricted Use SCO	Restricted Use SCO - Protection of Human Health - Residential	Restricted Use SCO - Protection of Human Health - Restricted Residential		Result (mg/kg)	Result (mg/kg)
VOCs by EPA 8260D							
Methylene chloride	75-09-2	0.05	51	100		ND	ND
1,1-Dichloroethane	75-34-3	0.27	19	26		ND	ND
Chloroform	67-66-3	0.37	10	49		ND	ND
Carbon tetrachloride	56-23-5	0.76	1.4	2.4		ND	ND
1,2-Dichloropropane	78-87-5					ND	ND
Dibromochloromethane	124-48-1					ND	ND
1,1,2-Trichloroethane	79-00-5					ND	ND
Tetrachloroethene	127-18-4	1.3	5.5	19		ND	ND
Chlorobenzene	108-90-7	1.1	100	100		ND	ND
Trichlorofluoromethane	75-69-4					ND	ND
1,2-Dichloroethane	107-06-2	0.02	2.3	3.1		ND	ND
1,1,1-Trichloroethane	71-55-6	0.68	100	100		ND	ND
Bromodichloromethane	75-27-4					ND	ND
trans-1,3-Dichloropropene	10061-02-6					ND	ND
cis-1,3-Dichloropropene	10061-01-5					ND	ND
1,3-Dichloropropene, Total	542-75-6					ND	ND
1,1-Dichloropropene	563-58-6					ND	ND
Bromoform	75-25-2					ND	ND
1,1,2,2-Tetrachloroethane	79-34-5					ND	ND
Benzene	71-43-2	0.06	2.9	4.8		ND	ND
Toluene	108-88-3	0.7	100	100		ND	ND
Ethylbenzene	100-41-4	1	30	41		ND	ND
Chloromethane	74-87-3					ND	ND
Bromomethane	74-83-9					ND	ND
Vinyl chloride	75-01-4	0.02	0.21	0.9		ND	ND
Chloroethane	75-00-3					ND	ND
1,1-Dichloroethene	75-35-4	0.33	100	100		ND	ND
trans-1,2-Dichloroethene	156-60-5	0.19	100	100		ND	ND
Trichloroethene	79-01-6	0.47	10	21		ND	ND
1,2-Dichlorobenzene	95-50-1	1.1	100	100		ND	ND
1,3-Dichlorobenzene	541-73-1	2.4	17	49		ND	ND
1,4-Dichlorobenzene	106-46-7	1.8	9.8	13		ND	ND
Methyl tert butyl ether	1634-04-4	0.93	62	100		ND	ND
p/m-Xylene	179601-23-1					ND	ND
o-Xylene	95-47-6					ND	ND
Xylenes, Total	1330-20-7	0.26	100	100		ND	ND
cis-1,2-Dichloroethene	156-59-2	0.25	59	100		ND	ND
1,2-Dichloroethene, Total	540-59-0					ND	ND
Dibromomethane	74-95-3					ND	ND
Styrene	100-42-5					ND	ND
Dichlorodifluoromethane	75-71-8					ND	ND
Acetone	67-64-1	0.05	100	100		ND	ND
Carbon disulfide	75-15-0					ND	ND
2-Butanone	78-93-3	0.12	100	100		ND	ND
Vinyl acetate	108-05-4					ND	ND
4-Methyl-2-pentanone	108-10-1					ND	ND
1,2,3-Trichloropropane	96-18-4					ND	ND
2-Hexanone	591-78-6					ND	ND
Bromochloromethane	74-97-5					ND	ND
2,2-Dichloropropane	594-20-7					ND	ND
1,2-Dibromoethane	106-93-4					ND	ND
1,3-Dichloropropane	142-28-9					ND	ND
1,1,1,2-Tetrachloroethane	630-20-6					ND	ND
Bromobenzene	108-86-1					ND	ND
n-Butylbenzene	104-51-8	12	100	100		ND	ND
sec-Butylbenzene	135-98-8	11	100	100		ND	ND
tert-Butylbenzene	98-06-6	5.9	100	100		ND	ND
o-Chlorotoluene	95-49-8					ND	ND
p-Chlorotoluene	106-43-4					ND	ND
1,2-Dibromo-3-chloropropane	96-12-8					ND	ND
Hexachlorobutadiene	87-68-3					ND	ND
Isopropylbenzene	98-82-8					ND	ND
p-Isopropyltoluene	99-87-6					ND	ND
Naphthalene	91-20-3	12	100	100		ND	0.0028
Acrylonitrile	107-13-1					ND	ND
n-Propylbenzene	103-65-1	3.9	100	100		ND	ND
1,2,3-Trichlorobenzene	87-61-6					ND	ND
1,2,4-Trichlorobenzene	120-82-1					ND	ND
1,3,5-Trimethylbenzene	108-67-8	8.4	47	52		ND	ND
1,2,4-Trimethylbenzene	95-63-6	3.6	47	52		ND	ND
1,4-Dioxane	123-91-1	0.1	9.8	13		ND	ND (RL>UUSCO)
p-Diethylbenzene	105-05-5					ND	ND
p-Ethyltoluene	622-96-8					ND	ND
1,2,4,5-Tetramethylbenzene	95-93-2					ND	0.00093
Ethyl ether	60-29-7					ND	ND
trans-1,4-Dichloro-2-butene	110-57-6					ND	ND
Total VOCs						-	0.00373

Screening Levels

Unrestricted Use Soil Cleanup Objective	Conc. Exceeds
Restricted Use Soil Cleanup Objective - Protection of Human Health - Residential	Conc. Exceeds
Restricted Use Soil Cleanup Objective - Protection of Human Health - Restricted Residential	Conc. Exceeds

Notes

1. ND < ## = compound not detected above the laboratory reporting limit (RL), limit provided.
2. NA = Compound not analyzed.
3. mg/kg = milligram per kilogram

Table 1
Soil Sample Analytical Results - PFAAs
St. Joseph's Apartments
Phase II ESI

				Sample Location	SB-6 (0-2')
				Sample ID	L2316525-16
				Sample Date	3/29/2023
				Sample Matrix	SO
Analyte	CAS	Unrestricted Use SCO	Restricted Use SCO - Protection of Human Health - Residential	Restricted Use SCO - Protection of Human Health - Restricted Residential	Result (mg/kg)
PERFLUORINATED ALKYL ACIDS by EPA 1633					
Perfluorobutanoic Acid (PFBA)	375-22-4				ND
Perfluoropentanoic Acid (PFPeA)	2706-90-3				ND
Perfluorobutanesulfonic Acid (PFBS)	375-73-5				ND
Perfluorohexanoic Acid (PFHxA)	307-24-4				ND
Perfluoroheptanoic Acid (PFHpA)	375-85-9				ND
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4				ND
Perfluorooctanoic Acid (PFOA)	335-67-1				ND
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	27619-97-2				ND
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8				ND
Perfluorononanoic Acid (PFNA)	375-95-1				ND
Perfluorooctanesulfonic Acid (PFOS)	1763-23-1				0.000212
Perfluorodecanoic Acid (PFDA)	335-76-2				ND
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	39108-34-4				ND
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	2355-31-9				ND
Perfluoroundecanoic Acid (PFUnA)	2058-94-8				ND
Perfluorodecanesulfonic Acid (PFDS)	335-77-3				0.000055
Perfluorooctanesulfonamide (PFOSA)	754-91-6				ND
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	2991-50-6				ND
Perfluorododecanoic Acid (PFDoA)	307-55-1				ND
Perfluorotridecanoic Acid (PFTrDA)	72629-94-8				ND
Perfluorotetradecanoic Acid (PFTeDA)	376-06-7				ND
PFOA/PFOS, Total					0.000212

Screening Levels

Unrestricted Use Soil Cleanup Objective	Conc. Exceeds
Restricted Use Soil Cleanup Objective - Protection of Human Health - Residential	Conc. Exceeds
Restricted Use Soil Cleanup Objective - Protection of Human Health - Restricted Residential	Conc. Exceeds

Notes
1. ND < ## = compound not detected above the laboratory reporting limit (RL), limit provided.
2. NA = Compound not analyzed.
3. mg/kg = milligram per kilogram

Table 1
Soil Sample Analytical Results - SVOCs
St. Joseph's Apartments
Phase II ESI

				Sample Location	SB-1 (0'-2')	SB-1 (5'-6.5')	SB-2 (0'-2')	SB-2 (10'-12')	SB-3 (0-2')
				Sample ID	L2316525-01	L2316525-02	L2316525-03	L2316525-04	L2316525-05
				Sample Date	3/29/2023	3/29/2023	3/29/2023	3/29/2023	3/29/2023
				Sample Matrix	SO	SO	SO	SO	SO
Analyte	CAS	Unrestricted Use SCO	Restricted Use SCO - Protection of Human Health - Residential	Restricted Use SCO - Protection of Human Health - Restricted Residential	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)
SVOCs by EPA 8270E									
Acenaphthene	83-32-9	20	100	100	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	120-82-1				ND	ND	ND	ND	ND
Hexachlorobenzene	118-74-1	0.33	0.33	1.2	ND	ND	ND	ND	ND
Bis(2-chloroethyl)ether	111-44-4				ND	ND	ND	ND	ND
2-Chloronaphthalene	91-58-7				ND	ND	ND	ND	ND
1,2-Dichlorobenzene	95-50-1	1.1	100	100	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	541-73-1	2.4	17	49	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	106-46-7	1.8	9.8	13	ND	ND	ND	ND	ND
3,3'-Dichlorobenzidine	91-94-1				ND	ND	ND	ND	ND
2,4-Dinitrotoluene	121-14-2				ND	ND	ND	ND	ND
2,6-Dinitrotoluene	606-20-2				ND	ND	ND	ND	ND
Fluoranthene	206-44-0	100	100	100	0.089	0.057	0.034	0.037	ND
4-Chlorophenyl phenyl ether	7005-72-3				ND	ND	ND	ND	ND
4-Bromophenyl phenyl ether	101-55-3				ND	ND	ND	ND	ND
Bis(2-chloroisopropyl)ether	108-60-1				ND	ND	ND	ND	ND
Bis(2-chloroethoxy)methane	111-91-1				ND	ND	ND	ND	ND
Hexachlorobutadiene	87-68-3				ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	77-47-4				ND	ND	ND	ND	ND
Hexachloroethane	67-72-1				ND	ND	ND	ND	ND
Isophorone	78-59-1				ND	ND	ND	ND	ND
Naphthalene	91-20-3	12	100	100	ND	ND	ND	ND	ND
Nitrobenzene	98-95-3				ND	ND	ND	ND	ND
NDPA/DPA	86-30-6				ND	ND	ND	ND	ND
n-Nitrosodi-n-propylamine	621-64-7				ND	ND	ND	ND	ND
Bis(2-ethylhexyl)phthalate	117-81-7				0.15	ND	ND	ND	ND
Butyl benzyl phthalate	85-68-7				0.085	ND	ND	ND	ND
Di-n-butylphthalate	84-74-2				ND	ND	ND	ND	ND
Di-n-octylphthalate	117-84-0				ND	ND	ND	ND	ND
Diethyl phthalate	84-66-2				ND	ND	ND	ND	ND
Dimethyl phthalate	131-11-3				ND	ND	ND	ND	ND
Benzo(a)anthracene	56-55-3	1	1	1	0.04	0.034	0.027	ND	ND
Benzo(a)pyrene	50-32-8	1	1	1	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	205-99-2	1	1	1	0.056	0.036	0.031	ND	ND
Benzo(k)fluoranthene	207-08-9	0.8	1	3.9	ND	ND	ND	ND	ND
Chrysene	218-01-9	1	1	3.9	0.038	0.03	0.022	ND	ND
Acenaphthylene	208-96-8	100	100	100	ND	ND	ND	ND	ND
Anthracene	120-12-7	100	100	100	ND	ND	ND	ND	ND
Benzo(ghi)perylene	191-24-2	100	100	100	0.026	ND	0.024	ND	ND
Fluorene	86-73-7	30	100	100	ND	ND	ND	ND	ND
Phenanthrene	85-01-8	100	100	100	0.062	0.028	ND	0.029	ND
Dibenzo(a,h)anthracene	53-70-3	0.33	0.33	0.33	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	0.5	0.5	0.028	ND	ND	ND	ND
Pyrene	129-00-0	100	100	100	0.077	0.048	0.033	0.035	ND
Biphenyl	92-52-4				ND	ND	ND	ND	ND
4-Chloroaniline	106-47-8				ND	ND	ND	ND	ND
2-Nitroaniline	88-74-4				ND	ND	ND	ND	ND
3-Nitroaniline	99-09-2				ND	ND	ND	ND	ND
4-Nitroaniline	100-01-6				ND	ND	ND	ND	ND
Dibenzofuran	132-64-9	7	14	59	ND	ND	ND	ND	ND
2-Methylnaphthalene	91-57-6				ND	ND	ND	ND	ND
1,2,4,5-Tetrachlorobenzene	95-94-3				ND	ND	ND	ND	ND
Acetophenone	98-86-2				ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	88-06-2				ND	ND	ND	ND	ND
p-Chloro-m-cresol	59-50-7				ND	ND	ND	ND	ND
2-Chlorophenol	95-57-8				ND	ND	ND	ND	ND
2,4-Dichlorophenol	120-83-2				ND	ND	ND	ND	ND
2,4-Dimethylphenol	105-67-9				ND	ND	ND	ND	ND
2-Nitrophenol	88-75-5				ND	ND	ND	ND	ND
4-Nitrophenol	100-02-7				ND	ND	ND	ND	ND
2,4-Dinitrophenol	51-28-5				ND	ND	ND	ND	ND
4,6-Dinitro-o-cresol	534-52-1				ND	ND	ND	ND	ND
Pentachlorophenol	87-86-5	0.8	2.4	6.7	ND	ND	ND	ND	ND
Phenol	108-95-2	0.33	100	100	ND	ND	ND	ND	ND
2-Methylphenol	95-48-7	0.33	100	100	ND	ND	ND	ND	ND
3-Methylphenol/4-Methylphenol	108-39-4/106-44-5	0.33	34	100	ND	ND	ND	ND	ND
2,4,5-Trichlorophenol	95-95-4				ND	ND	ND	ND	ND
Benzoic Acid	65-85-0				ND	ND	ND	ND	ND
Benzyl Alcohol	100-51-6				ND	ND	ND	ND	ND
Carbazole	86-74-8				ND	ND	ND	ND	ND
1,4-Dioxane	123-91-1	0.1	9.8	13	ND	ND	ND	ND	ND
Total SVOCs					0.651	0.233	0.171	0.101	-

Screening Levels

Unrestricted Use Soil Cleanup Objective	Conc. Exceeds
Restricted Use Soil Cleanup Objective - Protection of Human Health - Residential	Conc. Exceeds
Restricted Use Soil Cleanup Objective - Protection of Human Health - Restricted Residential	Conc. Exceeds

Notes

1. ND < ## = compound not detected above the laboratory reporting limit (RL), limit provided.
2. NA = Compound not analyzed.
3. mg/kg = milligram per kilogram

Table 1
Soil Sample Analytical Results - SVOCs
St. Joseph's Apartments
Phase II ESI

				Sample Location	SB-3 (6'-8')	SB-4 (0-2')	SB-4 (4-6')	SB-5 (0-2')	SB-5 (12-14')
				Sample ID	L2316525-06	L2316525-07	L2316525-08	L2316525-09	L2316525-10
				Sample Date	3/29/2023	3/29/2023	3/29/2023	3/29/2023	3/29/2023
				Sample Matrix	SO	SO	SO	SO	SO
Analyte	CAS	Unrestricted Use SCO	Restricted Use SCO - Protection of Human Health - Residential	Restricted Use SCO - Protection of Human Health - Restricted Residential	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)
SVOCs by EPA 8270E									
Acenaphthene	83-32-9	20	100	100	ND	ND	0.027	0.13	0.024
1,2,4-Trichlorobenzene	120-82-1				ND	ND	ND	ND	ND
Hexachlorobenzene	118-74-1	0.33	0.33	1.2	ND	ND	ND	ND	ND
Bis(2-chloroethyl)ether	111-44-4				ND	ND	ND	ND	ND
2-Chloronaphthalene	91-58-7				ND	ND	ND	ND	ND
1,2-Dichlorobenzene	95-50-1	1.1	100	100	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	541-73-1	2.4	17	49	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	106-46-7	1.8	9.8	13	ND	ND	ND	ND	ND
3,3'-Dichlorobenzidine	91-94-1				ND	ND	ND	ND	ND
2,4-Dinitrotoluene	121-14-2				ND	ND	ND	ND	ND
2,6-Dinitrotoluene	606-20-2				ND	ND	ND	ND	ND
Fluoranthene	206-44-0	100	100	100	0.034	2.3	4.5	2.2	1.3
4-Chlorophenyl phenyl ether	7005-72-3				ND	ND	ND	ND	ND
4-Bromophenyl phenyl ether	101-55-3				ND	ND	ND	ND	ND
Bis(2-chloroisopropyl)ether	108-60-1				ND	ND	ND	ND	ND
Bis(2-chloroethoxy)methane	111-91-1				ND	ND	ND	ND	ND
Hexachlorobutadiene	87-68-3				ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	77-47-4				ND	ND	ND	ND	ND
Hexachloroethane	67-72-1				ND	ND	ND	ND	ND
Isophorone	78-59-1				ND	ND	ND	ND	ND
Naphthalene	91-20-3	12	100	100	ND	0.13	0.31	0.14	0.054
Nitrobenzene	98-95-3				ND	ND	ND	ND	ND
NDPA/DPA	86-30-6				ND	ND	ND	ND	ND
n-Nitrosodi-n-propylamine	621-64-7				ND	ND	ND	ND	ND
Bis(2-ethylhexyl)phthalate	117-81-7				ND	ND	0.52	ND	0.088
Butyl benzyl phthalate	85-68-7				ND	ND	4.8	ND	ND
Di-n-butylphthalate	84-74-2				ND	ND	ND	ND	0.034
Di-n-octylphthalate	117-84-0				ND	ND	ND	ND	ND
Diethyl phthalate	84-66-2				ND	ND	ND	ND	ND
Dimethyl phthalate	131-11-3				ND	ND	ND	ND	ND
Benzo(a)anthracene	56-55-3	1	1	1	0.022	1.5	3.4	1.5	0.7
Benzo(a)pyrene	50-32-8	1	1	1	ND	1.7	3.1	1.8	0.84
Benzo(b)fluoranthene	205-99-2	1	1	1	0.034	2.1	3.7	2.2	0.96
Benzo(k)fluoranthene	207-08-9	0.8	1	3.9	ND	0.56	1.4	0.67	0.33
Chrysene	218-01-9	1	1	3.9	0.019	1.4	3	1.4	0.69
Acenaphthylene	208-96-8	100	100	100	ND	0.77	0.71	1.1	0.45
Anthracene	120-12-7	100	100	100	ND	0.51	0.69	0.58	0.31
Benzo(ghi)perylene	191-24-2	100	100	100	ND	1.3	1.9	1.5	0.88
Fluorene	86-73-7	30	100	100	ND	ND	0.051	0.19	0.044
Phenanthrene	85-01-8	100	100	100	ND	0.83	0.8	1.2	0.82
Dibenzo(a,h)anthracene	53-70-3	0.33	0.33	0.33	ND	0.24	0.62	0.27	0.16
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	0.5	0.5	ND	1.1	1.8	1.2	0.73
Pyrene	129-00-0	100	100	100	0.031	2.2	4	2.1	1.1
Biphenyl	92-52-4				ND	ND	ND	ND	ND
4-Chloroaniline	106-47-8				ND	ND	ND	ND	ND
2-Nitroaniline	88-74-4				ND	ND	ND	ND	ND
3-Nitroaniline	99-09-2				ND	ND	ND	ND	ND
4-Nitroaniline	100-01-6				ND	ND	ND	ND	ND
Dibenzofuran	132-64-9	7	14	59	ND	ND	0.064	ND	0.046
2-Methylnaphthalene	91-57-6				ND	ND	0.09	ND	ND
1,2,4,5-Tetrachlorobenzene	95-94-3				ND	ND	ND	ND	ND
Acetophenone	98-86-2				ND	ND	0.058	ND	ND
2,4,6-Trichlorophenol	88-06-2				ND	ND	ND	ND	ND
p-Chloro-m-cresol	59-50-7				ND	ND	ND	ND	ND
2-Chlorophenol	95-57-8				ND	ND	ND	ND	ND
2,4-Dichlorophenol	120-83-2				ND	ND	ND	ND	ND
2,4-Dimethylphenol	105-67-9				ND	ND	ND	ND	ND
2-Nitrophenol	88-75-5				ND	ND	ND	ND	ND
4-Nitrophenol	100-02-7				ND	ND	ND	ND	ND
2,4-Dinitrophenol	51-28-5				ND	ND	ND	ND	ND
4,6-Dinitro-o-cresol	534-52-1				ND	ND	ND	ND	ND
Pentachlorophenol	87-86-5	0.8	2.4	6.7	ND	ND	0.21	ND	ND
Phenol	108-95-2	0.33	100	100	ND	ND (RL > UUSCO)	0.044	ND (RL > UUSCO)	ND
2-Methylphenol	95-48-7	0.33	100	100	ND	ND (RL > UUSCO)	ND	ND (RL > UUSCO)	ND
3-Methylphenol/4-Methylphenol	108-39-4/106-44-5	0.33	34	100	ND	ND (RL > UUSCO)	0.05	ND (RL > UUSCO)	0.036
2,4,5-Trichlorophenol	95-95-4				ND	ND	ND	ND	ND
Benzoic Acid	65-85-0				ND	ND	0.43	ND	ND
Benzyl Alcohol	100-51-6				ND	ND	ND	ND	ND
Carbazole	86-74-8				ND	0.12	0.16	0.17	0.15
1,4-Dioxane	123-91-1	0.1	9.8	13	ND	ND (RL > UUSCO)	ND	ND (RL > UUSCO)	ND
Total SVOCs					0.14	16.76	36.434	18.35	9.746

Screening Levels

Unrestricted Use Soil Cleanup Objective	Conc. Exceeds
Restricted Use Soil Cleanup Objective - Protection of Human Health - Residential	Conc. Exceeds
Restricted Use Soil Cleanup Objective - Protection of Human Health - Restricted Residential	Conc. Exceeds

Notes

1. ND < ## = compound not detected above the laboratory reporting limit (RL), limit provided.
2. NA = Compound not analyzed.
3. mg/kg = milligram per kilogram

Table 1
Soil Sample Analytical Results - SVOCs
St. Joseph's Apartments
Phase II ESI

					Sample Location	SB-6 (0-2')	SB-7 (0-2')	SB-8 (0-2')	SB-9 (0-2')	SB-10 (0-2')
					Sample ID	L2316525-16	L2316525-11	L2316525-17	L2316525-12	L2316525-13
					Sample Date	3/29/2023	3/29/2023	3/29/2023	3/29/2023	3/29/2023
					Sample Matrix	SO	SO	SO	SO	SO
Analyte	CAS	Unrestricted Use SCO	Restricted Use SCO - Protection of Human Health - Residential	Restricted Use SCO - Protection of Human Health - Restricted Residential	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)
SVOCs by EPA 8270E									
Acenaphthene	83-32-9	20	100	100	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	120-82-1				ND	ND	ND	ND	ND
Hexachlorobenzene	118-74-1	0.33	0.33	1.2	ND	ND	ND	ND	ND
Bis(2-chloroethyl)ether	111-44-4				ND	ND	ND	ND	ND
2-Chloronaphthalene	91-58-7				ND	ND	ND	ND	ND
1,2-Dichlorobenzene	95-50-1	1.1	100	100	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	541-73-1	2.4	17	49	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	106-46-7	1.8	9.8	13	ND	ND	ND	ND	ND
3,3'-Dichlorobenzidine	91-94-1				ND	ND	ND	ND	ND
2,4-Dinitrotoluene	121-14-2				ND	ND	ND	ND	ND
2,6-Dinitrotoluene	606-20-2				ND	ND	ND	ND	ND
Fluoranthene	206-44-0	100	100	100	ND	0.042	ND	0.032	0.034
4-Chlorophenyl phenyl ether	7005-72-3				ND	ND	ND	ND	ND
4-Bromophenyl phenyl ether	101-55-3				ND	ND	ND	ND	ND
Bis(2-chloroisopropyl)ether	108-60-1				ND	ND	ND	ND	ND
Bis(2-chloroethoxy)methane	111-91-1				ND	ND	ND	ND	ND
Hexachlorobutadiene	87-68-3				ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	77-47-4				ND	ND	ND	ND	ND
Hexachloroethane	67-72-1				ND	ND	ND	ND	ND
Isophorone	78-59-1				ND	ND	ND	ND	ND
Naphthalene	91-20-3	12	100	100	ND	ND	ND	ND	ND
Nitrobenzene	98-95-3				ND	ND	ND	ND	ND
NDPA/DPA	86-30-6				ND	ND	ND	ND	ND
n-Nitrosodi-n-propylamine	621-64-7				ND	ND	ND	ND	ND
Bis(2-ethylhexyl)phthalate	117-81-7				ND	ND	ND	ND	ND
Butyl benzyl phthalate	85-68-7				ND	ND	ND	ND	ND
Di-n-butylphthalate	84-74-2				ND	ND	ND	ND	ND
Di-n-octylphthalate	117-84-0				ND	ND	ND	ND	ND
Diethyl phthalate	84-66-2				ND	ND	ND	ND	ND
Dimethyl phthalate	131-11-3				ND	ND	ND	ND	ND
Benzo(a)anthracene	56-55-3	1	1	1	ND	0.025	ND	0.021	ND
Benzo(a)pyrene	50-32-8	1	1	1	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	205-99-2	1	1	1	ND	0.034	ND	ND	ND
Benzo(k)fluoranthene	207-08-9	0.8	1	3.9	ND	ND	ND	ND	ND
Chrysene	218-01-9	1	1	3.9	ND	0.023	ND	0.02	ND
Acenaphthylene	208-96-8	100	100	100	ND	0.028	ND	ND	ND
Anthracene	120-12-7	100	100	100	ND	ND	ND	ND	ND
Benzo(ghi)perylene	191-24-2	100	100	100	ND	ND	ND	ND	ND
Fluorene	86-73-7	30	100	100	ND	ND	ND	ND	ND
Phenanthrene	85-01-8	100	100	100	ND	0.031	ND	ND	ND
Dibenzo(a,h)anthracene	53-70-3	0.33	0.33	0.33	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	0.5	0.5	ND	ND	ND	ND	ND
Pyrene	129-00-0	100	100	100	ND	0.038	ND	0.029	0.035
Biphenyl	92-52-4				ND	ND	ND	ND	ND
4-Chloroaniline	106-47-8				ND	ND	ND	ND	ND
2-Nitroaniline	88-74-4				ND	ND	ND	ND	ND
3-Nitroaniline	99-09-2				ND	ND	ND	ND	ND
4-Nitroaniline	100-01-6				ND	ND	ND	ND	ND
Dibenzofuran	132-64-9	7	14	59	ND	ND	ND	ND	ND
2-Methylnaphthalene	91-57-6				ND	ND	ND	ND	ND
1,2,4,5-Tetrachlorobenzene	95-94-3				ND	ND	ND	ND	ND
Acetophenone	98-86-2				ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	88-06-2				ND	ND	ND	ND	ND
p-Chloro-m-cresol	59-50-7				ND	ND	ND	ND	ND
2-Chlorophenol	95-57-8				ND	ND	ND	ND	ND
2,4-Dichlorophenol	120-83-2				ND	ND	ND	ND	ND
2,4-Dimethylphenol	105-67-9				ND	ND	ND	ND	ND
2-Nitrophenol	88-75-5				ND	ND	ND	ND	ND
4-Nitrophenol	100-02-7				ND	ND	ND	ND	ND
2,4-Dinitrophenol	51-28-5				ND	ND	ND	ND	ND
4,6-Dinitro-o-cresol	534-52-1				ND	ND	ND	ND	ND
Pentachlorophenol	87-86-5	0.8	2.4	6.7	ND	ND	ND	ND	ND
Phenol	108-95-2	0.33	100	100	ND	ND	ND	ND	ND
2-Methylphenol	95-48-7	0.33	100	100	ND	ND	ND	ND	ND
3-Methylphenol/4-Methylphenol	108-39-4/106-44-5	0.33	34	100	ND	ND	ND	ND	ND
2,4,5-Trichlorophenol	95-95-4				ND	ND	ND	ND	ND
Benzoic Acid	65-85-0				ND	ND	ND	ND	ND
Benzyl Alcohol	100-51-6				ND	ND	ND	ND	ND
Carbazole	86-74-8				ND	ND	ND	ND	ND
1,4-Dioxane	123-91-1	0.1	9.8	13	ND	ND	ND	ND	ND
Total SVOCs					-	0.221	-	0.102	0.069

Screening Levels

Unrestricted Use Soil Cleanup Objective	Conc. Exceeds
Restricted Use Soil Cleanup Objective - Protection of Human Health - Residential	Conc. Exceeds
Restricted Use Soil Cleanup Objective - Protection of Human Health - Restricted Residential	Conc. Exceeds

Notes

1. ND < ## = compound not detected above the laboratory reporting limit (RL), limit provided.
2. NA = Compound not analyzed.
3. mg/kg = milligram per kilogram

Table 1
Soil Sample Analytical Results - SVOCs
St. Joseph's Apartments
Phase II ESI

					Sample Location	SB-11 (0-2')	SB-11 (6.5'-8.5')
					Sample ID	L2316525-14	L2316525-15
					Sample Date	3/29/2023	3/29/2023
					Sample Matrix	SO	SO
Analyte	CAS	Unrestricted Use SCO	Restricted Use SCO - Protection of Human Health - Residential	Restricted Use SCO - Protection of Human Health - Restricted Residential		Result (mg/kg)	Result (mg/kg)
SVOCs by EPA 8270E							
Acenaphthene	83-32-9	20	100	100		ND	0.13
1,2,4-Trichlorobenzene	120-82-1					ND	ND
Hexachlorobenzene	118-74-1	0.33	0.33	1.2		ND	ND
Bis(2-chloroethyl)ether	111-44-4					ND	ND
2-Chloronaphthalene	91-58-7					ND	ND
1,2-Dichlorobenzene	95-50-1	1.1	100	100		ND	ND
1,3-Dichlorobenzene	541-73-1	2.4	17	49		ND	ND
1,4-Dichlorobenzene	106-46-7	1.8	9.8	13		ND	ND
3,3'-Dichlorobenzidine	91-94-1					ND	ND
2,4-Dinitrotoluene	121-14-2					ND	ND
2,6-Dinitrotoluene	606-20-2					ND	ND
Fluoranthene	206-44-0	100	100	100		0.032	0.14
4-Chlorophenyl phenyl ether	7005-72-3					ND	ND
4-Bromophenyl phenyl ether	101-55-3					ND	ND
Bis(2-chloroisopropyl)ether	108-60-1					ND	ND
Bis(2-chloroethoxy)methane	111-91-1					ND	ND
Hexachlorobutadiene	87-68-3					ND	ND
Hexachlorocyclopentadiene	77-47-4					ND	ND
Hexachloroethane	67-72-1					ND	ND
Isophorone	78-59-1					ND	ND
Naphthalene	91-20-3	12	100	100		0.038	0.061
Nitrobenzene	98-95-3					ND	ND
NDPA/DPA	86-30-6					ND	ND
n-Nitrosodi-n-propylamine	621-64-7					ND	ND
Bis(2-ethylhexyl)phthalate	117-81-7					0.074	0.2
Butyl benzyl phthalate	85-68-7					ND	ND
Di-n-butylphthalate	84-74-2					ND	ND
Di-n-octylphthalate	117-84-0					ND	ND
Diethyl phthalate	84-66-2					ND	ND
Dimethyl phthalate	131-11-3					ND	ND
Benzo(a)anthracene	56-55-3	1	1	1		0.024	0.055
Benzo(a)pyrene	50-32-8	1	1	1		ND	0.054
Benzo(b)fluoranthene	205-99-2	1	1	1		0.033	0.082
Benzo(k)fluoranthene	207-08-9	0.8	1	3.9		ND	0.06
Chrysene	218-01-9	1	1	3.9		0.029	0.1
Acenaphthylene	208-96-8	100	100	100		ND	0.095
Anthracene	120-12-7	100	100	100		ND	0.11
Benzo(ghi)perylene	191-24-2	100	100	100		0.023	0.11
Fluorene	86-73-7	30	100	100		ND	0.18
Phenanthrene	85-01-8	100	100	100		0.024	0.91
Dibenzo(a,h)anthracene	53-70-3	0.33	0.33	0.33		ND	ND
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	0.5	0.5		ND	0.087
Pyrene	129-00-0	100	100	100		0.056	0.4
Biphenyl	92-52-4					ND	0.059
4-Chloroaniline	106-47-8					ND	ND
2-Nitroaniline	88-74-4					ND	ND
3-Nitroaniline	99-09-2					ND	ND
4-Nitroaniline	100-01-6					ND	ND
Dibenzofuran	132-64-9	7	14	59		ND	0.096
2-Methylnaphthalene	91-57-6					0.022	0.75
1,2,4,5-Tetrachlorobenzene	95-94-3					ND	ND
Acetophenone	98-86-2					ND	ND
2,4,6-Trichlorophenol	88-06-2					ND	ND
p-Chloro-m-cresol	59-50-7					ND	ND
2-Chlorophenol	95-57-8					ND	ND
2,4-Dichlorophenol	120-83-2					ND	ND
2,4-Dimethylphenol	105-67-9					ND	ND
2-Nitrophenol	88-75-5					ND	ND
4-Nitrophenol	100-02-7					ND	ND
2,4-Dinitrophenol	51-28-5					ND	ND
4,6-Dinitro-o-cresol	534-52-1					ND	ND
Pentachlorophenol	87-86-5	0.8	2.4	6.7		ND	ND
Phenol	108-95-2	0.33	100	100		ND	ND
2-Methylphenol	95-48-7	0.33	100	100		ND	ND
3-Methylphenol/4-Methylphenol	108-39-4/106-44-5	0.33	34	100		ND	ND
2,4,5-Trichlorophenol	95-95-4					ND	ND
Benzoic Acid	65-85-0					ND	ND
Benzyl Alcohol	100-51-6					ND	ND
Carbazole	86-74-8					ND	ND
1,4-Dioxane	123-91-1	0.1	9.8	13		ND	ND
Total SVOCs						0.355	3.679

Screening Levels

Unrestricted Use Soil Cleanup Objective	Conc. Exceeds
Restricted Use Soil Cleanup Objective - Protection of Human Health - Residential	Conc. Exceeds
Restricted Use Soil Cleanup Objective - Protection of Human Health - Restricted Residential	Conc. Exceeds

Notes

1. ND < ## = compound not detected above the laboratory reporting limit (RL), limit provided.
2. NA = Compound not analyzed.
3. mg/kg = milligram per kilogram

Table 1
Soil Sample Analytical Results - Pesticides
St. Joseph's Apartments
Phase II ESI

				Sample Location	SB-1 (0'-2')	SB-1 (5'-6.5')	SB-2 (0'-2')	SB-2 (10'-12')	SB-3 (0-2')	SB-3 (6'-8')	SB-4 (0-2')	SB-4 (4-6')	SB-5 (0-2')	SB-5 (12-14')	SB-6 (0-2')
				Sample ID	L2316525-01	L2316525-02	L2316525-03	L2316525-04	L2316525-05	L2316525-06	L2316525-07	L2316525-08	L2316525-09	L2316525-10	L2316525-16
				Sample Date	3/29/2023	3/29/2023	3/29/2023	3/29/2023	3/29/2023	3/29/2023	3/29/2023	3/29/2023	3/29/2023	3/29/2023	3/29/2023
				Sample Matrix	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
Analyte	CAS	Unrestricted Use SCO	Restricted Use SCO - Protection of Human Health - Residential	Restricted Use SCO - Protection of Human Health - Restricted Residential	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)
Pesticides by EPA 8081B															
Delta-BHC	319-86-8	0.04	100	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lindane	58-89-9	0.1	0.28	1.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Alpha-BHC	319-84-6	0.02	0.097	0.48	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Beta-BHC	319-85-7	0.036	0.072	0.36	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor	76-44-8	0.042	0.42	2.1	ND	0.00202	ND	ND	ND	ND	ND	0.00175	ND	0.000456	ND
Aldrin	309-00-2	0.005	0.019	0.097	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	1024-57-3				ND	ND	ND	ND	ND	ND	ND	0.00468	ND	0.00119	ND
Endrin	72-20-8	0.014	2.2	11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin aldehyde	7421-93-4				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin ketone	53494-70-5				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	60-57-1	0.005	0.039	0.2	ND	ND	ND	ND	ND	ND	ND	0.0582	0.00412	0.069	ND
4,4'-DDE	72-55-9	0.0033	1.8	8.9	ND	0.00123	ND	ND	ND	ND	ND	0.181	0.00716	0.034	ND
4,4'-DDD	72-54-8	0.0033	2.6	13	ND	ND	ND	ND	ND	ND	0.00657	0.0268	0.00103	0.00439	ND
4,4'-DDT	50-29-3	0.0033	1.7	7.9	0.00593	0.0118	0.00269	ND	ND	0.00257	0.0768	0.806	0.0217	0.126	ND
Endosulfan I	959-98-8	2.4	4.8	24	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan II	33213-65-9	2.4	4.8	24	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan sulfate	1031-07-8	2.4	4.8	24	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methoxychlor	72-43-5				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toxaphene	8001-35-2				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-Chlordane	5103-71-9	0.094	0.91	4.2	0.000775	0.0176	ND	0.000656	ND	ND	0.0176	0.024	0.00263	0.0135	0.00198
trans-Chlordane	5103-74-2				0.00273	0.0187	0.000632	ND	ND	0.00105	0.0184	0.0341	0.00218	0.0202	0.00182
Chlordane	57-74-9				0.0192	0.117	ND	ND	ND	ND	ND	0.157	0.0166	0.0746	ND

Screening Levels

Unrestricted Use Soil Cleanup Objective	Conc. Exceeds
Restricted Use Soil Cleanup Objective - Protection of Human Health - Residential	Conc. Exceeds
Restricted Use Soil Cleanup Objective - Protection of Human Health - Restricted Residential	Conc. Exceeds

Notes

1. ND < ## = compound not detected above the laboratory reporting limit (RL), limit provided.
2. NA = Compound not analyzed.
3. mg/kg = milligram per kilogram

Table 1
Soil Sample Analytical Results - Pesticides
St. Joseph's Apartments
Phase II ESI

				Sample Location	SB-7 (0-2')	SB-8 (0-2')	SB-9 (0-2')	SB-10 (0-2')	SB-11 (0-2')	SB-11 (6.5'-8.5')
				Sample ID	L2316525-11	L2316525-17	L2316525-12	L2316525-13	L2316525-14	L2316525-15
				Sample Date	3/29/2023	3/29/2023	3/29/2023	3/29/2023	3/29/2023	3/29/2023
				Sample Matrix	SO	SO	SO	SO	SO	SO
Analyte	CAS	Unrestricted Use SCO	Restricted Use SCO - Protection of Human Health - Residential	Restricted Use SCO - Protection of Human Health - Restricted Residential	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)
Pesticides by EPA 8081B										
Delta-BHC	319-86-8	0.04	100	100	ND	ND	ND	ND	ND	ND
Lindane	58-89-9	0.1	0.28	1.3	ND	ND	ND	ND	ND	ND
Alpha-BHC	319-84-6	0.02	0.097	0.48	ND	ND	ND	ND	ND	ND
Beta-BHC	319-85-7	0.036	0.072	0.36	ND	ND	ND	ND	ND	ND
Heptachlor	76-44-8	0.042	0.42	2.1	ND	ND	ND	ND	0.00803	0.849
Aldrin	309-00-2	0.005	0.019	0.097	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	1024-57-3				ND	ND	ND	ND	0.00361	0.0946
Endrin	72-20-8	0.014	2.2	11	ND	ND	ND	ND	ND	ND
Endrin aldehyde	7421-93-4				ND	ND	ND	ND	ND	ND
Endrin ketone	53494-70-5				ND	ND	ND	ND	ND	ND
Dieldrin	60-57-1	0.005	0.039	0.2	ND	ND	ND	ND	ND	ND
4,4'-DDE	72-55-9	0.0033	1.8	8.9	ND	ND	ND	ND	ND	ND
4,4'-DDD	72-54-8	0.0033	2.6	13	ND	ND	ND	ND	ND	ND
4,4'-DDT	50-29-3	0.0033	1.7	7.9	0.00237	0.00184	0.00164	ND	ND	0.164
Endosulfan I	959-98-8	2.4	4.8	24	ND	ND	ND	ND	ND	ND
Endosulfan II	33213-65-9	2.4	4.8	24	ND	ND	ND	ND	ND	ND
Endosulfan sulfate	1031-07-8	2.4	4.8	24	ND	ND	ND	ND	ND	ND
Methoxychlor	72-43-5				ND	ND	ND	ND	ND	ND
Toxaphene	8001-35-2				ND	ND	ND	ND	ND	ND
cis-Chlordane	5103-71-9	0.094	0.91	4.2	ND	ND	ND	0.00156	0.151	3.47
trans-Chlordane	5103-74-2				0.000948	ND	ND	0.00138	0.216	3.54
Chlordane	57-74-9				ND	ND	ND	0.0129	1.04	24

Screening Levels

Unrestricted Use Soil Cleanup Objective	Conc. Exceeds
Restricted Use Soil Cleanup Objective - Protection of Human Health - Residential	Conc. Exceeds
Restricted Use Soil Cleanup Objective - Protection of Human Health - Restricted Residential	Conc. Exceeds

Notes

1. ND < ## = compound not detected above the laboratory reporting limit (RL), limit provided.
2. NA = Compound not analyzed.
3. mg/kg = milligram per kilogram

Table 1
Soil Sample Analytical Results - PCBs
St. Joseph's Apartments
Phase II ESI

				Sample Location	SB-1 (0'-2')	SB-1 (5'-6.5')	SB-2 (0'-2')	SB-2 (10'-12')	SB-3 (0-2')	SB-3 (6'-8')	SB-4 (0-2')	SB-4 (4-6')	SB-5 (0-2')	SB-5 (12-14')	SB-6 (0-2')
				Sample ID	L2316525-01	L2316525-02	L2316525-03	L2316525-04	L2316525-05	L2316525-06	L2316525-07	L2316525-08	L2316525-09	L2316525-10	L2316525-16
				Sample Date	3/29/2023	3/29/2023	3/29/2023	3/29/2023	3/29/2023	3/29/2023	3/29/2023	3/29/2023	3/29/2023	3/29/2023	3/29/2023
				Sample Matrix	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
Analyte	CAS	Unrestricted Use SCO	Restricted Use SCO - Protection of Human Health - Residential	Restricted Use SCO - Protection of Human Health - Restricted Residential	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)
PCBs by EPA 8082A															
Aroclor 1016	12674-11-2	0.1	1	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1221	11104-28-2	0.1	1	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1232	11141-16-5	0.1	1	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1242	53469-21-9	0.1	1	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1248	12672-29-6	0.1	1	1	0.0236	ND	0.0186	0.0119	ND	0.0179	ND	ND	ND	ND	ND
Aroclor 1254	11097-69-1	0.1	1	1	0.0252	0.0138	0.017	0.00807	ND	0.0177	ND	ND	0.0262	ND	ND
Aroclor 1260	11096-82-5	0.1	1	1	ND	ND	ND	ND	ND	ND	0.0145	0.0609	0.0171	0.0303	ND
Aroclor 1262	37324-23-5	0.1	1	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1268	11100-14-4	0.1	1	1	ND	ND	ND	ND	ND	ND	0.00464	0.0362	0.00458	0.0157	ND
PCBs, Total	1336-36-3	0.1	1	1	0.0488	0.0138	0.0356	0.02	ND	0.0356	0.0191	0.0971	0.0479	0.046	ND

Screening Levels

Unrestricted Use Soil Cleanup Objective	Conc. Exceeds
Restricted Use Soil Cleanup Objective - Protection of Human Health - Residential	Conc. Exceeds
Restricted Use Soil Cleanup Objective - Protection of Human Health - Restricted Residential	Conc. Exceeds

Notes

1. ND < ## = compound not detected above the laboratory reporting limit (RL), limit provided.
2. NA = Compound not analyzed.
3. mg/kg = milligram per kilogram

Table 1
Soil Sample Analytical Results - PCBs
St. Joseph's Apartments
Phase II ESI

				Sample Location	SB-7 (0-2')	SB-8 (0-2')	SB-9 (0-2')	SB-10 (0-2')	SB-11 (0-2')	SB-11 (6.5'-8.5')
				Sample ID	L2316525-11	L2316525-17	L2316525-12	L2316525-13	L2316525-14	L2316525-15
				Sample Date	3/29/2023	3/29/2023	3/29/2023	3/29/2023	3/29/2023	3/29/2023
				Sample Matrix	SO	SO	SO	SO	SO	SO
Analyte	CAS	Unrestricted Use SCO	Restricted Use SCO - Protection of Human Health - Residential	Restricted Use SCO - Protection of Human Health - Restricted Residential	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)
PCBs by EPA 8082A										
Aroclor 1016	12674-11-2	0.1	1	1	ND	ND	ND	ND	ND	ND
Aroclor 1221	11104-28-2	0.1	1	1	ND	ND	ND	ND	ND	ND
Aroclor 1232	11141-16-5	0.1	1	1	ND	ND	ND	ND	ND	ND
Aroclor 1242	53469-21-9	0.1	1	1	ND	ND	ND	ND	ND	ND
Aroclor 1248	12672-29-6	0.1	1	1	ND	0.00773	0.014	0.00609	ND	ND
Aroclor 1254	11097-69-1	0.1	1	1	0.00756	0.00764	0.0192	0.00507	ND	ND
Aroclor 1260	11096-82-5	0.1	1	1	ND	ND	ND	ND	ND	0.0115
Aroclor 1262	37324-23-5	0.1	1	1	ND	ND	ND	ND	ND	ND
Aroclor 1268	11100-14-4	0.1	1	1	ND	ND	ND	ND	ND	ND
PCBs, Total	1336-36-3	0.1	1	1	0.00756	0.0154	0.0332	0.0112	ND	0.0115

Screening Levels

Unrestricted Use Soil Cleanup Objective	Conc. Exceeds
Restricted Use Soil Cleanup Objective - Protection of Human Health - Residential	Conc. Exceeds
Restricted Use Soil Cleanup Objective - Protection of Human Health - Restricted Residential	Conc. Exceeds

Notes

1. ND < ## = compound not detected above the laboratory reporting limit (RL), limit provided.
2. NA = Compound not analyzed.
3. mg/kg = milligram per kilogram

Table 1
Soil Sample Analytical Results - Metals
St. Joseph's Apartments
Phase II ESI

				Sample Location	SB-1 (0'-2')	SB-1 (5'-6.5')	SB-2 (0'-2')	SB-2 (10'-12')	SB-3 (0-2')	SB-3 (6'-8')	SB-4 (0-2')	SB-4 (4-6')	SB-5 (0-2')	SB-5 (12-14')	SB-6 (0-2')
				Sample ID	L2316525-01	L2316525-02	L2316525-03	L2316525-04	L2316525-05	L2316525-06	L2316525-07	L2316525-08	L2316525-09	L2316525-10	L2316525-16
				Sample Date	3/29/2023	3/29/2023	3/29/2023	3/29/2023	3/29/2023	3/29/2023	3/29/2023	3/29/2023	3/29/2023	3/29/2023	3/29/2023
				Sample Matrix	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
Analyte	CAS	Unrestricted Use SCO	Restricted Use SCO - Protection of Human Health - Residential	Restricted Use SCO - Protection of Human Health - Restricted Residential	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)
Metals by EPA 6010D															
Aluminum, Total	7429-90-5				5580	4470	5460	2040	9590	5250	7320	7710	8030	4360	5140
Antimony, Total	7440-36-0				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	7440-38-2	13	16	16	4.73	3.12	4.05	2.68	4.9	4.08	7.1	5.05	8.27	4.75	5.51
Barium, Total	7440-39-3	350	350	400	44.9	25.2	29.5	12.3	50.1	28.1	366	66.9	352	522	71.1
Beryllium, Total	7440-41-7	7.2	14	72	0.13	0.093	0.131	0.071	0.156	0.14	0.041	ND	ND	0.169	0.104
Cadmium, Total	7440-43-9	2.5	2.5	4.3	0.115	ND	ND	ND	ND	ND	0.498	0.121	0.304	1.88	ND
Calcium, Total	7440-70-2				222000	190000	220000	206000	195000	177000	39400	46000	11900	57000	168000
Chromium, Total	7440-47-3				6.95	4.43	6.63	3.76	9.44	5.34	16.6	16.7	19.5	8.85	6.73
Cobalt, Total	7440-48-4				2.48	1.19	2.32	0.992	2.62	1.74	5.23	5.64	6.12	4.33	2.24
Copper, Total	7440-50-8	50	270	270	27.3	2.65	11.5	4.61	6.18	7.66	27	18.5	26	9.83	7.64
Iron, Total	7439-89-6				6370	4410	6050	2760	7930	4990	11000	13100	13600	6970	6350
Lead, Total	7439-92-1	63	400	400	67.7	12.4	38.6	14.2	26.1	24.4	178	77.8	141	1370	398
Magnesium, Total	7439-95-4				75900	90400	73100	59800	87200	60100	7730	17000	3650	8320	85100
Manganese, Total	7439-96-5	1600	2000	2000	151	440	159	89.3	802	120	290	250	248	132	627
Mercury, Total	7439-97-6	0.18	0.81	0.81	ND	ND	0.051	0.058	0.08	ND	0.173	0.214	0.143	0.134	0.078
Nickel, Total	7440-02-0	30	140	310	6.58	3.4	4.96	2.75	8.21	3.46	11.8	20.1	13.6	10.8	4.87
Potassium, Total	7440-09-7				1190	1730	1340	1060	3530	961	919	1440	1510	530	713
Selenium, Total	7782-49-2	3.9	36	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.418	ND
Silver, Total	7440-22-4	2	36	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium, Total	7440-23-5				131	99.4	143	88.5	203	309	183	130	114	346	56.6
Thallium, Total	7440-28-0				0.498	0.316	0.409	0.376	0.496	0.354	0.569	0.575	0.431	ND	ND
Vanadium, Total	7440-62-2				9.56	5.84	9.1	3.57	12	8.45	28.3	20.4	27.4	20	11.7
Zinc, Total	7440-66-6	109	2200	10000	46	12.5	31.8	17.3	17.8	25.4	292	55.4	261	1500	48.5

Screening Levels

Unrestricted Use Soil Cleanup Objective	Conc. Exceeds
Restricted Use Soil Cleanup Objective - Protection of Human Health - Residential	Conc. Exceeds
Restricted Use Soil Cleanup Objective - Protection of Human Health - Restricted Residential	Conc. Exceeds

Notes

1. ND < ## = compound not detected above the laboratory reporting limit (RL), limit provided.
2. NA = Compound not analyzed.
3. mg/kg = milligram per kilogram

Table 1
Soil Sample Analytical Results - Metals
St. Joseph's Apartments
Phase II ESI

				Sample Location	SB-7 (0-2')	SB-8 (0-2')	SB-9 (0-2')	SB-10 (0-2')	SB-11 (0-2')	SB-11 (6.5'-8.5')
				Sample ID	L2316525-11	L2316525-17	L2316525-12	L2316525-13	L2316525-14	L2316525-15
				Sample Date	3/29/2023	3/29/2023	3/29/2023	3/29/2023	3/29/2023	3/29/2023
				Sample Matrix	SO	SO	SO	SO	SO	SO
Analyte	CAS	Unrestricted Use SCO	Restricted Use SCO - Protection of Human Health - Residential	Restricted Use SCO - Protection of Human Health - Restricted Residential	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)	Result (mg/kg)
Metals by EPA 6010D										
Aluminum, Total	7429-90-5				4860	6110	5010	4880	5700	6480
Antimony, Total	7440-36-0				ND	ND	ND	ND	ND	1.69
Arsenic, Total	7440-38-2	13	16	16	3.93	4.33	4.19	4.22	13.4	93.8
Barium, Total	7440-39-3	350	350	400	27	25.6	26.4	40.6	34.2	67.2
Beryllium, Total	7440-41-7	7.2	14	72	0.078	0.057	0.1	0.071	0.031	0.254
Cadmium, Total	7440-43-9	2.5	2.5	4.3	ND	ND	ND	ND	ND	0.111
Calcium, Total	7440-70-2				162000	193000	177000	148000	27800	53400
Chromium, Total	7440-47-3				6.1	6.52	6.86	6.04	11.4	8.09
Cobalt, Total	7440-48-4				1.91	1.76	2.5	1.92	2.44	2.64
Copper, Total	7440-50-8	50	270	270	12.6	6.64	17	55.3	9.87	34.5
Iron, Total	7439-89-6				4920	5220	7880	4950	7180	4930
Lead, Total	7439-92-1	63	400	400	80	17.1	29.5	15.1	21.8	23.2
Magnesium, Total	7439-95-4				56900	65600	65500	41800	5960	8980
Manganese, Total	7439-96-5	1600	2000	2000	128	115	174	113	122	106
Mercury, Total	7439-97-6	0.18	0.81	0.81	ND	ND	0.052	ND	0.049	0.118
Nickel, Total	7440-02-0	30	140	310	4.2	3.98	5.34	4.63	7.26	7.66
Potassium, Total	7440-09-7				1090	1100	1190	778	994	1220
Selenium, Total	7782-49-2	3.9	36	180	ND	ND	ND	ND	ND	0.351
Silver, Total	7440-22-4	2	36	180	ND	ND	ND	ND	ND	0.364
Sodium, Total	7440-23-5				112	112	125	169	438	292
Thallium, Total	7440-28-0				0.424	ND	ND	ND	0.34	0.672
Vanadium, Total	7440-62-2				8.16	10.2	9.88	6.88	15.9	12.6
Zinc, Total	7440-66-6	109	2200	10000	28.3	20.2	26.8	41.3	29.9	25.6

Screening Levels

Unrestricted Use Soil Cleanup Objective	Conc. Exceeds
Restricted Use Soil Cleanup Objective - Protection of Human Health - Residential	Conc. Exceeds
Restricted Use Soil Cleanup Objective - Protection of Human Health - Restricted Residential	Conc. Exceeds

Notes

1. ND < ## = compound not detected above the laboratory reporting limit (RL), limit provided.
2. NA = Compound not analyzed.
3. mg/kg = milligram per kilogram

Table 1
Soil Vapor Sample Analytical Results Summary
Edenwald Houses
Limited Phase II ESA

Sample Location			SV-1	SV-2	SV-3	SV-4	SV-5
Sample ID			L2316775-01	L2316775-02	L2316775-03	L2316775-04	L2316775-05
Sample Date			3/30/2023	3/30/2023	3/30/2023	3/30/2023	3/30/2023
Sample Matrix			AS	AI	AS	AI	AS
Analyte	CAS	NYSDOH Guidance Value (ug/m3)	Result (µg/m^3)	Result (µg/m^3)	Result (µg/m^3)	Result (µg/m^3)	Result (µg/m^3)
Dichlorodifluoromethane	75-71-8		2.14	2.12	2.17	2.15	2.24
Chloromethane	74-87-3		0.667	ND	ND	ND	ND
Freon-114	76-14-2		ND	ND	ND	ND	ND
Vinyl chloride	75-01-4	6	ND	ND	ND	ND	ND
1,3-Butadiene	106-99-0		ND	ND	ND	ND	ND
Bromomethane	74-83-9		ND	ND	ND	ND	ND
Chloroethane	75-00-3		ND	ND	ND	ND	ND
Ethanol	64-17-5		ND	ND	ND	ND	ND
Vinyl bromide	593-60-2		ND	ND	ND	ND	ND
Acetone	67-64-1		13.3	20.7	27.1	23.8	30.6
Trichlorofluoromethane	75-69-4		ND	ND	ND	1.13	ND
Isopropanol	67-63-0		ND	ND	ND	ND	ND
1,1-Dichloroethene	75-35-4	6	ND	ND	ND	ND	ND
Tertiary butyl Alcohol	75-65-0		2.86	2.95	1.72	4.88	6
Methylene chloride	75-09-2	100	ND	ND	ND	ND	ND
3-Chloropropene	107-05-1		ND	ND	ND	ND	ND
Carbon disulfide	75-15-0		ND	ND	0.975	ND	ND
Freon-113	76-13-1		ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	156-60-5		ND	ND	ND	ND	ND
1,1-Dichloroethane	75-34-3		ND	ND	ND	ND	ND
Methyl tert butyl ether	1634-04-4		ND	ND	ND	ND	ND
2-Butanone	78-93-3		1.83	10	18.2	22.3	ND
cis-1,2-Dichloroethene	156-59-2	6	ND	ND	ND	ND	ND
Ethyl Acetate	141-78-6		ND	ND	ND	ND	ND
Chloroform	67-66-3		ND	ND	ND	ND	ND
Tetrahydrofuran	109-99-9		ND	1.58	ND	5.25	ND
1,2-Dichloroethane	107-06-2		ND	ND	ND	ND	ND
n-Hexane	110-54-3		2.1	0.73	1.8	3.88	5.67
1,1,1-Trichloroethane	71-55-6	100	ND	ND	ND	2.74	ND
Benzene	71-43-2		0.818	ND	ND	0.872	ND
Carbon tetrachloride	56-23-5	6	ND	ND	ND	ND	ND
Cyclohexane	110-82-7		ND	ND	ND	ND	ND
1,2-Dichloropropane	78-87-5		ND	ND	ND	ND	ND
Bromodichloromethane	75-27-4		ND	ND	ND	ND	ND
1,4-Dioxane	123-91-1		ND	ND	ND	ND	ND
Trichloroethene	79-01-6	6	ND	ND	ND	ND	ND
2,2,4-Trimethylpentane	540-84-1		ND	ND	ND	ND	ND
Heptane	142-82-5		ND	2.14	1.61	3.6	10.2
cis-1,3-Dichloropropene	10061-01-5		ND	ND	ND	ND	ND
4-Methyl-2-pentanone	108-10-1		ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	10061-02-6		ND	ND	ND	ND	ND
1,1,2-Trichloroethane	79-00-5		ND	ND	ND	ND	ND
Toluene	108-88-3		2.66	7.24	18.6	2.9	20.7
2-Hexanone	591-78-6		ND	1.32	2.02	2.03	ND
Dibromochloromethane	124-48-1		ND	ND	ND	ND	ND
1,2-Dibromoethane	106-93-4		ND	ND	ND	ND	ND
Tetrachloroethene	127-18-4	100	59.7	264	159	93.6	658
Chlorobenzene	108-90-7		ND	ND	ND	ND	ND
Ethylbenzene	100-41-4		0.943	3.37	2.19	4.01	7.17
p/m-Xylene	179601-23-1		4.3	15.6	10.3	6.95	27.8
Bromoform	75-25-2		ND	ND	ND	ND	ND
Styrene	100-42-5		ND	ND	1.11	ND	ND
1,1,2,2-Tetrachloroethane	79-34-5		ND	ND	ND	ND	ND
o-Xylene	95-47-6		1.72	5.95	4.91	2.31	10.1
4-Ethyltoluene	622-96-8		ND	1.65	ND	1.13	2.77
1,3,5-Trimethylbenzene	108-67-8		ND	1.85	1.68	1.04	2.3
1,2,4-Trimethylbenzene	95-63-6		4.13	6.69	6.78	3.67	8.36
Benzyl chloride	100-44-7		ND	ND	ND	ND	ND
1,3-Dichlorobenzene	541-73-1		ND	ND	ND	ND	ND
1,4-Dichlorobenzene	106-46-7		ND	ND	ND	ND	ND
1,2-Dichlorobenzene	95-50-1		ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	120-82-1		ND	ND	ND	ND	ND
Hexachlorobutadiene	87-68-3		ND	ND	ND	ND	ND
Sum of BTEX			10.441	32.16	36	17.042	65.77

Notes:
NA - Not Analyzed
ND < ## - Concetration not detected above the Laboratory Reporting limit
Exceedances:
NYSDOH Matrix A/B/C

Table 1
Soil Vapor Sample Analytical Results Summary
Edenwald Houses
Limited Phase II ESA

Sample Location			SV-6	SV-7	SV-8	SV-9	SV-10
Sample ID			L2316775-06	L2316775-07	L2316775-08	L2316775-09	L2316775-10
Sample Date			3/30/2023	3/30/2023	3/30/2023	3/30/2023	3/30/2023
Sample Matrix			AI	AS	AI	AS	AI
Analyte	CAS	NYSDOH Guidance Value (ug/m3)	Result (µg/m^3)	Result (µg/m^3)	Result (µg/m^3)	Result (µg/m^3)	Result (µg/m^3)
Dichlorodifluoromethane	75-71-8		2.25	2.23	2.28	2.28	2.25
Chloromethane	74-87-3		ND	ND	ND	ND	ND
Freon-114	76-14-2		ND	ND	ND	ND	ND
Vinyl chloride	75-01-4	6	ND	ND	ND	ND	ND
1,3-Butadiene	106-99-0		ND	ND	ND	ND	ND
Bromomethane	74-83-9		ND	ND	ND	ND	ND
Chloroethane	75-00-3		ND	ND	ND	ND	ND
Ethanol	64-17-5		ND	ND	ND	ND	ND
Vinyl bromide	593-60-2		ND	ND	ND	ND	ND
Acetone	67-64-1		75.3	35.9	58.9	78.9	66.5
Trichlorofluoromethane	75-69-4		1.14	1.2	1.16	ND	ND
Isopropanol	67-63-0		ND	ND	ND	ND	ND
1,1-Dichloroethene	75-35-4	6	ND	ND	ND	ND	ND
Tertiary butyl Alcohol	75-65-0		10	2.47	7.85	9.22	10.2
Methylene chloride	75-09-2	100	ND	ND	ND	ND	ND
3-Chloropropene	107-05-1		ND	ND	ND	ND	ND
Carbon disulfide	75-15-0		1.44	0.775	2.6	5.98	ND
Freon-113	76-13-1		ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	156-60-5		ND	ND	ND	ND	ND
1,1-Dichloroethane	75-34-3		ND	ND	ND	ND	ND
Methyl tert butyl ether	1634-04-4		ND	ND	ND	ND	ND
2-Butanone	78-93-3		2.98	40.4	3.19	3.83	ND
cis-1,2-Dichloroethene	156-59-2	6	ND	ND	ND	ND	ND
Ethyl Acetate	141-78-6		ND	ND	ND	ND	ND
Chloroform	67-66-3		ND	ND	ND	ND	ND
Tetrahydrofuran	109-99-9		ND	ND	ND	ND	ND
1,2-Dichloroethane	107-06-2		ND	ND	ND	ND	ND
n-Hexane	110-54-3		0.867	4.86	1.66	13.5	ND
1,1,1-Trichloroethane	71-55-6	100	ND	ND	ND	ND	ND
Benzene	71-43-2		ND	0.658	0.879	1.36	ND
Carbon tetrachloride	56-23-5	6	ND	ND	ND	ND	ND
Cyclohexane	110-82-7		ND	ND	ND	ND	ND
1,2-Dichloropropane	78-87-5		ND	ND	ND	ND	ND
Bromodichloromethane	75-27-4		ND	ND	ND	ND	ND
1,4-Dioxane	123-91-1		ND	ND	ND	ND	ND
Trichloroethene	79-01-6	6	ND	ND	ND	ND	ND
2,2,4-Trimethylpentane	540-84-1		ND	ND	ND	ND	ND
Heptane	142-82-5		1.91	1.37	2.77	5.49	5.61
cis-1,3-Dichloropropene	10061-01-5		ND	ND	ND	ND	ND
4-Methyl-2-pentanone	108-10-1		ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	10061-02-6		ND	ND	ND	ND	ND
1,1,2-Trichloroethane	79-00-5		ND	ND	ND	ND	ND
Toluene	108-88-3		5.39	6.41	9.04	17.4	16.2
2-Hexanone	591-78-6		ND	5	ND	ND	ND
Dibromochloromethane	124-48-1		ND	ND	ND	ND	ND
1,2-Dibromoethane	106-93-4		ND	ND	ND	ND	ND
Tetrachloroethene	127-18-4	100	194	142	322	412	550
Chlorobenzene	108-90-7		ND	ND	ND	ND	ND
Ethylbenzene	100-41-4		2.46	2.59	4.34	5.86	5.99
p/m-Xylene	179601-23-1		11.9	9.73	17.6	22.2	25.9
Bromoform	75-25-2		ND	ND	ND	ND	ND
Styrene	100-42-5		ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	79-34-5		ND	ND	ND	ND	ND
o-Xylene	95-47-6		4.47	3.98	6.56	8.21	9.47
4-Ethyltoluene	622-96-8		2.25	1.34	2.68	2.69	3.28
1,3,5-Trimethylbenzene	108-67-8		2.12	1.09	2.35	2.47	2.95
1,2,4-Trimethylbenzene	95-63-6		9.93	4.64	10.8	9.98	11.8
Benzyl chloride	100-44-7		ND	ND	ND	ND	ND
1,3-Dichlorobenzene	541-73-1		ND	ND	ND	ND	ND
1,4-Dichlorobenzene	106-46-7		ND	ND	ND	ND	ND
1,2-Dichlorobenzene	95-50-1		ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	120-82-1		ND	ND	ND	ND	ND
Hexachlorobutadiene	87-68-3		ND	ND	ND	ND	ND
Sum of BTEX			24.22	23.368	38.419	55.03	57.56

Notes:

NA - Not Analyzed

ND < ## - Concetration not detected above the Laboratory Reporting limit

Exceedances:

NYSDOH Matrix A/B/C

APPENDIX A

Phase I Environmental Site Assessment

Saint Joseph's Roman Catholic Church

1947, 1949 and 1951 Bathgate Avenue
1040 and 1948 Washington Avenue
and 484 East 178th Street
Bronx, New York 10457

PREPARED FOR

Association of New York Catholic Homes
480 Maiden Lane, 13th Floor
New York, New York 10038

PREPARED BY

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September 19, 2019

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Executive Summary

This document is a Phase I Environmental Site Assessment (ESA) prepared to determine evidence of recognized environmental conditions (RECs), controlled recognized environmental conditions (CRECs), historic recognized environmental conditions (HRECs) and business environmental risks (BERs) in connection with four (4) contiguous parcels on the northern portions of a block bound by Washington Avenue, East 178th, Bathgate Avenue and East Tremont Avenue in the Borough of The Bronx, Bronx County, City of New York, State of New York (hereinafter referred to as the "subject properties"). The subject properties are collectively known by the street address of 1949 Bathgate Avenue, and are identified on the New York City (NYC) Tax Maps as Borough 2 - Block 3034 – Lots 10, 16, 22 and 23.

The subject properties have a topographic elevation that ranges from approximately 65-feet to 80-feet amsl and slopes downward from an elevated northwestern portion surrounded by retaining walls and staircases. Depth to groundwater beneath the subject properties is estimated to be within 80 feet bgs. The EDR database report indicates that groundwater was encountered at 11.7 to 15.9 feet bgs at the nearest site with available groundwater data. Regional groundwater is expected to flow to the south.

VHB was able to establish a history for the subject properties dating back to 1896 when the subject properties were improved with an early iteration of "St. Joseph's Academy" on southern portions, a mixed-use building on northwestern portions and two dwellings on northeastern portions. The existing church structure with basement for auditorium, meeting hall, cafeteria, dances, gym and school counseling was constructed by 1901 along with another rendition of the academy/convent building. The neo-Gothic church was built of white stone quarried from the lot and faced with polished granite on the front and rear ends. When built, the church provided seating for about 1,500 persons. A six-story horse shoe-shaped building with a centrally located elevator was constructed on northwestern portions by 1915. The rectory appeared by 1950. The mixed-use commercial and residential buildings were demolished by 1981, and the dwelling on northeastern portions was demolished circa 2012. The church was closed as of 2015 and remaining buildings on the subject properties are currently undergoing demolition in 2019 for redevelopment.

Lot 10 is developed with a vacant church building currently undergoing demolition and Lot 16 is developed with landscaped areas, paved walkways and stairs that provide access to the church building. Lot 22 is vacant and was temporarily used as a

garden in association with an ancillary church building formerly present on Lot 23 (recently demolished).

Based on the results of the visual inspection, records review and interviews, it was determined there were no RECs identified for the subject properties. However, the following BERs were identified during the course of this Phase I ESA:

- There is one (1) steel 3,000-gallon fuel oil AST registered to the property that reportedly was installed circa 1911, rested directly on soil and is listed as in-service as of submission of this Phase I ESA. No documentation of the AST condition has been provided to VHB for review and the site personnel present during site reconnaissance indicated that they were unaware of its location. It is unknown if the AST condition was assessed prior to the commencement of demolition activities, or whether the AST historically leaked and impacted the subsurface environment. Furthermore, no documentation of the conditions of former USTs at the time of removal has been provided. The potential presence of out-of-service oil tanks at the subject properties represents a BER. It is expected that all tanks, if encountered during demolition, will be removed in accordance with applicable regulations by the designated demolition contractor.

- Given the development history of the subject properties with the previous mixed-use building on of which was complete with an elevator on Lot 16 that has since been demolished as well as a two-story dwelling on Lot 22, there is a potential for remnant historic structures (i.e, remnant foundations) and urban fill materials to be present on the subject properties. Lot 22 is elevated with respect to surrounding grade. Potential presence of historical fill material of unknown origin is considered a BER. Historic fill materials, if encountered during redevelopment, should be removed and transported to a facility capable and permitted to handle such material during any potential redevelopment of the subject property.

1.0 Introduction

1.1 Purpose

This Phase I Environmental Site Assessment (ESA) was prepared to determine recognized environmental conditions (RECs), controlled recognized environmental conditions (CRECs), historic recognized environmental conditions (HRECs) and business environmental risk (BERs) in connection with four (4) contiguous parcels on the northern portions of a block bound by Washington Avenue, East 178th, Bathgate Avenue and East Tremont Avenue in the Borough of The Bronx, Bronx County, City of New York, State of New York (hereinafter referred to as the "subject properties"). The subject properties are collectively known by the street address of 1949 Bathgate Avenue, and are identified on the New York City (NYC) Tax Maps as Borough 2 - Block 3043 – Lots 10, 16, 22 and 23. Figures depicting the subject properties location are included in Appendix A and representative site photographs are included in Appendix B of this Phase I ESA.

1.2 Detailed Scope of Services

This Phase I ESA has been prepared in accordance with procedures established by environmental professionals and in concert with the guidance of regulatory agencies and funding institutions and American Society for Testing and Materials (ASTM) Practice E1527-13, inclusive of the United States Environmental Protection Agency (USEPA) "All Appropriate Inquiry" requirement amended in the Federal Register on December 30, 2013. The United State Environmental Protections Agency (USEPA) "All Appropriate Inquiry" requirement establishes specific regulatory requirements for conducting appropriate inquiries into the previous ownership, uses, and environmental conditions of a property for the purposes of qualifying for certain landowner liability protections under Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).

The purpose of ASTM Practice E1527-13 is to define good commercial and customary practice in the United States of America for conducting an environmental site

assessment of a parcel of commercial real estate with respect to the range of contaminants within the scope of CERCLA and petroleum products. As such, the practice is intended to permit a user to satisfy one of the requirements to qualify for the innocent landowner, contiguous property owner or bona fide prospective purchaser limitations on CERCLA liability; that is, the practices that constitute *"all appropriate inquiries into the previous ownership and uses of the property consistent with good commercial and customary practice," as defined in 42 U.S.C. §9601 (35)(B).*

As stated in ASTM Practice E1527-13, the purpose of the Phase I ESA is to identify, to the extent feasible, pursuant to the process established by ASTM Practice E1527-13, *"recognized environmental conditions in connection with a property."*

The term "*recognized environmental conditions*," as defined by ASTM Practice E1527-13 means *"the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property due to any release to the environment under conditions indicative of a release to the environment under conditions that pose a material threat of a future release to the environment. De minimis conditions are not recognized environmental conditions"*

The term *"de minimis conditions*," as defined by ASTM Practice E1527-13 means "*a condition that generally does not present a threat to human health or the environment that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be de minimis conditions are not recognized environmental conditions nor controlled recognized environmental conditions*."

The term "*controlled recognized environmental condition*," as defined by ASTM Practice E1527-13 means "*a recognized environmental condition resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority), with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls. A condition considered by the Environmental Professional to be a controlled recognized environmental condition shall be listed in the findings section of the Phase I Environmental Site Assessment report, and as a recognized environmental condition in the conclusions section of the Phase I Environmental Site Assessment.*

The term "*historic recognized environmental condition*," as defined by ASTM Practice E1527-13 means "*a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls. Before calling the past release a historical recognized*

environmental condition, the Environmental Professional must determine whether the past release is a recognized environmental condition at the time the Phase I Environmental Site Assessment is conducted (for example, if there has been a change in the regulatory criteria). If the Environmental Professional considers the past release to be a recognized environmental condition at the time the Phase I Environmental Site Assessment is conducted, the condition shall be included in the conclusions section of the report as a recognized environmental condition."

The term "*business environmental risk*," as defined by ASTM Practice E1527-13 means "*a risk which can have a material environmental or environmentally-driven impact on the business associated with the current or planned use of a parcel of commercial real estate, not necessarily limited to those environmental issues required to be investigated in this practice. Consideration of business environmental risk issues may involve addressing one or more non-scope considerations.*"

This Phase I ESA, as required by ASTM Practice E1527-13, specifically consists of the following four components:

1. Records Review
    a. Physical settings document review
    b. Regulatory database records search
    c. Local municipal agency records search
    d. Historic use records search
2. Site Reconnaissance
3. Interviews with Past and Present Owners and Occupants
4. Evaluation and Reporting

As stated in Practice E1527-13, there may be environmental issues or conditions at the property, which may be requested by the user to be addressed as part of the Phase I ESA, which are not covered within the scope of ASTM Practice E1527-13. The issues are referred to as non-scope considerations. The following is a list of non-scope considerations, which may be addressed, in a limited capacity within this Phase I ESA:

- Radon
- Lead-Based Paint (LBP)
- Asbestos-Containing Materials (ACM)
- Wetlands
- Mold and Water Damage

1.3 Significant Assumptions

In preparation of the Phase I ESA, it is generally assumed that information provided within the Environmental Database Resources, Inc. (EDR) report, regulatory agency records, municipal agency records, as well as information obtained from the user is accurate.

1.4 Limitations and Exceptions

The conclusions presented in this report are professional opinions based on the data described in this report. These opinions have been arrived at in accordance with currently accepted engineering and hydrogeologic standards and practices applicable to this location, and are subject to the following inherent limitations:

1. The data presented in this report are from visual inspections, examination of records in the public domain, and interviews with individuals having information about the site. The passage of time, manifestation of latent conditions, or occurrence of future events may require further exploration of the site, analysis of data, and re-evaluation of the findings, observations, and conclusions presented in this report.

2. The data reported, and the findings, observations, and conclusions expressed are limited by the scope of work and defined in ASTM Practice E1527-13. Any deviations from this scope are defined below. Furthermore, the scope of work was defined and developed pursuant to the request of the Client.

3. No warranty or guarantee, whether expressed or implied, is made with respect to the data reported, findings, observations, or conclusions. These are based solely upon site conditions in existence at the time of the investigation, and other information obtained and reviewed by VHB Engineering, Surveying, Landscape Architecture and Geology, P.C. (VHB).

4. VHB's Phase I ESA report presents professional opinions and findings of a scientific and technical nature. While attempts were made to relate the data and findings to applicable environmental laws and regulations, the report will not be construed to offer legal opinion or representations as to the requirements of, or compliance with, environmental laws, rules, or regulations, or policies of federal, state, or local government agencies. VHB does not assume liability for financial or other losses or subsequent damage caused by or related to any use of this document.

5. The conclusions presented in this report are professional opinions based on data described in this report. They are intended only for the purpose, site location, and project indicated. This report is not a definitive study of

contamination at the site and should not be interpreted as such. An evaluation of subsurface soil and groundwater conditions was not performed as part of this investigation. As at any site, the actual condition of the groundwater and sub-surface soil cannot be determined without further investigation.

6. This report is based, in part, on information supplied to VHB by third-party sources. While efforts have been made to substantiate this third-party information, VHB cannot attest to the completeness or accuracy of information provided by others.

7. The Phase I ESA practice does not include any testing or sampling of materials (e.g., soil, water, air, building materials).

1.5 User Reliance

This report was prepared in September 2019 by Christopher Rooney and was supervised by Bryan Murty, Senior Project Manager of VHB at the request of Association of New York Catholic Homes. VHB assumes no liability for use of this report by any person or entity other than the Client, for which it was prepared. Any potential future user of this document would be subject to VHB approval and such user's reliance on this document would be in accordance with the terms and conditions of the original contract.

2.0

Site Description

2.1 Property and Address Location

The subject properties consist of four (4) contiguous parcels on the northern portions of a block bound by Washington Avenue, East 178th, Bathgate Avenue and East Tremont Avenue in the West Bronx section and Tremont neighborhood of the Borough of The Bronx, Bronx County, City of New York, State of New York. The subject properties are situated in an urban mixed-use area with residential, manufacturing, parkland and commercial uses nearby. The subject properties are collectively identified as 1949 Bathgate Avenue. However, according to the New York City Departments of Finance and Buildings (NYCDOF and NYCDOB), each individual parcel that comprises the subject properties contains an individual address. The northwestern-most lot is identified by the street address of 484 East 178th Street and the northeastern lots are referred to as 1951 Bathgate Avenue and 1949 Bathgate Avenue while the southern of the three parcels are known by the street addresses of 1940 Washington Avenue, 1948 Washington Avenue and 1947 Bathgate Avenue. Figures depicting the subject properties are included in Appendix A and representative site photographs are included in Appendix B of this Phase I ESA.

2.1.1 Tax Map Number

The subject properties are identified on the NYC Tax Maps as Borough 2 - Block 3034 – Lots 10, 16, 22 and 23. An excerpt of the tax map is provided as Figure 3 in Appendix A.

2.1.2 Acreage and Building Size

The associated acreage and size of habitable structures for each respective parcel that comprise the subject properties according to records maintained by the NYCDOF is provided in the table, below:

Parcel Number	Parcel Square Footage (s.f.)	Parcel Acreage	Building Size
Lot 10	22,381 s.f.	0.51 acres	14,850 s.f.
Lot 16	7,489 s.f.	0.17 acres	0 s.f.
Lot 22	7,581 s.f.	0.17 acres	0 s.f.
Lot 23	2,653 s.f.	0.06 acres	1,286 s.f.

2.1.3 Ownership

According to information maintained by the NYCDOF, the current owners of record are identified as Church of St. Joseph to Tremont for Lot 16 and St Joseph R C Church for Lots 10, 22 and 23.

2.1.4 Title Report

No title report was provided to VHB for review from the Client or the owners previously identified in Section 2.1.3 of this Phase I ESA.

2.1.5 Zoning

According to the City of New York Zoning Maps, the subject properties are currently located in the residential R6A zoning district.

2.2 Current Occupancy and Property Use

Lot 10 is developed with a vacant church building currently undergoing demolition and Lot 16 is developed with landscaped areas, paved walkways and stairs that provide access to the church building. Lot 22 is vacant and was temporarily used as a garden in association with an ancillary church building formerly present on Lot 23 (recently demolished).

3.0

Site Geology and Hydrogeology

3.1 Topography and Site Characteristics

3.1.1 Elevation

The topography of the site and surrounding area was reviewed from the United States Geological Survey (USGS) 7.5-minute series topographic map for the Central Park, NY Quadrangle (see Figure 4 in Appendix A) and online aerial imagery and topographic data available from Google Earth. The subject properties have a topographic elevation that ranges between approximately 65 feet above mean sea level (amsl) to 80 feet amsl. The topography of the subject properties slopes downward to the south and west with the use of retaining walls and staircases.

3.1.2 Surface Water Bodies

No surface water bodies are present on the subject properties. The nearest surface water body is Indian Lake located approximately 0.60 mile to the southeast. An associated wetland analysis is provided in Section 7.4 of this Phase I ESA.

3.1.3 Soils

The U.S. Department of Agriculture's (USDA) Soil Conservsation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. Soil maps, based on the State Soil Geographic (STATSGO) Database, are compiled by generalizing more detailed Soil Survey Geographic (SSURGO) database maps.

According to the STATSGO data, the primary soil component in the vicinity of the subject properties are identified as Urban Land and is described as having a variable surface texture. The STATSGO database states that additional subordinant soil types may be present in the general vicinity of the subject properties. These soil types are described as mainly loamy sand and silt loam. Deeper soil types consist of very gravelly, loamy sand and stratified sandy loam.

Additional information regarding the soil classification is also included on Pages A-4 and A-5 of the EDR report (Appendix F).

3.2 Groundwater Characteristics

3.2.1 Depth to the Water Table

The most extensive aquifers in the Bronx, where the overall property is located, are bedrock aquifers. Bedrock aquifer formations underlie most of the Bronx and northern Westchester County, storing and transmitting groundwater in fractures and joints. In many valleys or low-lying areas, saturated surficial deposits (known as unconsolidated aquifers, sand and gravel aquifers, or overburden aquifers) store and transmit water through pore spaces between sediment grains. However, neither of the aquifer systems located in the Bronx is considered to be a prolific means of water production.

Groundwater at the site is likely perched and recharges through precipitation, stormwater run-off and possibly leaking utilities. Depending on the thickness and permeability of unconsolidated deposits, groundwater may or may not be present above bedrock and where present likely migrates via preferential pathways or remains relatively stagnant. Groundwater migration is also likely influenced by adjacent building foundations and footings. No water table elevation maps are available for Bronx County. For the purposes of this Phase I ESA, depth-to-groundwater is assumed to be within 80 feet below grade surface (bgs).

A review of well data available from the USGS indicates indicated that the nearest USGS monitoring point (Well 40000834384) well is located further than one-quarter mile from subject properties and there is no groundwater data available for this location. Based on a review of the Environmental Data Resources, Inc. (EDR) database report, the nearest site with available groundwater data, is 1888 Bathgate Avenue Redevelopment, located approximately 0.10 mile south of the subject properties. The EDR database report indicates that groundwater was encountered at 11.7 to 15.9 feet bgs at this site.

3.2.2 Groundwater Flow Direction

Groundwater flow direction typically mimics surface topography. Based upon information included in the EDR database report, regional groundwater is expected to flow to the south. Groundwater flow may vary local due influences of underground structures or de-watering operations.

3.2.3 Groundwater Classification

Although not used as a source of drinking water, groundwater underlying the subject properties and the surrounding area is categorized as Class GA. This classification requires quality standards to be the most stringent.

3.2.4 Groundwater Quality

As groundwater is not used as a potable water source in the site vicinity, no ambient current groundwater quality data are known to exist for New York County. However, due to the historic high-density development associated with New York City, groundwater is likely impaired.

3.3 Geology

The consolidated rocks in New York City are of igneous, sedimentary, and metamorphic origin and are Pre-Cambrian to Triassic in age. The igneous rocks consist of granite, pegmatite, granodiorite, diabase, and basic dikes. The sedimentary rocks are composed of shale and sandstone of Triassic age, which occur only on Staten Island, and the metamorphic rocks consist chiefly of gneiss, schist, and marble. The consolidated rocks are exposed or are close to the land surface in much of northern New York and Bronx Counties. In Richmond County, the serpentine bedrock in the central part of the County is exposed in a few places but is generally covered by unstratified glacial drift or other deposits. In Kings and Queens Counties the surface of the bedrock slopes about 80 feet per mile to the southeast and is buried under Cretaceous and Pleistocene deposits aggregating as much as 1,150 feet in thickness. Bedrock is exposed only in a small area near Astoria in northwestern Queens County.

The igneous and metamorphic rocks in New York City are crystalline and contain practically no pore spaces. They do, however, contain joints, openings along cleavage planes, and other fractures through which small amounts of groundwater may move. Larger quantities of water occur in the Inwood limestone, a metamorphic rock, in which the openings have been enlarged by solution. The sedimentary rocks yield water chiefly from joints, and openings along bedding and fault planes. Some water may be held in the pore spaces between the grains of which rocks are

composed. The volume of water held in this manner is generally small but varies depending upon the kind and amount of cementation of the rock, and the size of the pores.

The unconsolidated deposits which overlie the consolidated bedrock of New York City consist of beds of gravel, sand, silt and clay. The deposits range in geologic age from Cretaceous to Recent and are divided into two groups: deposits of Cretaceous age, and deposits of Quaternary (Pleistocene and Recent) age. The unconsolidated deposits are thickest in Kings and Queens Counties (up to 1,150 feet thick) and have a considerable range in thickness in the other counties, reaching a maximum thickness of about 400 feet in Richmond County.

The deposits of Cretaceous age are important or potentially important as sources of groundwater only in Richmond and the Long Island Counties. They are entirely absent in Bronx and New York Counties. The deposits originated mainly as stream deposits of the flood-plain and deltaic varieties and consequently show marked variations in texture and sorting both vertically and horizontally. The sediments range from solid clays to relatively clay-free beds of fine to coarse sand and gravel. Between these extremes are mixed textural types such as clayey sand, sandy clay, and clayey gravel. These materials, in general, occur in discontinuous lenses.

Much of the surface of Richmond, New York, and Kings and Queens Counties is immediately underlain by unconsolidated deposits of Pleistocene and Recent age. In Bronx County, the deposits are thinner, and more outcrops of rocks are evident than in other parts of the City. The deposits consist of four units: unstratified till forming the Harbor Hill terminal moraine; unstratified drift forming ground moraine; stratified sediments, largely outwash sand and gravel deposited by streams from melting glaciers during several stages of ice advances, but locally including beds of clay which may be the equivalent of the Gardiners clay; and alluvium of Recent age.

The outwash sand and gravel deposits contain abundant groundwater supplies in southeastern Richmond and southern New York Counties and most of Kings and Queens Counties. These well-sorted sediments were deposited in flood plains, deltas, and fans in front of the glaciers by melt-water streams. They are porous and highly permeable. Outwash deposits in Kings and Queens Counties comprise two distinct units separated by the interglacial Gardiners clay. The older, lower, unit is called the Jameco gravel; the upper unit is part of the post-Gardiners deposits referred to on Long Island as the upper Pleistocene deposits.

There is some evidence that locally, as in Kings County, the clay was not deposited or was cut through by streams before the deposition of the younger outwash, which therefore in places, may rest directly on the Jameco gravel. Thus, the geologic and hydrologic conditions in the Pleistocene deposits in Kings and Queens Counties are complex. Similar conditions may occur in the other counties where corresponding erosional and depositional events may have taken place.

The Jameco gravel and the Gardiners clay have not been positively identified in Bronx, New York, and Richmond Counties, and most of the glacial deposits in those counties probably are the equivalent of the upper Pleistocene deposits of Long Island. However, some of the deeper valley-fill deposits in Staten Island and Manhattan may be the equivalent of the Jameco gravel.

The alluvium of Recent age is of little importance as a source of groundwater in New York City. The deposits, ranging in thickness from several feet to as much as 100 feet, consist of white to gray sand and gravel, usually containing broken shell fragments, and layers of dark gray organic clay and silt. The clay and silt help to seal the fresh water aquifers against salt water intrusion. Some thin deposits of recent age may occur in the valleys of the streams draining Bronx County, but most of the deposits occur beneath the beaches, offshore bars, tidal channels, and embayment's bordering the City.

4.0

Site History

4.1 Municipal Records Review

Local government record keeping, pertaining to the subject properties being located in the Borough of The Bronx, Bronx County, City of New York, State of New York, is under the jurisdiction of the following agencies:

Agency Name	Type of Records Maintained	Date Freedom of Information Requests Submitted	Date of Agency Response, Records Review or Records Receipt
City of New York, Department of Finance	Tax assessment records, parcel/building size, ownership.	N/A	On-line database review conducted May 31, 2019.
City of New York Department of Buildings	Building permit applications, building permits, site plans, surveys.	N/A	On-line records review conducted May 31, 2019.
City of New York Fire Department	Fire prevention violations, registration of underground and aboveground petroleum and motor vehicle fuel storage tanks.	April 22, 2019	Responses received from Violation Section May 23, 2019. Responses from Tank Section pending.
City of New York Department of Health and Mental Hygiene	Environmental investigations, lead-based paint poisoning, asbestos.	April 22, 2019	Response received June 4, 2019.
City of New York Department of Environmental Protection	Sewer and water records, lead-paint, asbestos, emergency response, air, noise, permitting and enforcement.	April 22, 2019	Response received April 26, 2019.
New York State Department of Environmental Conservation	Spill incident and inactive hazardous waste site records.	N/A	N/A

Available copies of local government correspondence and/or records are provided in Appendix C. Pertinent records, if any, that are received following submission of this Phase I ESA and determined to significantly affect the findings, conclusions and/or recommendations set forth will be forwarded as an addendum to this Phase I ESA.

Summary of Records Reviewed/Obtained as of the Date of Report Issuance

New York City Department of Finance

The following is a summary of pertinent information obtained from the NYCDOF)

Tax Lot:	Borough 2 – Block 3043 – Lot 10
Address:	1940 Washington Avenue
Owner:	St Joseph R C Church
Lot Size:	22,381 s.f. – Irregular
Classification:	M1 - Church, Synagogue, Chapel, Mosque
Building Size:	14,850 s.f.
Year Built:	1911

Tax Lot:	Borough 2 – Block 3043 – Lot 16
Address:	No # Washington Avenue
Owner:	Church of Saint Josephto Tremont
Lot Size:	7,489 s.f. – Rectangular
Classification:	V0 - Vacant Land
Building Size:	N/A
Year Built:	N/A

Tax Lot:	Borough 2 – Block 3043 – Lot 22
Address:	1951 Bathgate Avenue
Owner:	St Joseph R C Church
Lot Size:	7,581 s.f. – Rectangular
Classification:	V0 - Vacant Land
Building Size:	N/A
Year Built:	N/A

Tax Lot:	Borough 2 – Block 3043 – Lot 23
Address:	1949 Bathgate Avenue
Owner:	St Joseph R C Church
Lot Size:	2,653 s.f. – Rectangular
Classification:	M3 - Church, Synagogue, Chapel, Mosque
Building Size:	1,286 s.f.
Year Built:	N/A

New York City
Department of Buildings

The NYCDOB computerized Property Profile Overview (PPO) was reviewed on May 31, 2019 for each individual parcel that comprise the subject properties. The following information was obtained for the subject properties:

Block 3043 - Lot 10

The PPO indicates that there are no Certificates of Occupancy (C/Os) for Lot 10. However, the PPO notes records of alterations dated 1895 and 1912, building notices dated 1921, 1924 and 1929, plumbing repairs in 1947 as well as demolition permits dated 1960 and 2018. Furthermore, a job filling for an electric sign is dated 1920. It should be noted that there is an active violation listed on the PPO for lack of a boiler inspection issued in 1995 as well as job filling to replace two boilers and associated oil burners with new boilers and dual fired oil and gas burners also in 1995. The PPO indicated electric meters were replaced in 1996 and 2013. There are no records or elevators or other unresolved complaints of Environmental Community Board (ECB) violations. Given the presence of oil burners and dual-fired heating systems, there is a potential for fuel oil to have been utilized on-site. An associated analysis of potential sources of fuel oil is included in Sections 5.2 and 6.4.2 of this Phase I ESA.

Block 3043 – Lot 16

The PPO indicates that there are no C/Os for this property. Lot 16 is associated with miscellaneous actions in 1963 and a single job filling for upgrades of various amenities including asphalt, play areas, walkways, steps, fences and gates. No boiler or elevator records were identified on the PPO in association with Lot 16. Furthermore, there are no records of complaints or DOB/ECB violations listed for the parcel.

Block 3043 - Lot 22

The PPO indicates that there are no C/Os for Lot 22. However, the PPO notes records of alterations dated 1891, plumbing repairs in 1942, a building notice dated 1948 and demolition of the three-story building circa 2012. It should be noted that there is an active violation listed on the PPO for lack of a boiler inspection issued in 1994 as well as job filling to remove one 1,000-gallon underground storage tank (UST) also in 2012. An associated analysis of petroleum storage tanks and fuel oil sources is provided in Sections 5.2 and 6.4.2 of this Phase I ESA. There are no records or elevators or other unresolved complaints of Environmental Community Board (ECB) violations.

Block 3043 - Lot 23

The PPO indicates that there are two C/Os for Lot 23. The C/O dated January 11 1991 is for a church with basement for auditorium, meeting hall, cafeteria, dances, gym and school counseling. The remaining C/O documents mention buildings with a basement and three car garages in the 1920s unlikely to pertain to the subject properties, based on available address information. The PPO notes a new building in 1919, building notices dated 1926, 1953, 1970 and 1971, plumbing repairs in 1974, records of alterations dated 1988, replacement of a sidewalk vault roof circa 2011 and demolition of the former convent circa 2017. It should be noted that there is an active stop work order for the site listed on the PPO for complaints relating to the safety during demolition and an expired permit. There are also indications of a boiler on the premises and a job filing for the removal of two 275-gallon USTs in 2012. An associated analysis of petroleum storage tanks and fuel oil sources is provided in Sections 5.2 and 6.4.2 of this Phase I ESA. There are no records or elevators or other unresolved complaints or active Environmental Community Board (ECB) violations.

Copies of the NYCDOB information are included in Appendix C.

New York City Fire Department

Freedom of Information Law (FOIL) applications were forwarded to the New York City Fire Department (FDNY) on April 22, 2019. VHB received responses from the Violations Section of this agency dated May 23, 2019, which indicated that no violation as listed for 1948, 1949 or 1950 Washington Avenue. No response has been received to date from the Tank Section of this agency in association with the aforementioned request. Any additional information that may become available that affect the findings, conclusions and/ or recommendations set forth in this Phase I ESA will be forwarded as an addendum.

New York City Department of Health and Mental Hygiene

A FOIL request was submitted to the New York City Department of Health and Mental Hygiene (NYCDOH) on April 22, 2019 with respect to the subject properties and VHB received a response dated June 4, 2019, which indicated that no records were identified for the subject properties.

New York City Department of Environmental Protection

FOIL applications were forwarded to the New York City Department of Environmental Protection (NYCDEP) on April 22, 2019. VHB received responses

from this agency, dated April 26, 2019, that indicated that no records were identified for the subject properties.

New York State Department of Environmental Conservation, Region Two

No spill incidents or environmental remediation database entries were identified on or adjacent to the subject properties with the potential to represent a significant environmental risk. As such, no FOIL requests were submitted to the NYSDEC.

Adjacent Properties

No adjacent properties were identified within the visual inspection or EDR database report with the potential to represent a significant environmental risk to the subject properties. As such, no FOIL requests were submitted with regard to adjacent or surrounding properties.

Copies of local government correspondence and/or records are provided in Appendix C.

4.2 Historical Resources Review

4.2.1 Sanborn Fire Insurance Map Review

EDR conducted a search of available Sanborn Fire Insurance Maps for the subject properties and immediate surrounding area. Fire Insurance Maps were provided for the years 1896, 1901, 1903, 1915, 1903, 1915, 1950, 1977 to 1981, 1984, 1985, 1986, 1989, 1991 to 1996, 1998 and 2001 to 2007. (Appendix D). The following is a summary of information provided within the aforementioned Sanborn Maps:

Date	Comments
1896	**Subject Properties:** The subject properties are divided into four lots developed with four building structures. A three-story structure with one-story extensions on western portions as well as two (2) two-story buildings on eastern portions are unlabeled, while a three-story structure one southern portions is denoted as "St. Joseph's Academy." **Surrounding Properties:** The adjacent properties include a Methodist Church to the west-northwest and a police station adjoining to the south-southeast. The roadway network is consistent with its current configurations. Vacant parcels are depicted to the east and northeast, while remaining adjacent uses are limited to relatively small one- or two-story buildings consistent with dwellings.
1901	**Subject Properties:** The subject properties have been renovated/redeveloped with a larger church building replacing the former academy and occupying the southern portions, consistent with the current church building currently under demolition. A smaller building labelled "Academy" is present immediately northeast of the same. Portions of an earlier building on northwestern portions remain and a two story-building on northeastern portions has been extended and is complemented by a one-story accessory structure. **Surrounding Properties:** The surrounding areas are more densely developed, with residential, institutional and commercial properties. The adjacent church and police station remain. A livery stable and duplex are present to the east and southeast, respectively. The remaining adjacent properties are unlabeled. A railroad is present one block to the west.
1903	**Subject and Surrounding Properties:** The subject and a majority of the surrounding properties are not depicted and, therefore, no representation can be made as to the precise site configuration at this time based on this resource.
1915	**Subject Properties:** The academy on central-east portions has been relabeled as a convent. The two-story building on northeastern portions is labelled as a dwelling. A six-story horse shoe-shaped building with a centrally located elevator has been constructed on northwestern portions and is indicated for use as storefronts with dwellings above along with the earlier structure still present on central-west portions. **Surrounding Properties:** The adjacent and surrounding properties are also shown in greater detail than in previous Sanborn map depictions. The adjacent uses are generally residential with some commercial uses and several intuitions uses including a temple, another church and the police precinct. A garage has now been constructed adjacent the subject properties to the southwest, likely in association with the police precinct.
1950	**Subject Properties:** The subject properties configuration is similar to the 1950 Sanborn map depiction. However, the former convent appears to have been redeveloped or renovated as the existing rectory that is now present on Lot 23. **Surrounding Properties:** The surrounding areas are more densely developed with commercial, mixed-use and multi-family residential apartment buildings. In addition, a post office was constructed across the roadway to the west and an associated parochial school is now present to the east. A funeral home replaced the livery.
1977	**Subject Properties:** The older and smaller of mixed-use building on northeastern portions has been presumably demolished. **Surrounding Properties:** The post office has been demolished and an iron works in now present beyond.
1979-1980	**Subject and Surrounding Properties:** The subject and surrounding properties appear similar to their 1977 Sanborn map depictions.

1981	**Subject Properties:** The six-story building formerly present on northwestern portions is no longer present. The remaining portion of the subject properties are similar to the 1969 through 1980 Sanborn map depictions. **Surrounding Properties:** The adjacent and surrounding properties appear similar to their 1977 through 1980 Sanborn map depictions. The surrounding density has decreased, with several parcels appearing vacant.
1984	**Subject Properties:** The subject properties appear similar to the 1981 Sanborn map depictions. **Surrounding Properties:** The parcel adjacent to the north-northwest has been redeveloped with a six-story residential building. In addition, a five-story apartment building was cleared from land adjacent to the northeast.
1985-1996	**Subject and Surrounding Properties:** The subject and surrounding properties appear generally similar to their 1984 Sanborn map depiction.
1998	**Subject Properties:** The subject properties appear similar to the 1981 through 1996 Sanborn map depictions. **Surrounding Properties:** There were several adjoining two-story residences constructed to the southwest.
2004-2007	**Subject and Surrounding Properties:** The subject and surrounding properties appear generally similar to their 1998 Sanborn map depiction.

Based on a review of historical Sanborn map depictions, the subject properties were improved with an early iteration of "St. Josephs Academy" on southern portions as well as a mixed-use building and two dwellings on northern portions all before 1896. The existing church structure was constructed by 1901 along with another rendition of the academy building, which was labeled as a convent by 1915. A six-story horse shoe-shaped building with a centrally located elevator was constructed on northwestern portions by 1915. The existing rectory appeared in its current configurations by 1950. The six-story mixed use commercial and residential building was demolished by 1981 and the subject properties remained in similar configuration through 2007.

Given the development history of the subject properties with the previous six-story mixed-use building complete with an elevator on Lot 16 that has since been demolished as well as a two-story dwelling on Lot 22 present through 2007, there is a potential for remnant historic structures (i.e, remnant foundations) and urban fill materials to be present on the subject properties. Same are considered BERs for the respective parcels.

4.2.2 Historical Aerial Photograph Review

EDR conducted a search and provided copies of available historical aerial photographs showing the subject and surrounding properties. Historical aerial photographs were provided for the years 1924, 1951, 1954, 1966, 1974, 1976, 1984, 1991, 1995, 2006, 2009, 2013 and 2017 (Appendix E). VHB preformed a review to identify information regarding past uses of the subject and surrounding

properties, in order to help determine if historical usage represented an environmental risk. The following is a summary of information provided within the aforementioned aerial imagery:

Date	Comments
1924 - 1951	**Subject properties:** Consistent with historical Sanborn maps, the subject properties were improved with the existing church building on southern portions, a horse shoe-shaped building on northwestern portions and smaller structures on northeastern portions. A building on central-west portions appears until 1966. **Surrounding Properties:** The surrounding area is densely developed with buildings of various configuration and size. The neighborhood is transected by a railway and parkland is present to the southeast. No intense industrial uses are visible.
1966	**Subject and Surrounding Properties:** The subject and surrounding properties are generally consistent with the previous aerial photographs; however, the smaller building on western portions is no longer visible, either demolished or obscured by shadows.
1984	**Subject properties:** The former horse shoe-shaped building no longer is present. The remaining portions of subject properties appear similar to their current configuration, with the church building present. **Surrounding Properties:** Consistent with historical Sanborn maps, the density of the surrounding area has decreased, with several parcels appearing vacant.
1991 - 2009	**Subject and Surrounding Properties:** The subject and surrounding properties are generally consistent with the 1984 aerial photograph. It should be noted that the resolution of certain aerial photographs is insufficient to determine precise building conditions and site uses.
2013 - 2017	**Subject and Surrounding Properties:** The subject and surrounding properties are generally consistent with the previous aerial photographs; however, the former dwelling on northeastern portions is no longer visible, either demolished or obstructed by tree cover.

The historical aerial photographs are generally consistent with the historical Sanborn maps, confirming that the subject properties were improved with several structures including the existing church building prior to 1924, shadowing the location of the former convent. The building structures on western, northwestern and northeastern parcels were demolished by 1966, 1984 and 2013, respectively. The subject properties have remained in similar configuration since approximately 2013.

As previously indicated, given the development history of the subject properties with the previous mixed-use buildings on Lots 10 and 16 that have since been demolished as well as a two-story dwelling on Lot 22, there is a potential for remnant historic structures (i.e, remnant foundations) and urban fill materials to be present on the subject properties. Same are considered BERs for the respective parcels.

4.2.3 Previous Environmental Site Assessments

No previous ESAs or information regarding previous environmental investigations/reports for the subject properties were provided to VHB for review at the time of preparation of this Phase I ESA.

4.2.4 Activity and Use Limitation

A search was conducted for Activity and Use Limitations (AULs) associated with the subject properties, more specifically Institutional Controls (ICs) and/or Engineering Controls (ECs), which have been placed upon the properties as a result of environmental issue identified at the subject properties. The search for environmental liens and AULs also included a review of information available from the New York City Department of Finance, NYCDOB, and the EDR report. No environmental liens or AULs were identified for the subject properties as a result of the search. However, it should be noted that there is an unresolved violation by DOB listed on the PPO for Lot 23 and an active stop work order was in effect at the time of preparation of this report. However, this does not appear to be environmental in nature and does not represent a significant environmental risk to the subject properties.

4.2.5 Summary of Site History

VHB was able to establish a history for the subject properties dating back to 1896 when the subject properties were improved with an early iteration of "St. Joseph's Academy" on southern portions, a mixed-use building on northwestern portions and two dwellings on northeastern portions. The existing church structure with basement for auditorium, meeting hall, cafeteria, dances, gym and school counseling was constructed by 1901 along with another rendition of the academy/convent building. The neo-Gothic church was built of white stone quarried from the lot and faced with polished granite on the front and rear ends.[1] When built, the church provided seating for about 1,500 persons. A six-story horse shoe-shaped building with a centrally located elevator was constructed on northwestern portions by 1915. The rectory appeared by 1950. The mixed-use commercial and residential buildings were demolished by 1981, and the dwelling on northeastern portions was demolished circa 2012. The church was closed as of 2015 and remaining buildings on the subject properties are currently undergoing demolition in 2019 for redevelopment.

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[1] A supplemental description of the subject property history was obtained from the New York City American Guild of Organists.

5.0

Regulatory Agency Database Search

EDR was retained to provide a computerized database search of the project area within an ASTM-standard radius of the subject properties (Appendix E). List of the databases searched, and the search radius is shown on the summary table below. VHB reviewed the database output to determine if the subject properties appear on any of the regulatory agency lists.

5.1 Federal Databases

Agency	Listing Name or Database Searched	Abbreviation	Search Distance	Subject Properties Listed?	No. of Sites within the Search Radius
USEPA	National Priorities List Sites, including Proposed and Delisted Sites	NPL	1.0 mile	No	0
USEPA	Superfund Enterprise Management System (former CERCLA Information System	SEMS and SEMS-ARCHIVE	0.5 mile	No	0
USEPA	Corrective Action Reports	CORRACTS	1.0 mile	No	0
USEPA	Federal Facility Site Information	FFSI	1.0 mile	No	0
USEPA	Resource Conservation and Recovery Act - Treatment, Storage and Disposal Facilities	RCRA-TSD	0.5 mile	No	0
USEPA	Resource Conservation and Recovery Act - Small/Large Quantity, Conditionally Exempt Small Quantity and Former Hazardous Waste Generators	RCRA SQG/LQG/CESQG/ NonGen	0.25 mile	**Yes**	5 LQG 3 SQG 0 CESQG 71 NonGen
USEPA	Engineering Control Sites	USEC	0.5 mile	No	0
USEPA	Institutional Control Sites	USIC	0.5 mile	No	0
USGS	Department of Defense Sites	DOD	1.0 mile	No	0
USACE	Formerly Used Defense Sites	FUDS	1.0 mile	No	0
USEPA	Brownfields Sites	US Brownfields	0.5 mile	No	0
USDOJ	Superfund (CERCLA) Consent Decrees	CONSENT	1.0 mile	No	0

Agency	Listing Name or Database Searched	Abbreviation	Search Distance	Subject Properties Listed?	No. of Sites within the Search Radius
USEPA	Superfund (CERCLA) Records of Decision	ROD	1.0 mile	No	0
USDOE	Mines Master Index File	UMTRA	0.5 mile	No	0
USEPA	Open Dump Inventory	ODI	0.5 mile	No	0
US NAVY	Land Use Control Information System	LUCIS	0.5 mile	No	0
USEPA	Mines Master Index File	MINES	0.25 mile	No	0
FEMA	FEMA Underground Tank Database	FEMA-UST	0.25 mile	No	0

The subject properties were identified on one of the above listed databases: RCRA-NonGen. The RCRAInfo database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by RCRA. Although they may have in the past, RCRA-NonGen sites do not presently generate hazardous waste. A review of the EDR report revealed that the one RCRA-NonGen listings associated with a subject property address represents a utility feature, a service boxes, maintained by the local electrical company. The listings are the result of shipments circa 2014 of lead-impacted waste typical during routine maintenance. These features do not typically cause significant subsurface impacts. Furthermore, no record of RCRA violations or spill files were identified in connection to these features. As such, the RCRA-NonGen listings do not represent a significant environmental risk to the subject properties.

The subject properties are not included on any of the other above-listed federal databases.

In addition to the 18 federal databases with search radii of one-eighth of a mile to one mile, over 22 additional federal databases were searched to determine if the subject properties are listed. These databases include Federal Superfund Liens (NPL Liens), Emergency Response Notification System (ERNS), Hazardous Material Information Reporting System (HMIRS), Toxic Chemical Release Inventory System (TRIS), Toxic Substances Control Act (TSCA), TSCA Tracking System (FFTS), Section 7 Tracking System (SSTS), Integrated Compliance Information System (ICIS), Radiation Information Database (RADINFO), Federal Insecticide, Fungicide & Rodenticide Act / Toxic Substance Control Act Tracking System (FTTS), Historic FTTS sites (HISTFTTS), US Department of Transportation Incident and Accident Date (DOT OPS), Clandestine Drug Labs (CDL), Historical Clandestine Drug Labs (HCDL), CERCLA Lien information (LEINS2), PCB Activity Database System (PADS), Material License Tracking System (MLTS), Facility Index List (FINDS), RCRA Administrative Action Tracking System (RAATS), PCB Transformer Registration Database (PCBTRD), Coal Ash – Department of Energy (CADOE) and Financial Assurance Information Listing (FAIL). The subject properties are not listed any of the 22 additional federal databases.

A review of the EDR report has revealed that there are five RCRA-LQG and three RCRA-SQG facilities as well as 70 additional RCRA-NonGen facilities listed as within one-quarter mile of the subject properties.

Resource Conservation and Recovery Act – Large Quantity, Small Quantity, Conditionally Exempt Small Quantity and No Longer Regulated Hazardous Waste Generators (RCRA-LQG, RCRA-SQG, RCRA-CESQG and RCRA-NonGen)

As previously mentioned, the RCRAInfo database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by RCRA. RCRA-LQGs generate over 1,000 kilograms (kg) of hazardous waste or over one kg of acutely hazardous waste per month. RCRA-SQGs generate between 100 kg and 1,000 kg of hazardous waste per month. RCRA-NonGen sites do not presently generate hazardous waste. There was a total of 79 RCRA facilities located within one-quarter mile of the subject properties. There are no unresolved violations are associated with the RCRA-LQG and RCRA-SQG facilities identified within one-quarter mile of the subject properties. Furthermore, none of the aforementioned RCRA-LQG and RCRA-SQG facilities are located adjacent to the subject properties. As previously indicated, RCRA-NonGen sites do not presently generate hazardous waste and, therefore, their listings are unlikely to represent a significant environmental risk to the subject properties. In addition to the utility feature associated with the subject properties, there are two RCRA-NonGen facilities potentially located adjacent to the subject properties. The same are as follows:

- ConEdison, 495 East 178th Street, refers to a utility feature located adjacent to the north and hydraulically upgradient of the subject properties. There is no record of violations or other listings in connection with this facility. As previously discussed, these utility service features are not typically anticipated to cause significant subsurface impacts on adjacent or surrounding properties. As such, this listing does not represent a significant environmental risk to the subject properties.

- Bronx Shepherds Restoration Corporation, 1932 Washington Avenue, refers to a contractor office that is present adjacent to the south and hydraulically downgradient of the subject properties. The listings are the result of shipments of ignitable, corrosive, non-halogenated solvent and lead wastes circa 2015. No additional information is included in the EDR database report. There is no evidence to suggest that this listing represents a significant environmental risk to the subject properties.

There were no additional federal database listings in the EDR database report.

5.2 New York State Databases

Agency	Listing Name or Database Searched	Abbreviation	Search Distance	Subject Properties Listed?	No. of Sites within the Search Radius
NYSDEC NJDEP	Inactive Hazardous Waste Disposal Sites, including De-listed Sites	SHWS	1.0 mile	No	1 SHWS Delisted SHWS
NYSDEC	Vapor Intrusion Legacy Site List	VAPOR	1.0 mile	No	0
NYSDEC	Hazardous Substance Waste Disposal Site	HSWDS	0.5 mile	No	0
NYSDEC	Solid Waste Facilities/Landfill Sites	SWF/LF	0.5 mile	No	2 SWF/LF
NYSDEC	Registered Recycling Facility List	SWRCY	0.5 mile	No	1 SWRCY
NYSDEC	Registered Waste Tire Storage Facility List	SWTIRE	0.5 mile	No	0
NYSDEC	Leaking Underground Storage Tanks, including Historical LTANKS	LTANKS / HLTANKS	0.5 mile	No	38 LTANKS
NYSDEC	Petroleum Bulk Storage - Underground and Aboveground Storage Tank Databases	PBS UST/AST	0.25 mile	**Yes**	16 UST 69 AST
NYSDEC	Chemical Bulk Storage - Underground and Aboveground Storage Tank Databases	CBS UST/AST	0.25 mile	No	0
NYSDEC	Major Oil Storage Facility - Underground and Aboveground Storage Tank Databases	MOSF UST/AST	0.5 mile	No	0
NYSDEC	Registry of Engineering Controls	NYEC	0.5 mile	No	1 NYEC
NYSDEC	Registry of Institutional Controls	NYIC	0.5 mile	No	1 NYIC
NYCDCP	Restrictive Declarations List	RES-DECL	0.125 mile	No	1 RES-DECL
NYSDEC	Voluntary Cleanup Agreements	VCP	0.5 mile	No	3 VCP
NYSDEC	Environmental Restoration Program	ERP	0.5 mile	No	0
NYSDEC	State Brownfields Site List	Brownfields	0.5 mile	No	2 Brownfields
NYCDEP	E-Designation Site List	E-DES	0.125 mile	No	19 E-DES
NYSDEC	Spills Information Database, including Historic Spills Database	NYSPILLS / NYHSPILLS	0.125 mile	No	29 NYSPILLS
NYSDEC NJDEP	Facility and Manifest Data	MANIFEST	0.25 mile	**Yes**	107 MANIFEST
NYSDEC	Registered Dry-cleaning Facilities	DRYCLEANERS	0.25 mile	No	1 DRYCLEANERS
NYSDEC	Coal Ash Disposal Sites List	CADS	0.5 mile	No	0

The subject properties are listed on two of the above-referenced state databases: MANIFEST and PBS-AST.

The MANIFEST databases provide information on hazardous waste shipments and the generators of such shipments, as well as tracking the waste transported and listing the waste disposal facility. A review of the EDR report revealed that the one MANIFEST listings associated with a subject property address represents a utility service box maintained by the local electrical company. The listings are the result of shipments circa 2014 of lead-impacted waste typical during routine maintenance. As stated above, there are no violations associated with the RCRA listings and it is unlikely these listings represent a significant risk to the subject properties.

The inclusion of a site on the PBS-UST/AST lists means that the subject properties are registered with one or more storage tanks exceeding certain capacities. These databases do not indicate leaks, spills, or other violations. Lot 10 is listed on the PBS-AST database, under the name "St. Joseph's Church." The EDR report indicates this parcel included in the subject properties is registered with the following storage tank:

- One (1) steel 3,000-gallon fuel oil AST resting directly on soil, reportedly installed circa 1911 and reportedly in-service as of April 14, 2017.

No documentation of the AST condition has been provided to VHB for review as part of this Phase I ESA and the site personnel indicated during site reconnaissance and interview that they were unaware of its location (see Sections 6.3 and 6.4.2 of this Phase I ESA). It is unknown if the AST condition was assessed prior to the commencement of demolition activities, or whether the AST historically leaked and impacted the subsurface environment.

Furthermore, a review of municipal records indicate that USTs were formerly present at the subject properties and no documentation of the conditions of the UST at the time of removal has been provided to VHB for review as part of this Phase I ESA. It should also be noted that the USTs formerly at the subject properties may not have been registered based on their relatively low capacity (under 1,100-gallons). The potential presence of an AST and former USTs represents a BER.

The subject properties are not listed on any of the other above-referenced state databases.

In addition to the 21 New York State (NYS) databases with search radii of one-eighth of a mile to one mile, four additional NYS databases, the State Pollutant Discharge Elimination System (SPDES), Air Emissions Data (AIRS), Historic Aboveground Storage Tanks (Hist-AST) and Underground Injection Control Wells (UIC) were searched to determine if the subject properties were listed. The subject properties were not listed on the four additional NYS databases included in the EDR search report.

A review of the EDR report has revealed that there is one SHWS site within one mile; two SWF/LF facilities, one SWRCY facilities, 38 LTANKS sites, one NYEC/ NYIC sites, three VCP sites and two NY Brownfields sites within one-half mile; 16 PBS-UST and 71 PBS-AST facilities as well as one 108 MANIFEST sites and one DRYCLEANERS site within one-quarter mile; and one RES-DECL site, 19 E-DES sites and 29 NYSPILLS sites within one-eighth mile of the subject properties.

New York State Hazardous Waste Sites (SHWS)

The SHWS database is the State's equivalent to the federal Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). These sites may or may not already be listed on the federal National Priority List (NPL). Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. The one SHWS facility listed in the EDR report is summarized as follows:

- Kleener King, 1610 Bathgate Avenue, refers to a former drycleaner location approximately 0.54 mile south-southwest of the subject properties and hydraulically downgradient. Following closure of the dry-cleaning business and abandonment of the facility by the owner/operator, hazardous waste was found consisting of chlorinated solvents in groundwater and soil vapor. However, given the distance from the subject properties and downgradient location with respect to groundwater flow, it is unlikely this site represents a significant environmental risk to the subject properties.

Leaking Underground Storage Tanks (LTANKS)

These records contain an inventory of reported leaking storage tank incidents. They can be either leaking underground storage tanks (USTs) or leaking aboveground storage tanks (ASTs). The causes of the incidents are tank test failures, tank failures or tank overfills. Each of the 38 LTANKS sites listed in the EDR database report were issued letters of no further action by the NYSDEC, and there is no evidence to suggest that these sites represent a significant environmental risk to the subject properties. Furthermore, none of the aforementioned LTANKS sites are located adjacent to the subject properties.

New York Engineering Controls and Institutional Controls (NYEC/ (NYIC)

The NYEC database contains a listing of environmental remediation sites that have engineering controls in place while the NYIC database contains a listing of environmental remediation sites that have institutional controls in place. There was one site listed on the NYIC and NYEC databases identified in the EDR database report. The same is summarized as follows:

- Webster Avenue Residences, 411 East 178th Street/ 1973 Webster Avenue, refers to a development site located approximately 700 feet northwest and hydraulically

crossgradient with respect to groundwater flow. According to the EDR database report, historical fill materials were identified at this site which was also formerly occupied by automotive shops and former gasoline station. Remediation at the site was completed and residual contaminants are being managed under a Site Management Plan (SMP). Groundwater contamination was not reported in connection with this site. As such, this site is unlikely to represent a significant environmental risk to the subject properties.

Solid Waste Facilities/Landfill Sites (SWF/LF)

The SWF/LF records typically contain an inventory of transfer stations, car dismantling facilities, other solid waste disposal facilities or landfills in a particular state. Neither of the two SWF/LF sites identified in the EDR database report are located adjacent to the subject properties and are situated hydraulically crossgradient or downgradient with respect to groundwater flow. Given the distances and locations, it is unlikely these sites would represent a significant environmental risk to the subject properties.

Solid Waste Disposal Sites and Registered Recycling Facility List (SWRCY)

The SWRCY database provides a listing of registered recycling facilities. The one SWRCY site identified in the EDR database report is located over one-quarter mile from the subject properties and crossgradient with respect to groundwater flow. Given the distance and location, it is unlikely this site represents a significant environmental risk to the subject properties based on the available information.

Voluntary Cleanup Program (VCP)

The VCP was developed by New York to enhance private sector cleanup of brownfield sites by enabling parties to remediate sites using private rather than public funds and to reduce development pressures. None of the three VCP sites identified are located adjacent of the subject properties. Two (2) of the three (3) VCP listings are associated with, Webster Avenue Residences, which was previously summarized under its NYEC/ NYIC database listings and was determined not to represent a significant environmental risk to the subject properties. The remaining VCP site is located southwest and hydraulically downgradient of the subject properties of the subject properties. As such, none of the identified VCP sites represent a significant environmental risk to the subject properties.

Brownfields

A Brownfields site is a property where the presence or potential presence of hazardous waste, petroleum, pollutants or contaminants may complicate redevelopment or re-use of the site. There are two Brownfields sites listed in the EDR database report. One of the Brownfields listings are associated with, Webster Avenue Residences, which was previously discussed with respect to its NYEC/ NYIC and VCP database listings and was determined not to represent a significant environmental

risk to the subject properties. The remaining Brownfield site is located south and hydraulically downgradient of the subject properties. As such, none of the identified Brownfield sites represent a significant environmental risk to the subject properties.

Petroleum Bulk Storage – Underground and Aboveground Storage Tank Databases (PBS-UST/AST)

A previously discussed, the inclusion of a site on the PBS-UST/AST lists means that a site has one or more registered underground/aboveground storage tank(s), regulated under regulated under the NYSDEC Petroleum Bulk Storage and/ or the FDNY. This database does not indicate leaks, spills or other violations. There are 16 identified PBS-UST sites and an additional 70 PBS-AST facilities surrounding the subject properties. As the number of these sites in surrounding areas increase, the greater potential for subsurface conditions to have been affected and impair groundwater quality. Nonetheless, there is no evidence in the listings that suggests the presence of USTs and ASTs at surrounding sites currently represents a significant environmental risk to the subject properties. The four adjacent PBS-UST/AST facilities are summarized, as follows:

- 463 East 178th St HDFC, 463 East 178th Street, refers to a co-op housing building adjacent to the north-northwest and hydraulically upgradient or crossgradient from the subject properties. According to the EDR database, this property is registered with one (1) 5,000-gallon steel #2 fuel oil AST resting directly on soil, reportedly installed February 17, 1981 and currently in-service with no recent tightness testing information available. Given the location of the facility across an intersection, there is no evidence to suggest that the presence of the AST at this adjacent site currently represents a significant environmental risk to the subject properties.

- 495 East 178th St HDFC, 495 East 178th Street, refers to a co-op housing building adjacent to the north-northeast and potentially hydraulically upgradient from the subject properties. According to the EDR database, this property is registered with one (1) 4,000-gallon steel #4 fuel oil AST reportedly installed October 26, 1941, in-service and last tested January 18, 2018. Given the location of the facility across a roadway, there is no evidence to suggest that the presence of the AST at this adjacent site currently represents a significant environmental risk to the subject properties.

- Quest Property MGMT II Corp., 505 East 178th Street, refers to an apartment building with ground floor convenience store located adjacent to the northeast and potentially hydraulically upgradient from the subject properties. According to the EDR database, this property is registered with one (1) 3,500-gallon steel #6 fuel oil AST resting directly on soil, reportedly installed circa 1928 and currently in-service with no recent tightness testing information available. Considering the location of the facility across an intersection, there is no evidence to suggest that

the presence of the AST at this adjacent site currently represents a significant environmental risk to the subject properties.

- St Joseph's School, 1946 Bathgate Avenue, refers to the associated parochial school building across a roadway adjacent to the east and hydraulically crossgradient of the subject properties. According to the EDR database report, this property is registered with one (1) 3,000-gallon steel #2 fuel oil AST resting directly on soil, reportedly installed circa 1960 and currently in-service with no recent tightness testing information available. Given the location of the facility across a roadway, there is no evidence to suggest that the presence of the AST at this adjacent site currently represents a significant environmental risk to the subject properties.

Facility and Manifest Database (MANIFEST)

As previously stated, the MANIFEST databases provide information on hazardous waste shipments and the generators of such shipments, as well as tracking the waste transported and listing the waste disposal facility. There were 105 additional MANIFEST sites identified within one-quarter miles of the subject properties. The majority represent utility service features, not typically anticipated to cause significant subsurface impacts on adjacent or surrounding properties. There is no reported evidence that suggests these listings represent a significant environmental risk to the subject properties. The two potentially adjacent MANIFEST listings were previously discussed with respect to their RCRA listings, which were determined not to represent any significant environmental risk to the subject properties.

Registered Drycleaning Facilities (DRYCLEANERS)

The DRYCLEANERS database contains a listing of all registered dry-cleaning facilities. These facilities consider high risk for potential sources for chlorinated solvent waste contamination of groundwater and/or soil vapor. There was one registered DRYCLEANERS sites listed in the EDR report, which is located one-quarter mile to the northwest and hydraulically crossgradient of the subject properties. Based on the distance and hydraulic location, it is unlikely that this site would represent a significant environmental risk to the subject properties.

Restrictive Declarations List (RES-DECL)

This database contains a listing of sites with restrictive declarations. A restrictive declaration is a covenant that binds present and future owners of a property to specific conditions regarding the future use and development of the site. The one RES-DECL site listed in the EDR database report is summarized as follows:

- "Lot 42, Tax Block 2924", 507 East 176th Street, refers to a development site located approximately 600 feet south of the subject properties and hydraulically downgradient with respect to groundwater flow. According to the EDR database

report, this property is registered with a UST and one "closed" NYSPILLS listing. The RES-DECL pertains to hazardous materials conditions and was recorded on November 1, 2006. No additional information was included in the EDR database report. However, based on the distance and hydraulic location, it is unlikely that this site would represent a significant environmental risk to the subject properties.

E-Designation

Sites listed on the E-Designation (E-DES) database are lots designated with an "E" on the Zoning Maps of the City of New York for potential hazardous materials contamination, air and/or noise quality impacts. None of the 19 E-DES sites identified in the EDR database report are located adjacent to the subject properties, and there is no reported evidence that suggests these sites represent a significant environmental risk to the subject properties. Furthermore, these sites are all located either downgradient or crossgradient of the subject properties and listings for the nearest E-DES sites pertain only to exhaust stack location limitations.

New York Spills Information Database (NYSPILLS)

The NYSPILLS database contains information regarding spills reported to the NYSDEC, including chemical and petroleum spills incidents. This database includes spills active as of April 1, 1986, as well as spills occurring since this date. Each of the 29 NYSPILLS sites listed in the EDR database report were issued determinations of no-further-action required by the NYSDEC, and there is no reported evidence in the database search which suggests that these sites are a significant environmental concern to the subject properties. Furthermore, none of the identified NYSPILLS sites listed in the EDR database report are located adjacent to the subject properties.

There were no additional state database listings in the EDR database report.

5.3 Tribal Records and EDR Proprietary Databases

Agency	Listing Name or Database Searched	Abbreviation	Search Distance	Subject properties Listed?	No. of Sites within the Search Radius
USGS	Indian Reservations	IRESERVE	1.0 mile	No	0
USGS	Indian Reservation - Leaking Underground Storage Tanks	ILTANKS	0.5 mile	No	0
USGS	Indian Reservation - Registered Underground Storage Tanks	IUST	0.25 mile	No	0
USGS	Indian Reservation – Open Dump Inventory Sites	IODI	0.25 mile	No	0
USGS	Indian Reservation – Voluntary Cleanup Program Sites	IVCP	0. 5 mile	No	0
EDR	Manufactured Gas Plants	MGP	1.0 mile	No	1 MGP
EDR	Historical Auto Stations	HAS	0.5 mile	No	3 HAS
EDR	Historical Cleaners	HCL	0.5 mile	No	2 HCL

The subject properties do not appear on any tribal records of EDR proprietary databases.

A review of the EDR report has revealed that there is one MGP site, three HAS and two HCL sites within one-half mile of the subject properties.

Manufactured Gas Plant (MGP)

The EDR Proprietary MGP database includes records of coal gas plants compiled by EDR's researchers. MGPs were used in the United States from the 1900s to 1950s to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar, sludge, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as continuous source of soil and groundwater contamination. The one identified MGP site is Con Edison – East 175th Street Station MGP, 1815 to 1845 Webster Avenue, located approximately one-quarter mile southwest and hydraulically crossgradient or downgradient from the subject properties. Based upon the distance and hydraulically location, this site does not represent an environmental risk to the subject properties.

Historical Auto Stations (HAS)

The HAS database contains a listing of potential filling/ gasoline stations and automotive repair shops. The three HAS listings identified are each located approximately one block northwest, west or southwest of the subject properties and crossgradient with respect to groundwater flow. None of the identified HAS sites are situated adjacent to the subject properties, and there is no reported evidence that suggests these sites are a significant environmental risk to the subject properties.

US Historical Cleaners (HCL)

The HCL database contains a listing of potential drycleaner sites. This database falls within EDR's category of information classified as "High Risk Historical Records." The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash and dry etc. Two HCL sites were identified within one-eight mile or one city block of the subject properties. Neither are situated adjacent of the subject properties. The same are each located to the southwest and southeast and hydraulically crossgradient of the subject properties. Based on the available information, there is no evidence to suggest these sites represent a significant environmental risk to the subject properties.

5.4 Orphan Site Summary

Orphan sites are those sites where due to poor or inadequate address information the location of the property cannot be determined sufficiently for it to be included on the radius map. However, sites with similar street names or zip codes are summarized in the database report as these sites may present environmental risks to the subject properties. The Orphan Summary identified three sites with inadequate address information. Based on a review of the available information, it was determined that none of the listed sites are located adjacent to the subject properties and each are unlikely to present a significant environmental concern.

6.0

Site Reconnaissance

6.1 Site Inspection

VHB representative Christopher Rooney visually inspected the subject properties on June 20, 2019. VHB visually inspected the grounds as well as representative portions of the interior of the partially demolished building. The aforementioned building occupies southern portions of the subject properties and was vacant and gutted at the time of the site visit. The basement was utilized to staged temporary stockpiles of wood and other debris. The remaining portions of the subject properties consisted of a paved courtyard on northwestern portions utilized as temporary contractor yard with a stone staircase leading to a out-of-service fountain and the former location of a leveled rectory building on central portions. A single wall of the rectory remains and is braced to support an unpaved elevated area on northeastern portions surrounding by a retaining wall along 178th Street and Bathgate Avenue. Although generally visible from adjacent scaffolding, it should be noted that access to the elevated northwestern portions of the subject properties was restricted.

6.2 Surrounding Land Use

North: 178th Street followed by multifamily co-operative apartment buildings.

South: A daycare facility with basketball court adjoining a vacant contractor office.

East: Bathgate Avenue with an associated Parochial School directly across and flanked by a funeral home and duplex residential structure.

West: A religious/institutional property with church building advertising day-care and adjoining two-story residences with gated driveways/ yards in front.

6.3 Interviews

VHB was accompanied by Elliton, a demolition crew foreman and equipment operator in association with Kingsland Demolition/ Blue Rock Contracting Inc. (Kingsland), provided general access during the visual inspection conducted on June 20, 2019. The Kingsland representative indicated that they had recently demolished a stage inside the basement of the former church building as well as nearly the entirety of the former rectory building on central portions and were utilizing northwestern portions of the subject properties for staging an excavator and other heavy equipment. VHB was informed that no access was available to the isolated and elevated northwestern portions, which were supported by a remaining wall of the rectory. He also indicated that the demolition contractor was instructed to leave the central stair case intact.

VHB inquired with Elliton if he was aware of any oil tanks on the property or removed as part of the on-going demolition activities. Although no one present at the site was able to indicate the status of any oil tank, the demolition contractor indicated that diesel recovered from another site was stored on-site in three plastic 55-gallon drums. Elliton noted he was only present at the site for a few months and presumed oil tanks were dealt with prior to his mobilization, but that they were capable of removing any that if discovered. VHB was also informed that the demolition is generally accomplished by driving debris starting with upper floor into the interior portions and collecting and segregating debris utilizing a skidsteer and excavator to load the same for off-site disposal.

No additional personnel or occupants were available for interview during the site reconnaissance.

6.4 Summary of Environmental Site Features

6.4.1 Hazardous Materials Handling, Storage and Disposal

No substantial hazardous material disposal and/or industrial operations were observed at the subject properties during the time of the visual inspection. VHB noted the presence of small quantities of gasoline as well as flammable gas canisters present in association with the demolition activities. The presence of these items does not represent a significant environmental risk. However, same should be properly handled/removed in accordance with applicable regulations.

6.4.2 Underground and Aboveground Storage Tanks

VHB noted the presence of a fill port at grade on central-east portions of the subject properties (between the former church building and former location of the rectory) approximately 20 feet from the construction entrance. In addition, VHB observed an exhaust stack that has been added to southwestern portions of the former church building and two remnant pipes surfacing above accumulated rubble in nearby interior portions of the building footprint.

The remnant of the former church building structure was not heated during the time of the visual inspection. However, the property has a history of utilizing a fuel oil-fired heating system, based on municipal records and site observations. Lot 10 is registered with one (1) steel 3,000-gallon fuel oil AST resting directly on soil, reportedly installed circa 1911 and reportedly in-service as of April 14, 2017. No documentation of the AST condition has been provided to VHB for review as part of this Phase I ESA and the site personnel indicated during site reconnaissance and interview that they were unaware of its location (see Section 6.3). It is unknown if the AST condition was assessed prior to the commencement of demolition activities, or whether the AST historically leaked and impacted the subsurface environment.

Furthermore, local municipal records indicate that other storage tanks including two (2) steel 275-gallon USTs and one (1) steel 1,000-gallon UST were formerly present at the subject properties and no documentation of the conditions of the USTs at the time of removal on has been provided to VHB for review as part of this Phase I ESA. Although VHB observed the presence of a fill port, exhaust stack and potential additional remnant piping at the subject properties, the former location of the USTs nor location and condition of the AST is unconfirmed. It should be noted that the USTs formerly at the subject properties may not have been registered based on their relative low capacities (under 1,100-gallons). The potential presence of an AST and remnant USTs represents a BER for the subject properties.

In addition to the above, several plastic 55-gallon drums containing diesel/ fuel oil are situated on central portions of the subject properties. However, the same were observed to be in good condition, are being utilized in association with the demolition activities and the presence of these items does not represent a significant environmental risk. No additional visual evidence of petroleum storage tanks (i.e., tank graves, boilers or fuel lines) was identified.

6.4.3 Utilities and Sanitary and Stormwater Disposal Facilities

<u>Utilities Provided to the Site</u>

- Electricity is provided via underground distribution lines based on site observations including utility manholes present in the adjacent roadways.

- Telephone is available via overhead distribution lines. A utility pole was present on the north-central portions of the subject properties during site reconnaissance.
- Natural gas was provided via underground distribution lines. Natural gas shut-off valve boxes are present to the west of the former church building.

Sanitary and Stormwater Disposal Systems

- Sanitary wastes historically generated at the former buildings were presumably discharged into the municipal sewer system. Sanitary wastes are currently generated via mobile out-house associated with demolition activities.
- Stormwater runoff infiltrates into the ground in unpaved areas or flows overland to discharge into curbside storm drains located on neighboring roadways. Although stormwater may have historically discharged to area and floor drains on-site, same presumably discharged to the municipal sewer system.

Water Supply

- Potable water is supplied by the municipal provider (NYCDEP).

6.4.4 Underground Injection Control Program-Regulated Site Features

Underground injection wells are regulated by the UIC program under the authority of Part C of the Safe Drinking Water Act (SDWA) (42 U.S.C. 300h *et seq.*). The SDWA is designed to protect the quality of drinking water in the United States, and Part C specifically mandates the regulation of underground injection fluids through wells. The USEPA has promulgated a series of UIC regulations under this authority that specifically addresses Class V injection wells, which include on-site wastewater disposal features such as drywells, cesspools and in-situ drains.

The USEPA *may*, at its discretion, require the owner or operator of any well authorized by rule to submit information for review to determine if a well may be endangering an underground source of drinking water.

No sanitary wastes are currently generated at the subject properties. Although stormwater may have historically discharged to area and floor drains on-site, same presumably discharged to the municipal sewer system. Furthermore, no storm drains or drywells were identified during site reconnaissance. Stormwater currently infiltrates into the ground at the subject properties or flows overland to discharge into curbside storm drains located on neighboring roadways. No pits, ponds or cisterns were observed during the site reconnaissance.

6.4.5 Potable Water Supply and On-Site Wells

Potable water is provided to the surrounding properties by a municipal water source. No on-site potable water wells, active or inactive, or groundwater monitoring wells were observed on the subject properties during the visual inspection. Furthermore, there are no public water supply wells within one mile of the subject properties.

6.4.6 Polychlorinated Biphenyls

PCBs were used until 1978 and are a group of compounds formed by the chlorination of biphenyl. PCBs have high physical and chemical stabilities which led to their being used in many applications, including heat transfer fluids, hydraulic fluids and dielectrics. PCBs are often found in transformers, capacitors and hydraulic systems. PCBs were also added as a plasticizer in caulking used to seal joints between masonry units and around windows, in addition to other building materials such as paints, mastics, sealants, adhesives and specialty coatings. According to the USEPA, PCBs were used in buildings primarily between 1950 and 1980. Electrical equipment containing PCBs are still in use and can pose a serious health hazard if fluids come in direct contact with humans, soil or groundwater. Fires involving electrical equipment containing PCBs can cause the material to be dispersed over a large area and potentially expose many people to a health risk. Because of the health hazard associated with PCBs, they are regulated under the TSCA.

No transformers were observed on the subject properties or mounted on nearby utility poles. Same may be in vaults beneath the adjacent roadways. Sanborn map depictions indicated that the six-story mixed-use building formerly on northwestern Lot 16 was equipped with a passenger elevator. However, given the height of the former building (as six stories), it is likely the elevator was cable-operated and unlikely to have been equipped with PCB-containing hydraulic fluid.

No additional features with the potential to contain PCBs were identified. It is assumed that and ballasts as well as building materials (i.e. caulk, mastics, etc.) potentially containing PCBs were managed in according to federal disposal restrictions as part of standards demolition/ renovation practices. As such, PCBs are not considered a significant environmental risk for the subject properties based on available information.

6.4.7 Debris, Dumping and Surficial Staining

As part of demolition, debris removal was on-going at the time of the site reconnaissance. The building debris were stockpiled within the building frame and were being loaded into containers for off-site disposal. These activities do not

represent a significant environmental concern. Limited quantities of refuse and litter observed during site reconnaissance. Although not considered a significant environmental risk, the same should be removed. No substantial quantities evidence of illicit dumping or surficial staining was observed at the subject properties during the visual inspection.

6.4.8 Fill Materials

Historic Sanborn maps reviewed as part of this Phase I ESA revealed the former presence of mixed-use building on the northeastern portions of Lot 10 and Lot 16 and a former residential building on northwestern Lot 22 having been located on the subject properties, which have since been demolished. Lot 22 is elevated with respect to the surrounding grade such that retaining walls are present surrounding the same. As such, it is likely that fill material from unknown sources was utilized to grade the property. Given this information as well as previous development and demolition at the subject properties, urban fill may be present at the site. The potential presence of urban fill materials from previous site development represents a BER.

6.4.9 Stressed Vegetation

No stressed vegetation was identified during the site reconnaissance which included a walkthrough of the exterior grounds.

6.4.10 Soil Vapor Migration and Encroachment

VHB conducted a Tier 1 vapor encroachment screen in accordance with ASTM E2600-10 *Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions*. The ASTM E2600-10 guidance provides, "*…practical guidance and a useful process for conducting a vapor encroachment screen (VES) on a property parcel involved in a real estate transaction in the United States of America with respect to chemicals of concern (COC) that may migrate as vapors onto a property as a result of contaminated soil and groundwater on or near the property.*"

The goal of the VES, as established by the ASTM E2600-10 is to, "*...identify a vapor encroachment condition (VEC) which is the presence of likely presence of COC vapors in the sub-surface of the target property caused by the release of vapors from contaminated soil or groundwater either on or near the target property…*"

The Tier 1 screening included a review of the following:

- Available regulatory data (i.e. historical aerial photographs, historical Sanborn maps and the EDR database report [see Section 5.0]).

- A review of municipal records, including NYSDEC spill records.
- Current and historical usage of the subject properties and surrounding areas.
- Depth to groundwater and groundwater flow direction in the vicinity of the subject properties.
- Soil characteristics in the vicinity of the subject properties.
- Preferential pathways.
- Current remedial status of any contaminated properties.

Based upon a review of the aforementioned resources, a VEC is unlikely to exist at the subject properties.

7.0

Non-Scope Considerations

7.1 Radon

Radon is a colorless, radioactive, inert gas formed by the decay of radium and may be present in soils and rocks containing granite, shale, phosphate and pitchblende. The USEPA's Map of Radon Zones for New York State, September 1993, indicates that Bronx, where the subject properties is located, is in Zone 3. Properties within Zone 3 are least likely to experience radon intrusion above the recommended action level of 4 picocuries per liter (pCi/L). The EDR report provides information from the NYSDOH radon survey which indicates that 138 radon tests have been conducted in Bronx County. Test results indicate average radon concentrations of 1.74 pCi/L in basements and 1.14 pCi/L in living areas. Based on these data, radon does not likely represent an environmental concern.

7.2 Lead-Based Paint

In 1978, the United States Product Safety Commission issued a ban on paints or surface coatings that contain greater than 0.06 percent lead. LBP is defined by the USEPA and Housing and Urban Development (HUD) guidelines as paint or other surfaces coating that contains lead equal to or greater than 0.5 percent, 5,000 parts per million (ppm) or 1.0 milligram per square centimeter (mg/cm^2) as measured by laboratory analysis or X-ray fluorescence (XRF). No painted surfaces were identified within the interiors of remaining building portions. No documentation of previous lead-paint testing or abatements was provided for review. Although there was a potential for LBP to have been present at the subject properties in association with former buildings, same is anticipated to be mitigated by disposal of debris during observed demolition activities. Therefore, the presence of LBP is not considered an environmental concern.

7.3 Asbestos-Containing Materials

Asbestos is the name given to a group of fibrous silicate minerals, typically those of the serpentine group. The tensile strength, flexibility, and non-flammability of asbestos have led to many uses including structural materials, brake linings, insulation, and pipe manufacture. Asbestos is of concern as an air pollutant because when inhaled it may cause asbestosis, mesothelioma and bronchogenic carcinoma. In 1989, the USEPA announced regulations that would phase out most uses of asbestos by 1996. Given the age of the existing structures, there is potential for ACM to the present amongst building materials and sub-grade piping. Same is not considered a potential environmental hazard unless friable or otherwise disturbed.

Roofing materials including tar paper were observed on remaining portions of the former church building roof at the time of the site reconnaissance. However, it is presumed that this and any other remaining buildings materials have been determined to not contain asbestos as VHB was provided with documentation confirming that the all ACM has been abated from the entire building. An Asbestos Assessment Report dated January 7, 2019 and signed by a NYCDEP Certified Asbestos Investigator is included in Appendix G of this Phase I ESA. Based on the provided information, asbestos does not represent an environmental concern for the subject properties.

7.4 Wetlands

Pursuant to 6 NYCRR Part 661, the NYSDEC restricts various uses and activities within state regulated tidal wetlands and the surrounding 300-foot adjacent area. The NYSDEC Tidal Wetlands Maps (available online at opdgig.dos.ny.gov) depict the approximate boundaries of tidal wetlands under NYSDEC jurisdiction. According to NYSDEC Tidal Wetlands Maps, there are no NYSDEC tidal wetlands located at or within 300-feet of the subject properties. Furthermore, the nearest tidal wetlands are located greater than one mile from the subject properties.

Pursuant to 6 NYCRR Parts 663 and 664, the NYSDEC regulates various uses and activities within NYS-regulated freshwater wetlands and the surrounding 100-foot adjacent area. The NYSDEC Environmental Resource Mapper (ERM) website (available online at dec.ny.gov/gis/erm/) and NYSDEC Tidal Wetland Maps depict the approximate boundaries of freshwater wetlands under NYSDEC jurisdiction. According to the ERM website, there are no NYSDEC-regulated freshwater wetlands located at or within one mile of the subject properties.

The United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) Wetlands Mapper website (available online at fws.gov/wetlands/wetlands-mapper) depicts the approximate boundaries of wetlands that may be regulated by the federal government. In general, any proposed direct impact to federally-regulated

wetlands (e.g., draining, filling, dredging, discharges, outfalls, construction of structures, etc.) requires a permit from the USACE. According to the NWI website, the nearest potential federal wetlands are those located approximately 0.60 mile to the southeast of the subject properties. These wetlands are associated with Indian Lake and are classified as PUBHx, which are classified as a Palustrine System with an unconsolidated bottom that is excavated and permanently flooded.

Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) were reviewed to determine if the subject properties are located within the 100-year or 500-year flood zones. The FIRM showing the properties (No. 3604970213F) that the subject properties is located outside of the 100-year and 500-year flood zone. As such, there is a minimal risk of flooding at the subject properties.

7.5 Mold and Water Damage

As there are no habitable structures present, the presence of mold is not an environmental risk for the subject properties. Any potential mold/mildew-infested surfaces would be addressed as part of demolition and debris removal of the on-site buildings.

8.0
Findings

This document is a Phase I ESA prepared to determine evidence of RECs, CRECs, HRECs and BERs in connection with four (4) contiguous parcels on the northern portions of a block bound by Washington Avenue, East 178th, Bathgate Avenue and East Tremont Avenue in the Borough of The Bronx, Bronx County, City of New York, State of New York. The subject properties are collectively known by the street address of 1949 Bathgate Avenue, and are identified on the New York City (NYC) Tax Maps as Borough 2 - Block 3034 – Lots 10, 16, 22 and 23.

The subject properties have a topographic elevation that ranges from approximately 65-feet to 80-feet amsl and slopes downward from an elevated northwestern portion surrounded by retaining walls and staircases. Depth to groundwater beneath the subject properties is estimated to be within 80 feet bgs. The EDR database report indicates that groundwater was encountered at 11.7 to 15.9 feet bgs at the nearest site with available groundwater data. Regional groundwater is expected to flow to the south.

VHB was able to establish a history for the subject properties dating back to 1896 when the subject properties were improved with an early iteration of "St. Joseph's Academy" on southern portions, a mixed-use building on northwestern portions and two dwellings on northeastern portions. The existing church structure with basement for auditorium, meeting hall, cafeteria, dances, gym and school counseling was constructed by 1901 along with another rendition of the academy/convent building. The neo-Gothic church was built of white stone quarried from the lot and faced with polished granite on the front and rear ends. When built, the church provided seating for about 1,500 persons. A six-story horse shoe-shaped building with a centrally located elevator was constructed on northwestern portions by 1915. The rectory appeared by 1950. The mixed-use commercial and residential buildings were demolished by 1981, and the dwelling on northeastern portions was demolished circa 2012. The church was closed as of 2015 and remaining buildings on the subject properties are currently undergoing demolition in 2019 for redevelopment.

The Lot 10 is developed with a vacant church building currently undergoing demolition and Lot 16 is developed with landscaped areas, paved walkways and stairs that provide access to the church building. Lot 22 is vacant and was temporarily used as a garden in association with an ancillary church building formerly present on Lot 23 (recently demolished).

Given the development history of the subject properties with the previous mixed-use buildings including a six-story structure complete with an elevator on Lot 16 that has since been demolished as well as a two-story dwelling on Lot 22 present through 2007, there is a potential for remnant historic structures (i.e, remnant foundations) and urban fill materials to be present on the subject properties. Same are considered BERs for the respective parcels.

A review of the EDR report revealed that the RCRA-NonGen and MANIFEST listings associated with a subject property address represents utility features, such as service boxes, utility poles, transformer vaults or manholes maintained by the local electrical company. A utility pole was present on the north-central portions of the subject properties during site reconnaissance. These features do not typically cause significant subsurface impacts on adjacent or surrounding properties. The listings are the result of shipments of lead-impacted waste typical during maintenance or replacement circa 2014. There are no unresolved violations associated with the RCRA listings and it is unlikely these listings represent a significant risk to the subject properties.

The subject properties do not appear in any listings, databases or registries of Superfund sites, CERCLA sites, hazardous waste treatment facilities, known or suspected hazardous waste disposal sites or landfills maintained by the USEPA or NYSDEC.

VHB noted the presence of a fill port at grade on central-east portions of the subject properties (between the former church building and former location of the rectory) approximately 20 feet from the construction entrance. In addition, VHB observed an exhaust stack that has been added to southwestern portions of the former church building and two remnant pipes surfacing above accumulated rubble in nearby interior portions of the building footprint.

The remnant of the former church building structure was not heated during the time of the visual inspection. However, the property has a history of utilizing a fuel oil-fired heating system, based on municipal records and site observations. Lot 10 is registered with one (1) steel 3,000-gallon fuel oil AST resting directly on soil, reportedly installed circa 1911 and reportedly in-service as of April 14, 2017. No documentation of the AST condition has been provided to VHB for review as part of this Phase I ESA and the site personnel indicated during site reconnaissance and interview that they were unaware of its location (see Section 6.3). It is unknown if the AST condition was assessed prior to the commencement of demolition activities, or whether the AST historically leaked and impacted the subsurface environment.

Furthermore, local municipal records indicate that other storage tanks including two (2) steel 275-gallon USTs and one (1) steel 1,000-gallon UST were formerly present at the subject properties and no documentation of the conditions of the USTs at the time of removal on has been provided to VHB for review as part of this Phase I ESA. Although VHB observed the presence of a fill port, exhaust stack and potential additional remnant piping at the subject properties, the former location of the USTs nor location and condition of the AST is unconfirmed. It should be noted that the USTs formerly at the subject properties may not have been registered based on their relative low capacities (under 1,100-gallons). The potential presence of an AST and remnant USTs represents a BER for the subject properties.

In addition to the above, several plastic 55-gallon drums containing diesel/ fuel oil are situated on central portions of the subject properties. However, the same were observed to be in good condition, are being utilized in association with the demolition activities and the presence of these items does not represent a significant environmental risk. No additional visual evidence of petroleum storage tanks (i.e., tank graves, boilers or fuel lines) was identified.

As part of demolition, debris removal was on-going at the time of the site reconnaissance. The building debris were stockpiled within the building frame and were being loaded into containers for off-site disposal. These activities do not represent a significant environmental concern. Limited quantities of refuse and litter observed during site reconnaissance. Although not considered a significant environmental risk, the same should be removed. No substantial quantities evidence of illicit dumping or surficial staining was observed at the subject properties during the visual inspection.

No substantial hazardous material disposal and/or industrial operations were observed at the subject properties during the time of the visual inspection. Sanitary wastes are generated at the subject properties historically discharged to the municipal sanitary system and currently are generated via mobile out-house associated with demolition activities. Furthermore, no storm drains were identified during site reconnaissance. Based upon a review of available resources, a VEC is unlikely to exist at the subject properties. Given the observed demolition and supplemental documentation provided, it is presumed that any PCBs, ACM and/or LBP were abated in accordance with application regulations as part of standards demolition/ renovation practices. Furthermore, radon and mold are not significant environmental concerns for the subject properties.

9.0
Conclusions

Based on the results of the visual inspection, records review and interviews, it was determined there were no RECs identified for the subject properties. However, the following BERs were identified during the course of this Phase I ESA:

- There is one (1) steel 3,000-gallon fuel oil AST registered to the property that reportedly was installed circa 1911, rested directly on soil and is listed as in-service as of submission of this Phase I ESA. No documentation of the AST condition has been provided to VHB for review and the site personnel present during site reconnaissance indicated that they were unaware of its location. It is unknown if the AST condition was assessed prior to the commencement of demolition activities, or whether the AST historically leaked and impacted the subsurface environment. Furthermore, no documentation of the conditions of former USTs at the time of removal has been provided. The potential presence of out-of-service oil tanks at the subject properties represents a BER. It is expected that all tanks, if encountered during demolition, will be removed in accordance with applicable regulations by the designated demolition contractor.

- Given the development history of the subject properties with the previous mixed-use building on of which was complete with an elevator on Lot 16 that has since been demolished as well as a two-story dwelling on Lot 22, there is a potential for remnant historic structures (i.e, remnant foundations) and urban fill materials to be present on the subject properties. Lot 22 is elevated with respect to surrounding grade. Potential presence of historical fill material of unknown origin is considered a BER. Historic fill materials, if encountered during redevelopment, should be removed and transported to a facility capable and permitted to handle such material during any potential redevelopment of the subject property.

10.0

Environmental Professional Statement

This Phase I ESA has been prepared in accordance with procedures established by environmental professionals and in concert with the guidance of regulatory agencies and funding institutions, ASTM Practice E1527-13, inclusive of the USEPA "All Appropriate Inquiry" requirement published in the Federal Register on December 30, 2013. The USEPA "All Appropriate Inquiry" requirement establishes specific regulatory requirements for conducting all appropriate inquiries into the previous ownership, uses, and environmental conditions of a property for the purposes of qualifying for certain landowner liability protections under CERCLA.

VHB, declares that, to the best of its professional knowledge and belief, it meets the definition of "Environmental Professional" as set forth in 312.10 of 40 CFR 312 and it has the specific qualifications based on education, training and experience to assess a property with respect to the nature, history and setting of the subject properties. VHB has developed and performed the "All Appropriate Inquiries" in conformance with the standards and practices set forth in 40 CFR Part 312. Section 11.0 contains the data gaps and deficiencies of the research data encountered during VHB's preparation of this report.

11.0

Data Gaps/Data Failure

As stated within this document, the Phase I ESA was conducted in accordance with requirements set forth in the ASTM Practice E1527-13 and USEPA All Appropriate Inquiry Rule. Based upon VHB's research in an attempt to satisfy all the requirements set forth in the above-referenced standards, the following data gaps were encountered:

- Responses to select municipal agency records requests were still pending at of the issuance of this report. To date, no responses were received to the municipal agency records requests submitted to the Tank Section of the FDNY. Pertinent records, should they become available and affect the findings and conclusions, will be forwarded as an addendum to this Phase I ESA.

12.0
References

Aerial Photo Decade Package (No. 5628113.5), Environmental Data Resources, Inc., April 22, 2019.

Certified Sanborn® Map Report (No. 5628113.3), Environmental Data Resources, Inc., April 22, 2019.

Environmental Resource Mapper, New York State Department of Environmental Conservation, dec.ny.gov/gis/erm/

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Google Maps, Microsoft Corporation, 2019.

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National Wetlands Mapper, United States Department of the Interior, Fish and Wildlife Service, fws.gov/wetlands/data/mapper.html.

Notice of Final Determination for Class V Wells, United State Environmental Protection Agency, June 7, 2002.

Online Records Review, City of New York Department of Buildings, April 22, 2019.

Online Records Review, City of New York Department of Finance, April 22, 2019.

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State Implementation Guide - Revisions to the Underground Injection Control Regulations for Class V Injection Wells, United State Environmental Protection Agency, September 2000.

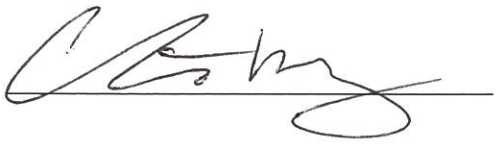
The EDR Radius Map™ Report with GeoCheck (No. 5627153.2s), Environmental Data Resources, Inc., April 22, 2019.

Tidal Wetlands Maps on the Geographic Information Gateway, New York State Department of Environmental Conservation, opdgig.dos.ny.gov

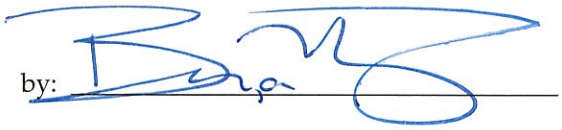
Topographic Map of Central Park, NY Quadrangle, United States Geological Survey, 2013.

This Phase I Environmental Site Assessment was prepared by:

Prepared by: Christopher Rooney
Project Scientist
VHB Engineering, Surveying, Landscape Architecture and Geology, P.C.

Signature: by: 

Supervised by: Bryan Murty
Senior Project Manager, NYC HazMat Services
VHB Engineering, Surveying, Landscape Architecture and Geology, P.C.

Signature: by: 

Appendix A
Figures

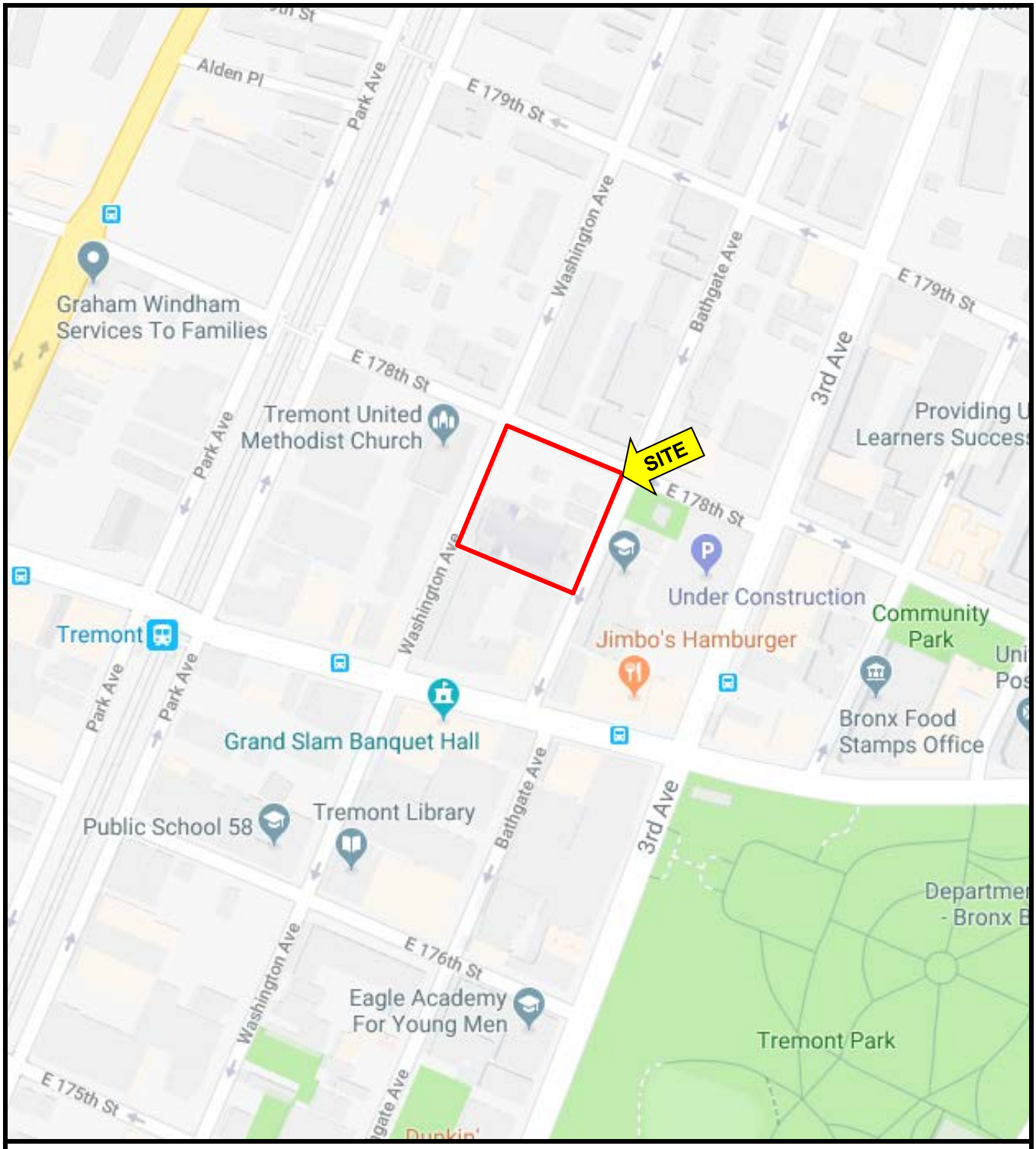


FIGURE 1 – SITE LOCATION MAP

SITE NAME: St. Joseph's Roman Catholic Church
ADDRESS: 1947, 1949 and 1951 Bathgate Avenue, 1940 and 1948 Washington Avenue and 484 East 178th Street
MUNICIPALITY, STATE and ZIP: Bronx, New York 10457
PROJECT NUMBER: 26518.01
SOURCE: Google Maps, 2019

PROJECT NORTH

vhb

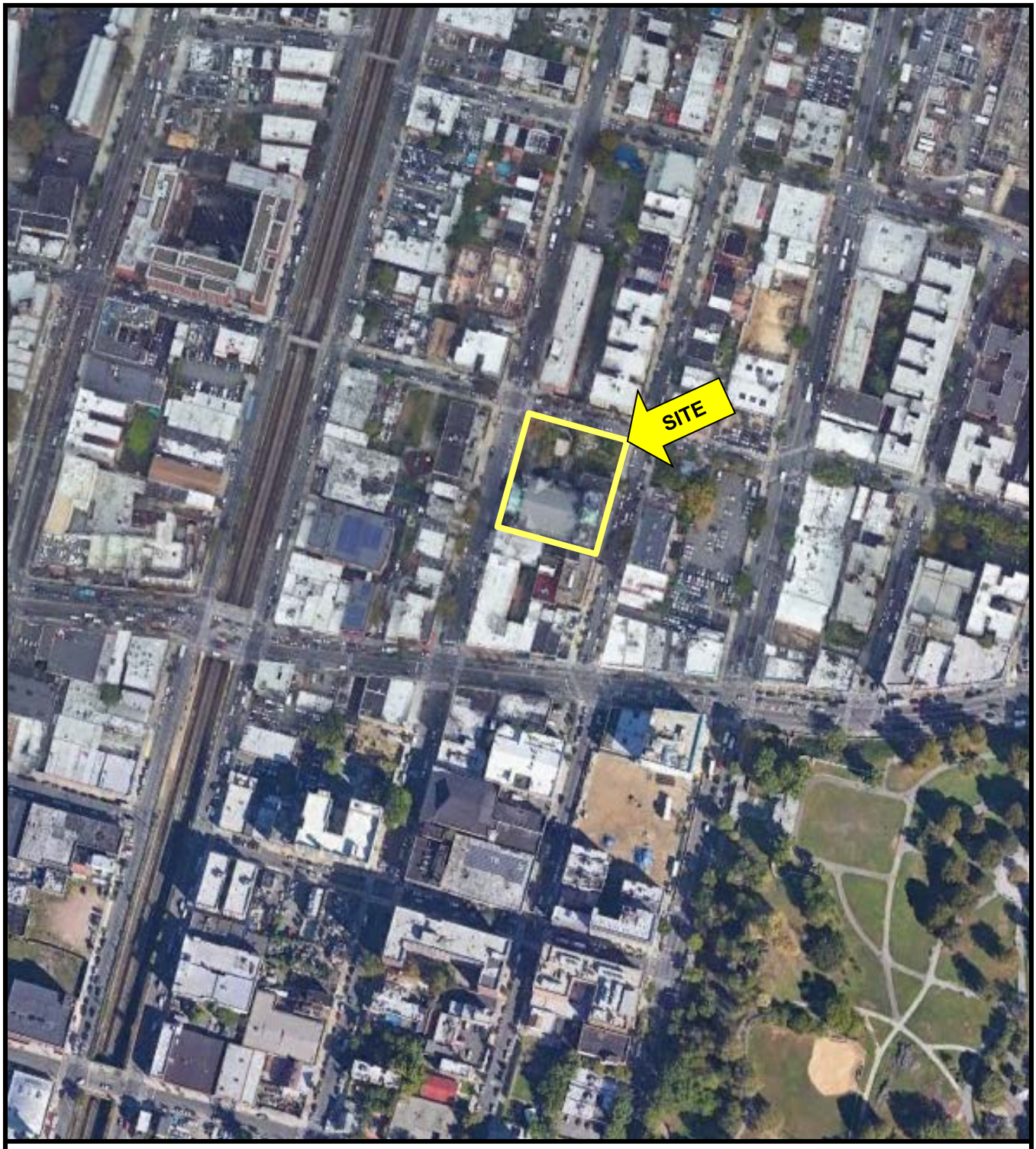


FIGURE 2 – SITE AERIAL PHOTOGRAPH

SITE NAME: St. Joseph's Roman Catholic Church
ADDRESS: 1947, 1949 and 1951 Bathgate Avenue, 1940 and 1948 Washington Avenue and 484 East 178th Street
MUNICIPALITY, STATE and ZIP: Bronx, New York 10457
PROJECT NUMBER: 26518.01
SOURCE: Google Earth, 2019

PROJECT NORTH

vhb

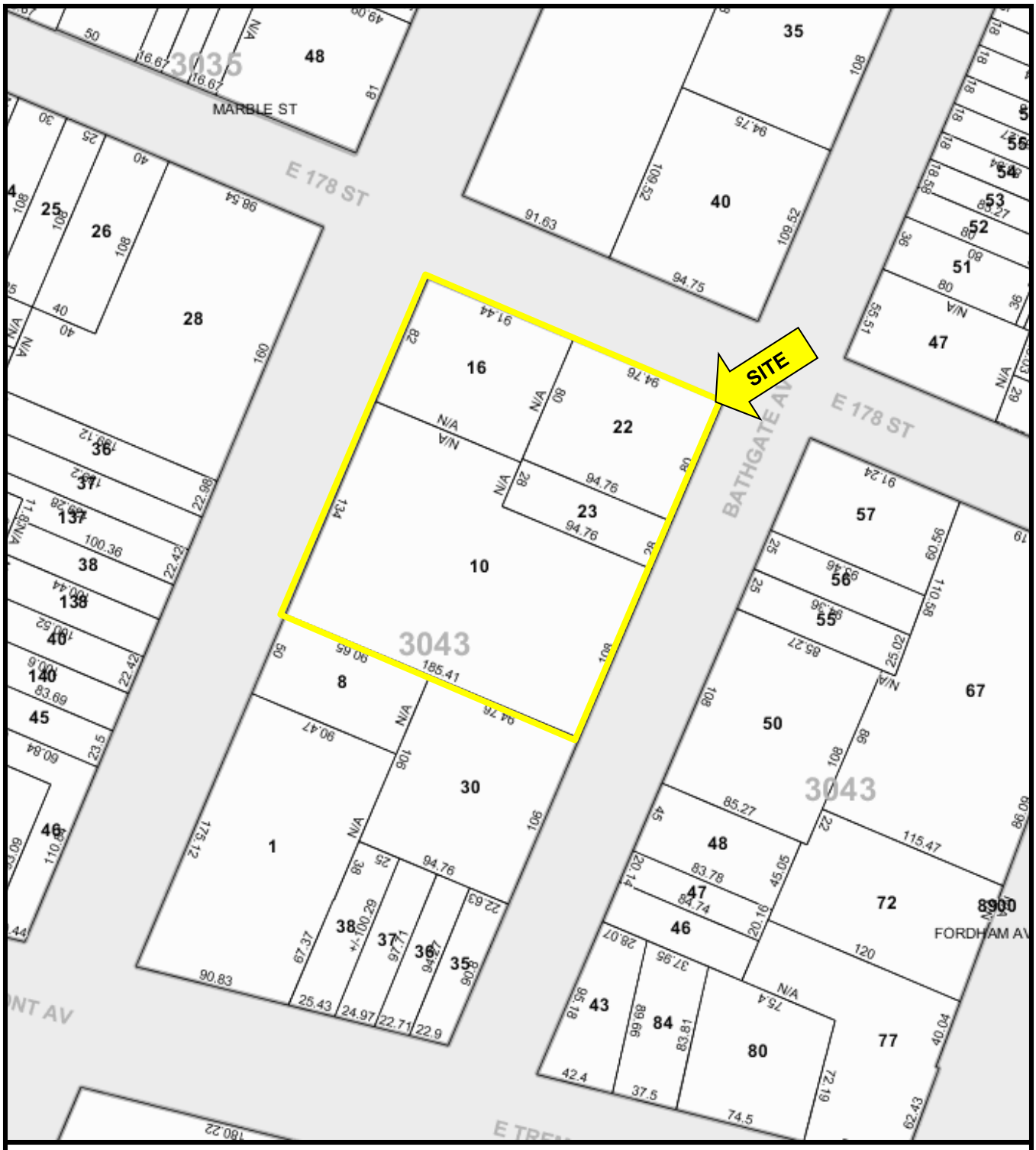


FIGURE 3 – EXCERPT OF TAX MAP

SITE NAME: St. Joseph's Roman Catholic Church
ADDRESS: 1947, 1949 and 1951 Bathgate Avenue, 1940 and 1948 Washington Avenue and 484 East 178th Street
MUNICIPALITY, STATE and ZIP: Bronx, New York 10457
PROJECT NUMBER: 26518.01
SOURCE: New York City Department of Finance, 2019

PROJECT NORTH

vhb

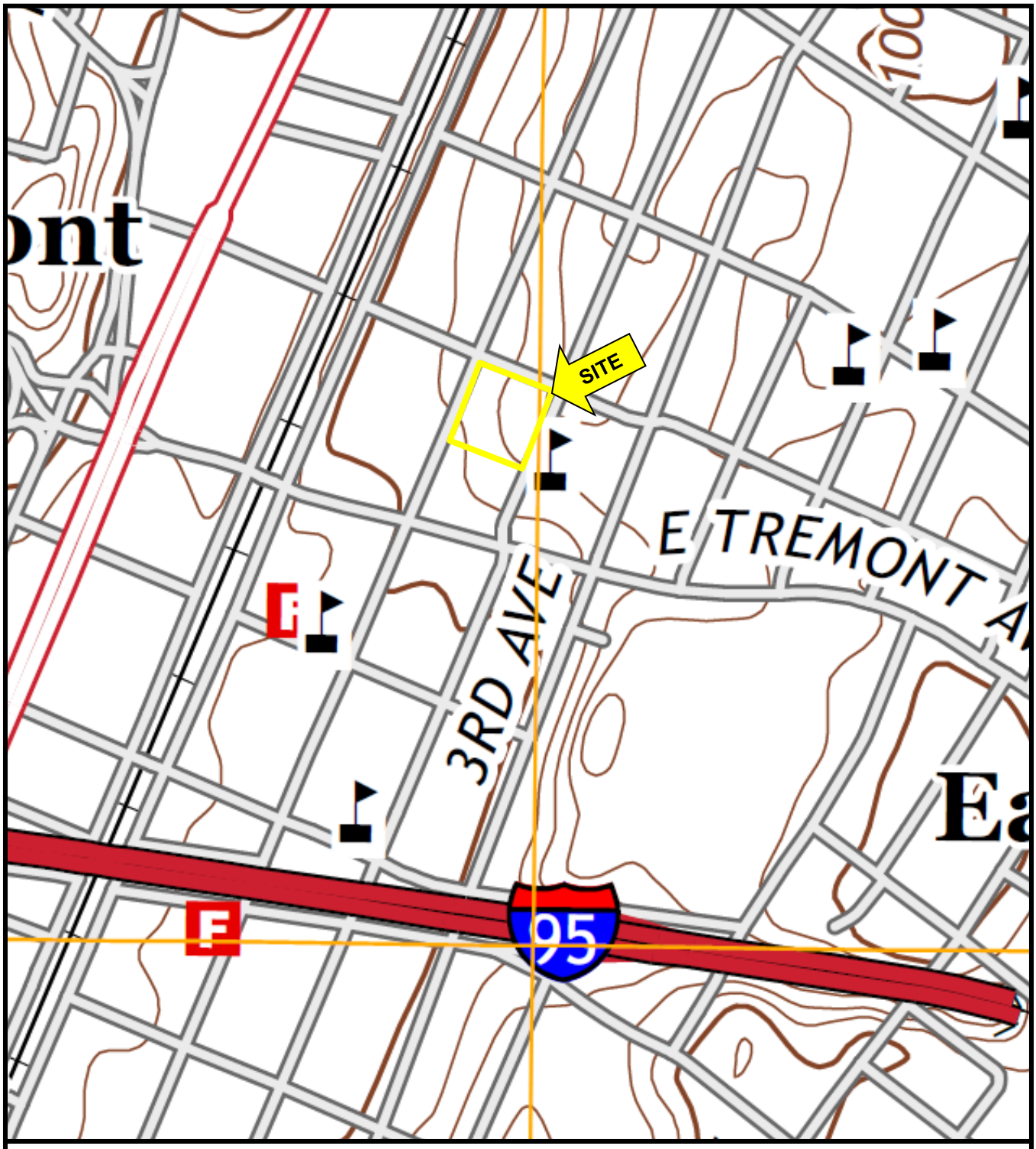


FIGURE 4 – TOPOGRAPHIC MAP

SITE NAME: St. Joseph's Roman Catholic Church
ADDRESS: 1947, 1949 and 1951 Bathgate Avenue, 1940 and 1948 Washington Avenue and 484 East 178th Street
MUNICIPALITY, STATE and ZIP: Bronx, New York 10457
PROJECT NUMBER: 26518.01
SOURCE: United States Geological Survey Central Park, NY Quadrangle, 2013

PROJECT NORTH

vhb

Appendix B
Representative Site Photographs

Photograph 1: A view of the subject properties from the intersection to the northwest.

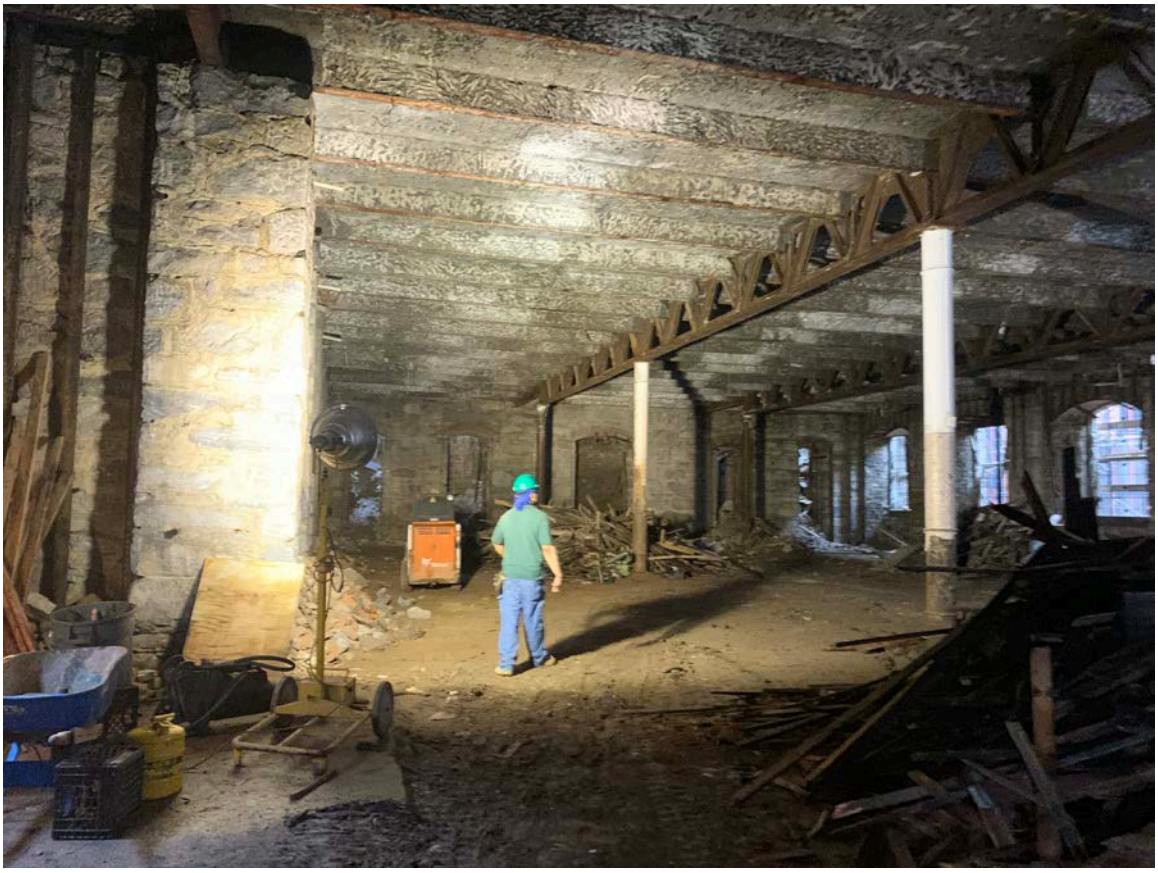
Photograph 2: A view of the subject properties from the northeast corner of same.

Photograph 3: The location of the former rectory building on the subject properties.

Photograph 4: A view of the interior portions of the church building under demolition.

Photograph 5: A view of the temporary contractor yard at the subject property.

Photograph 6: A view of the temporary scaffolding in interior portions of the building.



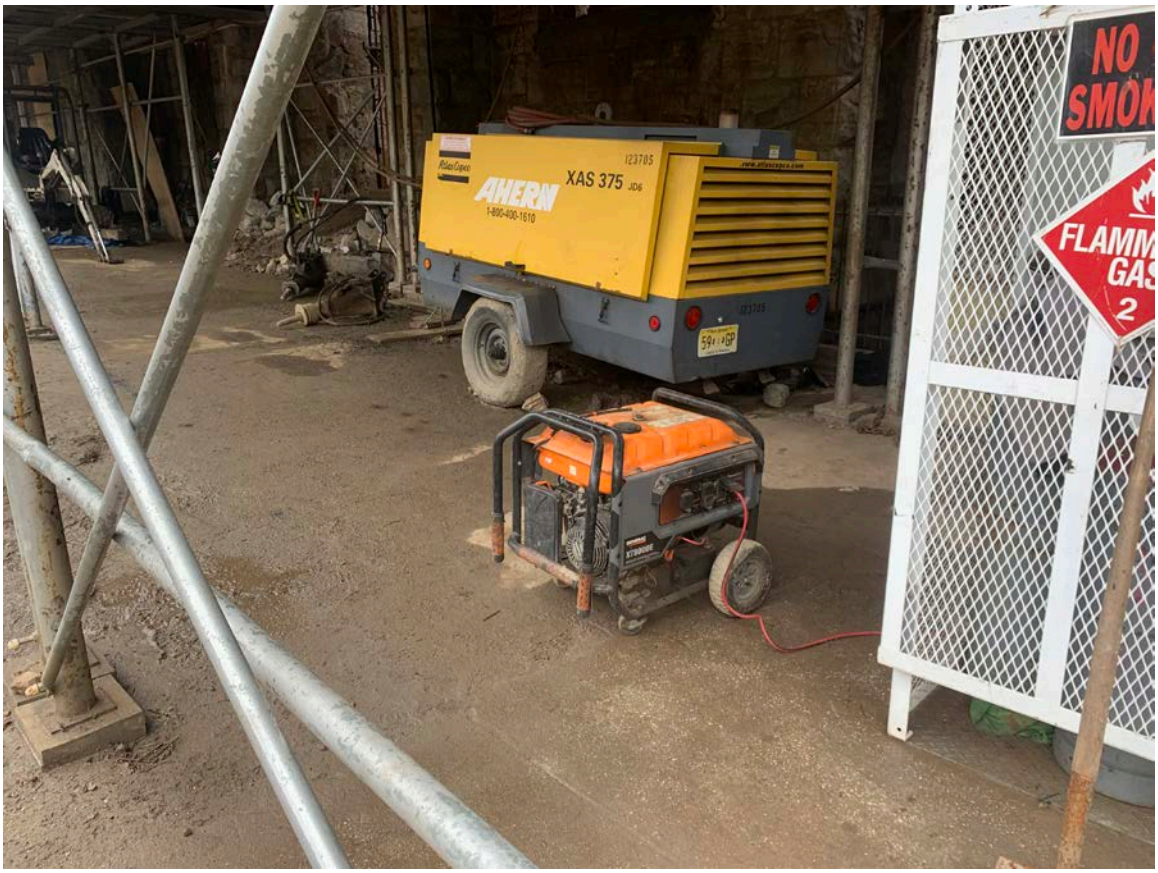
Photograph 7: A view of the basement during conditions during the site reconnaissance.

Photograph 8: A view of the limited access to potential utility areas off basement hall.

Photograph 9: The exhaust stack observed at southwest corner of the church building.

Photograph 10: A view of remnant piping surfacing above rubble within the building.

Photograph 11: A view of supplies temporarily stored at the site during demolition.



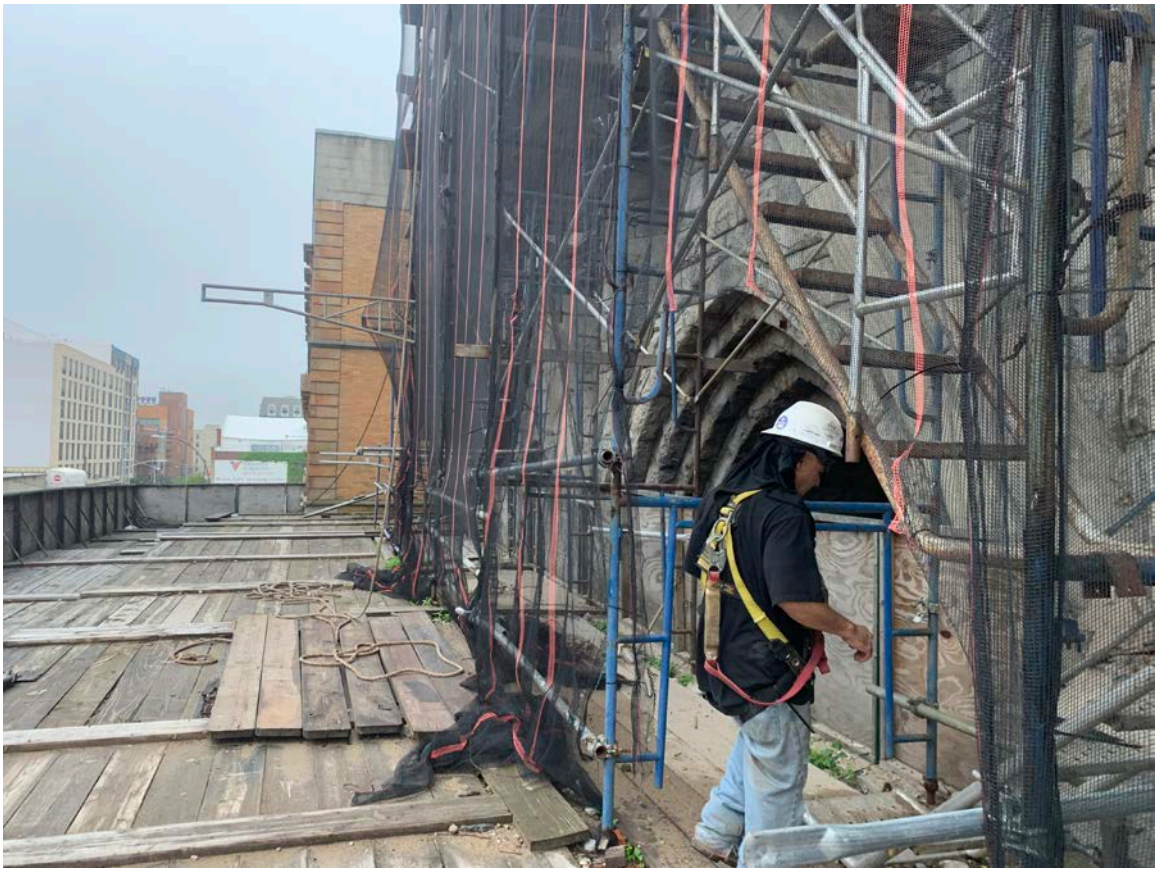
Photograph 12: A view of a generator and flammable gas storage observed at the site.

Photograph 13: A view of remains of a former water fountain at the subject property.

Photograph 14: A view of 55-gallon drums storing diesel at the subject property.

Photograph 15: A view of the location of a fill port identified at the subject properties.

Photograph 16: An alternate view of the location of a fill port identified at the site.



Photograph 17: A view of the façade of the church building on southern portions.

Photograph 18: A view of the elevated north-central portions of the subject properties.

Photograph 19: The associated school across a roadway present adjacent to the east.

Photograph 20: A view of the funeral home present adjacent to the southeast of the site.

Photograph 21: A view of a utility feature present adjacent to the subject properties.

Photograph 22: A view of a religious/educational building present adjacent to the west.

Photograph 23: A view of apartment buildings and roadway adjacent to the north.

Photograph 24: A view of the former contractor facility present adjacent to the south.

Appendix C
Local Government Correspondence

St. Joseph R C Church - Digital Tax Map - New York City Dept. of Finance (5/29/2019)

Borough Boundary		C50	Condo Flag/Condo Nunber
Tax Block Boundary		A50	Air Right Flag/Lot Number
50	Tax Block Number	S50	Subterranean Right Flag/Lot Number

NYC Finance

NYC Digital Tax Map

Effective Date : 01-09-2014 15:28:07
End Date : Current

Bronx Block: 3043

Legend

- Streets
- Miscellaneous Text
- Possession Hooks
- Boundary Lines
- Lot Face Possession Hooks
- Regular
- Underwater
- Tax Lot Polygon
- Condo Number
- Tax Block Polygon

Feet
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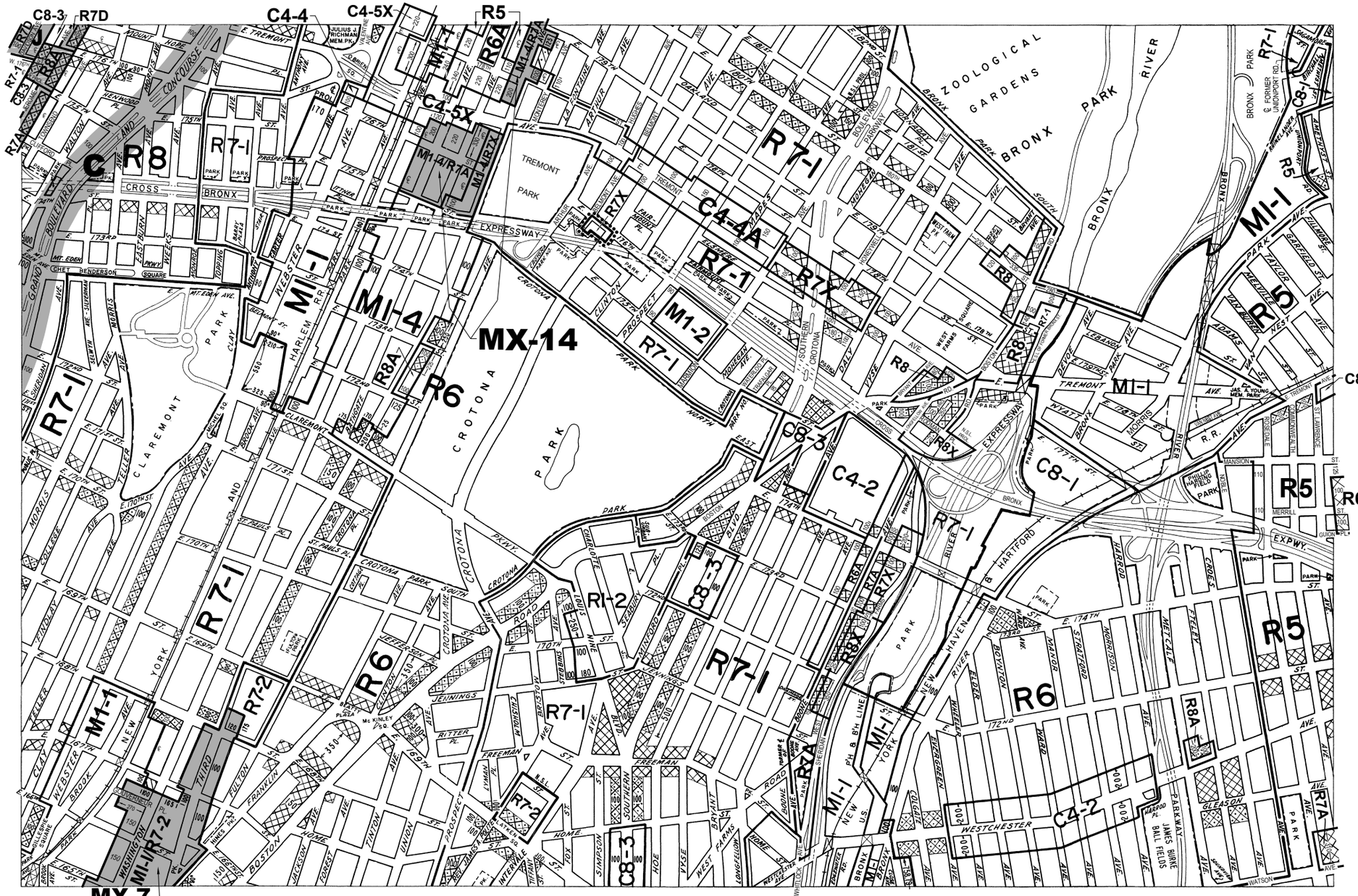
C8-3
R7D
C4-4
C4-5X
R5
R7-1
R6A
C4-5X
M1-4/R7A
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R8
C
R8
R7-1
CROSS
BRONX
EXPRESSWAY
TREMONT
PARK
C4-4A
R7X
M1-1
MI-4
MX-14
R6
CROTONA
PARK
R8A
R7-1
C8-3
C4-2
R7-1
R8X
R7-1
R7-1
R7-2
R6
R7-2
M1-1
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MX-7
R7-1
R6
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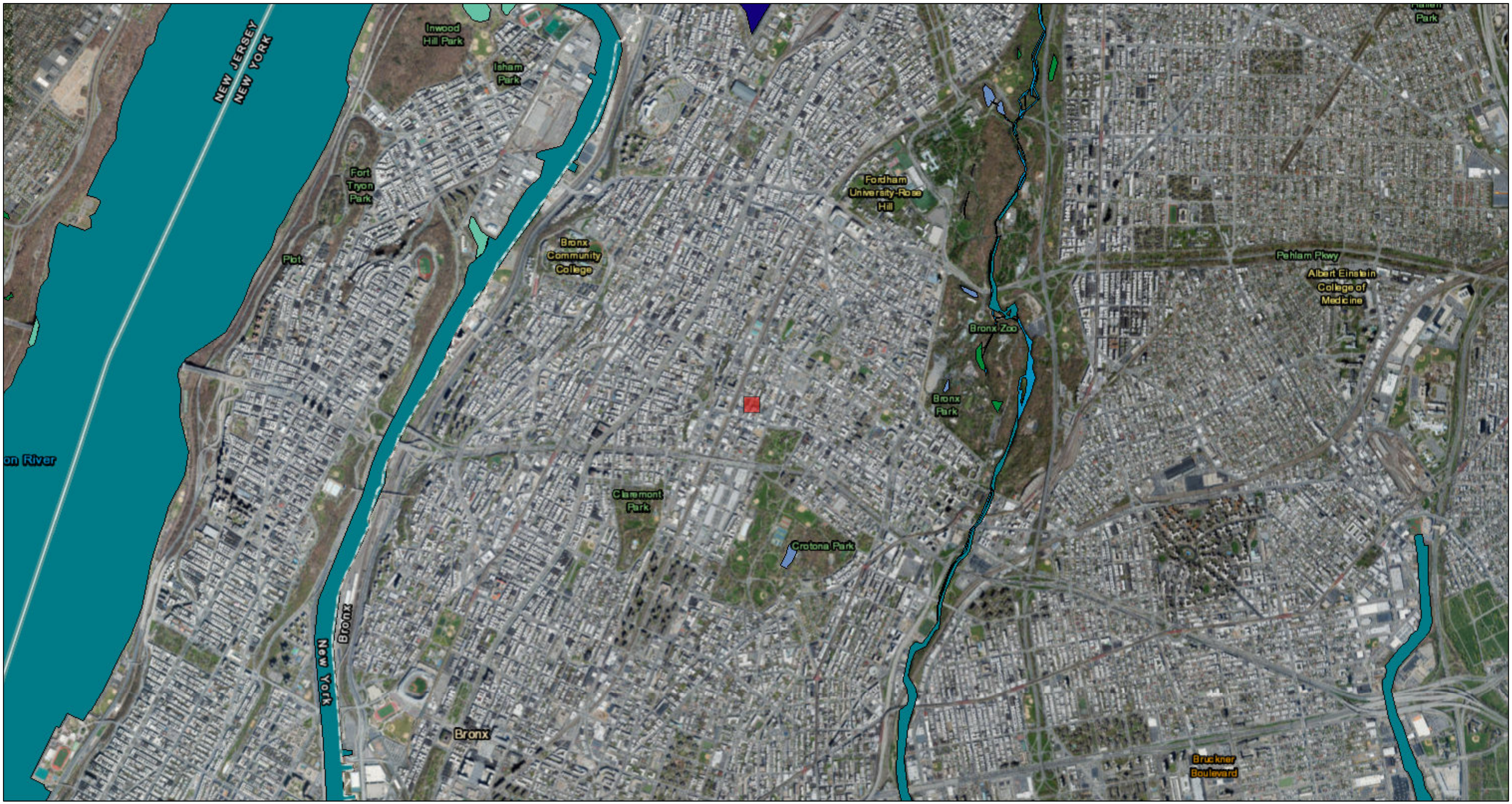
R7-1
R7-1

Federal Wetlands



April 25, 2019

1:36,112

0 0.45 0.9 1.8 mi

0 0.5 1 2 km

Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

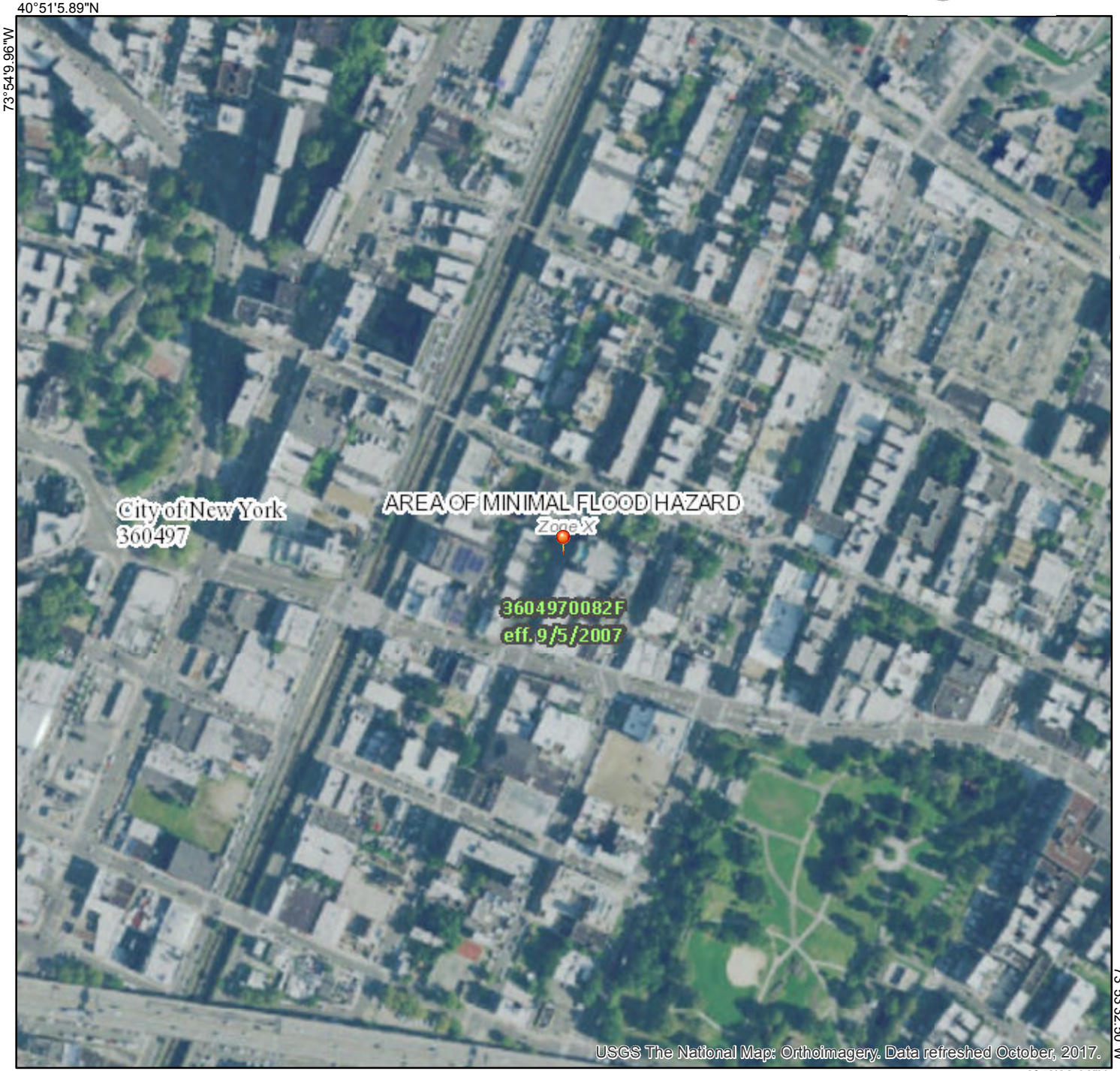
NYS Department of Environmental Conservation
Not a legal document

National Flood Hazard Layer FIRMette

FEMA

40°51'5.89"N

73°54'9.96"W



73°53'32.50"W

40°50'38.68"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

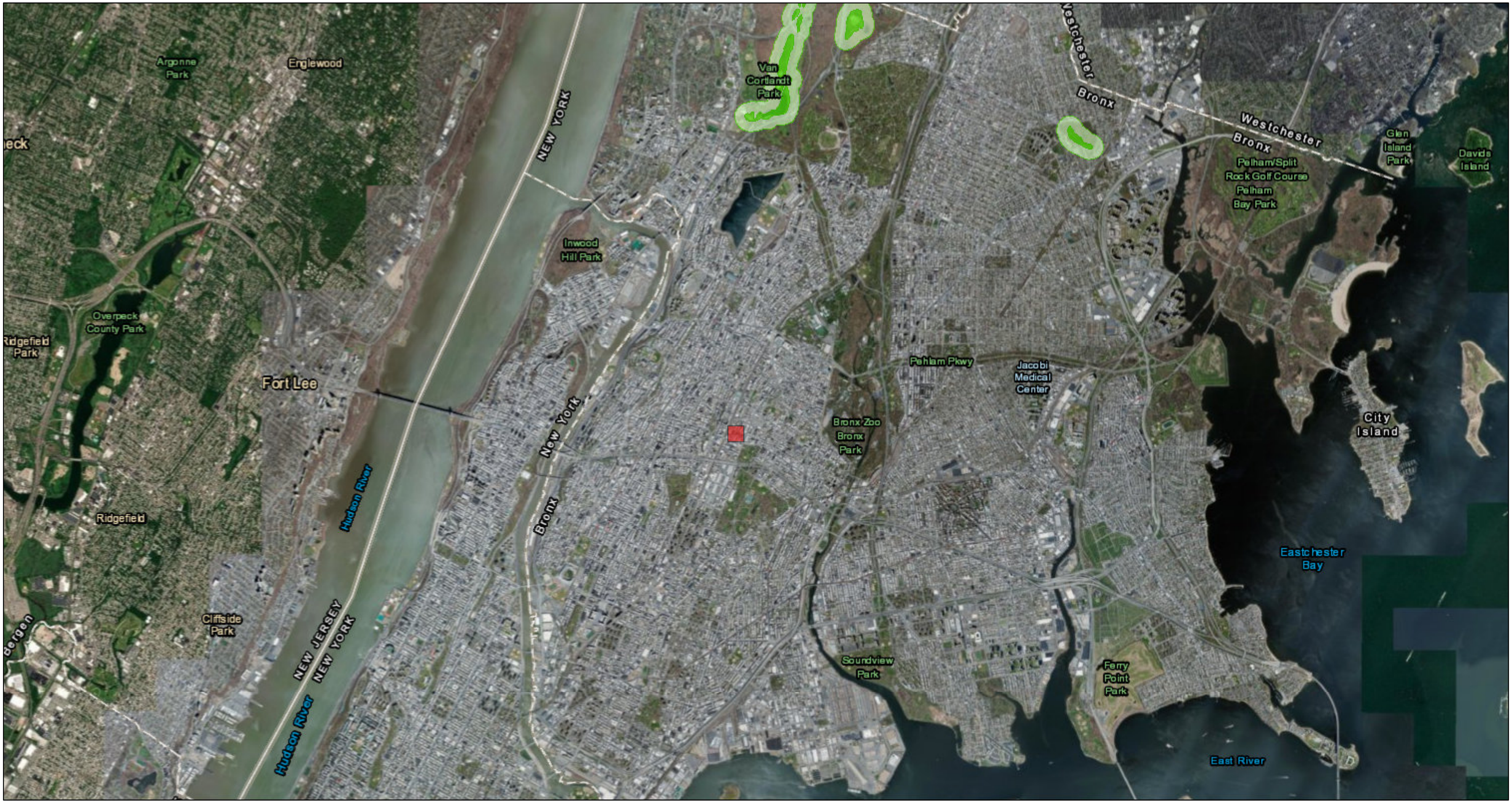
The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 4/25/2019 at 1:34:43 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

NYSDEC Wetlands



April 25, 2019

1:72,224

0 0.75 1.5 3 mi

0 1.25 2.5 5 km

Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

NYS Department of Environmental Conservation
Not a legal document

Tidal Wetlands

Dredged Soil (DS)

Fresh Marsh (FM)

Intertidal Marsh (IM)

Coastal Shoals, Bars and Mudflats (SM)

Formerly Connected (FC)

High Marsh (HM)

Littoral Zone (LZ)

NEW YORK STATE OF OPPORTUNITY. Department of State

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From: openrecords@records.nyc.gov
To: Monti, Ashley
Subject: [External] [OpenRecords] Request FOIL-2019-826-01689 Submitted to Department of Environmental Protection (DEP)
Date: Monday, April 22, 2019 8:54:00 AM

Your request FOIL-2019-826-01689 has been successfully submitted to the Department of Environmental Protection (DEP). The details of your request are shown below.

Request Title: Records for Phase I ESA - 26518.01

Request Description: -Any and all records maintained by NYCDEP for: "1940 Washington Avenue, Bronx, New York 10457" Block: 3043 Lots: 10, 16, 22 and 23" Asbestos (BEC), Hazardous materials emergency response (BEC), Air permits/complaints/inspections (BEC), Environmental Review/SEQRA (BEPA), Industrial Pretreatment/sewer discharge violations (BWT), Wastewater Treatment Plant operations (BWT). -Information regarding any flammable storage permits, chemical or petroleum storage, spills, registered above of underground storage tanks, air discharge permits, investigations of environmental concern (e.g. asbestos, lead paint)

Requester's Contact Information

Name:
Ashley Monti
Title:
Not provided
Organization:
VHB
Email:
amonti@vhb.com
Phone Number:
(631) 787-3400
Fax Number:
Not provided
Street Address (line 1):
100 Motor Parkway
Street Address (line 2):
Suite 350
City:
Hauppauge
State:
NY
Zip Code:
11788

You can view the request and take any necessary action at the following webpage: https://a860-openrecords.nyc.gov/request/view/FOIL-2019-826-01689.

DO NOT RESPOND TO THIS EMAIL. For information or questions about this request

please use the Contact the Agency link on the request page in OpenRecords.

From: openrecords@records.nyc.gov
To: Monti, Ashley
Subject: [External] [OpenRecords] Request FOIL-2019-826-01689 Closed
Date: Friday, April 26, 2019 12:32:39 PM

The Department of Environmental Protection (DEP) has **closed** your FOIL request FOIL-2019-826-01689 for the following reasons:

- A diligent search for records responsive to your request did not locate any such records. Accordingly, your request is denied.

You may appeal the decision to deny access to material that was redacted in part or withheld in entirety by contacting the agency's FOIL Appeals Officer: foilappeals@dep.nyc.gov within 30 days.

Request Information:
Request Title: Records for Phase I ESA - 26518.01

Request Description: -Any and all records maintained by NYCDEP for: "1940 Washington Avenue, Bronx, New York 10457" Block: 3043 Lots: 10, 16, 22 and 23" Asbestos (BEC), Hazardous materials emergency response (BEC), Air permits/complaints/inspections (BEC), Environmental Review/SEQRA (BEPA), Industrial Pretreatment/sewer discharge violations (BWT), Wastewater Treatment Plant operations (BWT). -Information regarding any flammable storage permits, chemical or petroleum storage, spills, registered above of underground storage tanks, air discharge permits, investigations of environmental concern (e.g. asbestos, lead paint)

DO NOT RESPOND TO THIS EMAIL. For information or questions about this request please use the Contact the Agency link on the request page in OpenRecords.

www.vhb.com

April 22, 2019

Ref: 26518.01

Ms. Rena Bryant
Records Access Officer
New York City Department of Health
125 Worth Street
Room 609, CN 31
New York, New York 10013

Re: Freedom of Information Request
1940 Washington Avenue, Bronx 10457
Block: 3043 Lots: 10, 16, 22, and 23

Dear Ms. Bryant:

Our firm has been retained to prepare a Phase I Environmental Site Assessment (ESA) for the above-referenced property.

We are respectfully requesting information regarding any flammable storage permits, chemical or petroleum storage, spills, registered above or underground storage tanks, air discharge permits, investigations of environmental concern (e.g. asbestos, lead paint), etc. for the facility.

We agree with the department's decision to omit any health or personal identification in records provided.

If you require additional information to respond to this request or if there are costs associated with same, please do not hesitate to contact me. Thank you for your cooperation.

Sincerely,

VHB Engineering, Surveying, Landscape Architecture and Geology, P.C.

Ashley Monti

Ashley Monti
Environmental Scientist

AM/ba

Engineers | Scientists | Planners | Designers

100 Motor Parkway
Suite 350
Hauppauge, New York 11788
P 631.787.3400
F 631.813.2545

NEW YORK CITY DEPARTMENT OF
HEALTH AND MENTAL HYGIENE
Mary T. Bassett, MD, MPH
Commissioner

5/7/2019

VHB
100 Motor Parkway, Suite 350
Hauppauge, NY 11788
Attention: *Ashley Monti*

Re: *1940 Washington Avenue, BX/272 East 151 Street, Bronx*
Control #: *2019FR01336*

The New York City Department of Health and Mental Hygiene acknowledges receipt of your Freedom of Information Law request. It has been assigned the above-noted control number and has been forwarded to the following bureau or office for processing:

Bureau / Office

[X] Lead Poisoning Prevention
Ben DelPercio
(646) 632-6006

[X] Environmental Health Services
ALFREDA TORBERT 646-632-6113
SHEBA TAYLOR 718-310-2787

[ ] Contract Services
Ellen Rieser
(347) 396-6629

[ ] Bureau of Human Resources
Ana Perez
(347) 396-2108

[ ] Communicable Diseases
Beth Nivin
(347) 396-2616

[ ] Other _____

You should receive a response from the program/bureau within twenty(20) business days. Please note that responses are provided electronically whenever possible, and that there is a fee of 25 cents per page for copies of records not available electronically. You will be advised by the program/bureau of the fee that is due and, upon receipt of your payment by check or money order, the copies will be forwarded to you.

All inquiries about the status of your request should be made with the program/bureau noted.

Sincerely,

Chari Anhouse, Esquire
Records Access Officer
42-09 28th Street, CN31
Long Island City, NY 11101
347-396-6078/6116(P)
347-396-6087(F)
recordsaccess@health.nyc.gov

NEW YORK CITY DEPARTMENT OF
HEALTH AND MENTAL HYGIENE
Oxiris Barbot, MD
Commissioner

Christopher D'Andrea
Director

Office of Environmental Investigations
125 Worth St., Room 630
New York, NY 10013

Tel. 1 646 632 6104
Fax 1 646 632 6105

June 4, 2019

VHB
Engineering, Surveying and Landscaping
Architecture, P.C.
100 Motor Parkway, Suite 350
Hauppauge, NY 11788

Request No: 2019FR01336

Dear Sir:

In response to your recent request for environmental records on:

- 1940 Washington Avenue, Bronx, NY
- 272 East 151st Street, Bronx

Please note the following:

☒ The Office of Environmental Investigations has "NO" record of an investigation at the above address.

☐ Enclosed are copies of the requested records we have on file.

Sincerely,

Christopher D'Andrea, MS, CIH
Director

RECEIVED
JUN - 7 2019

ASSESSMENT ROLL 2018-2019
City of New York

Taxable Status Date: January 5, 2018

Parcel Information

Owner Name
ST JOSEPH R C CHURCH

Property Address and Zip Code
1940 WASHINGTON AVENUE 10457

Real Estate Billing Name and Address
ST JOSEPH R C CHURCH
1940 WASHI NGTON AVE
BRONX NY 10457

Borough: Bronx
Block: 3043
Lot: 10

Tax Class: 4
Building Class: M1

Land Information

Lot Size	Irregular	Corner
108.00 FT x 185.33 FT	IRREG	

Building Information

Number of Buildings	Building Size	Extension	Stories
1	90.00 FT x 165.00 FT		1.00

Assessment Information

Description	Land	Total
ESTIMATED MARKET VALUE		2,645,000
ACTUAL AV	123,300	1,190,250
ACTUAL EX AV	123,300	1,190,250
TRANS AV	123,300	1,065,150
TRANS EX AV	123,300	1,065,150

Taxable/Billable Assessed Value

SUBJECT TO ADJUSTMENTS, YOUR 2018/19 TAXES WILL BE BASED ON	0

Exemption Information

Code	Description	Exempt Value
• 1021-01 (25110)	HOUSE OF WORSHIP	1,190,250

Property is assessed at the following uniform percentages of full market value, unless limited to a lesser amount by law:

Class 1 - 6% **Class 2 - 45%** **Class 3 - 45%** **Class 4 - 45%**

ASSESSMENT ROLL 2018-2019
City of New York

Taxable Status Date: January 5, 2018

Parcel Information

Owner Name
CHURCH OF ST. JOSEPHTO TREMONT

Property Address and Zip Code
WASHINGTON AVENUE

Real Estate Billing Name and Address
THE CHURCH OF ST JOSE
1949 BATHG ATE AVE
BRONX NY 10457

Borough: Bronx
Block: 3043
Lot: 16

Tax Class: 1B
Building Class: V0

Land Information

Lot Size	Irregular	Corner
82.00 FT x 91.44 FT		SE

Building Information

Number of Buildings	Building Size	Extension	Stories
	0.00 FT x 0.00 FT		

Assessment Information

Description	Land	Total
ESTIMATED MARKET VALUE		454,000
ACTUAL AV	11,210	11,210
ACTUAL EX AV	11,210	11,210
TRANS AV	0	0
TRANS EX AV	0	0

Taxable/Billable Assessed Value

SUBJECT TO ADJUSTMENTS, YOUR 2018/19 TAXES WILL BE BASED ON	0

Exemption Information

Code	Description	Exempt Value
• 1021-01 (25110)	HOUSE OF WORSHIP	11,210

Property is assessed at the following uniform percentages of full market value, unless limited to a lesser amount by law:

Class 1 - 6% Class 2 - 45% Class 3 - 45% Class 4 - 45%

ASSESSMENT ROLL 2018-2019
City of New York

Taxable Status Date: January 5, 2018

Parcel Information

Owner Name
ST JOSEPH R C CHURCH

Property Address and Zip Code
1951 BATHGATE AVENUE 10457

Real Estate Billing Name and Address
ST JOSEPHS CHURCH
1949 BATHG ATE AVE
BRONX NY 10457

Borough: Bronx
Block: 3043
Lot: 22

Tax Class: 1B
Building Class: V0

Land Information

Lot Size	Irregular	Corner
94.76 FT x 94.58 FT		

Building Information

Number of Buildings	Building Size	Extension	Stories
	0.00 FT x 0.00 FT		

Assessment Information

Description	Land	Total
ESTIMATED MARKET VALUE		411,000
ACTUAL AV	24,552	24,552
ACTUAL EX AV	24,552	24,552
TRANS AV	0	0
TRANS EX AV	0	0

Taxable/Billable Assessed Value

SUBJECT TO ADJUSTMENTS, YOUR 2018/19 TAXES WILL BE BASED ON	0

Exemption Information

Code	Description	Exempt Value
• 1021-01 (25110)	HOUSE OF WORSHIP	24,552

Property is assessed at the following uniform percentages of full market value, unless limited to a lesser amount by law:

Class 1 - 6% Class 2 - 45% Class 3 - 45% Class 4 - 45%

ASSESSMENT ROLL 2018-2019
City of New York

Taxable Status Date: January 5, 2018

Parcel Information

Owner Name
ST JOSEPH R C CHURCH

Property Address and Zip Code
1949 BATHGATE AVENUE 10457

Real Estate Billing Name and Address
ST JOSEPH R C CHURCH
1949 BATHG ATE AVE
BRONX NY 10457

Borough: Bronx
Block: 3043
Lot: 23

Tax Class: 4
Building Class: M3

Land Information

Lot Size	Irregular	Corner
28.00 FT x 94.76 FT		

Building Information

Number of Buildings	Building Size	Extension	Stories
1	25.00 FT x 65.00 FT		4.00

Assessment Information

Description	Land	Total
ESTIMATED MARKET VALUE		188,000
ACTUAL AV	17,550	84,600
ACTUAL EX AV	17,550	84,600
TRANS AV	17,550	75,690
TRANS EX AV	17,550	75,690

Taxable/Billable Assessed Value

SUBJECT TO ADJUSTMENTS, YOUR 2018/19 TAXES WILL BE BASED ON	0

Exemption Information

Code	Description	Exempt Value
• 1101-01 (21600)	PARSONAGE	84,600

Property is assessed at the following uniform percentages of full market value, unless limited to a lesser amount by law:

Class 1 - 6% Class 2 - 45% Class 3 - 45% Class 4 - 45%

NYC Buildings

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NYC Department of Buildings

Property Profile Overview

1948 WASHINGTON AVENUE		BRONX 10457		BIN# 2011423	
BATHGATE AVENUE	1947 - 1947	**Health Area**	: 1700	**Tax Block**	: 3043
WASHINGTON AVENUE	1948 - 1948	**Census Tract**	: 395	**Tax Lot**	: 10
		Community Board	: 206	**Condo**	: NO
		Buildings on Lot	: 1	**Vacant**	: NO

View DCP Addresses... Browse Block

View Zoning Documents | View Challenge Results | Pre - BIS PA | View Certificates of Occupancy

Cross Street(s):	EAST TREMONT AVENUE, EAST 178 STREET		
DOB Special Place Name:			
DOB Building Remarks:			
Landmark Status:		**Special Status:**	N/A
Local Law:	NO	**Loft Law:**	NO
SRO Restricted:	NO	**TA Restricted:**	NO
UB Restricted:	NO		
Environmental Restrictions:	N/A	**Grandfathered Sign:**	NO
Legal Adult Use:	NO	**City Owned:**	NO
Additional BINs for Building:	NONE		

Special District: UNKNOWN

This property is not located in an area that may be affected by Tidal Wetlands, Freshwater Wetlands, Coastal Erosion Hazard Area, or Special Flood Hazard Area. Click here for more information

Department of Finance Building Classification: M1-CHURCH, SYNAGOGUE

Please Note: The Department of Finance's building classification information shows a building's tax status, which may not be the same as the legal use of the structure. To determine the legal use of a structure, research the records of the Department of Buildings.

	Total	Open
Complaints	1	0
Violations-DOB	1	1
Violations-ECB (DOB)	0	0
Jobs/Filings	2	
ARA / LAA Jobs	2	
Total Jobs	4	
Actions	9	

OR Enter Action Type:

OR Select from List: Select...

AND Show Actions

Elevator Records
Electrical Applications
Permits In-Process / Issued
Illuminated Signs Annual Permits
Plumbing Inspections
Open Plumbing Jobs / Work Types
Facades
Marquee Annual Permits
Boiler Records
DEP Boiler Information
Crane Information
After Hours Variance Permits

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City.

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NYC Department of Buildings

DOB Violation Display for 082995LL629118718

Premises: 1948 WASHINGTON AVENUE BRONX **BIN: 2011423** **Block: 3043** **Lot: 10**

Issue Date:	08/29/1995	**Violation Category:**	V - DOB VIOLATION - ACTIVE
Violation Type:	LL6291 - LOCAL LAW 62/91 - BOILERS		
Violation Number:	18718	**Device No.:**	00801693 - 01-COMMERCIAL
ECB No.:			
Infraction Codes:			
Description:			

Click here to view the Civil Penalty Chart.

Disposition:

Code: **Date:**

Inspector:

Comments:

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City.

NYC Buildings

NYC

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NYC Department of Buildings

Property Profile Overview

484 EAST 178 STREET		BRONX 10457	BIN# 2806745
EAST 178 STREET	484 - 484		Tax Block : 3043 Tax Lot : 16
		Community Board : 206	

View DCP Addresses... Browse Block

View Zoning Documents | View Challenge Results | Pre - BIS PA | View Certificates of Occupancy

DOB Special Place Name:			
DOB Building Remarks:			
Landmark Status:		**Special Status:**	N/A
Local Law:	NO	**Loft Law:**	NO
SRO Restricted:	NO	**TA Restricted:**	NO
UB Restricted:	NO		
Environmental Restrictions:	N/A	**Grandfathered Sign:**	NO
Legal Adult Use:	NO	**City Owned:**	NO
Additional BINs for Building:	NONE		

Special District: UNKNOWN

This property is not located in an area that may be affected by Tidal Wetlands, Freshwater Wetlands, Coastal Erosion Hazard Area, or Special Flood Hazard Area. Click here for more information

Department of Finance Building Classification: V0-VACANT LAND

Please Note: The Department of Finance's building classification information shows a building's tax status, which may not be the same as the legal use of the structure. To determine the legal use of a structure, research the records of the Department of Buildings.

	Total	Open
Complaints	0	0
Violations-DOB	0	0
Violations-ECB (DOB)	0	0
Jobs/Filings	1	
ARA / LAA Jobs	0	
Total Jobs	1	
Actions	1	

OR Enter Action Type:

OR Select from List: Select...

AND Show Actions

- Elevator Records
- Electrical Applications
- Permits In-Process / Issued
- Illuminated Signs Annual Permits
- Plumbing Inspections
- Open Plumbing Jobs / Work Types
- Facades
- Marquee Annual Permits
- Boiler Records
- DEP Boiler Information
- Crane Information
- After Hours Variance Permits

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NYC Buildings

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NYC Department of Buildings

Property Profile Overview

OBSOLETE BIN RETAINED FOR HISTORICAL PURPOSE ONLY

1951 BATHGATE AVENUE		BRONX 10457		BIN# 2011424	
BATHGATE AVENUE	1951 - 1951	Health Area	: 1700	Tax Block	: 3043
		Census Tract	: 395	Tax Lot	: 22
		Community Board	: 206	Condo	: NO
				Vacant	: NO

View DCP Addresses... Browse Block

View Zoning Documents | View Challenge Results | Pre - BIS PA | View Certificates of Occupancy

Cross Street(s):	EAST 178 STREET		
DOB Special Place Name:			
DOB Building Remarks:			
Landmark Status:		**Special Status:**	BIN OBSOLETE
Local Law:	NO	**Loft Law:**	NO
SRO Restricted:	NO	**TA Restricted:**	NO
UB Restricted:	NO		
Environmental Restrictions:	N/A	**Grandfathered Sign:**	NO
Legal Adult Use:	NO	**City Owned:**	NO
Additional BINs for Building:	NONE		

Special District: UNKNOWN

This property is not located in an area that may be affected by Tidal Wetlands, Freshwater Wetlands, Coastal Erosion Hazard Area, or Special Flood Hazard Area. Click here for more information

Department of Finance Building Classification: V0-VACANT LAND

Please Note: The Department of Finance's building classification information shows a building's tax status, which may not be the same as the legal use of the structure. To determine the legal use of a structure, research the records of the Department of Buildings.

	Total	Open
Complaints	2	0
Violations-DOB	1	1
Violations-ECB (DOB)	0	0
Jobs/Filings	2	
ARA / LAA Jobs	0	
Total Jobs	2	
Actions	4	

OR Enter Action Type:

OR Select from List: Select...

AND Show Actions

Elevator Records
Electrical Applications
Permits In-Process / Issued
Illuminated Signs Annual Permits
Plumbing Inspections
Open Plumbing Jobs / Work Types
Facades
Marquee Annual Permits
Boiler Records
DEP Boiler Information
Crane Information
After Hours Variance Permits

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City.

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NYC Department of Buildings

DOB Violation Display for 060994LL629103843

Premises: 1951 BATHGATE AVENUE BRONX **BIN: 2011424** **Block: 3043** **Lot: 22**

Issue Date:	06/09/1994	**Violation Category:**	V - DOB VIOLATION - ACTIVE
Violation Type:	LL6291 - LOCAL LAW 62/91 - BOILERS		
Violation Number:	03843	**Device No.:**	00801243 - 01-COMMERCIAL
ECB No.:			
Infraction Codes:			
Description:			

Click here to view the Civil Penalty Chart.

Disposition:

Code: **Date:**

Inspector:

Comments:

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City.

NYC Buildings

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NYC Department of Buildings

Property Profile Overview

1949 BATHGATE AVENUE		BRONX 10457		BIN# 2011425	
BATHGATE AVENUE	1949 - 1949	**Health Area**	: 1700	**Tax Block**	: 3043
		Census Tract	: 395	**Tax Lot**	: 23
		Community Board	: 206	**Condo**	: NO
		Buildings on Lot	: 1	**Vacant**	: NO

View DCP Addresses... Browse Block

View Zoning Documents | View Challenge Results | Pre - BIS PA | View Certificates of Occupancy

Cross Street(s):	EAST 178 STREET		
DOB Special Place Name:			
DOB Building Remarks:			
Landmark Status:		**Special Status:**	N/A
Local Law:	NO	**Loft Law:**	NO
SRO Restricted:	NO	**TA Restricted:**	NO
UB Restricted:	NO		
Environmental Restrictions:	N/A	**Grandfathered Sign:**	NO
Legal Adult Use:	NO	**City Owned:**	NO
Additional BINs for Building:	NONE		

Special District: UNKNOWN

This property is not located in an area that may be affected by Tidal Wetlands, Freshwater Wetlands, Coastal Erosion Hazard Area, or Special Flood Hazard Area. Click here for more information

Department of Finance Building Classification: M3-CHURCH, SYNAGOGUE

Please Note: The Department of Finance's building classification information shows a building's tax status, which may not be the same as the legal use of the structure. To determine the legal use of a structure, research the records of the Department of Buildings.

	Total	Open
Complaints	5	0
Violations-DOB	3	0
Violations-ECB (DOB)	5	0
Jobs/Filings	11	
ARA / LAA Jobs	0	
Total Jobs	11	
Actions	13	

OR Enter Action Type:

OR Select from List: Select...

AND Show Actions

Elevator Records
Electrical Applications
Permits In-Process / Issued
Illuminated Signs Annual Permits
Plumbing Inspections
Open Plumbing Jobs / Work Types
Facades
Marquee Annual Permits
Boiler Records
DEP Boiler Information
Crane Information
After Hours Variance Permits

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City.

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NYC Department of Buildings

DOB Violations

Premises: 1949 BATHGATE AVENUE BRONX		BIN: 2011425	Block: 3043	Lot: 23
NUMBER	**TYPE**		**FILE DATE**	
V* 082995LL629117964	DOB VIOLATION - DISMISSED		08/29/1995	
DISMISSAL DATE: 11/27/2006	**AGENCY LICENSE:** IRICIA			
V* 060994LL629103233	DOB VIOLATION - DISMISSED		06/09/1994	
V* 060994LL629103234	DOB VIOLATION - DISMISSED		06/09/1994	

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City.

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NYC Department of Buildings

ECB Query By Location

Premises: 1949 BATHGATE AVENUE BRONX **BIN: 2011425** **Block: 3043** **Lot: 23** **CB: 206**

Dept. of Buildings Violations & Compliance	
Total Issued = 5	**Open (Non-Compliance) =** 0

ECB Hearings	
Completed / Defaulted = 5	**Pending =** 0

ECB Number	Dept. of Buildings Violation Status	Respondent	ECB Hearing Status	Viol Date	Infraction Codes	ECB Penalty Due
35367641Z	RESOLVED - CERTIFICATE ACCEPTED	RLG KINGSLAND SERVICES IN GC618098	IN VIOLATION	10/26/2018	282	$625.00
	Severity: CLASS - 2	**Inspect Unit:** CONSTRUCTION SAFETY COMPLIANCE		**Viol Type:** CONSTRUCTION		
35367642K	RESOLVED - CURE ACCEPTED	RLG KINGSLAND SERVICES IN GC618098	CURED/IN-VIO	10/26/2018	282	$0.00
	Severity: CLASS - 2	**Inspect Unit:** CONSTRUCTION SAFETY COMPLIANCE		**Viol Type:** CONSTRUCTION		
35345278X	RESOLVED - N/A - DISMISSED	RLG KINGSLAND SERVICES IN GC618098	DISMISSED	08/15/2018	106	$0.00
	Severity: CLASS - 1	**Inspect Unit:** BEST SQUAD		**Viol Type:** CONSTRUCTION		
35345279H	RESOLVED - N/A - DISMISSED	RLG KINGSLAND SERVICES IN GC618098	DISMISSED	08/15/2018	179	$0.00
	Severity: CLASS - 1	**Inspect Unit:** BEST SQUAD		**Viol Type:** CONSTRUCTION		
35345280P	RESOLVED - N/A - DISMISSED	RLG KINGSLAND SERVICES IN GC618098	DISMISSED	08/15/2018	181	$0.00
	Severity: CLASS - 1	**Inspect Unit:** BEST SQUAD		**Viol Type:** CONSTRUCTION		

Compliance Status (Open/Resolved) relates to whether a violation has been corrected/uncorrected. Dismissed violations do not require filing a Certificate of Correction.

ECB Hearing Status and the **ECB Penalty Due** are separate from **Compliance Status** (i.e. a penalty is still due in many cases even when the violating condition has been fixed).

Severity Class

Class 1 - Immediately Hazardous
Class 2 - Major
Class 3 - Lesser

HAZ - Hazardous - 1968 Building Code
NON-HAZ - Non-hazardous - 1968 Building Code

Violation Status Descriptions

OPEN - No Compliance Recorded
OPEN - Certificate Pending (Certificate of Correction submitted and under review)
OPEN - Certificate Disapproved (Certificate of Correction disapproved/not in compliance)

ECB Hearing Status

CURED/IN-VIO - In Violation/no hearing required
STIPULATION/IN-VIO - No hearing required/in violation
IN VIOLATION - Hearing decision completed
DISMISSED - Hearing decision completed

RESOLVED - N/A-Dismissed (at ECB - no Certificate of Correction required) RESOLVED - Certificate Accepted (Certification of Correction Accepted/in compliance) RESOLVED - Cure Accepted (early correction accepted - in violation/no penalty or hearing) RESOLVED - Compliance Insp/Doc (condition verified by Inspector or by Dept. documentation)	DEFAULT - Respondent failed to appear at hearing PUBLICLY-OWNED - No hearing required PENDING - Awaiting ECB hearing or decision ADMIT/IN-VIO - In Violation/no hearing required WRITTEN OFF - Imposed penalty legally uncollectable

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City.

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NYC Department of Buildings

Actions

Premises: 1948 WASHINGTON AVENUE BRONX **BIN: 2011423 Block: 3043 Lot: 10**

NUMBER	TYPE	FILE DATE
ALT 481-1912	ALTERATION	00/00/0000
ALT 475-1895	ALTERATION	00/00/0000
BN 1334-1929	BUILDING NOTICE	00/00/0000
BN 247-1924 TEMP SLIP	BUILDING NOTICE	00/00/0000
BN 598-1921	BUILDING NOTICE	00/00/0000
DEM 20-61	DEMOLITION	00/00/1961
ES 135-1920	ELECTRIC SIGN	00/00/0000
PD 60-29		00/00/0000
PRS 2301-47	PLUMBING REPAIR SLIP	00/00/1947
V 082995LL629118718	DOB VIOLATION - ACTIVE	08/29/1995

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City.

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NYC Department of Buildings

Actions

Premises: 484 EAST 178 STREET BRONX **BIN: 2806745** **Block: 3043** **Lot: 16**

NUMBER	TYPE	FILE DATE
MIS 619-63	MISCELLANEOUS	00/00/1963

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City.

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NYC Department of Buildings

Actions

Premises: 1951 BATHGATE AVENUE BRONX **BIN: 2011424 Block: 3043 Lot: 22**

NUMBER	TYPE	FILE DATE
ALT 1112-1891	ALTERATION	00/00/0000
BN 700-48	BUILDING NOTICE	00/00/1948
FP 230-48	FIRE PROTECTION PLANS	00/00/1948
PRS 708-42	PLUMBING REPAIR SLIP	00/00/1942
V 060994LL629103843	DOB VIOLATION - ACTIVE	06/09/1994

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City.

NYC Buildings

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NYC Department of Buildings

Actions

Premises: 1949 BATHGATE AVENUE BRONX **BIN: 2011425 Block: 3043 Lot: 23**

NUMBER		TYPE	FILE DATE
ALT 364-88		ALTERATION	08/09/1988
BN 1311-1926		BUILDING NOTICE	00/00/0000
BN 272-53		BUILDING NOTICE	00/00/1953
BN 1464-70		BUILDING NOTICE	00/00/1970
BN 1220-71		BUILDING NOTICE	00/00/1971
CO EX 1294-20	(PDF)	CERTIFICATE OF OCCUPANCY	00/00/0000
CO 060010	(PDF)	CERTIFICATE OF OCCUPANCY	01/11/1991
FP 415-48		FIRE PROTECTION PLANS	00/00/1948
NB 427-1919		NEW BUILDING	00/00/0000
PA 64-70(W/DRAWN)		PUBLIC ASSEMBLY	00/00/1970
PA 34-88		PUBLIC ASSEMBLY	08/09/1988
PD 460-1932			00/00/0000
PRS 617-74		PLUMBING REPAIR SLIP	00/00/1974
V* 082995LL629117964		DOB VIOLATION - DISMISSED	08/29/1995
DISMISSAL DATE: 11/27/2006		**AGENCY LICENSE:** IRICIA	
V* 060994LL629103233		DOB VIOLATION - DISMISSED	06/09/1994
V* 060994LL629103234		DOB VIOLATION - DISMISSED	06/09/1994
VEC* 122118CC06CR01		ECB VIOLATION DISMISSED	10/26/2018
VEC* 122118CC06CR02		ECB VIOLATION DISMISSED	10/26/2018
VEC* 100518BS06VP05		ECB VIOLATION DISMISSED	08/15/2018
VEC* 100518BS06VP06		ECB VIOLATION DISMISSED	08/15/2018
VEC* 100518BS06VP07		ECB VIOLATION DISMISSED	08/15/2018

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City.

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Application Data - Forms

Premises: 1948 WASHINGTON AVENUE BRONX **Job No: 220623476**

BIN: 2011423 Block: 3043 Lot: 10 **Job Type: DM - FULL DEMOLITION**

DOC NO ↓	PAA	FORM	DESCRIPTION	ENTERED	SCAN CODE
01		EF1	EF1 - EFILING COVER SHEET	02/22/2018	SC170425003
01	No	PW1	PW1 - PLAN / WORK APPROVAL APPLICATION	02/22/2018	SC170425004
01		ACP5	ACP5 - ASBESTOS: CERTIFICATION (DEP ACP5)	01/17/2019	ESHS7294921
01		DS1	DS1 - DEMOLITION SUBMITTAL CERTIFICATION FORM	01/17/2019	ESHS3439952
01		HPD3	HPD3 - SRO MD ANTI-HARASSMENT CHECKLIST	01/17/2019	ESHS5639743
01		PGL1	PGL1 - PROJECT-SPECIFIC GL INSURANCE -- EXPIRES: 08/01/2019	01/17/2019	ESHS0366088
01		PW2	PW2 - WORK PERMIT APPLICATION	01/17/2019	ESHS8013184

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City.

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Application Details

The below information does not include work types submitted in DOB NOW; use the DOB NOW Public Portal to access DOB NOW records.

Premises: 484 EAST 178 STREET BRONX
BIN: 2806745 Block: 3043 Lot: 16

Job No: 200618420
Document: 01 OF 1
Job Type: A2 - ALTERATION TYPE 2

Document Overview	Items Required	Virtual Job Folder	All Permits	Schedule B
Fees Paid	Forms Received		All Comments	Plumbing Inspections
Crane Information	Plan Examination			
After Hours Variance Permits				

This job is not subject to the Department's Development Challenge Process. For any issues, please contact the relevant borough office.

Last Action: PERMIT ISSUED - ENTIRE JOB/WORK 05/18/2000 (R)
Application approved on: 05/05/2000

Pre-Filed: 04/13/2000 **Building Type:** Other **Estimated Total Cost:** $200,000.00
Date Filed: 04/13/2000 **Electronically Filed:** Yes PC-FILED
Fee Structure: DEFERRED
Review is requested under Building Code: 1968

Job Description Comments

1 Location Information (Filed At)

House No(s): 484 **Street Name:** EAST 178 STREET
Borough: Bronx **Block:** 3043 **Lot:** 16 **BIN:** 2806745 **CB No:** 206
Work on Floor(s): 001 **Apt/Condo No(s):** **Zip Code:** 10457

2 Applicant of Record Information

Name: Peter Gluck
Business Name: Peter L.Gluck & Partners **Business Phone:** 212-255-2876
Business Address: 19 Union Square West New York NY 10003 **Business Fax:**
E-Mail: **Mobile Telephone:**
License Number: 011237
Applicant Type: ☐ P.E. ☒ R.A ☐ Sign Hanger ☐ R.L.A. ☐ Other

Directive 14 Applicant

Name: Peter Gluck
Business Name: Peter L.Gluck & Partners **Business Phone:** 212-255-2876
Business Address: 19 Union Square West New York NY 10003 **Business Fax:**
E-Mail: **Mobile Telephone:**
Applicant Type: RA **License Number:** 011237
Previous Applicant of Record

Not Applicable

3 Filing Representative

Name: Lois/Jay Rosenberg/Patel
Business Name: Lois Rosenberg Consultants Inc
Business Address: 303 Greenwich Street New York NY 10013
E-Mail:
Business Phone: 212-349-7488
Business Fax:
Mobile Telephone:
Registration Number:

4 Filing Status

Click Here to View

5 Job Types

- ☐ **Alteration Type 1 or Alteration Type 1 required to meet New Building requirements (28-101.4.5)**
- ☐ **Alteration Type 1, OT "No Work"**
- ☒ **Alteration Type 2**
- ☐ **Alteration Type 3**
- ☐ **Sign**
- ☐ **New Building**
- ☐ **Full Demolition**
- ☐ **Subdivision: Improved**
- ☐ **Subdivision: Condo**

Directive 14 acceptance requested? ☒ Yes ☐ No

6 Work Types

- ☐ **BL - Boiler**
- ☐ **FA - Fire Alarm**
- ☐ **FB - Fuel Burning**
- ☐ **FS - Fuel Storage**
- ☐ **FP - Fire Suppression**
- ☐ **MH - Mechanical**
- ☐ **PL - Plumbing**
- ☐ **SD - Standpipe**
- ☐ **SP - Sprinkler**
- ☐ **EQ - Construction Equipment**
- ☐ **CC - Curb Cut**
- ☒ **OT -** GEN CONSTRUCT.

7 Plans/Construction Documents Submitted

Plans Page Count: Not Provided

8 Additional Information

Enlargement proposed?

☒ No ☐ Yes ☐ Horizontal ☐ Vertical

9 Additional Considerations, Limitations or Restrictions

Yes	No		Yes	No	
☐	☐	**Alt. required to meet New Building req's (28-101.4.5)**	☐	☐	**Alteration is a major change to exits**
			☐	☐	**Change in number of dwelling units**
			☐	☐	**Change in Occupancy / Use**
			☐	☐	**Change is inconsistent with current certificate of occupancy**
			☐	☐	**Change in number of stories**

☐	☐	**Facade Alteration**	☐	☒	**Infill Zoning**
☐	☒	**Adult Establishment**	☐	☒	**Loft Board**
☐	☐	**Compensated Development (Inclusionary Housing)**	☐	☒	**Quality Housing**
☐	☐	**Low Income Housing (Inclusionary Housing)**	☐	☒	**Site Safety Job / Project**
☐	☒	**Single Room Occupancy (SRO) Multiple Dwelling**	☐	☐	**Included in LMCCC**
☐	☐	**Filing includes Lot Merger / Reapportionment**	**Work Includes:**		
			☐	☐	**Prefab wood I-joists**
			☐	☐	**Structural cold-formed steel**
			☐	☐	**Open-web steel joists**

☐	☒	**Landmark**
☐	☐	**Environmental Restrictions (Little E or RD)**
☐	☐	**Unmapped/CCO Street**
☐	☒	**Legalization**
☐	☒	**Other, Specify:**
☐	☒	**Filed to Comply with Local Law**

☐ ☐ **Restrictive Declaration / Easement**
☐ ☐ **Zoning Exhibit Record (I,II,III,etc)**
☐ ☐ **Filed to Address Violation(s)**

☐ ☐ **Work includes lighting fixture and/or controls, installation or replacement. [ECC §404 and §505]**
☐ ☐ **Work includes modular construction under New York State jurisdiction**
☐ ☐ **Work includes modular construction under New York City jurisdiction**
☐ ☐ **Structural peer review required per BC §1627** **Peer Reviewer License No.(P.E.):**
☐ ☐ **Work includes permanent removal of standpipe, sprinkler or fire suppression related systems**
☐ ☐ **Work includes partial demolition as defined in AC §28-101.5, or the raising/moving of a building**
☐ N **Structural Stability affected by proposed work**

BSA Calendar No.(s):
CPC Calendar No.(s):

10 NYCECC Compliance ***New York City Energy Conservation Code*** **(Applicant Statement)**
Not Provided

11 Job Description
UGRADE LOT : VARIOUS AMETIES INCLUDING A SPHAULT PLAY AREAS, WALKWAYS,
STEPS FENCES AND GATES (CURRENTLY VACANT LAND). STEPS AND CONVIENCE OPENING THR UGH EXISTING WALL TO ADJOURNING LOT (SAME OWNER)
Related BIS Job Numbers:
Primary application Job Number:

12 Zoning Characteristics
District(s): NONE
Overlay(s):
Special District(s):
Map No.: **Street legal width (ft.):** **Street status:** ☐ Public ☐ Private
Zoning lot includes the following tax lots: Not Provided

13 Building Characteristics

		2014/2008 Code Designations?
Occupancy Classification: Existing:		☐ Yes ☐ No
Proposed:		☐ Yes ☐ No
Construction Classification: Existing:		☐ Yes ☐ No
Proposed:		☐ Yes ☐ No
Multiple Dwelling Classification: Existing:		
Proposed:		
Building Height (ft.): Existing:		
Proposed:		
Building Stories: Existing:		
Proposed:		
Dwelling Units: Existing:		
Proposed:		

Mixed use building? ☐ **Yes** ☐ **No**

14 Fill
☐ **Not Applicable** ☐ **Off-Site** ☐ **On-Site** ☐ **Under 300 cubic yards**

15 Construction Equipment
Not Applicable

16 Curb Cut Description
Not Applicable

17 Tax Lot Characteristics
Not Provided

18 Fire Protection Equipment

Not Applicable

19 Open Spaces

20 Site Characteristics

Not Provided

21 Demolition Details

Not Applicable

22 Asbestos Abatement Compliance

23 Signs

Not Applicable

24 Comments

25 Applicant's Statements and Signatures (See paper form or check Forms Received)

Yes	No	
☐	☐	**For New Building and Alteration 1 applications filed under the 2008 or 2014 NYC Building Code only: does this building qualify for high-rise designation?**
☐	☐	**Directive 14 applications only: I certify that the construction documents submitted and all construction documents related to this application do not require a new or amended Certificate of Occupancy as there is no change in use, exits, or occupancy.**

26 Owner's Information

Name: Father Rufino Lecumberri
Relationship to Owner: Priest
Business Name: Archdioces
Business Phone: 718-731-2504
Business Address: 1949 Bathgate Avenue Bronx NY 10457
Business Fax:
E-Mail:
Owner Type: CORPORATION
Non Profit: ☒ Yes ☐ No

Yes	No	
☐	☐	**Owner's Certification Regarding Occupied Housing (Remain Occupied)**
☐	☒	**Owner's Certification Regarding Occupied Housing (Rent Control / Stabilization)**
☐	☒	**Owner DHCR Notification**
☐	☐	**Owner's Certification for Adult Establishment**
☐	☐	**Owner's Certification for Directive 14 (if applicable)**

Condo / Co-Op or Corporation Second Officer

Name: Janine Duffy
Title: Principal
Business Name: Archdioces
Business Phone: 718-731-2504
Business Address: 1949 Bathgate Avenue Bronx NY 10457
Business Fax:
E-Mail:

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NYC Department of Buildings

Application Details

The below information does not include work types submitted in DOB NOW; use the DOB NOW Public Portal to access DOB NOW records.

Premises: 1951 BATHGATE AVENUE BRONX
BIN: 2011424 Block: 3043 Lot: 22

Job No: 220207103
Document: 01 OF 1
Job Type: A2 - ALTERATION TYPE 2

Document Overview	Items Required	Virtual Job Folder	All Permits	Schedule B
Fees Paid	Forms Received		All Comments	Plumbing Inspections
Crane Information	Plan Examination			
After Hours Variance Permits				

This job is not subject to the Department's Development Challenge Process. For any issues, please contact the relevant borough office.

Last Action: PERMIT ISSUED - ENTIRE JOB/WORK 08/17/2012 (R)
Application approved on: 05/25/2012

Pre-Filed: 05/23/2012 **Building Type:** Other **Estimated Total Cost:** $4,660.00
Date Filed: 05/23/2012 **Electronically Filed:** Yes
Fee Structure: EXEMPT
Review is requested under Building Code: 2008

Job Description Comments

1 Location Information (Filed At)

House No(s): 1951 **Street Name:** BATHGATE AVE
Borough: Bronx **Block:** 3043 **Lot:** 22 **BIN:** 2011424 **CB No:** 206
Work on Floor(s): OSP **Apt/Condo No(s):** **Zip Code:** 10457

2 Applicant of Record Information

Name: WILLIAM F RYAN
Business Name: RYAN CONSULTING ENGINEERS **Business Phone:** 212-991-0689
Business Address: 299 BROADWAY SUITE 1500 NEW YORK NY 10007 **Business Fax:** 212-982-4614
E-Mail: **Mobile Telephone:**
License Number: 079554

Applicant Type: ☒ P.E. ☐ R.A ☐ Sign Hanger ☐ R.L.A. ☐ Other

Directive 14 Applicant
Not Provided
Previous Applicant of Record
Not Applicable

3 Filing Representative

Name: PETER MOSKOVER

Business Name: D&D EXPEDITORS, INC.
Business Phone: 212-957-9770
Business Address: 101 NORTH WELLWOOD AVE 9 LINDENHURST NY 11757
Business Fax: 631-957-9772
E-Mail: INFO@DDEXPEDITORS.COM
Mobile Telephone:
Registration Number: M07992

4 Filing Status

Click Here to View

5 Job Types

☐ **Alteration Type 1 or Alteration Type 1 required to meet New Building requirements (28-101.4.5)**
☐ **Alteration Type 1, OT "No Work"**
☒ **Alteration Type 2**
☐ **Alteration Type 3**
☐ **Sign**
☐ **New Building**
☐ **Full Demolition**
☐ **Subdivision: Improved**
☐ **Subdivision: Condo**
Directive 14 acceptance requested? ☒ Yes ☐ No

6 Work Types

☐ **BL - Boiler**
☐ **FA - Fire Alarm**
☐ **FB - Fuel Burning**
☐ **FS - Fuel Storage**
☐ **FP - Fire Suppression**
☐ **MH - Mechanical**
☐ **PL - Plumbing**
☐ **SD - Standpipe**
☐ **SP - Sprinkler**
☐ **EQ - Construction Equipment**
☐ **CC - Curb Cut**
☒ **OT -** TANK REMOVAL

7 Plans/Construction Documents Submitted

Plans Page Count: 1

8 Additional Information

Enlargement proposed?

☒ No ☐ Yes ☐ Horizontal ☐ Vertical

9 Additional Considerations, Limitations or Restrictions

Yes	No		Yes	No	
☐	☐	**Alt. required to meet New Building req's (28-101.4.5)**	☐	☐	**Alteration is a major change to exits**
			☐	☐	**Change in number of dwelling units**
			☐	☐	**Change in Occupancy / Use**
			☐	☐	**Change is inconsistent with current certificate of occupancy**
			☐	☐	**Change in number of stories**

☐	☐	**Facade Alteration**	☐	☒	**Infill Zoning**
☐	☒	**Adult Establishment**	☐	☒	**Loft Board**
☐	☒	**Compensated Development (Inclusionary Housing)**	☐	☒	**Quality Housing**
☐	☒	**Low Income Housing (Inclusionary Housing)**	☐	☒	**Site Safety Job / Project**
☐	☒	**Single Room Occupancy (SRO) Multiple Dwelling**	☐	☒	**Included in LMCCC**
☐	☒	**Filing includes Lot Merger / Reapportionment**	**Work Includes:**		
			☐	☐	**Prefab wood I-joists**
			☐	☐	**Structural cold-formed steel**
			☐	☐	**Open-web steel joists**

☐	☒	**Landmark**
☐	☒	**Environmental Restrictions (Little E or RD)**
☐	☒	**Unmapped/CCO Street**
☐	☒	**Legalization**
☐	☒	**Other, Specify:**
☐	☒	**Filed to Comply with Local Law**
☐	☒	**Restrictive Declaration / Easement**
☐	☒	**Zoning Exhibit Record (I,II,III,etc)**
☐	☒	**Filed to Address Violation(s)**

☐ N **Work includes lighting fixture and/or controls, installation or replacement. [ECC §404 and §505]**
☐ ☐ **Work includes modular construction under New York State jurisdiction**
☐ ☐ **Work includes modular construction under New York City jurisdiction**
☐ N **Structural peer review required per BC §1627** **Peer Reviewer License No.(P.E.):**
☐ N **Work includes permanent removal of standpipe, sprinkler or fire suppression related systems**
☐ N **Work includes partial demolition as defined in AC §28-101.5, or the raising/moving of a building**
☐ N **Structural Stability affected by proposed work**

BSA Calendar No.(s):
CPC Calendar No.(s):

10 NYCECC Compliance ***New York City Energy Conservation Code*** **(Applicant Statement)**

☒ **To the best of my knowledge, belief and professional judgment, this application is in compliance with the NYCECC.**

☐ **Energy analysis is on another job number:**

Yes No

☐ N **This application is, or is part of, a project that utilizes trade-offs among different major systems**
☐ N **This application utilizes trade-offs within a single major system**

11 Job Description

REMOVE (1) 1000 GALLON UNDERGROUND FUEL STORAGE TANK.

Related BIS Job Numbers:
Primary application Job Number:

12 Zoning Characteristics

District(s): R7-1 - GENERAL RESIDENCE DISTRICT
Overlay(s):
Special District(s):
Map No.: 3d **Street legal width (ft.):** **Street status:** ☐ Public ☐ Private
Zoning lot includes the following tax lots: Not Provided

13 Building Characteristics

		2014/2008 Code Designations?
Occupancy Classification: Existing:	F-1B - ASSEMBLY (CHURCHES, CONCERT HALLS	☐ Yes ☒ No
Proposed:	F-1B - ASSEMBLY (CHURCHES, CONCERT HALLS	☐ Yes ☒ No
Construction Classification: Existing:	1: FIREPROOF STRUCTURES	☐ Yes ☒ No
Proposed:	1: FIREPROOF STRUCTURES	☐ Yes ☒ No
Multiple Dwelling Classification: Existing:		
Proposed:		
Building Height (ft.): Existing:	44	
Proposed:	44	
Building Stories: Existing:	4	
Proposed:	4	
Dwelling Units: Existing:		
Proposed:		

Mixed use building? ☐ **Yes** ☒ **No**

14 Fill

☒ **Not Applicable** ☐ **Off-Site** ☐ **On-Site** ☐ **Under 300 cubic yards**

15 Construction Equipment

Not Applicable

16 Curb Cut Description

Not Applicable

17 Tax Lot Characteristics

Not Provided

18 Fire Protection Equipment

Not Applicable

19 Open Spaces

20 Site Characteristics

Yes	No		Yes	No	
☐	☒	Tidal Wetlands	☐	☒	Freshwater Wetlands
☐	☐	Coastal Erosion Hazard Area	☐	☒	Urban Renewal
☒	☐	Fire District	☐	☒	Flood Hazard Area

Flood Hazard Area Information:

Yes	No	
☐	☐	Substantial improvement?
☐	☐	Substantially damaged?
☐	☐	Floodshields part of proposed work?

21 Demolition Details

Not Applicable

22 Asbestos Abatement Compliance

☒ **The scope of work does not require related asbestos abatement as defined in the regulations of the NYC DEP. DEP ACP-5 Control No.:**

23 Signs

Not Applicable

24 Comments

25 Applicant's Statements and Signatures **(See paper form or check Forms Received)**

Yes	No	
☐	☐	For New Building and Alteration 1 applications filed under the 2008 or 2014 NYC Building Code only: does this building qualify for high-rise designation?
☒	☐	Directive 14 applications only: I certify that the construction documents submitted and all construction documents related to this application do not require a new or amended Certificate of Occupancy as there is no change in use, exits, or occupancy.

26 Owner's Information

Name: SALVATORE SPORTINO
Relationship to Owner: REVEREND
Business Name: ST. JOSEPH ROMAN CATHOLIC CHURCH
Business Phone: 718-731-2504
Business Address: 1949 BATHGATE AVENUE BRONX NY 10457
Business Fax: 718-731-0478
E-Mail:
Owner Type: OTHER
Non Profit: ☒ Yes ☐ No

Yes	No	
☐	☒	Owner's Certification Regarding Occupied Housing (Remain Occupied)
☐	☒	Owner's Certification Regarding Occupied Housing (Rent Control / Stabilization)
☐	☐	Owner DHCR Notification
☐	☒	Owner's Certification for Adult Establishment
☒	☐	Owner's Certification for Directive 14 (if applicable)

Metes and Bounds

To view metes and bounds, see the Plot Diagram (form PD-1). A scanned image may be available here.

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NYC Department of Buildings

Application Details

The below information does not include work types submitted in DOB NOW; use the DOB NOW Public Portal to access DOB NOW records.

Premises: 1951 BATHGATE AVENUE BRONX
BIN: 2011424 Block: 3043 Lot: 22

Job No: 220195615
Document: 01 OF 1
Job Type: DM - FULL DEMOLITION

Document Overview | Items Required | Virtual Job Folder | All Permits
Fees Paid | Forms Received | All Comments
Crane Information | Plan Examination
After Hours Variance Permits

This job is not subject to the Department's Development Challenge Process. For any issues, please contact the relevant borough office.

Last Action: SIGNED OFF 01/22/2013 (X)
Application approved on: 07/05/2012

Pre-Filed: 07/05/2012 **Building Type:** 1, 2, or 3 Family **Estimated Total Cost:** $0.00
Date Filed: 07/05/2012 **Electronically Filed:** Yes
Fee Structure: EXEMPT
Review is requested under Building Code: 2008

Job Description Comments

1 Location Information (Filed At)

House No(s): 1951 **Street Name:** BATHGATE AVE
Borough: Bronx **Block:** 3043 **Lot:** 22 **BIN:** 2011424 **CB No:** 206
Work on Floor(s): 001 **Apt/Condo No(s):** **Zip Code:** 10457

2 Applicant of Record Information

Name: JIEMING WANG
Business Name: LMW ENGINEERING GROUP LLC **Business Phone:** 908-862-7600
Business Address: 2539 BRUNSWICK AVE LINDEN NJ 07036 **Business Fax:** 908-862-8998
E-Mail: **Mobile Telephone:**
License Number: 074354
Applicant Type: ☒ P.E. ☐ R.A ☐ Sign Hanger ☐ R.L.A. ☐ Other

Directive 14 Applicant
Not Applicable
Previous Applicant of Record
Not Applicable

3 Filing Representative

Name: ADRIANE BARONGI
Business Name: IMA **Business Phone:** 718-268-8600
Business Address: 123-23 82 AVE KEW GARDENS NY 11415 **Business Fax:**
E-Mail: **Mobile Telephone:**

Registration Number: B42217

4 Filing Status

Click Here to View

5 Job Types

☐ **Alteration Type 1 or Alteration Type 1 required to meet New Building requirements (28-101.4.5)**

☐ **Alteration Type 1, OT "No Work"**
☐ **Alteration Type 2**
☐ **Alteration Type 3**
☐ **Sign**
☐ **New Building**
☒ **Full Demolition**
☐ **Subdivision: Improved**
☐ **Subdivision: Condo**

Directive 14 acceptance requested? ☐ Yes ☒ No

6 Work Types

☐ **BL - Boiler**
☐ **FA - Fire Alarm**
☐ **FB - Fuel Burning**
☐ **FS - Fuel Storage**
☐ **FP - Fire Suppression**
☐ **MH - Mechanical**
☐ **PL - Plumbing**
☐ **SD - Standpipe**
☐ **SP - Sprinkler**
☒ **EQ - Construction Equipment**
☐ **CC - Curb Cut**
☐ **OT - Other**

7 Plans/Construction Documents Submitted

Plans Page Count: 3

8 Additional Information

Enlargement proposed?

☒ No ☐ Yes ☐ Horizontal ☐ Vertical

Street Frontage: 94 linear ft.

9 Additional Considerations, Limitations or Restrictions

Yes	No		Yes	No	
☐	☐	**Alt. required to meet New Building req's (28-101.4.5)**	☐	☐	**Alteration is a major change to exits**
			☐	☐	**Change in number of dwelling units**
			☐	☐	**Change in Occupancy / Use**
			☐	☐	**Change is inconsistent with current certificate of occupancy**
			☐	☐	**Change in number of stories**

☐	☐	**Facade Alteration**	☐	N	**Infill Zoning**
☐	N	**Adult Establishment**	☐	N	**Loft Board**
☐	N	**Compensated Development (Inclusionary Housing)**	☐	N	**Quality Housing**
☐	N	**Low Income Housing (Inclusionary Housing)**	☐	N	**Site Safety Job / Project**
☐	N	**Single Room Occupancy (SRO) Multiple Dwelling**	☐	N	**Included in LMCCC**
☐	☐	**Filing includes Lot Merger / Reapportionment**	**Work Includes:**		
			☐	☐	**Prefab wood I-joists**
			☐	☐	**Structural cold-formed steel**
			☐	☐	**Open-web steel joists**

☐ N **Landmark**
☐ N **Environmental Restrictions (Little E or RD)**
☐ N **Unmapped/CCO Street**
☐ N **Legalization**
☐ N **Other, Specify:**
☐ N **Filed to Comply with Local Law**
☐ N **Restrictive Declaration / Easement**
☐ N **Zoning Exhibit Record (I,II,III,etc)**
☐ N **Filed to Address Violation(s)**

☐ ☐ **Work includes lighting fixture and/or controls, installation or replacement. [ECC §404 and §505]**

☐ ☐ **Work includes modular construction under New York State jurisdiction**
☐ ☐ **Work includes modular construction under New York City jurisdiction**
☐ ☐ **Structural peer review required per BC §1627** **Peer Reviewer License No.(P.E.):**
☐ N **Work includes permanent removal of standpipe, sprinkler or fire suppression related systems**
☐ ☐ **Work includes partial demolition as defined in AC §28-101.5, or the raising/moving of a building**
☐ ☐ **Structural Stability affected by proposed work**

BSA Calendar No.(s):
CPC Calendar No.(s):

10 NYCECC Compliance ***New York City Energy Conservation Code*** **(Applicant Statement)**
Not Provided

11 Job Description
DEMOLISH 3 STORY BUILDING
Related BIS Job Numbers:
Primary application Job Number:

12 Zoning Characteristics
District(s): R7-1 - GENERAL RESIDENCE DISTRICT
Overlay(s):
Special District(s):
Map No.: 3d **Street legal width (ft.):** **Street status:** ☐ Public ☐ Private
Zoning lot includes the following tax lots: Not Provided

13 Building Characteristics

	Existing	2014/2008 Code Designations?
Occupancy Classification:	RES - RESID. BLDG - OLD CODE	☐ Yes ☒ No
Construction Classification:	4: WOOD FRAME STRUCTURES	☐ Yes ☒ No
Multiple Dwelling Classification:		
Building Height (ft.):	33	
Building Stories:	3	
Dwelling Units:	1	

Mixed use building? ☐ **Yes** ☐ **No**

14 Fill
☐ **Not Applicable** ☐ **Off-Site** ☒ **On-Site** ☐ **Under 300 cubic yards**

15 Construction Equipment
☐ **Chute** ☐ **Sidewalk Shed** **Construction Material:** WOOD
☒ **Fence** **Size:** linear ft. **BSA/MEA Approval No.:**
☐ **Supported Scaffold** ☐ **Other**

16 Curb Cut Description
Not Applicable

17 Tax Lot Characteristics
Not Provided

18 Fire Protection Equipment
Not Applicable

19 Open Spaces

20 Site Characteristics
Not Provided

21 Demolition Details
Demolition notification received - FULL demolition will begin on 08/17/2012

Pre-Demolition Inspection: PASSED on 08/08/2012
Demolition Submittal Documents and Required Items: ACCEPTED

Yes	No	
☐	☒	**Demolishing a secondary structure? Specify:**
☒	☐	**Mechanical means from out of building?** ☐ entire structure or ☐ part of structure
☐	☒	**Mechanical means from within building? Describe equipment proposed:**
☐	☐	**Demolition work affects the exterior building envelope**
☐	☐	**The scope of work involves raising/moving of a building**

22 Asbestos Abatement Compliance

☒ **The scope of work does not require related asbestos abatement as defined in the regulations of the NYC DEP. DEP ACP-5 Control No.:**

23 Signs

Not Applicable

24 Comments

Comments for Document 01
BEST 8/7/12 MECHANICAL DEMOLITION REQUEST APPROVED. (VP)/DM.

25 Applicant's Statements and Signatures (See paper form or check Forms Received)

Yes	No	
☐	☐	**For New Building and Alteration 1 applications filed under the 2008 or 2014 NYC Building Code only: does this building qualify for high-rise designation?**
☐	☐	**Directive 14 applications only: I certify that the construction documents submitted and all construction documents related to this application do not require a new or amended Certificate of Occupancy as there is no change in use, exits, or occupancy.**

26 Owner's Information

Name: SALVATORE FATHER SPORTINO
Relationship to Owner: PASTOR
Business Name: ST JOSEPH R C CHURCH
Business Phone: 718-731-2504
Business Address: 1949 BATHGATE AVE BRONX NY 10457
Business Fax: 718-731-0478
E-Mail:
Owner Type: INDIVIDUAL
Non Profit: ☒ Yes ☐ No

Yes	No	
☐	☒	**Owner's Certification Regarding Occupied Housing (Remain Occupied)**
☐	☒	**Owner's Certification Regarding Occupied Housing (Rent Control / Stabilization)**
☐	☐	**Owner DHCR Notification**
☐	☒	**Owner's Certification for Adult Establishment**
☐	☐	**Owner's Certification for Directive 14 (if applicable)**

Metes and Bounds

To view metes and bounds, see the Plot Diagram (form PD-1). A scanned image may be available here.

CLICK HERE TO SIGN UP FOR BUILDINGS NEWS

NYC Department of Buildings

Application Details

The below information does not include work types submitted in DOB NOW; use the DOB NOW Public Portal to access DOB NOW records.

Premises: 1948 WASHINGTON AVENUE BRONX
BIN: 2011423 Block: 3043 Lot: 10

Job No: 220623476
Document: 01 OF 1
Job Type: DM - FULL DEMOLITION

Document Overview | Items Required | Virtual Job Folder | All Permits
Fees Paid | Forms Received | All Comments
Crane Information | Plan Examination
After Hours Variance Permits

DOB NOW: *Inspections*

This job is not subject to the Department's Development Challenge Process. For any issues, please contact the relevant borough office.

Last Action: PERMIT ISSUED - ENTIRE JOB/WORK 01/17/2019 (R)
Application approved on: 02/22/2018

Pre-Filed: 11/02/2017 **Building Type:** Other **Estimated Total Cost:** $0.00
Date Filed: 02/22/2018 **Electronically Filed:** Yes
Fee Structure: EXEMPT
Review is requested under Building Code: 2014

Job Description Comments

1 Location Information (Filed At)

House No(s): 1947 **Street Name:** BATHGATE AVE
Borough: Bronx **Block:** 3043 **Lot:** 10 **BIN:** 2011423 **CB No:** 206
Work on Floor(s): 001 **Apt/Condo No(s):** **Zip Code:** 10457

2 Applicant of Record Information

Name: SANTIAGO HELMAN
Business Name: H&O ENGINEERING DPC **Business Phone:** 347-282-4663
Business Address: 44-02 11TH STREET SUITE 403B LONGISLAND CITY NY 11101 **Business Fax:**
E-Mail: SANTIAGO@HANDO-ENG.COM **Mobile Telephone:**
License Number: 087797
Applicant Type: ☒ P.E. ☐ R.A ☐ Sign Hanger ☐ R.L.A. ☐ Other

Directive 14 Applicant
Not Applicable
Previous Applicant of Record
Not Applicable

3 Filing Representative

Name: ROB/FEL/MIC/DAR PINK/LEYDER/CIAL/DEM
Business Name: ARCHI PRO GROUP
Business Address: 280 OCEAN PRKWY 6K BROOKLYN NY 11218
E-Mail: EUGENE@ARCHIPROGROUP.COM
Business Phone: 866-707-0004
Business Fax: 866-877-5781
Mobile Telephone: 646-616-7524
Registration Number: 4555

4 Filing Status

Click Here to View

5 Job Types

☐ **Alteration Type 1 or Alteration Type 1 required to meet New Building requirements (28-101.4.5)**
☐ **Alteration Type 1, OT "No Work"**
☐ **Alteration Type 2**
☐ **Alteration Type 3**
☐ **Sign**
☐ **New Building**
☒ **Full Demolition**
☐ **Subdivision: Improved**
☐ **Subdivision: Condo**

Directive 14 acceptance requested? ☐ Yes ☒ No

6 Work Types

☐ **BL - Boiler**
☐ **FA - Fire Alarm**
☐ **FB - Fuel Burning**
☐ **FS - Fuel Storage**
☐ **FP - Fire Suppression**
☐ **MH - Mechanical**
☐ **PL - Plumbing**
☐ **SD - Standpipe**
☐ **SP - Sprinkler**
☐ **EQ - Construction Equipment**
☐ **CC - Curb Cut**
☐ **OT - Other**

7 Plans/Construction Documents Submitted

Plans Page Count: 0

8 Additional Information

Enlargement proposed?

☒ No ☐ Yes ☐ Horizontal ☐ Vertical

Street Frontage: 87 linear ft.

9 Additional Considerations, Limitations or Restrictions

Yes	No		Yes	No	
☐	☐	**Alt. required to meet New Building req's (28-101.4.5)**	☐	☐	**Alteration is a major change to exits**
			☐	☐	**Change in number of dwelling units**
			☐	☐	**Change in Occupancy / Use**
			☐	☐	**Change is inconsistent with current certificate of occupancy**
			☐	☐	**Change in number of stories**

☐	N	**Facade Alteration**	☐	N	**Infill Zoning**
☐	N	**Adult Establishment**	☐	N	**Loft Board**
☐	N	**Compensated Development (Inclusionary Housing)**	☐	N	**Quality Housing**
☐	N	**Low Income Housing (Inclusionary Housing)**	☐	N	**Site Safety Job / Project**
☐	N	**Single Room Occupancy (SRO) Multiple Dwelling**	☐	N	**Included in LMCCC**
☐	☐	**Filing includes Lot Merger / Reapportionment**	**Work Includes:**		
			☐	N	**Prefab wood I-joists**
			☐	N	**Structural cold-formed steel**
			☐	N	**Open-web steel joists**

☐ N **Landmark**
☐ N **Environmental Restrictions (Little E or RD)**
☐ N **Unmapped/CCO Street**
☐ N **Legalization**
☐ N **Other, Specify:**
☐ N **Filed to Comply with Local Law**
☐ N **Restrictive Declaration / Easement**
☐ N **Zoning Exhibit Record (I,II,III,etc)**

☐ N **Filed to Address Violation(s)**

☐ ☐ **Work includes lighting fixture and/or controls, installation or replacement. [ECC §404 and §505]**
☐ ☐ **Work includes modular construction under New York State jurisdiction**
☐ ☐ **Work includes modular construction under New York City jurisdiction**
☐ ☐ **Structural peer review required per BC §1627** **Peer Reviewer License No.(P.E.):**
☐ N **Work includes permanent removal of standpipe, sprinkler or fire suppression related systems**
☐ ☐ **Work includes partial demolition as defined in AC §28-101.5, or the raising/moving of a building**
☐ ☐ **Structural Stability affected by proposed work**

BSA Calendar No.(s):
CPC Calendar No.(s):

10 NYCECC Compliance ***New York City Energy Conservation Code*** **(Applicant Statement)**
Not Provided

11 Job Description
FULL DEMOLITION OF CHURCH
Related BIS Job Numbers:
Primary application Job Number:

12 Zoning Characteristics
District(s): R7-1 - GENERAL RESIDENCE DISTRICT
Overlay(s):
Special District(s):
Map No.: 3d **Street legal width (ft.):** **Street status:** ☐ Public ☐ Private
Zoning lot includes the following tax lots: Not Provided

13 Building Characteristics

	Existing	2014/2008 Code Designations?
Occupancy Classification:	PUB - PUBLIC BLDG - OLD CODE	☐ Yes ☒ No
Construction Classification:	1: FIREPROOF STRUCTURES	☐ Yes ☒ No
Multiple Dwelling Classification:		
Building Height (ft.):	80	
Building Stories:	1	
Dwelling Units:		

Mixed use building? ☐ **Yes** ☒ **No**

14 Fill
☐ **Not Applicable** ☒ **Off-Site** ☐ **On-Site** ☐ **Under 300 cubic yards**

15 Construction Equipment
☐ **Chute** ☐ **Sidewalk Shed** **Construction Material:**
☐ **Fence** **Size:** linear ft. **BSA/MEA Approval No.:**
☐ **Supported Scaffold** ☐ **Other**

16 Curb Cut Description
Not Applicable

17 Tax Lot Characteristics
Not Provided

18 Fire Protection Equipment
Not Applicable

19 Open Spaces

20 Site Characteristics
Not Provided

21 Demolition Details

Demolition notification received - FULL demolition will begin on 02/01/2019

Pre-Demolition Inspection: PASSED on 05/07/2018

Demolition Submittal Documents and Required Items: NOT APPLICABLE

Yes	No	
☐	☒	**Demolishing a secondary structure? Specify:**
☒	☐	**Mechanical means from out of building?** ☐ entire structure or ☐ part of structure
☒	☐	**Mechanical means from within building? Describe equipment proposed:** SEE PLANS
☐	☐	**Demolition work affects the exterior building envelope**
☐	☐	**The scope of work involves raising/moving of a building**

22 Asbestos Abatement Compliance

☒ **The scope of work requires related asbestos abatement as defined in the regulations of the NYC Department of Environmental Protection (DEP).**

23 Signs

Not Applicable

24 Comments

Comments for Document 01
GR 5/7/18

25 Applicant's Statements and Signatures (See paper form or check Forms Received)

Yes	No	
☐	☐	**For New Building and Alteration 1 applications filed under the 2008 or 2014 NYC Building Code only: does this building qualify for high-rise designation?**
☐	☐	**Directive 14 applications only: I certify that the construction documents submitted and all construction documents related to this application do not require a new or amended Certificate of Occupancy as there is no change in use, exits, or occupancy.**

26 Owner's Information

Name: NELSON BELIZARIO
Relationship to Owner: PASTOR
Business Name: ST SIMON STOCK ST JOSEPH CHURCH
Business Phone: 718-367-1251
Business Address: 2191 VALENTINE AVE BRONX NY 10457
Business Fax:
E-Mail: FRNELSON@STSIMONSTOCKSCHOOL.ORG
Owner Type: PARTNERSHIP
Non Profit: ☒ Yes ☐ No

Yes	No	
☐	☒	**Owner's Certification Regarding Occupied Housing (Remain Occupied)**
☐	☒	**Owner's Certification Regarding Occupied Housing (Rent Control / Stabilization)**
☐	☐	**Owner DHCR Notification**
☐	☐	**Owner's Certification for Adult Establishment**
☐	☐	**Owner's Certification for Directive 14 (if applicable)**

Metes and Bounds

To view metes and bounds, see the Plot Diagram (form PD-1). A scanned image may be available here.

CERTIFICATE OF OCCUPANCY

No. 1291 Issued AUG 11 1928 192

To Allen Denike Owner of

Premises 3082 Decatur Ave.

COPIES

DATE	NAME	ADDRESS
	AUG 11 1928	
	Delvd to owner	

STORIES	CLASSIFICATION	CONSTRUCTION
1	3 Car Garage	Concrete Block

FLOORS	OCCUPANCY	Live Load Per Sq. Feet in Pounds	No. of Persons
Sub-Cellar - -			
Cellar - - -			
Basement - -			
First Floor - -	Concrete on Earth		

S.A.
N.B. Application
No. 998 1928

CERTIFICATE OF OCCUPANCY

No 1294 Issued OCT 5- 1922 102

To Nestor Bldg Co. Inc

Premises University Ave W/S. 366.05' North of 176th St.

COPIES

DATE	NAME	ADDRESS
OCT 5- 1922	Delvd to Owner	L. Dellomey Pres

STORIES	CLASSIFICATION	CONSTRUCTION
1	Store	1 Brick

FLOORS	OCCUPANCY	Live Load Per Sq. Feet in Pounds	No. of Persons
Sub-Cellar			
Cellar			
Basement			
First Floor		120	

N. B. Application No 1567 1922

ALT. 364/88
G.A.S.

B-Form 54 (Rev. 8/85)

THE CITY OF NEW YORK

DEPARTMENT OF BUILDINGS
CERTIFICATE OF OCCUPANCY

BOROUGH THE BRONX DATE: JAN 11 1991 NO. 60010

This certificate supersedes C O No. ZONING DISTRICT R7-1

THIS CERTIFIES that the ~~new~~ altered ~~existing~~ building premises located at
1949 BATHGATE AVENUE,W/S 196.8'N. OF E. TREMONT AV Block 3043 Lot 10

CONFORMS SUBSTANTIALLY TO THE APPROVED PLANS AND SPECIFICATIONS AND TO THE REQUIREMENTS OF ALL APPLICABLE LAWS, RULES, AND REGULATIONS FOR THE USES AND OCCUPANCIES SPECIFIED HEREIN

PERMISSIBLE USE AND OCCUPANCY

STORY	LIVE LOAD LBS PER SQ FT	MAXIMUM NO OF PERSONS PERMITTED	ZONING DWELLING OR ROOMING UNITS	BUILDING CODE HABITABLE ROOMS	ZONING USE GROUP	BUILDING CODE OCCUPANCY GROUP	DESCRIPTION OF USE
BASEMENT	O.G.	500	-	-	3&4	P.BLD	ACCESSORY AND INDIGENT TO CHURCH AND SCHOOL FOR AUDITORIUM,MEETING HALL, CAFETERIA, DANCES,GYM,AND SCHOOL COUNSELING.
FIRST	100	1000	-	-	4	P.BLD	CHURCH

THIS CERTIFICATE OF OCCUPANCY MUST BE POSTED
WITHIN THE [illegible] WITH THE RULES
OF THE DEPARTMENT [illegible] MARCH 31ST, 1967.

OPEN SPACE USES _____
(SPECIFY - PARKING SPACES, LOADING BERTHS, OTHER USES, NONE)

NO CHANGES OF USE OR OCCUPANCY SHALL BE MADE UNLESS
A NEW AMENDED CERTIFICATE OF OCCUPANCY IS OBTAINED

THIS CERTIFICATE OF OCCUPANCY IS ISSUED SUBJECT TO FURTHER LIMITATIONS, CONDITIONS AND SPECIFICATIONS NOTED ON THE REVERSE SIDE.

X-5

Ernest W. Escobedo
BOROUGH SUPERINTENDENT

Steven A. Shaler
Rudolph J. Rindler
COMMISSIONER

☐ ORIGINAL ☒ OFFICE COPY - DEPARTMENT OF BUILDINGS ☐ COPY

THAT THE ZONING LOT ON WHICH THE PREMISES IS LOCATED IS BOUNDED AS FOLLOWS.

BEGINNING at a point on the WEST side of BATHGATE AVENUE
distant 196.8' NORTH from the corner formed by the intersection of
EAST TREMONT AVENUE and BATHGATE AVENUE
running thence WEST 185.11 feet; thence NORTH 134'-0" feet;
thence EAST 90.65' feet; thence SOUTH 28'-0" feet;
thence EAST 90.76' feet; thence SOUTH 108'-0" feet;
thence ..... feet; thence ..... feet;
to the point or place of beginning.

ALT. No. 364/88 DATE OF COMPLETION 12-21-90 CONSTRUCTION CLASSIFICATION 1-FP
BUILDING OCCUPANCY GROUP CLASSIFICATION PUBLIC BLDG. HEIGHT 2 STORIES. 60 FEET

THE FOLLOWING FIRE DETECTION AND EXTINGUISHING SYSTEMS ARE REQUIRED AND WERE INSTALLED IN COMPLIANCE WITH APPLICABLE LAWS.

	YES	NO		YES	NO
STANDPIPE SYSTEM			AUTOMATIC SPRINKLER SYSTEM		
YARD HYDRANT SYSTEM					
STANDPIPE FIRE TELEPHONE AND SIGNALLING SYSTEM					
SMOKE DETECTOR					
FIRE ALARM AND SIGNAL SYSTEM					

STORM DRAINAGE DISCHARGES INTO:
A) STORM SEWER ☐ B) COMBINED SEWER ☐ C) PRIVATE SEWAGE DISPOSAL SYSTEM ☐

SANITARY DRAINAGE DISCHARGES INTO:
A) SANITARY SEWER ☐ B) COMBINED SEWER ☐ C) PRIVATE SEWAGE DISPOSAL SYSTEM ☐

LIMITATIONS OR RESTRICTIONS:
BOARD OF STANDARDS AND APPEALS CAL. NO. _____
CITY PLANNING COMMISSION CAL. NO. _____
OTHERS.

Form 55-3M-10-41 — 114

COPY

DEPARTMENT OF HOUSING AND BUILDINGS

HB

BOROUGH OF Bronx , CITY OF NEW YORK

No. 1294

Date [illegible]

CERTIFICATE OF OCCUPANCY

(Standard form adopted by the Board of Standards and Appeals and issued pursuant to Section 646 of the New York Charter, and Sections C26-181.0 to C26-187.0 inclusive Administrative Code 2.1.3.1. to 2.1.3.7. Building Code.)

This certificate supersedes C. O. No.

To the owner [redacted] of the building or premises: Joan V. Lavizo

THIS CERTIFIES that the new—altered [redacted]—building—premises located at 299 E. 156th Street, 2315 Arthur Avenue, N/c/c

Block 3065 Lot 1

, conforms substantially to the approved plans and specifications, and to the requirements of the building code and all other laws and ordinances, and of the rules and regulations of the Board of Standards and Appeals, applicable to a building of its class and kind at the time the permit was issued; and

CERTIFIES FURTHER that, any provisions of Section 646F of the New York Charter have been complied with as certified by a report of the Fire Commissioner to the Borough Superintendent.

[redacted] Alt. No.— 23-1943

Construction classification— Non-Fireproof

Occupancy classification Commercial & Public Height 2 stories, 26'3" feet.

Date of completion— 3-22-43 Located in Business Use District.

Area B Height Zone at time of issuance of permit 1½

This certificate is issued subject to the limitations hereinafter specified and to the following resolutions of the Board of Standards and Appeals: (Calendar numbers to be inserted here)

PERMISSIBLE USE AND OCCUPANCY

STORY	LIVE LOADS Lbs. per Sq. Ft.	PERSONS ACCOMMODATED MALE	FEMALE	TOTAL	USE
Cellar	On earth				Storage and boiler room.
First	120				8 Stores
Second	100	100		100	Bowling Alleys

[redacted]

2-631-58

Zoning C1-1
M-1
3/20/43

[redacted]

Borough Superintendent.

NO CHANGES OF USE OR OCCUPANCY NOT CONSISTENT WITH THIS CERTIFICATE SHALL BE MADE UNLESS FIRST APPROVED BY THE BOROUGH SUPERINTENDENT

Unless an approval for the same has been obtained from the Borough Superintendent, no change or rearrangement in the structural parts of the building, or affecting the light and ventilation of any part thereof, or in the exit facilities, shall be made; no enlargement, whether by extending on any side or by increasing in height shall be made; nor shall the building be moved from one location or position to another; nor shall there by any reduction or diminution of the area of the lot or plot on which the building is located.

The building or any part thereof shall not be used for any purpose other than that for which it is certified.

The superimposed, uniformly distributed loads, or concentrated loads producing the same stresses in the construction in any story shall not exceed the live loads specified on reverse side; the number of persons of either sex in any story shall not exceed that specified when sex is indicated, nor shall the aggregate number of persons in any story exceed the specified total; and the use to which any story may be put shall be restricted to that fixed by this certificate except as specifically stated.

This certificate does not in any way relieve the owner or owners or any other person or persons in possession or control of the building, or any part thereof from obtaining such other permits, licenses or approvals as may be prescribed by law for the uses or purposes for which the building is designed or intended, nor from obtaining the special certificates required for the use and operation of elevators; nor from the installation of fire alarm systems where required by law; nor from complying with any lawful order for additional fire extinguishing appliances under the discretionary powers of the fire commissioner; nor from complying with any lawful order issued with the object of maintaining the building in a safe or lawful condition; nor from complying with any authorized direction to remove encroachments into a public highway or other public place, whether attached to or part of the building or not.

If this certificate is marked "Temporary", it is applicable only to those parts of the building indicated on its face, and certifies to the legal use and occupancy of only such parts of the building; it is subject to all the provisions and conditions applying to a final or permanent certificate; it is not applicable to any building under the jurisdiction of the Housing Division unless it is also approved and endorsed by them, and it must be replaced by a full certificate at the date of expiration.

If this certificate is for an existing building, erected prior to March 14, 1916, it has been duly inspected and it has been found to have been occupied or arranged to be occupied prior to March 14, 1916, as noted on the reverse side, and that on information and belief, since that date there has been no alteration or conversion to a use that changed its classification as defined in the Building Code, or that would necessitate compliance with some special requirement or with the State Labor Law or any other law or ordinance; that there are no notices of violations or orders pending in the Department of Housing and Buildings at this time; that Section 646F of the New York City Charter has been complied with as certified by a report of the Fire Commissioner to the Borough Superintendent, and that, so long as the building is not altered, except by permission of the Borough Superintendent, the existing use and occupancy may be continued.

"§ 646 F. No certificate of occupancy shall be issued for any building, structure, enclosure, place or premises wherein containers for combustibles, chemicals, explosives, inflammables and other dangerous substances, articles, compounds or mixtures are stored, or wherein automatic or other fire alarm systems or fire extinguishing equipment are required by law to be or are installed, until the fire commissioner has tested and inspected and has certified his approval in writing of the installation of such containers, systems or equipment to the Borough Superintendent of the borough in which the installation has been made. Such approval shall be recorded on the certificate of occupancy."

Additional copies of this certificate will be furnished to persons having an interest in the building or premises, upon payment of a fee of fifty cents per copy

CLICK HERE TO SIGN UP FOR BUILDINGS NEWS

NYC Department of Buildings

Complaints By Address

Click here for information on how to remove a Stop Work Order from your property

Premises: 1951 BATHGATE AVENUE BRONX **BIN: 2011424 Block: 3043 Lot: 22**

2 Total Complaint(s)

View Vacate Order Complaints View SWO Complaints

Looking for a list of complaint category codes or disposition codes?
(Adobe Acrobat Reader required)

Complaint Number	Address	Date Entered	Category	Inspection Date	Disposition	Status
2176422	1951 BATHGATE AVE	08/14/2012	2E	08/14/2012	P6	RES
	-- DEMOLITION NOTICE FOR JOB 220195615 -- TYPE: DM --					
2140697	1951 BATHGATE AVENUE	01/26/2010	59	01/26/2010	I1	RES
	STRAY VOLTAGE/CON ED					

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City.

CLICK HERE TO SIGN UP FOR BUILDINGS NEWS

NYC Department of Buildings

DOB Violation Display for 060994LL629103843

Premises: 1951 BATHGATE AVENUE BRONX **BIN: 2011424** **Block: 3043** **Lot: 22**

Issue Date:	06/09/1994	**Violation Category:**	V - DOB VIOLATION - ACTIVE
Violation Type:	LL6291 - LOCAL LAW 62/91 - BOILERS		
Violation Number:	03843	**Device No.:**	00801243 - 01-COMMERCIAL
ECB No.:			
Infraction Codes:			
Description:			

Click here to view the Civil Penalty Chart.

Disposition:
Code: **Date:**
Inspector:
Comments:

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City.

CLICK HERE TO SIGN UP FOR BUILDINGS NEWS

NYC Department of Buildings

DOB Violation Display for 082995LL629118718

Premises: 1948 WASHINGTON AVENUE BRONX **BIN: 2011423** **Block: 3043** **Lot: 10**

Issue Date: 08/29/1995
Violation Type: LL6291 - LOCAL LAW 62/91 - BOILERS
Violation Number: 18718
ECB No.:
Infraction Codes:
Description:
Click here to view the Civil Penalty Chart.

Violation Category: V - DOB VIOLATION - ACTIVE
Device No.: 00801693 - 01-COMMERCIAL

Disposition:
Code: **Date:**
Inspector:
Comments:

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NYC Department of Buildings

ECB Query By Location

Premises: 1949 BATHGATE AVENUE BRONX **BIN: 2011425 Block: 3043 Lot: 23 CB: 206**

Dept. of Buildings Violations & Compliance	
Total Issued = 5	**Open (Non-Compliance) =** 0

ECB Hearings	
Completed / Defaulted = 5	**Pending =** 0

ECB Number	Dept. of Buildings Violation Status	Respondent	ECB Hearing Status	Viol Date	Infraction Codes	ECB Penalty Due
35367641Z	RESOLVED - CERTIFICATE ACCEPTED	RLG KINGSLAND SERVICES IN GC618098	IN VIOLATION	10/26/2018	282	$625.00
	Severity: CLASS - 2	**Inspect Unit:** CONSTRUCTION SAFETY COMPLIANCE		**Viol Type:** CONSTRUCTION		
35367642K	RESOLVED - CURE ACCEPTED	RLG KINGSLAND SERVICES IN GC618098	CURED/IN-VIO	10/26/2018	282	$0.00
	Severity: CLASS - 2	**Inspect Unit:** CONSTRUCTION SAFETY COMPLIANCE		**Viol Type:** CONSTRUCTION		
35345278X	RESOLVED - N/A - DISMISSED	RLG KINGSLAND SERVICES IN GC618098	DISMISSED	08/15/2018	106	$0.00
	Severity: CLASS - 1	**Inspect Unit:** BEST SQUAD		**Viol Type:** CONSTRUCTION		
35345279H	RESOLVED - N/A - DISMISSED	RLG KINGSLAND SERVICES IN GC618098	DISMISSED	08/15/2018	179	$0.00
	Severity: CLASS - 1	**Inspect Unit:** BEST SQUAD		**Viol Type:** CONSTRUCTION		
35345280P	RESOLVED - N/A - DISMISSED	RLG KINGSLAND SERVICES IN GC618098	DISMISSED	08/15/2018	181	$0.00
	Severity: CLASS - 1	**Inspect Unit:** BEST SQUAD		**Viol Type:** CONSTRUCTION		

Compliance Status (Open/Resolved) relates to whether a violation has been corrected/uncorrected. Dismissed violations do not require filing a Certificate of Correction.

ECB Hearing Status and the **ECB Penalty Due** are separate from **Compliance Status** (i.e. a penalty is still due in many cases even when the violating condition has been fixed).

Severity Class

Class 1 - Immediately Hazardous
Class 2 - Major
Class 3 - Lesser

HAZ - Hazardous - 1968 Building Code
NON-HAZ - Non-hazardous - 1968 Building Code

Violation Status Descriptions

OPEN - No Compliance Recorded
OPEN - Certificate Pending (Certificate of Correction submitted and under review)
OPEN - Certificate Disapproved (Certificate of Correction disapproved/not in compliance)

ECB Hearing Status

CURED/IN-VIO - In Violation/no hearing required
STIPULATION/IN-VIO - No hearing required/in violation
IN VIOLATION - Hearing decision completed
DISMISSED - Hearing decision completed

RESOLVED - N/A-Dismissed (at ECB - no Certificate of Correction required) RESOLVED - Certificate Accepted (Certification of Correction Accepted/in compliance) RESOLVED - Cure Accepted (early correction accepted - in violation/no penalty or hearing) RESOLVED - Compliance Insp/Doc (condition verified by Inspector or by Dept. documentation)	DEFAULT - Respondent failed to appear at hearing PUBLICLY-OWNED - No hearing required PENDING - Awaiting ECB hearing or decision ADMIT/IN-VIO - In Violation/no hearing required WRITTEN OFF - Imposed penalty legally uncollectable

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NYC Department of Buildings

Elevator Records

NO RECORDS FOUND

Premises: 1948 WASHINGTON AVENUE BRONX **BIN: 2011423** **Block: 3043** **Lot: 10**

RECORD #	HOUSE NUMBER	STREET NAME	NUM DEVICES	LINKS

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City.

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NYC Department of Buildings

Job Overview

The below job records do not include filings submitted in DOB NOW; use the DOB NOW Public Portal to access DOB NOW records.

Premises: 1948 WASHINGTON AVENUE BRONX **BIN: 2011423 Block: 3043 Lot: 10**

To start overview at new date, select Month: Day: Year:

Show All BIS Job Types | Show All Filings | APPLY

FILE DATE	JOB #	DOC #	JOB TYPE	JOB STATUS	STATUS DATE	LIC #	APPLICANT	IN AUDIT	ZONING APPROVAL
02/22/2018	220623476	01	DM	R PERMIT-ENTIRE	01/17/2019	0087797 PE	HELMAN		NOT APPLICABLE
	FULL DEMOLITION OF CHURCH Work on Floor(s): 001								
12/14/1995	200356266	01	A2	X SIGNED OFF	07/17/1996	0050579 PE	RUDIKOFF		NOT APPLICABLE
	REPLACE 2 BOILERS & OIL BURNERS WITH 2 - BOILERS & GAS/OIL BURNERS. I Work on Floor(s): CEL,TRU,ROF								

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NYC Department of Buildings

Job Overview

The below job records do not include filings submitted in DOB NOW; use the DOB NOW Public Portal to access DOB NOW records.

Premises: 484 EAST 178 STREET BRONX **BIN: 2806745 Block: 3043 Lot: 16**

To start overview at new date, select Month: Day: Year:

Show All BIS Job Types | Show All Filings | APPLY

FILE DATE	JOB #	DOC #	JOB TYPE	JOB STATUS	STATUS DATE	LIC #	APPLICANT	IN AUDIT	ZONING APPROVAL
04/13/2000	200618420	01	A2	R PERMIT-ENTIRE	05/18/2000	0011237 RA	Gluck		NOT APPLICABLE

UGRADE LOT : VARIOUS AMETIES INCLUDING A SPHAULT PLAY AREAS, WALKWAYS,

Work on Floor(s): 001

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Buildings

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NYC Department of Buildings

Job Overview

The below job records do not include filings submitted in DOB NOW; use the DOB NOW Public Portal to access DOB NOW records.

Premises: 1951 BATHGATE AVENUE BRONX **BIN: 2011424 Block: 3043 Lot: 22**

To start overview at new date, select Month: ▼ Day: Year:

Show All BIS Job Types ▼ Show All Filings ▼ APPLY

FILE DATE	JOB #	DOC #	JOB TYPE	JOB STATUS	STATUS DATE	LIC #	APPLICANT	IN AUDIT	ZONING APPROVAL
07/05/2012	220195615	01	DM	X SIGNED OFF	01/22/2013	0074354 PE	WANG		NOT APPLICABLE
	DEMOLISH 3 STORY BUILDING Work on Floor(s): 001								
05/23/2012	220207103	01	A2	R PERMIT-ENTIRE	08/17/2012	0079554 PE	RYAN		NOT APPLICABLE
	REMOVE (1) 1000 GALLON UNDERGROUND FUEL STORAGE TANK. Work on Floor(s): OSP								

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NYC Department of Buildings

Job Overview

The below job records do not include filings submitted in DOB NOW; use the DOB NOW Public Portal to access DOB NOW records.

Premises: 1949 BATHGATE AVENUE BRONX **BIN: 2011425 Block: 3043 Lot: 23**

To start overview at new date, select Month: ▼ Day: Year:

Show All BIS Job Types ▼ Show All Filings ▼ APPLY

FILE DATE	JOB #	DOC #	JOB TYPE	JOB STATUS	STATUS DATE	LIC #	APPLICANT	IN AUDIT	ZONING APPROVAL
11/02/2017	220623467	01	DM	R PERMIT-ENTIRE	08/06/2018	0087797 PE	HELMAN		NOT APPLICABLE
	FULL DEMOLITION OF 4 STORY CONVENT BUILDING Work on Floor(s): 001 thru 004								
07/18/2013	220244162	01	A2	Q PERMIT-PARTIAL	08/27/2013	0018125 RA	COWLEY		NOT APPLICABLE
	EXTERIOR RESTORATION OF STONE WALLS. REPOINTING, STONE REPLACEMENT,CRACK R Work on Floor(s): 001,002								
05/20/2013	220098926	03	A3	P APPROVED	05/20/2013		UDDIN		NOT APPLICABLE
	POST APPROVAL AMENDMENT FOR 01 Work on Floor(s): OSP								
04/20/2012	220179606	01	A2	X SIGNED OFF	10/31/2012	0079554 PE	RYAN		NOT APPLICABLE
	REMOVE (2) 275 GALLON NUMBER #2 FUEL OIL UNDERGROUND STORAGE TANK. Work on Floor(s): OSP								
09/19/2011	220141139	01	A2	R PERMIT-ENTIRE	03/09/2012	0061362 PE	NACHMAN	Y	NOT APPLICABLE
	REPLACEMENT OF SIDEWALK VAULT ROOF SIDEWALK STRUCTURE. Work on Floor(s): 001								
03/01/2011	220098926	02	A3	P APPROVED	03/01/2011		UDDIN		NOT APPLICABLE
	POST APPROVAL AMENDMENT FOR 01 Work on Floor(s): OSP								
02/08/2011	220098935	02	A3	P APPROVED	02/08/2011		UDDIN		NOT APPLICABLE
	POST APPROVAL AMENDMENT FOR 01								

Work on Floor(s): OSP

12/30/2010	**220098935**	01	A3	R PERMIT-ENTIRE	10/30/2018	0071719 PE	UDDIN	NOT APPLICABLE

INSTALLATION OF 160 LINEAR FT OF HEAVY DUTY SIDEWALK SHED FOR BUILDING
Work on Floor(s): OSP

12/30/2010	**220098926**	01	A3	R PERMIT-ENTIRE	11/09/2012	0071719 PE	UDDIN	NOT APPLICABLE

INSTALLATION OF PIPE SCAFFOLD AS PER DRAWING, PIPE SCAFFOLD SHALL COMPLY W
Work on Floor(s): OSP

09/09/2005	**200995405**	01	A3	R PERMIT-ENTIRE	08/15/2008	0029274 RA	LEE	NOT APPLICABLE

CONSTRUCTION OF NEW EXTERIOR HANDICAPPED ACCESSIBLE CONCRETE RAMP FOR EXIT
Work on Floor(s): 001

05/12/1999	**200449700**	01	A3	X SIGNED OFF	09/22/2004	0020419 RA	HULME	NOT APPLICABLE

INSTALL HEAVY DUTY SIDEWALK SHED:24' LONG

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NYC Buildings

PW1: Plan / Work Application

Must be typewritten.

DEPT.BLDGS 220207103 Job Number

SC621424061 Scan Code

1 Location Information *Required for **all** applications.*

House No(s) 1951 Street Name BATHGATE AVE

Borough BRONX Block 03043 Lot 00022 BIN 2011424 C.B. No. 206

Work on Floor(s) OSP Apt. / Condo No(s)

2 Applicant Information *Required for **all** applications. Fax, mobile telephone and e-mail address are optional information.*

Last Name RYAN First Name WILLIAM Middle Initial F

Business Name RYAN CONSULTING ENGINEERS Business Telephone (212) 991-0689

Business Address 299 BROADWAY, SUITE 1500 Business Fax (212) 982-4614

City NEW YORK State NY Zip 10007 Mobile Telephone

E-Mail License Number 079554

Choose one: [X] P.E. [ ] R.A. [ ] Sign Hanger [ ] Other, please specify:

3 Filing Representative *Complete only if different from applicant specified in section 2. Fax, mobile phone, and e-mail are optional info.*

Last Name MOSKOVER First Name PETER Middle Initial

Business Name D&D EXPEDITORS, INC. Business Telephone (212) 957-9770

Business Address 101 NORTH WELLWOOD AVE, 9 Business Fax (631) 957-9772

City LINDENHURST State NY Zip 11757 Mobile Telephone

E-Mail INFO@DDEXPEDITORS.COM Registration Number M07992

4 Filing Status *Required for **all** applications. Choose **one** and provide specified associated information.*

[X] **Initial Filing** *5, 7, 11, 12A, 25-26*
Review is requested under which Building Code?
[X] 2008 [ ] 1968 [ ] Prior to 1968
Choose one: [X] Standard Plan Examination or Review
[ ] Professional Certification *PC1, POC1*
[ ] Professional Cert. of Objections *AI1*

[ ] **Prior to Approval Actions** *25-26*
[ ] Amend Existing Filing *4A*
[ ] Subsequent Filing *6-7, 8A (Alt-2 only), 11*
[ ] **Post Approval Amendment (PAA)** *4A, 6, 24-25*
Will PAA affect filing fees? [ ] Yes [ ] No
[ ] **New (Superseding) Applicant** *4A, 25-26*

[ ] **Reinstatement** *24-26*
[ ] **Withdrawal** *26*
[ ] Specified in 4A and 6
[ ] Entire Job
4A Indicate existing document number affected by filing:

5 Job/Project Types *Choose **one** and provide specified associated information.*

[ ] **Alteration Type 1** *6A-E, 8B-C, 9-10, 13C-F, 14 & 18-20, 22, PW1A, PD1, select all that apply:*
[ ] Change in Exits
[ ] Change in Number of Stories
[ ] Change in Number of Dwelling Units
[ ] Change in Occupancy / Use
[ ] Change inconsistent with current Cert. of Occup.

[ ] **Alteration Type 1, OT: "No Work"** *8C, 9-10 & 12, 13C-F, 14, 18-19, 22, PW1A, PD1*
[X] **Alteration Type 2** *5A, 6A-D, 8A-B, 9-10, & 13C-E, 14, 20, 22*
[ ] **Alteration Type 3** *5A, 6B-F, 8C, 9-10, 13C-E, 22*
[ ] **New Building** *6A-E, 8F-G, 9A-C,9L, 10, 12, 13A-E (13B: 2008 Code only), 14, 18-20, PW1A, PD1*

[ ] **Full Demolition** *6B, 8D, 9B-D, & 13D-E, 14, 21A, 22*
[ ] **Sign** *5A, 6B-D, 9B, 22-23*
[ ] **Subdivision** *9B, 12A-B*
[ ] Condominium [ ] Improved *17*
5A Directive 14 acceptance requested?
[X] Yes [ ] No

6 Work Types *Select all that apply but no more than allowed by job and filing type. "OT" required on all NB and Alteration 1 **initial** applications.*

6A [ ] BL - Boiler *PW1C*
[ ] FA - Fire Alarm
[ ] FB - Fuel Burning *PW1C*
[ ] FS - Fuel Storage *PW1C*
[ ] FP - Fire Suppression
[ ] MH - Mechanical
[ ] PL - Plumbing *PW1B*
[ ] SD - Standpipe *PW1B*
[ ] SP - Sprinkler *PW1B*

6B [ ] EQ - Construction Equipment *15*

6C [ ] OT/GC - General Construction

6D [X] OT - Other, *describe:* TANK REMOVAL

6E [ ] CC - Curb Cut *16*

6F [ ] OT/ANT - Antenna
[ ] OT/BPP - Builders Pavement Plan *8D*
[ ] OT/FPP - Fire Protection Plan
[ ] OT/MAR - Marquee *8E, 26B*

DOB Reference Number: T00000600480-000011
User Ref ID: 1951BATH

01/11

7 Plans/Construction Documents Submitted *Plans are required for most applications.*

☐AR - Architectural ☐BP - BPP Checklist ☐DM - Demolition (Full/Partial) ☐EN - Energy Analysis ☐FO - Foundation *or* ☐NP - No Plans
☒ME - Mechanical ☐OT - Other ☐PL - Plumbing ☐ST - Structural ☐ZO - Zoning

8 Additional Information

8A

WT	Cost	WT	Cost	WT	Cost
OT	4660				

8G Total Construction Floor Area: sq. ft.

8B Is a building enlargement proposed?
☒ No enlargement is proposed
☐ Yes *12, PD1*
☐ Horizontal ☐ Vertical
Additional Construction Floor Area: sq. ft.

8C Estimated Job Cost $
8D Street Frontage: linear ft.
8E Height: ft. Width: ft.
8F Name of cluster or development below:
Project lead job no.

9 Additional Considerations, Limitations or Restrictions

	Yes	No		Yes	No	
9A	☐	☒	Structural peer review required per BC §1627 *If yes, 9F*			
9B	☐	☒	Filed to Comply with Local Law *If yes, 9G*	☐	☒	Landmark
	☐	☒	Other, specify:	☐	☒	"Little E" Hazmat Site
	☐	☒	Restrictive Declaration / Easement *If yes, 9M*	☐	☒	Unmapped Street
	☐	☒	Zoning Exhibit (I, II, III, etc.) *If yes, 9N*	☐	☒	Filing to Address Violation(s) *If yes, 9H*
	☐	☒	Requesting legalization of work where no work w/o a permit violations have been issued			
9C	☐	☒	Adult Establishment *If yes, plot diagram (except DM)*	☐	☒	Included in LMCCC
	☐	☒	Compensated Development (Inclusionary Housing)	☐	☒	Infill Zoning
	☐	☒	Low Income Housing (Inclusionary Housing)	☐	☒	Loft Board
	☐	☒	Single Room Occupancy (SRO) Multiple Dwelling	☐	☒	Quality Housing
	☐	☒	Filing includes Lot Merger / Reapportionment *If yes, 17*	☐	☒	Site Safety Job/Project
9D	☐	☒	Includes permanent removal of standpipe, sprinkler or fire suppression related systems			
9E	☐	☒	Work includes partial demolition as defined in AC §28-101.5 *If yes, 21B*			
	☐	☒	Structural Stability affected by proposed work			
9L	☐	☒	Work includes lighting fixture and/or controls, installation or replacement. [§ECC 404 and 505]			

9F Structural Peer Reviewer License No. P.E.

9G Local Law No(s)	Year

9H Violation No(s)	

9I BSA Calendar No(s)	

9J CPC Calendar No(s)	

9K High-Rise Team Tracking Number:

9M CRFN(s) *Restrictive Declaration / Easement (max. 4):*

9N CRFN(s) *Zoning Exhibit (I, II, III, etc. - max. 4):*

10 NYCECC Compliance *New York City Energy Conservation Code*

☒ To the best of my knowledge, belief and professional judgment, all work under this application is in compliance with the NYCECC*

☐ Energy analysis is on another job number: _____

Yes No

☐ ☒ This application is, or is part of, a project that utilizes trade-offs among different major systems

☐ ☒ This application utilizes trade-offs within a single major system

☐ To the best of my knowledge, belief and professional judgment, all work under this application is exempt from the NYCECC* in accordance with one of the following: *Choose one*

☐ The work is an alteration of a State or National historic building.

☐ The scope of work is entirely in a "low-energy building" and is limited to the building envelope.

☐ The scope of work does not affect the energy use of the building.

☐ This is a post-approval amendment and exempt under a prior edition of the energy code. See statement of exemption on attached drawings.

** Note: Exceptions to Section ECC 101.4.3 are NOT exemptions. For exceptions, check compliance statement and use the Energy Analysis.*

11 Job Description

REMOVE (1) 1000 GALLON UNDERGROUND FUEL STORAGE TANK.

11A Related DOB Job Numbers

11B Primary application job no.

DOB Reference Number: T00000600480-000011
User Ref ID: 1951BATH

12 Zoning Characteristics

12A District(s) R7-1
Overlay(s)
Special Dist.(s)
Map Number 3D

12B Street legal width: ft.
Street Status: ☐ Public ☐ Private
If the zoning lot includes multiple tax lots, list all tax lots here ▶

12C *Proposed:* Use*	Zoning Floor Area	District	FAR
	sq. ft.		
	sq. ft.		
	sq. ft.		
	sq. ft.		
	sq. ft.		
	sq. ft.		
Proposed Totals	sq. ft.		
Existing Total	sq. ft.		

Proposed Lot Details:
Lot Type: ☐ Corner ☐ Interior ☐ Through
Lot Coverage %
Lot Area sq. ft.
Lot Width ft.

Proposed Other Details:
Enclosed Parking? ☐ Yes ☐ No
If yes, no. of parking spaces:
Perimeter Wall Height ft.

Proposed Yard Details:
Check here if no yards: ☐ *or*
Front Yard ft.
Rear Yard ft.
Rear Yard Equivalent ft.
Side Yard 1 ft.
Side Yard 2 ft.

Use can be one of the following: residential, commercial, manufacturing, or community facility. List only one use per line.

13 Building Characteristics *Main use/dominant occupancy per AC §28-101.5. **Use 2008 Code equivalents only. ‡Residential w/other use.

13A Primary structural system, *choose* **one**: ☐ Masonry ☐ Concrete (CIP) ☐ Concrete (Precast) ☐ Wood ☐ Steel (Structural) ☐ Steel (Cold-Formed) ☐ Steel (Encased in Concrete)

13B	Existing	2008 Code Designations?	Proposed	2008 Code Designations?
Structural Occupancy Category				
Seismic Design Category				
13C Occupancy Classification*	F-1B	☐ Yes ☒ No		☒ Yes**
Construction Classification	1	☐ Yes ☒ No		☐ Yes ☐ No
Multiple Dwelling Classification				

13D Building Type: ☐ 1, 2, or 3 Family ☒ Other
Mixed use building?‡ ☐ Yes ☒ No

13E	Existing	Proposed
Building Height	44 ft.	ft.
Building Stories	4	
Dwelling Units		

13F Building was originally erected pursuant to which Building Code: ☐ 2008 ☐ 1968 ☐ Prior to 1968
The earliest Code with which this building or any part of it is required to comply: ☐ 2008 ☐ 1968 ☐ Prior to 1968

14 Fill *Choose* **one**.

☒ Not Applicable ☐ On-Site ☐ Off-Site ☐ Under 300 cubic yards

15 Construction Equipment

☐ Chute ☐ Sidewalk Shed
☐ Fence Size: linear ft.
☐ Supported Scaffold ☐ Other:
Construction Material:
BSA/MEA Approval No.

16 Curb Cut Description

Size of cut (with splays): ft.
Distance to nearest corner: ft.
to street:

17 Tax Lot Characteristics

Original tax lots being merged or reapportioned (if applicable):

Tentative tax lot numbers (new tax lots only):

18 Fire Protection Equipment

	Existing Yes	Existing No	Proposed Yes	Proposed No
Fire Alarm	☐	☐	☐	☐
Fire Suppression	☐	☐	☐	☐
Sprinkler	☐	☐	☐	☐
Standpipe	☐	☐	☐	☐

19 Open Spaces

	Existing	Proposed		Existing	Proposed
Plaza Area	sq. ft.	sq. ft.	Arcade Area	sq. ft.	sq. ft.
Parking Area	sq. ft.	sq. ft.	Parking Spaces		
Loading Berths	sq. ft.	sq. ft.	Loading Berths		

20 Site Characteristics

Yes	No	
☐	☒	Tidal / Fresh Water Wetlands
☐	☒	Urban Renewal
☒	☐	Fire District
☐	☒	Flood Hazard Area

DOB Reference Number: T00000600480-000011
User Ref ID: 1951BATH

21 Demolition Details *Mechanical equipment other than handheld devices to be used for demolition or removal of debris (BC §3306.4).

	Yes	No	
21A	☐	☐	Demo. filing is for a secondary structure? *If yes, specify structure being demolished:*
	☐	☐	Mechanical means* from out of building? *If yes, mechanical means will demolish:* ☐ entire structure or ☐ part of structure
	☐	☐	Mechanical means* from within building? *If yes, describe equipment proposed:*
21B	☐	☐	Demolition work affects the exterior building envelope

22 Asbestos Abatement Compliance *Choose **one**.*

☐ The scope of work requires related asbestos abatement as defined in the regulations of the NYC Department of Environmental Protection (DEP).
☒ The scope of work does **not** require related asbestos abatement as defined in the regulations of the NYC DEP.
☐ The scope of work is exempt from the asbestos requirement as defined in the regulations promulgated by the NYC DEP (15 RCNY 1-23(b)).

23 Sign

Purpose: ☐ Advertising ☐ Non-Advertising
Type: ☐ Illuminated *23A* ☐ Non-Illuminated
Location: ☐ Ground ☐ Roof *23B* ☐ Wall
Estimated Cost: $
Total Square Feet:
Height above Curb: ft. in.
Height above Roof: ft. in.

Yes	No		
☐	☐	Is sign inside building line? *If no, sign projects by:*	ft. in.
☐	☐	Designed for changeable copy? *If no, 23C*	
☐	☐	Does an OAC have an interest in this sign or location? *If yes, 23G*	
☐	☐	Within 900' and within view of an arterial highway? *If yes, 23D*	
☐	☐	Within 200' and within view of a park 1/2 acre or more? *If yes, 23E*	

→ *If answer is "yes" to either of the above two questions and this is an advertising sign, OAC sign number is required in section 23F*

23A Illuminated type: ☐ Direct ☐ Flashing ☐ Indirect

Yes	No	
☐	☐	If sign projects beyond building line, is owner billed for annual permit? *If no, specify in 26B*
23B ☐	☐	Is roof sign tight, closed or solid?

23C Sign wording. *If extensive, provide only key wording.*

23D Distance from Arterial Highway: ft.
23E Distance from Park 1/2 acre or more: ft.
23F OAC Sign Number:
23G OAC Registration Number:

24 Comments *Place additional comments on an AI-1 form. See Guide for proper incorporation of professional certification statements.*

25 Applicant's Statements and Signatures *Required for **all** applications.*

Falsification of any statement is a misdemeanor and is punishable by a fine or imprisonment, or both. It is unlawful to give to a city employee, or for a city employee to accept, any benefit, monetary or otherwise, either as a gratuity for properly performing the job or in exchange for special consideration. Violation is punishable by imprisonment or fine or both. I understand that if I am found after hearing to have knowingly or negligently made a false statement or to have knowingly or negligently falsified or allowed to be falsified any certificate, form, signed statement, application, report or certification of the correction of a violation required under the provisions of this code or of a rule of any agency, I may be barred from filing further applications or documents with the Department. I prepared or supervised the preparation of the construction documents and specifications herewith submitted and to the best of my knowledge and belief, the construction documents and work shown thereon comply with the provisions of the NYC Administrative Code and other applicable laws and rules, ☐ *(←check here if)* except as set forth in the accompanying documents. I acknowledge that I have read and complied with all instructions pertaining to this application and supplementary schedules submitted.
Cluster Development Statement (if applicable): I hereby state that all specifications relating to this job are identical to those previously filed under the group lead job number, except as specified herein.

Yes	No	
☐	☐	**For initial New Building and Alteration 1 applications filed under the 2008 NYC Building Code only:** does this building qualify for high-rise designation?
☒	☐	**Directive 14 initial applications only**: I certify that the construction documents submitted and all construction documents related to this application do not require a new or amended Certificate of Occupancy as there is no change in use, exits, or occupancy.

Name (please print) WILLIAM RYAN
Signature
Date 5/14/12
P.E. / R.A. Seal *(apply seal, then sign and date over seal)*

STATE OF NEW YORK WILLIAM FRANCIS RYAN 079554 LICENSED PROFESSIONAL ENGINEER

DOB Reference Number: T00000600480-000011
User Ref ID: 1951BATH

26 Property Owner's Statements and Signatures

Falsification of any statement is a misdemeanor and is punishable by a fine or imprisonment, or both. It is unlawful to give to a city employee, or for a city employee to accept, any benefit, monetary or otherwise, either as a gratuity for properly performing the job or in exchange for special consideration. Violation is punishable by imprisonment or fine or both. I understand that if I am found after hearing to have knowingly or negligently made a false statement or to have knowingly or negligently falsified or allowed to be falsified any certificate, form, signed statement, application, report or certification of the correction of a violation required under the provisions of this code or of a rule of any agency, I may be barred from filing further applications or documents with the Department. Furthermore, I understand that I am responsible for insuring that a final inspection be performed when the permitted work is complete, and that a satisfactory report of final inspection be submitted, along with all required submittal documents, so that the NYC Department of Buildings may issue a letter of completion or certificate of occupancy within the time prescribed by law.

I have authorized the applicant to file this application for the work specified herein and all future amendments. I will not knowingly authorize any work that is not in compliance with the New York City Energy Conservation Code (NYCECC).

Yes No

☐ ☒ **Fee Deferred Request Statement**
I hereby request a fee deferral for the work proposed on this application and understand that **all fees must be paid before issuance of any Certificate of Occupancy or job sign off**.

☐ ☒ **Fee Exemption Request Statement**
In accordance with §28-112.1 of the NYC Administrative Code I hereby state that the proposed work involves a building or property owned or used exclusively for the purposes indicated in such section.

☐ ☒ **Owner's Certifications Regarding Occupied Housing**
The site of the building to be altered or demolished, or the site of the new building to be constructed, contains one or more occupied dwelling units that will remain occupied during construction. These occupied dwelling units have been clearly indentified on the submitted construction documents.

☐ ☒ The site of the building to be altered or demolished, or the site of the new building to be constructed, contains occupied housing accommodations subject to rent control or rent stabilization under Chapters 3 and 4 of Title 26 of the New York City Administrative Code. ***If yes, select one of the following:***

☐ The owner is not required to notify the Division of Housing and Community Renewal (DHCR) of the owner's intention to file because the nature and scope of the work proposed, pursuant to DHCR regulations, does not require notification.

☐ The owner has notified the Division of Housing and Community Renewal (DHCR) of its intention to file such construction documents/apply for such permit and has complied with all requirements imposed by the regulations of such agency as preconditions for such [filing/application].

Provide date DHCR notified:

☐ ☒ **Owner's Certification for Adult Establishments**
I authorize and intend to create, enlarge, or extend an establishment with adult activity and/or adult material as defined in ZR §12-10 "adult establishment" or related sign at the subject premises.

☒ ☐ **Owner's Certification for Directive 14 Applications (if applicable)**
I have read and am fully aware of the applicant's statement that the construction documents submitted and all construction documents related to this application will not require a new or amended Certificate of Occupancy as there is no change in use, exits, or occupancy. Furthermore, I understand that I am responsible for retaining a qualified design professional to perform a final inspection when the permitted work is complete and this professional must submit a satisfactory final inspection report to the NYC Department of Buildings within the time following inspection prescribed by Department rule.

Owner type: ☐ Individual ☐ DCAS ☐ HHC ☐ NYCHA
☐ Partnership ☐ DOE ☐ HPD ☐ NYS
☐ Corporation *26A* ☐ Other Government
☐ Condo Unit Owner or Co-Op Tenant-shareholder *26A*

Is the owner a non-profit organization? ☒ Yes ☐ No

Name (please print): SALVATORE SPORTINO

Relationship to Owner: REVEREND

Business Name/Agency: ST. JOSEPH ROMAN CATHOLIC CHURCH

Street Address: 1949 BATHGATE AVENUE

City: BRONX State: NY Zip: 10457

Telephone Number: (718)731-2504 Fax: (718)731-0478

E-Mail Address:

Signature and Date ▶ 4-30-11

26A Condo/Co-Op Board or Corporation Second Officer

Name (please print):

Title:

Street Address:

City: State: Zip:

Telephone Number: Fax:

E-Mail Address:

Signature and Date* ▶

**Signature required for authorized representative of Condo or Co-Op board. Second officer signature not required for corporations.*

26B Lessee Responsible for Annual Sign or Marquee Permit

Name (please print):

Relationship to Owner:

Business Name/Agency:

Street Address:

City: State: Zip:

Telephone Number: Fax:

E-Mail Address:

Internal Use Only

Pre-Filer Name:

Pre-Filer Signature: Date:

Cost Estimate: $

Amount Due: $ Verified by ▼ Date ▼

Initial Amount Paid: $

Balance Due: $

Stamps, Certifications and Notes:

CLICK HERE TO SIGN UP FOR BUILDINGS NEWS

NYC Department of Buildings

Work Permit Data

Premises: 1948 WASHINGTON AVENUE BRONX **Filed At: 1947 BATHGATE AVE BRONX**

BIN: 2011423 Block: 3043 Lot: 10 **Job Type: DM - FULL DEMOLITION**

Printable (PDF) version of this Permit

DOB NOW: *Inspections*

Job No:	220623476			**Fee:**	EXEMPT
Permit No:	220623476-01-DM	**Issued:**	01/17/2019	**Expires:**	08/01/2019
Seq. No.:	01	**Filing Date:**	01/17/2019 INITIAL	**Status:**	ISSUED
Work:		**Proposed Job Start:**	01/17/2019	**Work Approved:**	02/22/2018

FULL DEMOLITION -
FULL DEMOLITION OF CHURCH

Use: PUB - PUBLIC BLDG - OLD CODE **Landmark:** NO **Stories:** 1

Site Fill: OFF-SITE

Review is requested under Building Code: 2014

Total Number of Dwelling Units at Location: 0

Number of Dwelling Units Occupied During Construction: 0

Adding more than three stories: No

Removing one or more stories: Yes

Performing work in 50% or more of the area of the building: No

Demolishing 50% or more of the area of the building: Yes

Performing a vertical or horizontal enlargement adding more than 25% of the area of the building: No

Mechanical equipment other than handheld devices to be used for demolition or removal of debris to be used: Yes

Altering 10% or more of the existing floor surface area of the building: No

Site Safety Rule : SOURCE JOB

Issued to: PEARL TYNAUER

GC SAFETY REGISTRATION: GC 618098

Business: RLG KINGSLAND SERVICES IN
5308 13TH AVE SUITE 287 BROOKLYN NY 11219

Phone: 718-298-4504

Superintendent of Construction: ARON TYRNAUER

Registration No: 0020735

Business: BLUE ROCK CONTRACTING
1449 37TH STREET BROOKLYN NY 11218

Phone: 718-298-4500

DEMOLITION CHECKLIST 01/17/2019

CODE	DESCRIPTION	STATUS
A01	PRE-DEMO INSPECTOR'S REPORT	FILED
A02	WORKMEN'S COMPENSATION INSURANCE	FILED
A03	DISABILITY BENEFITS INSURANCE	FILED

A04	STREET OBSTRUCTION BOND	WAIVED
A05	RODENT CONTROL	FILED
A06	GAS CUT-OFF	FILED
A07	ELECTRIC CUT-OFF	FILED
A08	SEWER CUT-OFF	FILED
A09	WATER CUT-OFF	FILED
A10	SRO INTAKE FORM (SR01) / HPD3 CHECKLIST	FILED
A11	5 DAY PRIOR NOTICE TO ADJOINING OWNERS	FILED
A12	COMMUNITY BOARD NOTIFICATION	FILED
A13	ASBESTOS REPORT (ACP5/ASB4)	FILED
A14	PHOTOGRAPHS	FILED
A15	PW1 APPLICATION FOR FENCE OR NB	FILED
A16	APPOINTMENT CARD FROM B.E.S.T	WAIVED
A17	LANDMARK LETTER RE NO DESIGNATION OR CAL	FILED
A18	TITLE SEARCH	WAIVED
A19	DEED FOR TRANSFER OF UNIMPROVED PROPERTY	WAIVED
A20	ECB VIOLATIONS(S) FOR ILLEGAL DEMOLITION	WAIVED
A21	HPD CONH PILOT	WAIVED

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City.

FIRE DEPARTMENT – CITY OF NEW YORK

Public Records Unit / Fire Records Section

9 MetroTech Center

Brooklyn, New York 11201-3857

(718) 999-2681 or 2682

Violation Special Report Request Form

VHB Ref: 26518.01

SECTION A CUSTOMER INFORMATION

Please print the required information below.

April 22, 2019
Date

VHB - Ashley Monti
Name

100 Motor Parkway, Suite 350
Address

Hauppauge, New York 11788
Borough, State Zip Code

(631) 787-3400
Telephone Number

OFFICE USE ONLY

_____
Cashier / Search No.

PRU Staff
Accepted By/Initials:_____

Searched By:_____

Total Amount:_____

Note: Please make sure you complete this form and attach all required documents. Enclose a check or money order made payable to the NYC Fire Department and a stamped self-addressed envelope (with postage). Mail checks or money orders directly to the address and unit listed above. DO NOT MAIL CASH.

SECTION B REQUEST VIOLATION REPORT FEE $10.00 / PER REPORT

Please print the required information below.

1940	Washington Avenue	Bronx	Block: 3043 Lot: 10
House No	Street Name	Borough	

☒ **EXISTING- ALL NOTICES OF VIOLATION AND VIOLATION ORDERS ISSUED BY THE FIRE PREVENTION**

☐ **EXISTING- ALL SUMMONSES**

Note: This search is limited to outstanding Summonses, Notices of Violation and Violation Orders (VOs) that are reported to be related to a specific address. With respect to VOs this search is limited to VOs issued on January 1, 2008 or thereafter. This search does not contain information on VOs issued by fire companies, unless they were forwarded to the Bureau of Fire Prevention. A requested report will only list the violation numbers. After you have received the Report, you can obtain a copy of any record available for an additional fee of $0.25 (cents) / per page by filling out the copy of violation request form.

Note: Requests will be responded to within 10 business days.

PR4 (April-09)

FIRE DEPARTMENT – CITY OF NEW YORK

Public Records Unit / Fire Records Section

9 MetroTech Center

Brooklyn, New York 11201-3857

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OFFICE USE ONLY

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Cashier / Search No.

PRU Staff
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SECTION B REQUEST VIOLATION REPORT FEE $10.00 / PER REPORT

Please print the required information below.

No # Washington Avenue Bronx Block: 3043 Lot: 16

House No Street Name Borough

☒ **EXISTING- ALL NOTICES OF VIOLATION AND VIOLATION ORDERS ISSUED BY THE FIRE PREVENTION**

☐ **EXISTING- ALL SUMMONSES**

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9 MetroTech Center

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Violation Special Report Request Form

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100 Motor Parkway, Suite 350
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Hauppauge, New York 11788
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(631) 787-3400
Telephone Number

OFFICE USE ONLY

_____
Cashier / Search No.

PRU Staff
Accepted By/Initials:_____

Searched By:_____

Total Amount:_____

Note: Please make sure you complete this form and attach all required documents. Enclose a check or money order made payable to the NYC Fire Department and a stamped self-addressed envelope (with postage). Mail checks or money orders directly to the address and unit listed above. DO NOT MAIL CASH.

SECTION B REQUEST VIOLATION REPORT FEE $10.00 / PER REPORT

Please print the required information below.

1951	Bathgate Avenue	Bronx	Block: 3043 Lot: 22
House No	Street Name	Borough	

☒ **EXISTING- ALL NOTICES OF VIOLATION AND VIOLATION ORDERS ISSUED BY THE FIRE PREVENTION**

☐ **EXISTING- ALL SUMMONSES**

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PR4 (April-09)

FIRE DEPARTMENT – CITY OF NEW YORK

Public Records Unit / Fire Records Section

9 MetroTech Center

Brooklyn, New York 11201-3857

(718) 999-2681 or 2682

Violation Special Report Request Form

VHB Ref: 26518.01

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April 22, 2019
Date

VHB - Ashley Monti
Name

100 Motor Parkway, Suite 350
Address

Hauppauge, New York 11788
Borough, State Zip Code

(631) 787-3400
Telephone Number

OFFICE USE ONLY

_____
Cashier / Search No.

PRU Staff
Accepted By/Initials:_____

Searched By:_____

Total Amount:_____

Note: Please make sure you complete this form and attach all required documents. Enclose a check or money order made payable to the NYC Fire Department and a stamped self-addressed envelope (with postage). Mail checks or money orders directly to the address and unit listed above. DO NOT MAIL CASH.

SECTION B REQUEST VIOLATION REPORT FEE $10.00 / PER REPORT

Please print the required information below.

1949	Bathgate Avenue	Bronx	Block: 3043 Lot: 23
House No	Street Name	Borough	

☒ **EXISTING- ALL NOTICES OF VIOLATION AND VIOLATION ORDERS ISSUED BY THE FIRE PREVENTION**

☐ **EXISTING- ALL SUMMONSES**

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PR4 (April-09)

FIRE DEPARTMENT

9 METROTECH CENTER BROOKLYN, N.Y. 11201-3857

PUBLIC RECORDS UNIT
VIOLATIONS SECTION

Ref No: V- 140941

ATTN: ASHLEY MONTI
VHB
100 MOTOR PARKWAY STE 350
HAUPPAUGE, NY 11788
631-787-3400

Dear Customer / Representative,

We have completed a search for address and the requsted information listed below. In the "Status" box below, we have listed the results and any additional comments we may have regarding the search.

*Title Search No	*None	*Customer / Order No	*None

*Search Address	*Borough	*Search Type
1948 WASHINGTON AVENUE	02 - Bronx	$10 - Existing Violations

*Payment	02-Check	*Payment No.	6247

Listed Record(s)

No Violation Notices Found.
No Violation Orders Found.

*Status	Search Completed - No Record Found

IMPORTANT NOTICE: THIS REPORT IS NOT VALID IF ALTERED, CORRECTED OR WITHOUT FDNY CERTIFICATION STAMP AND UNIT EMPLOYEE'S SIGNATURE.

Place FDNY Certification Stamp Below

I CERTIFY THAT THIS IS A TRUE COPY OF AN ORIGINAL FIRE DEPT. RECORD, KEPT IN THE NORMAL COURSE OF BUSINESS.

SIGN: _____

If you need further assistance or additional information, please call (718) 999-2441; 8 am - 4pm (Monday - Friday).

Thank you,

Public Records Representative

E-5 /20/2019 RD

FDNY Building Information Profile

05/20/19 11:18:27

Bin: 2011423

Total AKA Found: 2

BLOCK	LOT	BIN	LHND	HHND	STREET NAME	BOROUGH
03043	0010	2011423	1947	1947	BATHGATE AVENUE	BRONX
03043	0010	2011423	1948	1948	WASHINGTON AVENUE	BRONX

Summary

Num Siam Sprinkler	:		Sprinkler Type	:	
Num Siam Standpipe	:		Sprinkler Type	:	
Last BISP Insp Date	:	01/11/2019	Last BISP Insp Status	:	Demolition
Num of Violation Notices	:	0	Num of Violation Order	:	0
Has BISP Asbestos Abatement	:	No			

Accounts

No Permit Accounts Found.

NOV

No Violation Notices Found.

Vio Orders

No Violation Orders Found.

FIRE DEPARTMENT

9 METROTECH CENTER BROOKLYN, N.Y. 11201-3857

PUBLIC RECORDS UNIT
VIOLATIONS SECTION

Ref No: V- 140943

ATTN: ASHLEY MONTI
VHB
100 MOTOR PARKWAY STE 350
HAUPPAUGE, NY 11788
631-787-3400

Dear Customer / Representative,

We have completed a search for address and the requsted information listed below. In the "Status" box below, we have listed the results and any additional comments we may have regarding the search.

*Title Search No	*None	*Customer / Order No	*None

*Search Address	*Borough	*Search Type
1949 WASHINGTON AVENUE	02 - Bronx	$10 - Existing Violations

*Payment	02-Check	*Payment No.	6247

Listed Record(s)

No Violation Notices Found.
No Violation Orders Found.

***Status** Search Completed - No Record Found

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Place FDNY Certification Stamp Below

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SIGN: _____

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Thank you,

Public Records Representative

E-5 /20/2019 RD

FDNY Building Information Profile

05/20/19 11:24:09

Bin: 2011425

Total AKA Found: 1

BLOCK	LOT	BIN	LHND	HHND	STREET NAME	BOROUGH
03043	0023	2011425	1949	1949	BATHGATE AVENUE	BRONX

Summary

Num Siam Sprinkler :		Sprinkler Type :	
Num Siam Standpipe :		Sprinkler Type :	
Last BISP Insp Date :	07/30/2018	Last BISP Insp Status :	Demolition
Num of Violation Notices :	0	Num of Violation Order :	0
Has BISP Asbestos Abatement :	No		

Accounts

FPREV Permit Accounts

Acct #	Owner Name	Do #	PFX	Last Insp Date	Last Insp Stat
93046712	ST JOSEPH	37	B	02/22/2019	NOV AND VIO(NOV NO HOLD)
02130706	ST JOSEPHS CHURCH	06	C	06/14/2018	NOV AND VIO(NOV NO HOLD)

NOV

No Violation Notices Found.

Vio Orders

No Violation Orders Found.

FIRE DEPARTMENT

9 METROTECH CENTER BROOKLYN, N.Y. 11201-3857

PUBLIC RECORDS UNIT
VIOLATIONS SECTION

Ref No: V- 140942

ATTN: ASHLEY MONTI
VHB
100 MOTOR PARKWAY STE 350
HAUPPAUGE, NY 11788
631-787-3400

Dear Customer / Representative,

We have completed a search for address and the requsted information listed below. In the "Status" box below, we have listed the results and any additional comments we may have regarding the search.

*Title Search No	*None	*Customer / Order No	*None

*Search Address	*Borough	*Search Type
1950 WASHINGTON AVENUE	02 - Bronx	$10 - Existing Violations

*Payment	02-Check	*Payment No.	6247

Listed Record(s)

No Violation Notices Found.
No Violation Orders Found.

*Status	Search Completed - No Record Found

IMPORTANT NOTICE: THIS REPORT IS NOT VALID IF ALTERED, CORRECTED OR WITHOUT FDNY CERTIFICATION STAMP AND UNIT EMPLOYEE'S SIGNATURE.

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SIGN: _____

If you need further assistance or additional information, please call (718) 999-2441; 8 am - 4pm (Monday - Friday).

Thank you,

Public Records Representative

E- 5 /20/2019 RD

FDNY Building Information Profile

05/20/19 11:20:19

Bin: 2817178

Total AKA Found: 1

BLOCK	LOT	BIN	LHND	HHND	STREET NAME	BOROUGH
03043	0016	2817178	1950	1950	WASHINGTON AVENUE	BRONX

Summary

Num Siam Sprinkler	:	Sprinkler Type	:
Num Siam Standpipe	:	Sprinkler Type	:
Last BISP Insp Date	:	Last BISP Insp Status	:
Num of Violation Notices	: 0	Num of Violation Order	: 0
Has BISP Asbestos Abatement	: No		

Accounts

No Permit Accounts Found.

NOV

No Violation Notices Found.

Vio Orders

No Violation Orders Found.

FIRE DEPARTMENT – CITY OF NEW YORK

Public Records Unit / Tanks Section

9 MetroTech Center
Brooklyn, New York 11201-3857
(718) 999-2441 or 2442

Fuel Tank Special Report Request Form

VHB Project: 26518.01

4/22/19

SECTION A CUSTOMER INFORMATION

Please print the required information below.

VHB - Ashley Monti
Name

100 Motor Parkway, Suite 350
Address

Hauppauge, New York 11788
State Zip Code

(631) 787-3400
Telephone Number

OFFICE USE ONLY

_____
Cashier / Search No.

PRU Staff
Accepted By/Initials:_____

Searched By:_____

Total Amount:_____

Note: Please make sure you complete this form and attach all required documents. Enclose a check or money order made payable to the NYC Fire Department and a stamped self-addressed envelope (with postage). Mail checks or money orders directly to the address and unit listed above. DO NOT MAIL CASH.

SECTION B FUEL TANK REPORT - FEE $10.00 / PER REPORT

1940	Washington Avenue	Bronx
House Number	Street Name	Borough

(Block 3043- Lot 10)

- [X] **THE TOTAL AMOUNT AND SIZE OF EXISTING FUEL OIL / HEATING TANKS**
- [X] **THE TOTAL AMOUNT AND SIZE OF REMOVED OR SEALED FUEL OIL / HEATING TANKS**
- [X] **THE TOTAL AMOUNT AND SIZE OF EXISTING BURIED MOTOR VEHICLE TANKS**
- [X] **THE TOTAL AMOUNT AND SIZE OF REMOVED OR SEALED BURIED MOTOR VEHICLE TANKS**
- [ ] **MOST RECENT TANK / PIPING TEST RESULTS**
- [ ] **HISTORY OF BURIED TANKS LEAKS**

Note: Requests will be responded to within 10 business days.

PR3 (July-08)

FIRE DEPARTMENT – CITY OF NEW YORK

Public Records Unit / Tanks Section

9 MetroTech Center
Brooklyn, New York 11201-3857
(718) 999-2441 or 2442

Fuel Tank Special Report Request Form

VHB Project: 26518.02

4/22/19

SECTION A CUSTOMER INFORMATION

Please print the required information below.

VHB - Ashley Monti
Name

100 Motor Parkway, Suite 350
Address

Hauppauge, New York 11788
State Zip Code

(631) 787-3400
Telephone Number

OFFICE USE ONLY

_____
Cashier / Search No.

PRU Staff
Accepted By/Initials:_____

Searched By:_____

Total Amount:_____

Note: Please make sure you complete this form and attach all required documents. Enclose a check or money order made payable to the NYC Fire Department and a stamped self-addressed envelope (with postage). Mail checks or money orders directly to the address and unit listed above. DO NOT MAIL CASH.

SECTION B FUEL TANK REPORT - FEE $10.00 / PER REPORT

No # Washington Avenue Bronx
House Number Street Name Borough

(Block 3043- Lot 16)

- [X] **THE TOTAL AMOUNT AND SIZE OF EXISTING FUEL OIL / HEATING TANKS**
- [X] **THE TOTAL AMOUNT AND SIZE OF REMOVED OR SEALED FUEL OIL / HEATING TANKS**
- [X] **THE TOTAL AMOUNT AND SIZE OF EXISTING BURIED MOTOR VEHICLE TANKS**
- [X] **THE TOTAL AMOUNT AND SIZE OF REMOVED OR SEALED BURIED MOTOR VEHICLE TANKS**
- [ ] **MOST RECENT TANK / PIPING TEST RESULTS**
- [ ] **HISTORY OF BURIED TANKS LEAKS**

Note: Requests will be responded to within 10 business days.

PR3 (July-08)

FIRE DEPARTMENT – CITY OF NEW YORK

Public Records Unit / Tanks Section

9 MetroTech Center
Brooklyn, New York 11201-3857
(718) 999-2441 or 2442

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4/22/19

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1951	Bathgate Avenue	Bronx
House Number	Street Name	Borough

(Block 3043 - Lot 22)

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PR3 (July-08)

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State Zip Code

(631) 787-3400
Telephone Number

OFFICE USE ONLY

_____
Cashier / Search No.

PRU Staff
Accepted By/Initials:_____

Searched By:_____

Total Amount:_____

Note: Please make sure you complete this form and attach all required documents. Enclose a check or money order made payable to the NYC Fire Department and a stamped self-addressed envelope (with postage). Mail checks or money orders directly to the address and unit listed above. DO NOT MAIL CASH.

SECTION B FUEL TANK REPORT - FEE $10.00 / PER REPORT

1949	Bathgate Avenue	Bronx
House Number	Street Name	Borough

(Block 3043- Lot 23)

- [X] **THE TOTAL AMOUNT AND SIZE OF EXISTING FUEL OIL / HEATING TANKS**
- [X] **THE TOTAL AMOUNT AND SIZE OF REMOVED OR SEALED FUEL OIL / HEATING TANKS**
- [X] **THE TOTAL AMOUNT AND SIZE OF EXISTING BURIED MOTOR VEHICLE TANKS**
- [X] **THE TOTAL AMOUNT AND SIZE OF REMOVED OR SEALED BURIED MOTOR VEHICLE TANKS**
- [ ] **MOST RECENT TANK / PIPING TEST RESULTS**
- [ ] **HISTORY OF BURIED TANKS LEAKS**

Note: Requests will be responded to within 10 business days.

PR3 (July-08)

From: openrecords@records.nyc.gov
To: Monti, Ashley
Subject: [External] [OpenRecords] Request FOIL-2019-057-01335 Submitted to New York City Fire Department (FDNY)
Date: Monday, April 22, 2019 8:55:24 AM

Your request FOIL-2019-057-01335 has been successfully submitted to the New York City Fire Department (FDNY). The details of your request are shown below.

Request Title: Records for Phase I ESA - 26518.01

Request Description: Violation Special Report

Violation Special Report
Submission Method: Online/At Home
Description of Records: Existing- All notices of violation and violation orders issued by the fire prevention
Building Address: 1940 Washington Avenue
Borough: Bronx
Account Info: Block: 3043 Lots: 10, 16, 22 and 23
Incident Date:

Requester's Contact Information

Name:
Ashley Monti
Title:
Not provided
Organization:
VHB
Email:
amonti@vhb.com
Phone Number:
(631) 787-3400
Fax Number:
Not provided
Street Address (line 1):
100 Motor Parkway
Street Address (line 2):
Suite 350
City:
Hauppauge
State:
NY
Zip Code:
11788

You can view the request and take any necessary action at the following webpage: https://a860-openrecords.nyc.gov/request/view/FOIL-2019-057-01335.

DO NOT RESPOND TO THIS EMAIL. For information or questions about this request please use the Contact the Agency link on the request page in OpenRecords.

From: openrecords@records.nyc.gov
To: Monti, Ashley
Subject: [External] [OpenRecords] Request FOIL-2019-057-01336 Submitted to New York City Fire Department (FDNY)
Date: Monday, April 22, 2019 8:56:34 AM

Your request FOIL-2019-057-01336 has been successfully submitted to the New York City Fire Department (FDNY). The details of your request are shown below.

Request Title: Records for Phase I ESA - 26518.01

Request Description: Fuel Tank Special Report (Environmental Assessment Report)

Fuel Tank Special Report (Environmental Assessment Report)
Submission Method: Online/At Home
Description of Records: Total amount and size of existing fuel oil/heating tanks, total amount and size of removed or sealed fuel oil/heating tanks, total amount and size of existing buried motor vehicle tanks, total amount and size of removed or sealed buried motor vehicle tanks
Building Address: 1940 Washington Avenue
Borough: Bronx
Account Info: Block: 3043 Lots: 10, 16, 22 and 23
Incident Date:

Requester's Contact Information

Name:
Ashley Monti
Title:
Not provided
Organization:
VHB
Email:
amonti@vhb.com
Phone Number:
(631) 787-3400
Fax Number:
Not provided
Street Address (line 1):
100 Motor Parkway
Street Address (line 2):
Suite 350
City:
Hauppauge
State:
NY
Zip Code:
11788

You can view the request and take any necessary action at the following webpage: https://a860-openrecords.nyc.gov/request/view/FOIL-2019-057-01336.

DO NOT RESPOND TO THIS EMAIL. For information or questions about this request please use the Contact the Agency link on the request page in OpenRecords.

PlaNYC

NYC Office of Environmental Remediation

1910-1928 Webster Avenue;
401-429 East Tremont Avenue;
4215-4219 Park Avenue
Bronx, New York
15CVCP066X
Remediation Fact Sheet
October 2015

Where can I view project documents?

Online at:

http://www.nyc.gov/html/oer/html/repository/RBronx.shtml

Internet access to view project documents is available at the following public library:

New York Public Library
Tremont Branch
1866 Washington Avenue
Bronx, NY 10457

Please call (718) 299-5177 for hours of operation.

Whom can I contact for project information?

William Wong
Project Manager
NYCOER
100 Gold Street, 2nd Floor
New York, NY 10038
212-341-0659
WiWong@dep.nyc.gov

and

Shaminder Chawla
Deputy Director
NYCOER
(212) 442-3007
ShaminderC@dep.nyc.gov

For more information visit:
www.nyc.gov/oer

NYC VCP Cleanup Plan
Remedial Activities to Begin

The New York City Office of Environmental Remediation (OER) is providing this Fact Sheet pursuant to the New York City Voluntary Cleanup Program (VCP). OER has approved the Remedial Action Work Plan (RAWP) submitted by Mastermind Ltd. for 1910-1928 Webster Avenue, 401-429 East Tremont Avenue, and 4215-4219 Park Avenue, Bronx, New York (Block 3027, Lot 1). The remedial work will begin in October 2015. The RAWP can be reviewed electronically or in person at the document repositories identified in the box at left.

Site Description:
The 58,771 square-foot site is currently a vacant four (4)-story building which is connected to a two (2)-story building on the eastern portion of the property, bordering Park Avenue. The proposed use of the site is an eight (8)-story, mixed-use building with a below-grade parking garage, management office, storage, and mechanical rooms. Three (3) separate commercial spaces, recreation rooms, storage rooms, a courtyard, and a residential lobby are proposed for the first floor of the building. Residential apartments are proposed for the 2nd to 8th floors.

Summary of the Remedy:
The remedial action for 1910-1928 Webster Avenue, 401-429 East Tremont Avenue, and 4215-4219 Park Avenue is a Track 4 Site-specific Use cleanup. The specific elements of the proposed remedial action include:

- Preparation of a Community Protection Statement and performance of all required NYC VCP citizen participation activities according to an approved Citizen Participation Plan;
- Performance of a Community Air Monitoring Program (CAMP) for particulates and volatile organic compounds;
- Establishment of Site-Specific (Track 4) Soil Cleanup Objectives (SCOs);
- Excavation and removal of soil/fill exceeding SCOs. For development purposes, the average excavation depth across the Site will be approximately 14 feet below grade surface. Excavation depths for foundation components and the elevator pit may exceed 14 feet below grade surface. Approximately 40,000 tons of soil will be excavated and removed from this property;
- Collection and analysis of end point samples to determine the performance of the remedy with respect to attainment of SCOs;
- Transportation and off-Site disposal of all soil/fill material at permitted facilities in accordance with applicable laws and regulations for handling, transport, and disposal, and this plan. Sampling and analysis of excavated media as required by disposal facilities;
- Construction and maintenance of an engineered composite cover consisting of four (4)- to six (6)-inch concrete building slab across the building footprint and the parking area to prevent human exposure to residual soil/fill remaining under the Site;
- Installation of a ventilated below-grade parking structure using high volume air exchange in accordance with the New York City Department of Building (NYCDOB) mechanical code;
- Dewatering will be performed in full compliance with applicable laws, rules and regulations. Dewatering permit will be obtained from NYCDEP prior to construction activities;
- Installation of a vapor barrier below the concrete slab underneath the building and outside foundation sidewalls below grade;
- Submission of a Remedial Action report (RAR) that describes the remedial activities, certifies that the remedial requirements have been achieved, defines the Site boundaries, lists any changes from this RAWP;
- Submission of an approved Site Management Plan (SMP) in the RAR for long-term management of residual contamination, including plans for maintenance and inspection of Engineering and Institutional Controls and reporting at a specified frequency;
- The property will continue to be registered with an E-Designation by the NYCDOB.

Cleanup activities are scheduled to begin in October 2015 and are expected take approximately 6 to 8 months to complete.

Next Steps: After the enrollee completes the remedial work, a RAR will be prepared and submitted to OER. The RAR will describe the cleanup activities and certify that all cleanup requirements were met. Once the RAR is approved, OER will issue a Notice of Completion, a City liability release, and a New York City Green Property Certificate. OER will then issue a fact sheet announcing the completion of the remedial action and identify all engineering and institutional controls to be used at the Site.

If you have any questions or know of any neighbor that would like to be added to the site contact list, please contact the OER Project Manager listed on the front page of this Fact Sheet. We encourage you to share this Fact Sheet with neighbors and tenants and/or post it in a prominent area of your building. For information regarding New York City's Voluntary Cleanup Program, please visit our website at: www.nyc.gov/oer.

Direct Link to Document Repository: http://www.nyc.gov/html/oer/html/repository/RBronx.shtml

OR scan with your smart phone:

Figure 1: Site Location

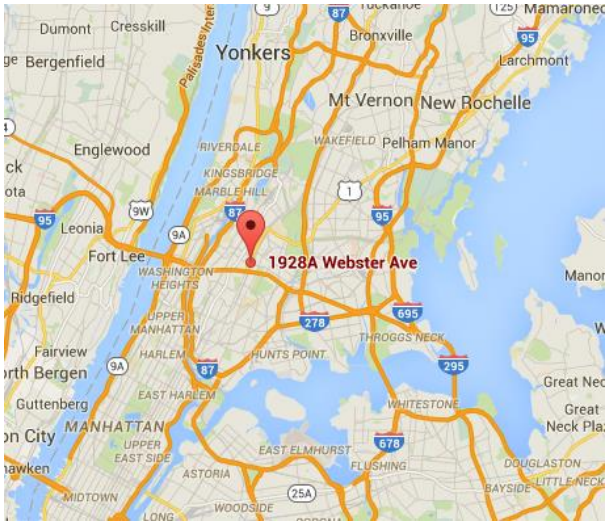
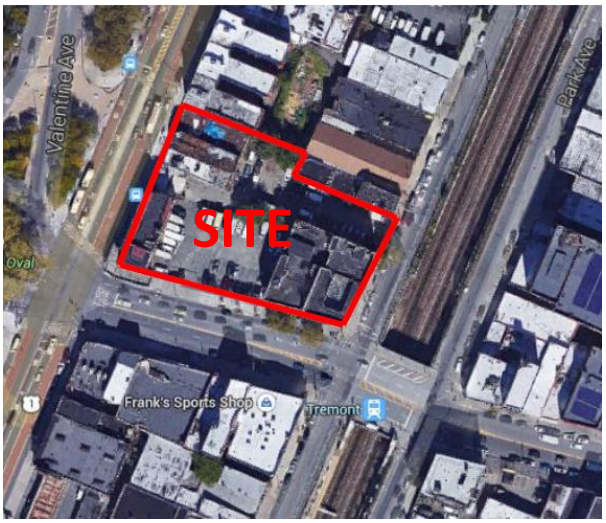


Figure 2: Site Map



NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Bulk Storage Database Search Details

Facility Information

Site No.: 2-399744
Status: Active
Expiration Date: 10/06/2012
Site Type: PBS
Facility Type: Religious Building (Church, Synagogue, Mosque, Temple, etc.)
Site Name: ST JOSEPHS CHURCH
Address: 1948 WASHINGTON AVE
Locality: NEW YORK
State: NY
Zipcode: 10457
County: Bronx

Facility(Property) Owner(s) Information

Facility Owner: ST JOSEPHS PARISH
1949 BATHGATE AVE . NEW YORK, NY. 10457
Mail Contact: ST JOSEPHS PARISH
1949 BATHGATE AVE . NEW YORK , NY. 10457

Facility Operator

Facility Operator: ST JOSEPHS CHURCH

Tank Information

1 Tanks Found

Tank No	Tank Location	Status	Capacity (Gal.)
001	Aboveground - in contact with soil	In Service	3000

Refine This Search

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Bulk Storage Database Search Details

Tank Information

Site No: 2-399744
Site Name: ST JOSEPHS CHURCH
Tank No: 001
Tank Location: Aboveground - in contact with soil
Subpart: 4
Category: 1
Tank Status: In Service
Tank Install Date: 01/01/1911
Tank Closed Date:
Tank Out Of Service Date:

Tank Capacity: 3000 gal.
Product Stored: #2 fuel oil (on-site consumption)
Percentage: 100%
Tank Type: 01 - Steel/Carbon Steel/Iron
Tank Internal Protection: None
Tank External Protection: None
Tank Secondary Containment: None
Tank Leak Detection: None
Overfill: Product Level Gauge (A/G)
Spill Prevention: None
Dispenser: Suction Dispenser

Pipe Location: Aboveground
Pipe Type: Steel/Carbon Steel/Iron
Pipe External Protection: None
Piping Secondary Containment: None
Piping Leak Detection: Exempt Suction Piping
UDC: Yes

Tank Next Test Due:
Tank Last Test:
Tank Test Method:

Line Next Test Due:
Line Last Test:
Line Test Method:

Refine This Search

Return To Facility

Appendix D
Sanborn Fire Insurance Maps

Catholic Homes St. Joseph
1940 Washington Avenue
Bronx, NY 10457

Inquiry Number: 5628113.3
April 22, 2019

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

04/22/19

Site Name:

Catholic Homes St. Joseph
1940 Washington Avenue
Bronx, NY 10457
EDR Inquiry # 5628113.3

Client Name:

Vanasse Hangen Brustlin, Inc.
100 Motor Parkway, Ste. 135
Hauppauge, NY 11788
Contact: Ashley Monti

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by Vanasse Hangen Brustlin, Inc. were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Certification # AD8E-45EB-AD68

PO # 26518.01

Project Catholic Homes St. Joseph

Maps Provided:

2007	1996	1984	1903
2006	1995	1981	1901
2005	1993	1980	1896
2004	1992	1979	
2003	1991	1978	
2002	1989	1977	
2001	1986	1950	
1998	1985	1915	

Sanborn® Library search results

Certification #: AD8E-45EB-AD68

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

The Sanborn Library LLC Since 1866™

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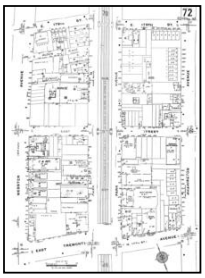
Sanborn Sheet Key

This Certified Sanborn Map Report is based upon the following Sanborn Fire Insurance map sheets.

2007 Source Sheets

Volume 15, Sheet 47
2007


Volume 15, Sheet 72
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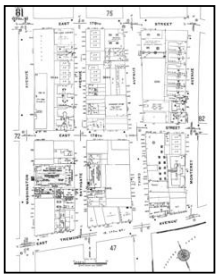
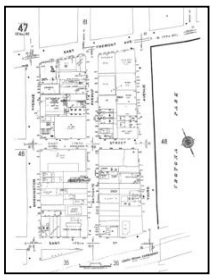

Volume 15, Sheet 81
2007

2006 Source Sheets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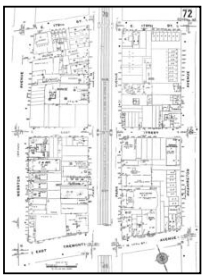
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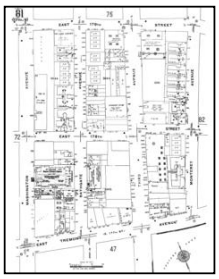
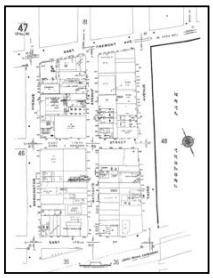

Volume 15, Sheet 81
2006

2005 Source Sheets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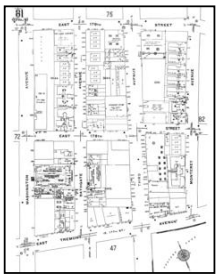
Volume 15, Sheet 81
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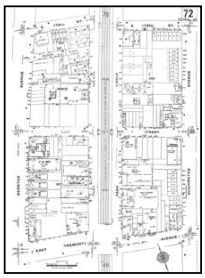
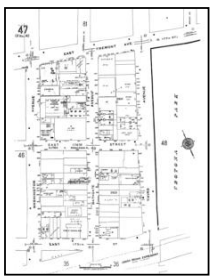

Volume 15, Sheet 72
2005

2004 Source Sheets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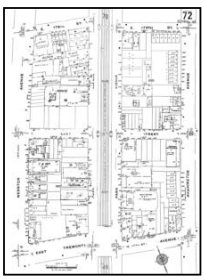
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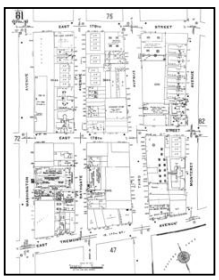
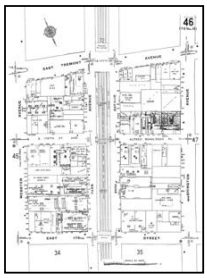

Volume 15, Sheet 81
2004

Sanborn Sheet Key

This Certified Sanborn Map Report is based upon the following Sanborn Fire Insurance map sheets.

2003 Source Sheets


Volume 15, Sheet 46
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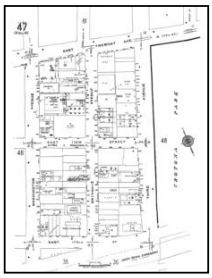
Volume 15, Sheet 47
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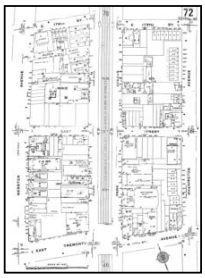
Volume 15, Sheet 72
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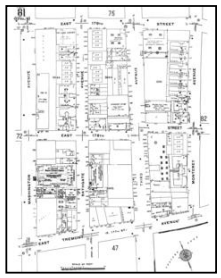
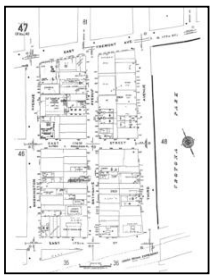

Volume 15, Sheet 81
2003

2002 Source Sheets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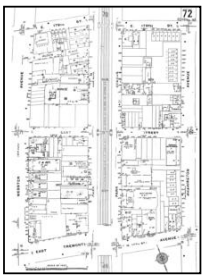
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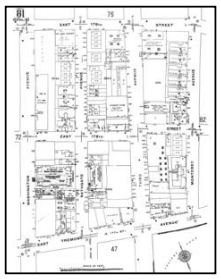
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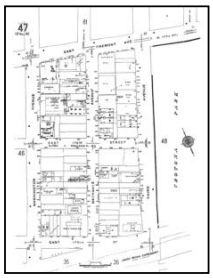
2001 Source Sheets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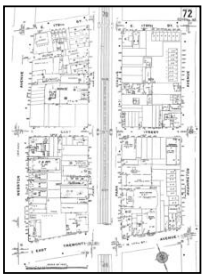
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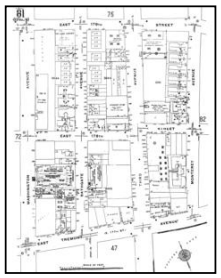
Volume 15, Sheet 81
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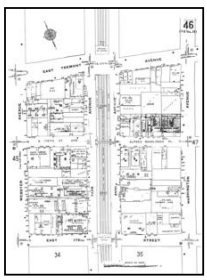
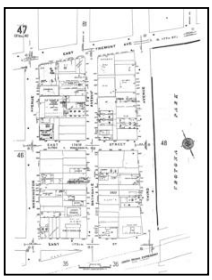
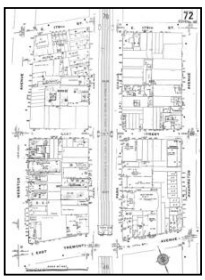
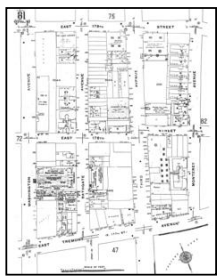
1998 Source Sheets


Volume 15, Sheet 46
1998


Volume 15, Sheet 47
1998

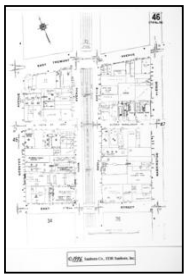

Volume 15, Sheet 72
1998


Volume 15, Sheet 81
1998

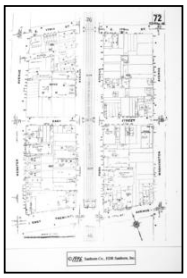
Sanborn Sheet Key

This Certified Sanborn Map Report is based upon the following Sanborn Fire Insurance map sheets.

1996 Source Sheets

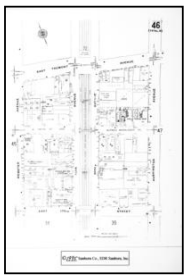

Volume 15, Sheet 46
1996

Volume 15, Sheet 47
1996

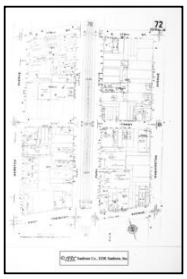

Volume 15, Sheet 72
1996

Volume 15, Sheet 81
1996

1995 Source Sheets


Volume 15, Sheet 46
1995

Volume 15, Sheet 47
1995


Volume 15, Sheet 72
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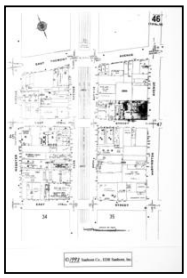
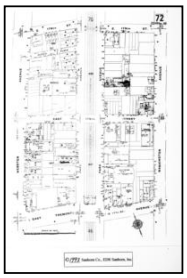
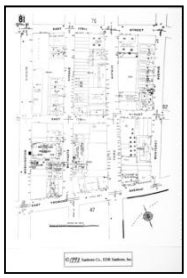
Volume 15, Sheet 81
1995

1993 Source Sheets


Volume 15, Sheet 46
1993

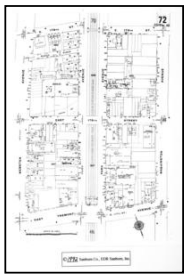
Volume 15, Sheet 47
1993


Volume 15, Sheet 72
1993


Volume 15, Sheet 81
1993

1992 Source Sheets

Volume 15, Sheet 47
1992


Volume 15, Sheet 72
1992

Volume 15, Sheet 81
1992

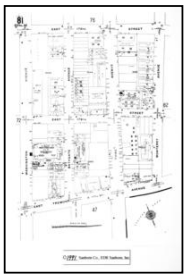
Sanborn Sheet Key

This Certified Sanborn Map Report is based upon the following Sanborn Fire Insurance map sheets.

1991 Source Sheets

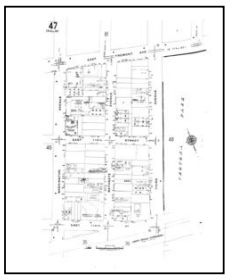
Volume 15, Sheet 47
1991

Volume 15, Sheet 72
1991

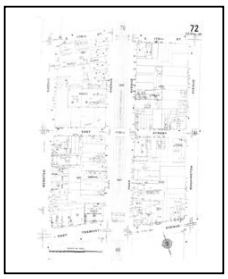


Volume 15, Sheet 81
1991

1989 Source Sheets



Volume 15, Sheet 47
1989



Volume 15, Sheet 72
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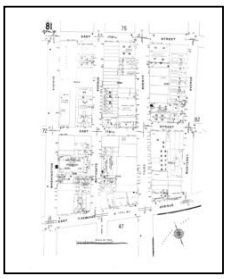
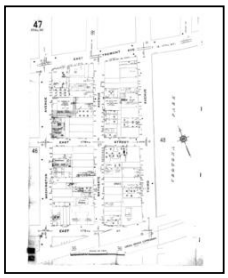
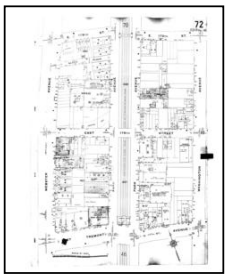


Volume 15, Sheet 81
1989

1986 Source Sheets



Volume 15, Sheet 47
1986



Volume 15, Sheet 72
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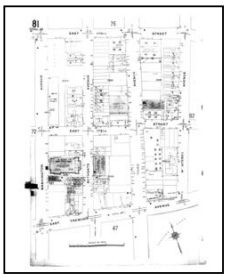
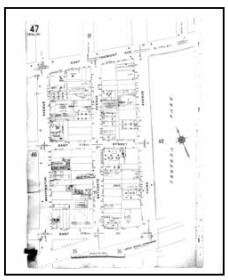


Volume 15, Sheet 81
1986

1985 Source Sheets



Volume 15, Sheet 47
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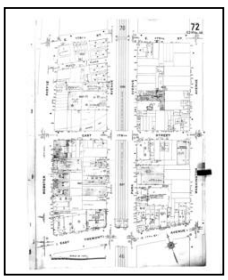

Volume 15, Sheet 72
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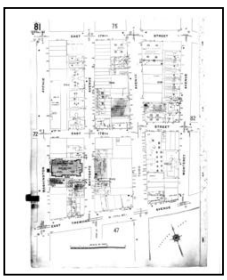
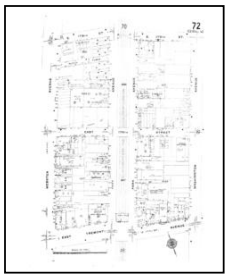


Volume 15, Sheet 81
1985

Sanborn Sheet Key

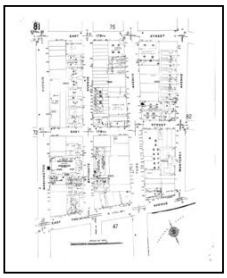
This Certified Sanborn Map Report is based upon the following Sanborn Fire Insurance map sheets.

1984 Source Sheets



Volume 15, Sheet 72
1984

Volume 15, Sheet 47
1984



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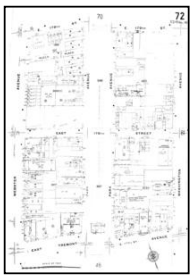
1984

1981 Source Sheets

Volume 15, Sheet 47
1981



Volume 15, Sheet 72
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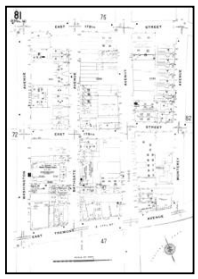
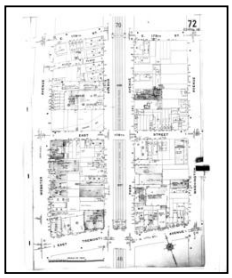


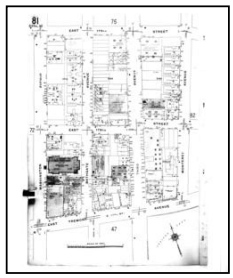
Volume 15, Sheet 81
1981

1980 Source Sheets

Volume 15, Sheet 47
1980

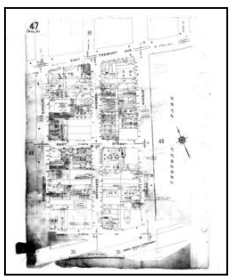


Volume 15, Sheet 72
1980



Volume 15, Sheet 81
1980

1979 Source Sheets



Volume 15, Sheet 47
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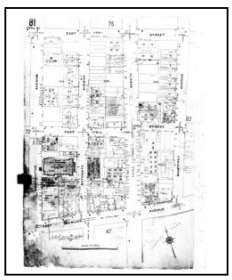

Volume 15, Sheet 81
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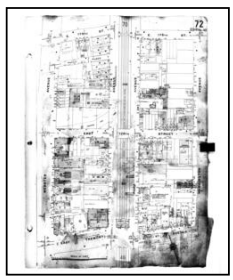

Volume 15, Sheet 72
1979

Sanborn Sheet Key

This Certified Sanborn Map Report is based upon the following Sanborn Fire Insurance map sheets.

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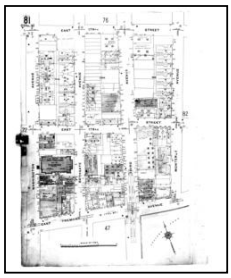

Volume 15, Sheet 81
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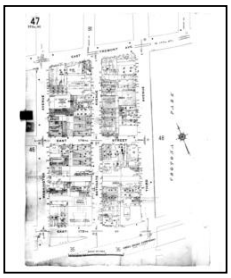
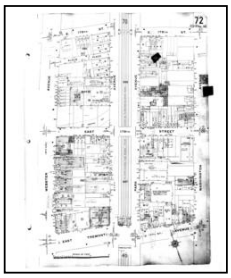


Volume 15, Sheet 47
1978



Volume 15, Sheet 72
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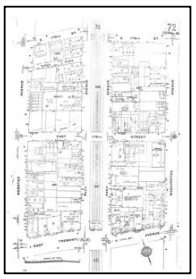
1977 Source Sheets

Volume 15, Sheet 47
1977



Volume 15, Sheet 72
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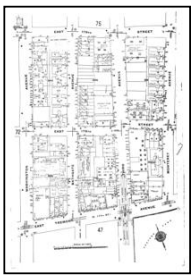
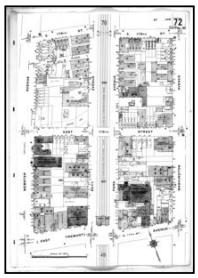


Volume 15, Sheet 81
1977

1950 Source Sheets

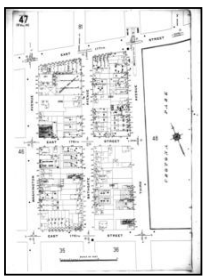
Volume 15, Sheet 47
1950



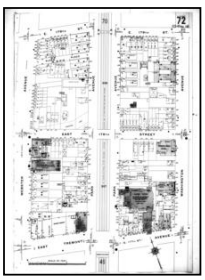
Volume 15, Sheet 72
1950

Volume 15, Sheet 81
1950

1915 Source Sheets



Volume 15, Sheet 47
1915



Volume 15, Sheet 72
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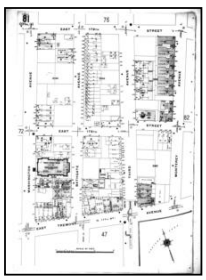

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1915

Sanborn Sheet Key

This Certified Sanborn Map Report is based upon the following Sanborn Fire Insurance map sheets.

1903 Source Sheets

Volume Atlas Maps, Sheet 08
1903

Volume Atlas Maps, Sheet 1
1903

1901 Source Sheets

Volume 14, Sheet 8
1901

Volume 14, Sheet 13
1901

1896 Source Sheets

Volume 12, Sheet 263
1896

Volume 12, Sheet 263
1896

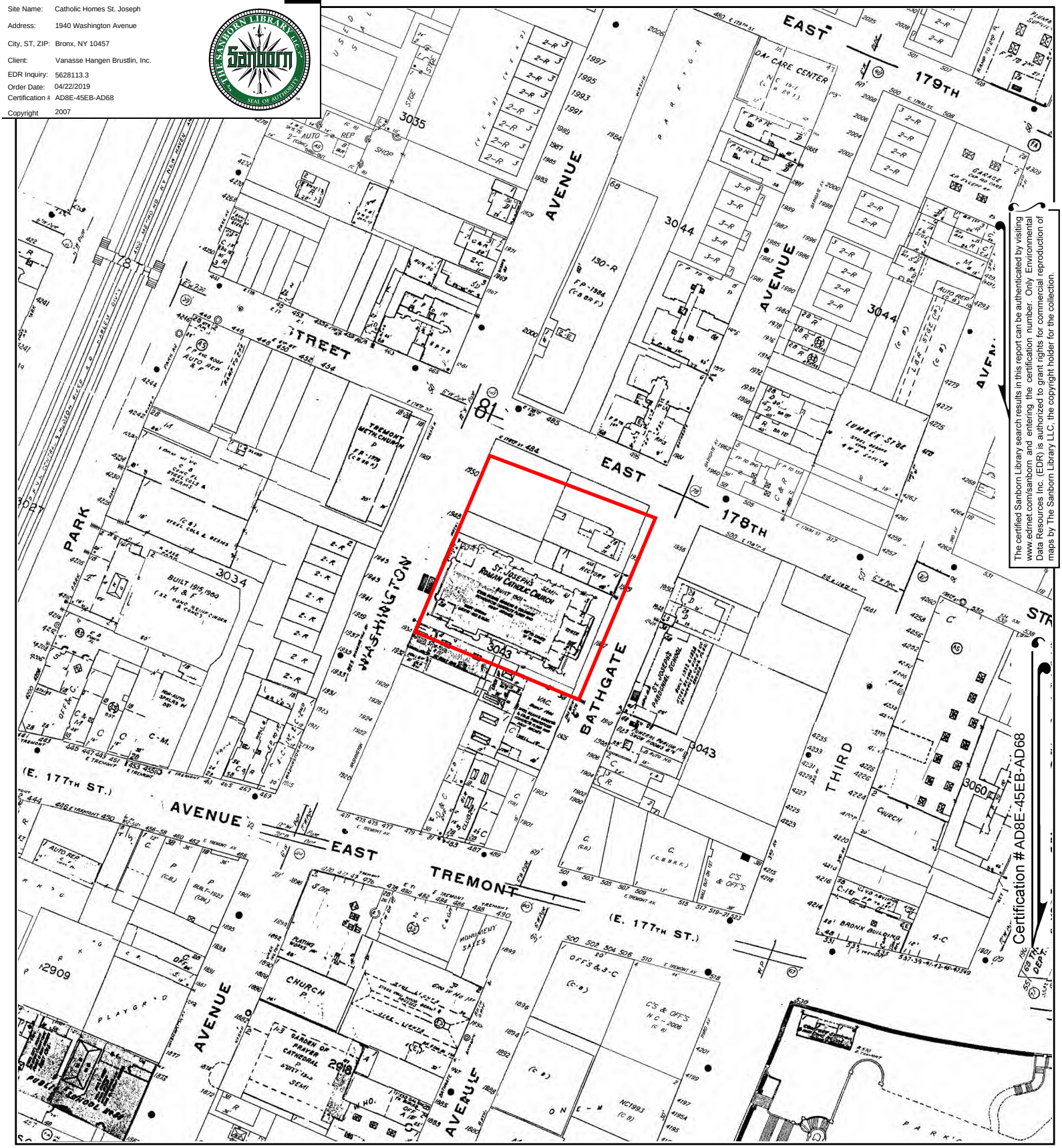
Volume 12, Sheet 263.5
1896

Volume 12, Sheet 265
1896

Certified Sanborn® Map

2007

Site Name:	Catholic Homes St. Joseph
Address:	1940 Washington Avenue
City, ST, ZIP:	Bronx, NY 10457
Client:	Vanasse Hangen Brustlin, Inc.
EDR Inquiry:	5628113.3
Order Date:	04/22/2019
Certification #	AD8E-45EB-AD68
Copyright	2007



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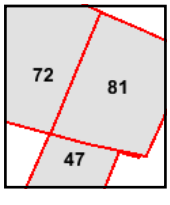
Outlined areas indicate map sheets within the collection.



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Volume 15, Sheet 47

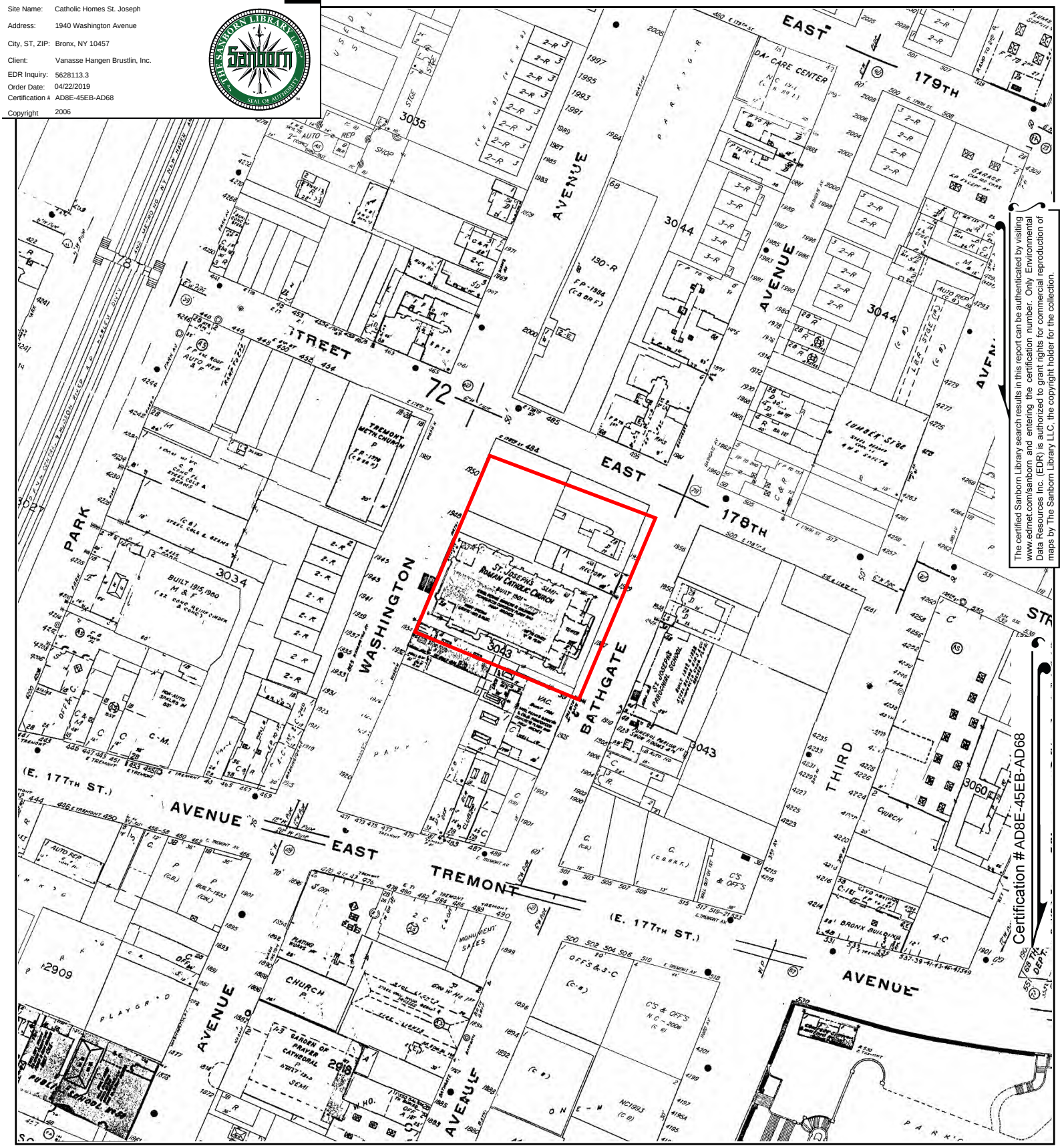
0 Feet 150 300 600

N

Certified Sanborn® Map

2006

Site Name: Catholic Homes St. Joseph
Address: 1940 Washington Avenue
City, ST, ZIP: Bronx, NY 10457
Client: Vanasse Hangen Brustlin, Inc.
EDR Inquiry: 5628113.3
Order Date: 04/22/2019
Certification #: AD8E-45EB-AD68
Copyright 2006



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Certification #AD8E-45EB-AD68

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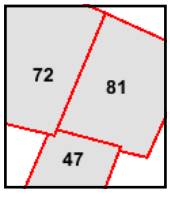
Outlined areas indicate map sheets within the collection.

0 Feet 150 300 600



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Volume 15, Sheet 72
Volume 15, Sheet 47

N

Certified Sanborn® Map

2005

Site Name:	Catholic Homes St. Joseph
Address:	1940 Washington Avenue
City, ST, ZIP:	Bronx, NY 10457
Client:	Vanasse Hangen Brustlin, Inc.
EDR Inquiry:	5628113.3
Order Date:	04/22/2019
Certification #	AD8E-45EB-AD68
Copyright	2005

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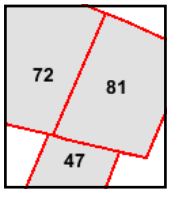
Certification #AD8E-45EB-AD68

This Certified Sanborn Map combines the following sheets.
Outlined areas indicate map sheets within the collection.

0 Feet 150 300 600



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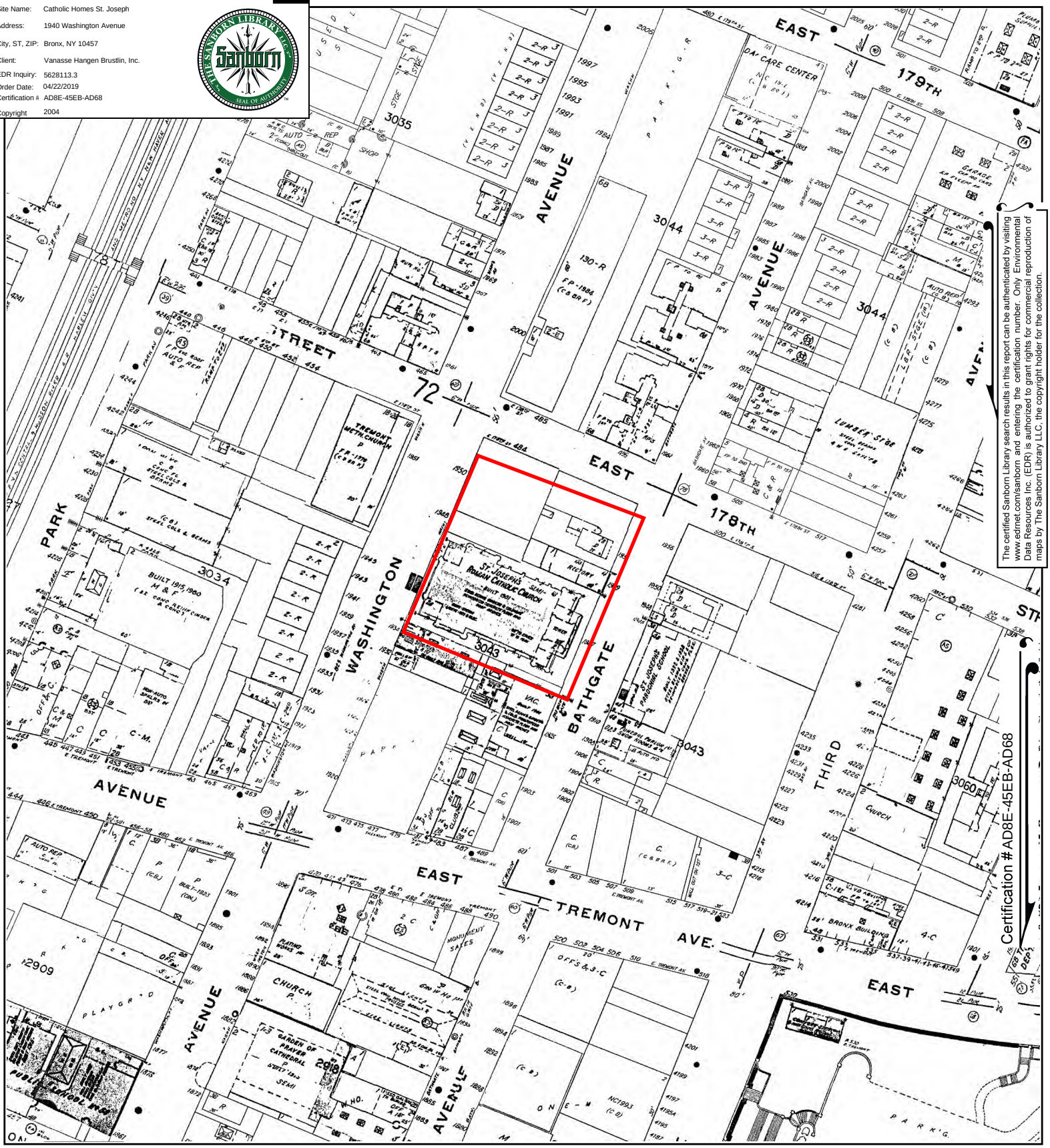
Volume 15, Sheet 81
Volume 15, Sheet 47

N

Certified Sanborn® Map

2004

Site Name: Catholic Homes St. Joseph
Address: 1940 Washington Avenue
City, ST, ZIP: Bronx, NY 10457
Client: Vanasse Hangen Brustlin, Inc.
EDR Inquiry: 5628113.3
Order Date: 04/22/2019
Certification #: AD8E-45EB-AD68
Copyright 2004



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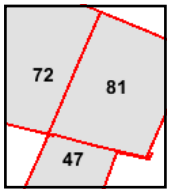
This Certified Sanborn Map combines the following sheets.
Outlined areas indicate map sheets within the collection.

0 Feet 150 300 600



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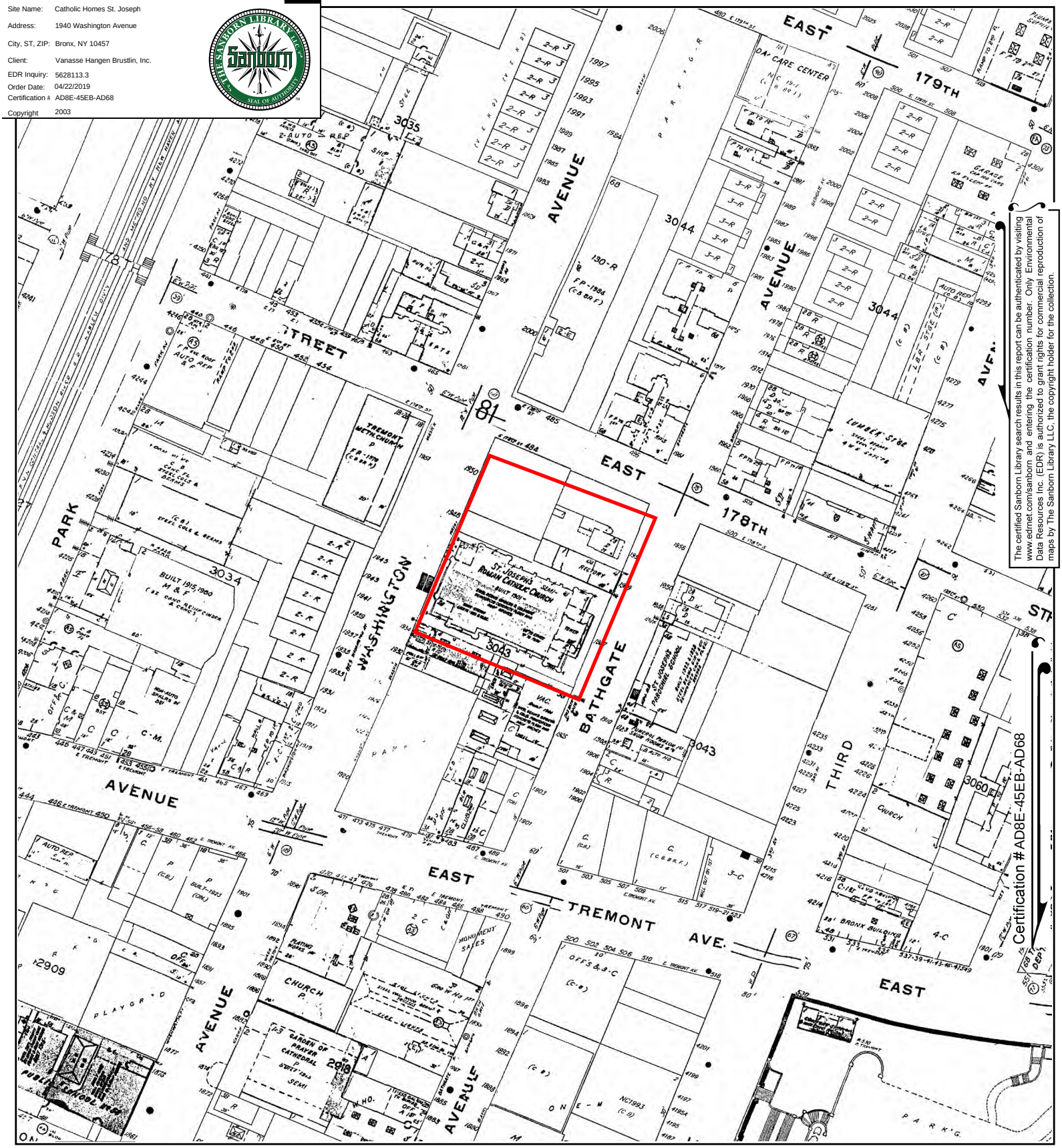
Volume 15, Sheet 47

N

Certified Sanborn® Map

2003

Site Name: Catholic Homes St. Joseph
Address: 1940 Washington Avenue
City, ST, ZIP: Bronx, NY 10457
Client: Vanasse Hangen Brustlin, Inc.
EDR Inquiry: 5628113.3
Order Date: 04/22/2019
Certification #: AD8E-45EB-AD68
Copyright 2003



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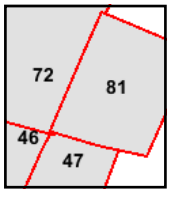

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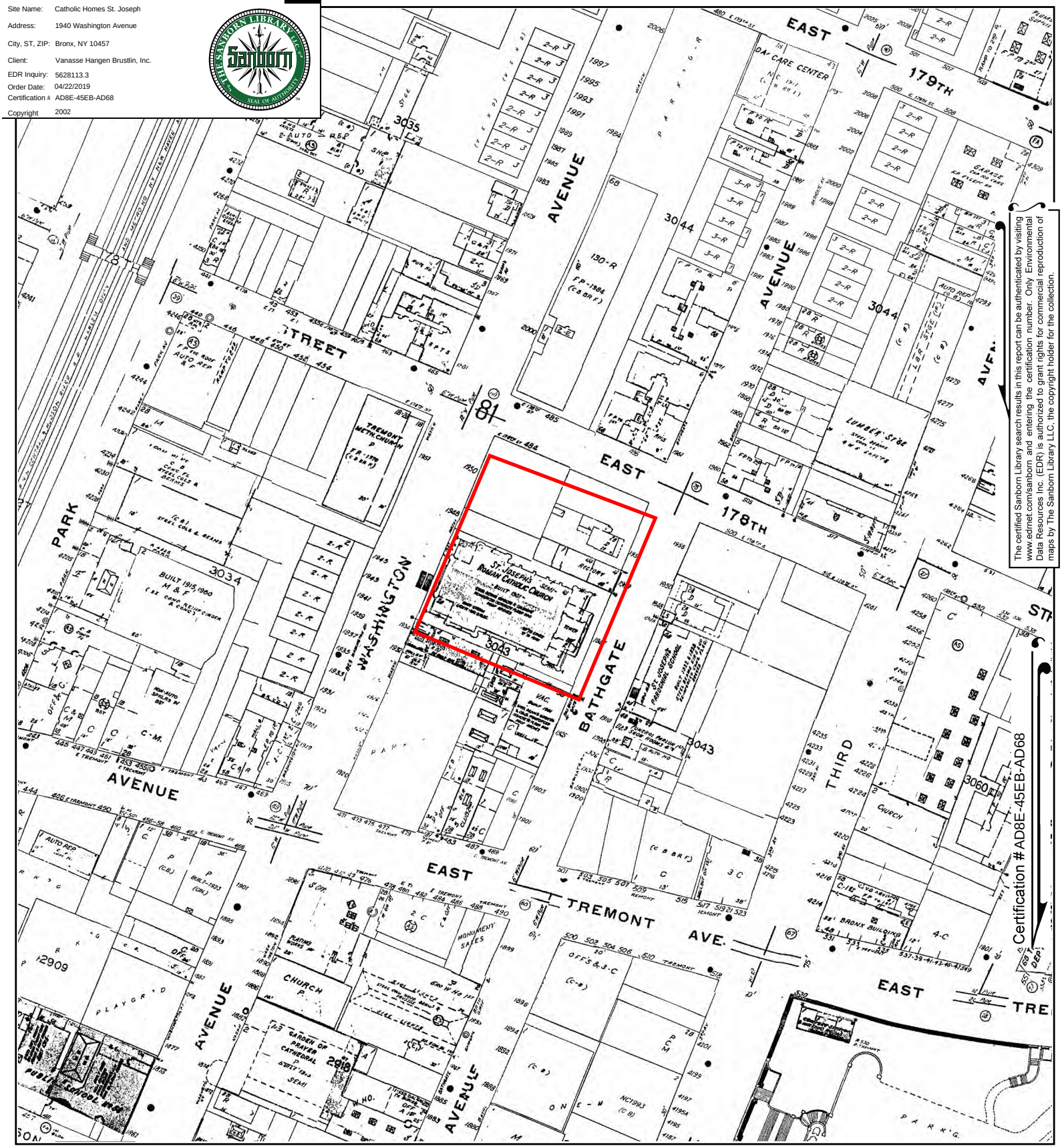
N

Certified Sanborn® Map

2002

Site Name: Catholic Homes St. Joseph
Address: 1940 Washington Avenue
City, ST, ZIP: Bronx, NY 10457
Client: Vanasse Hangen Brustlin, Inc.
EDR Inquiry: 5628113.3
Order Date: 04/22/2019
Certification #: AD8E-45EB-AD68
Copyright 2002



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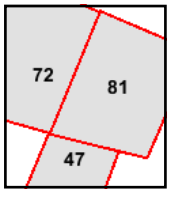

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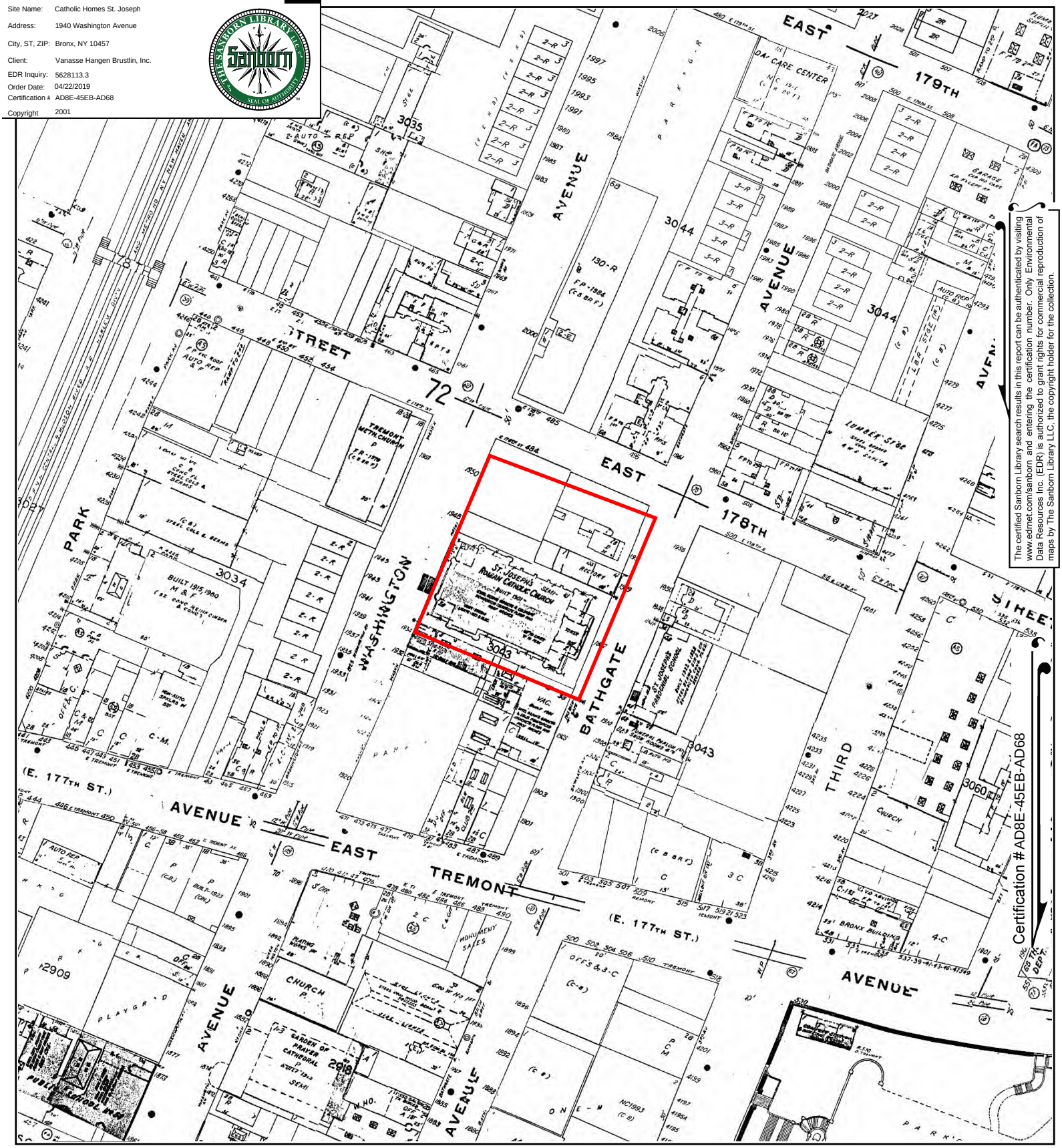
N

Certified Sanborn® Map

2001

Site Name: Catholic Homes St. Joseph
Address: 1940 Washington Avenue
City, ST, ZIP: Bronx, NY 10457
Client: Vanasse Hangen Brustlin, Inc.
EDR Inquiry: 5628113.3
Order Date: 04/22/2019
Certification #: AD8E-45EB-AD68

Copyright 2001



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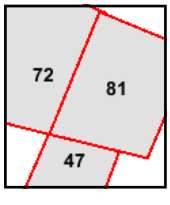

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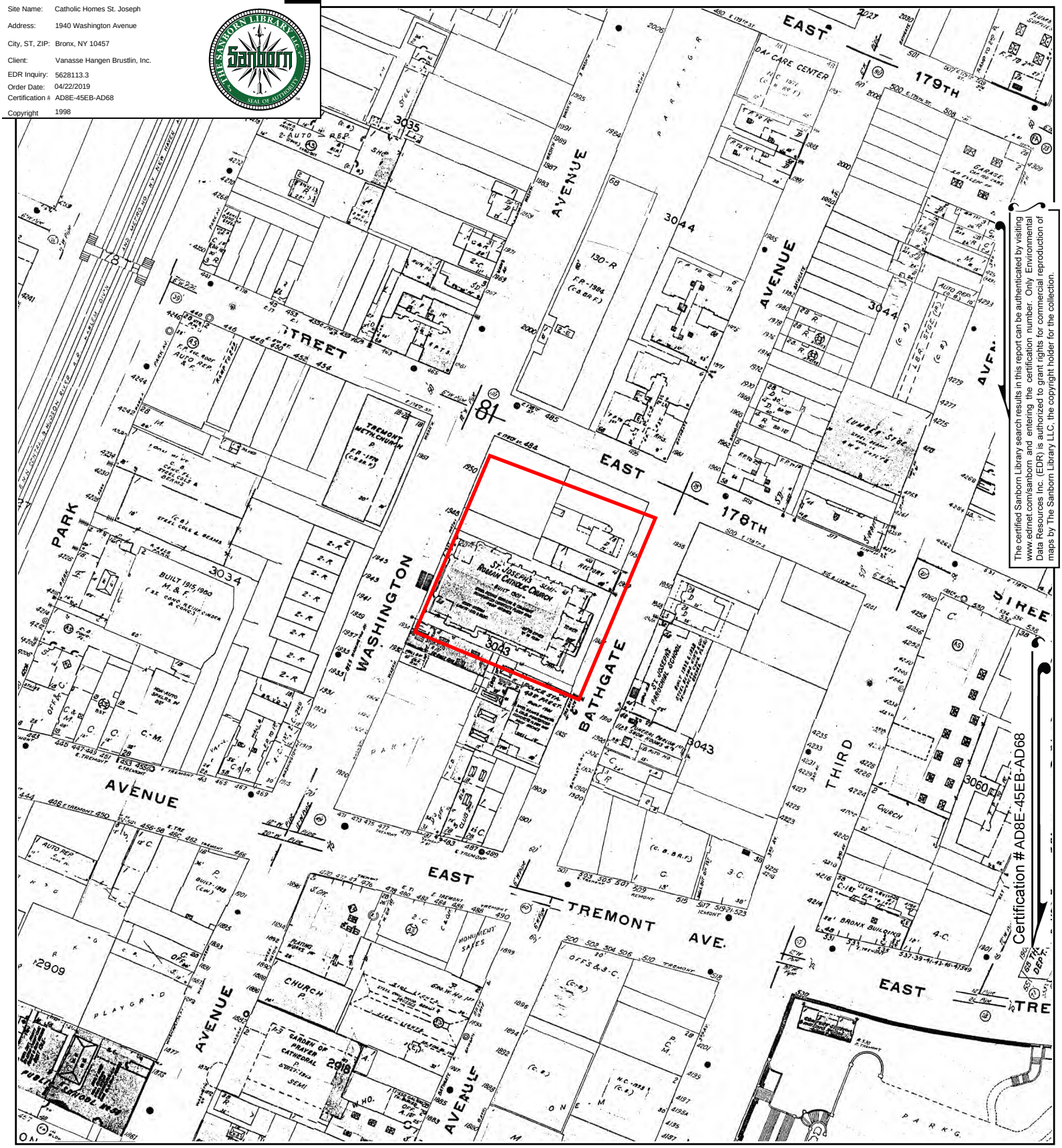
N

Certified Sanborn® Map

1998

Site Name:	Catholic Homes St. Joseph
Address:	1940 Washington Avenue
City, ST, ZIP:	Bronx, NY 10457
Client:	Vanasse Hangen Brustlin, Inc.
EDR Inquiry:	5628113.3
Order Date:	04/22/2019
Certification #	AD8E-45EB-AD68
Copyright	1998



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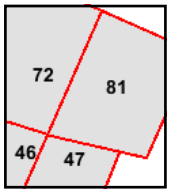

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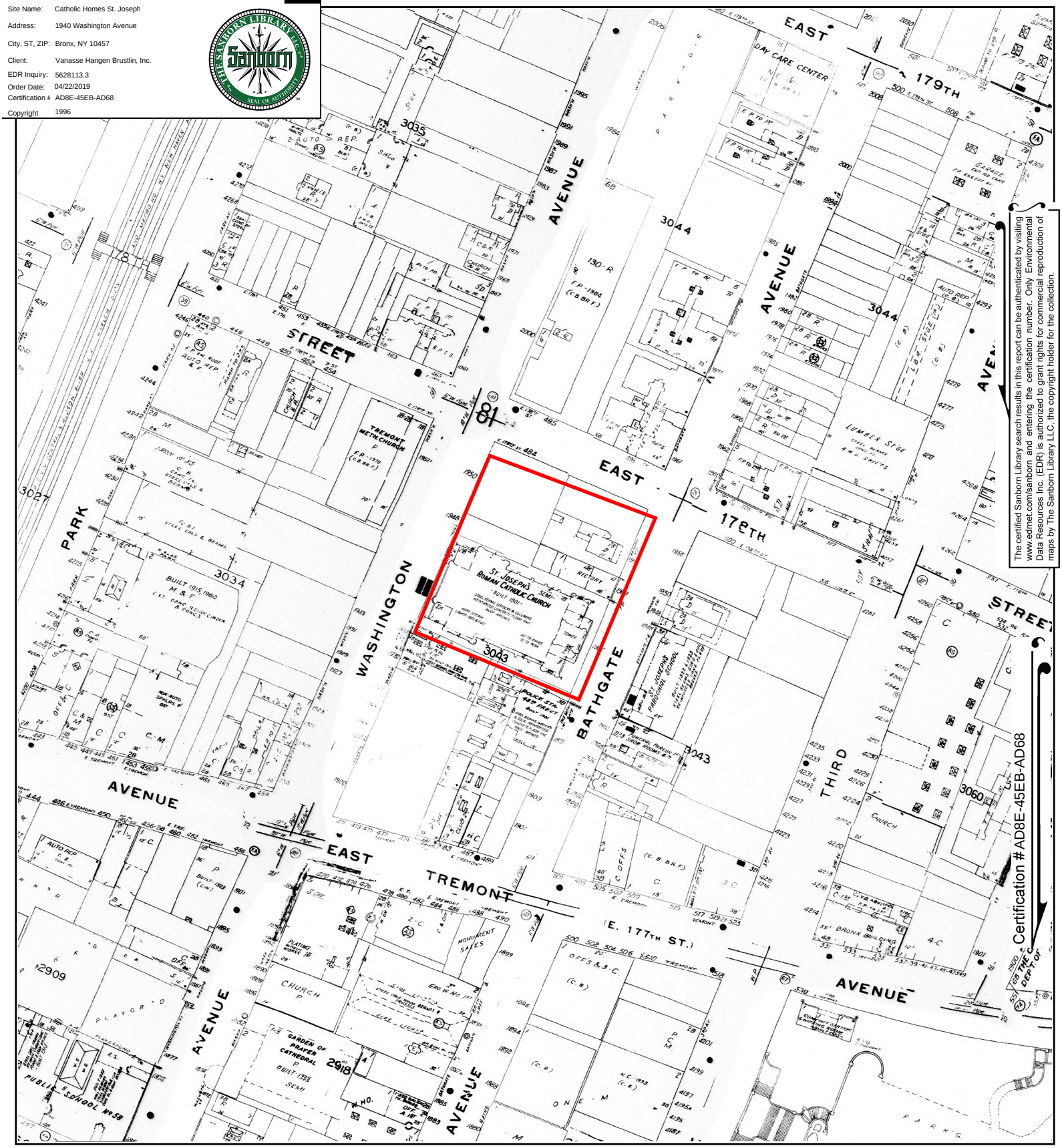
N

Certified Sanborn® Map

1996

Site Name: Catholic Homes St. Joseph
Address: 1940 Washington Avenue
City, ST, ZIP: Bronx, NY 10457
Client: Vanasse Hangen Brustlin, Inc.
EDR Inquiry: 5628113.3
Order Date: 04/22/2019
Certification #: AD8E-45EB-AD68
Copyright 1996



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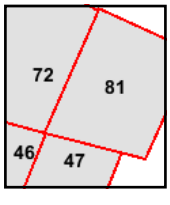

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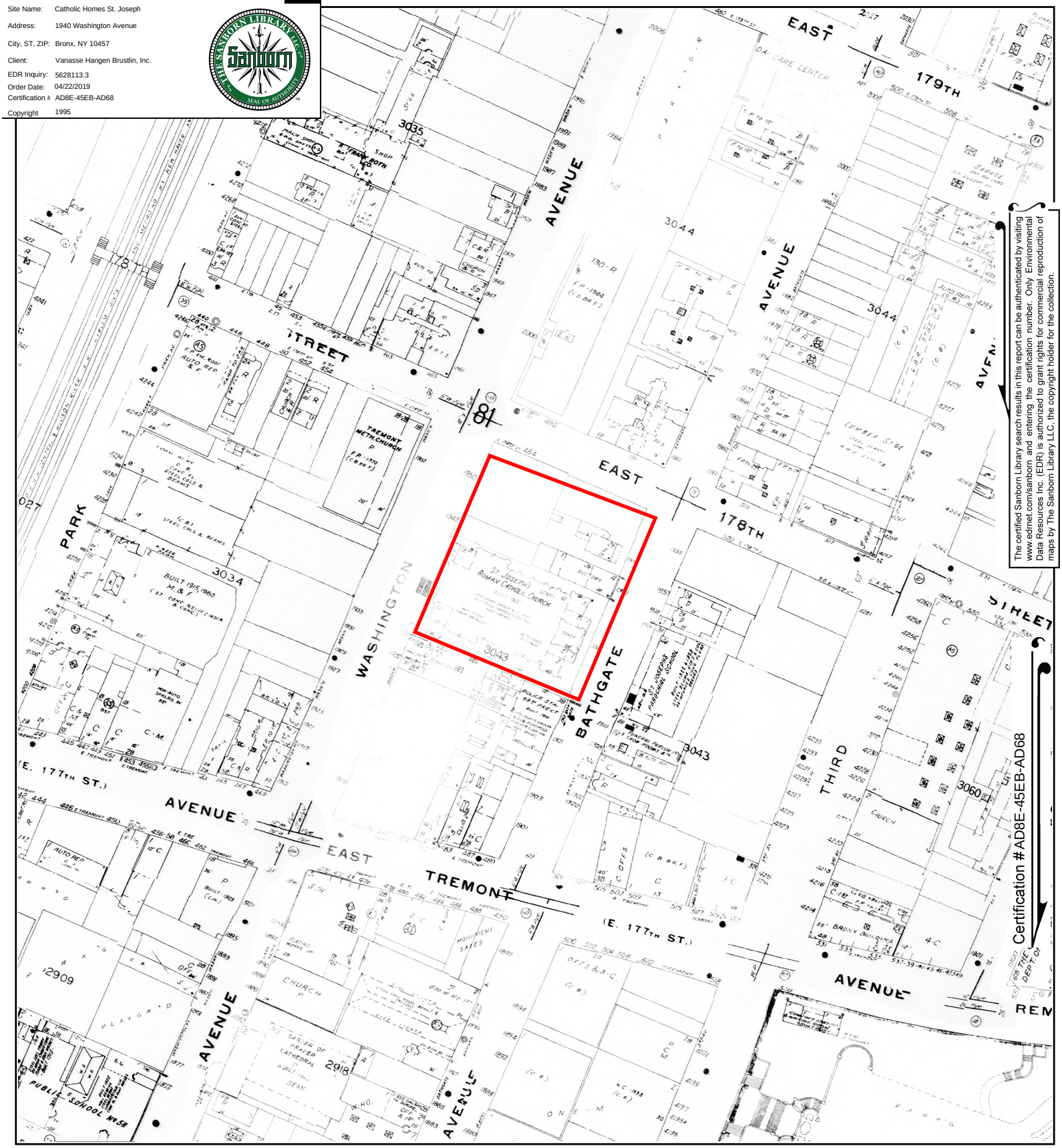
N

Certified Sanborn® Map

1995

Site Name: Catholic Homes St. Joseph
Address: 1940 Washington Avenue
City, ST, ZIP: Bronx, NY 10457
Client: Vanasse Hangen Brustlin, Inc.
EDR Inquiry: 5628113.3
Order Date: 04/22/2019
Certification #: AD8E-45EB-AD68
Copyright 1995



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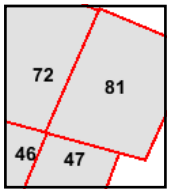

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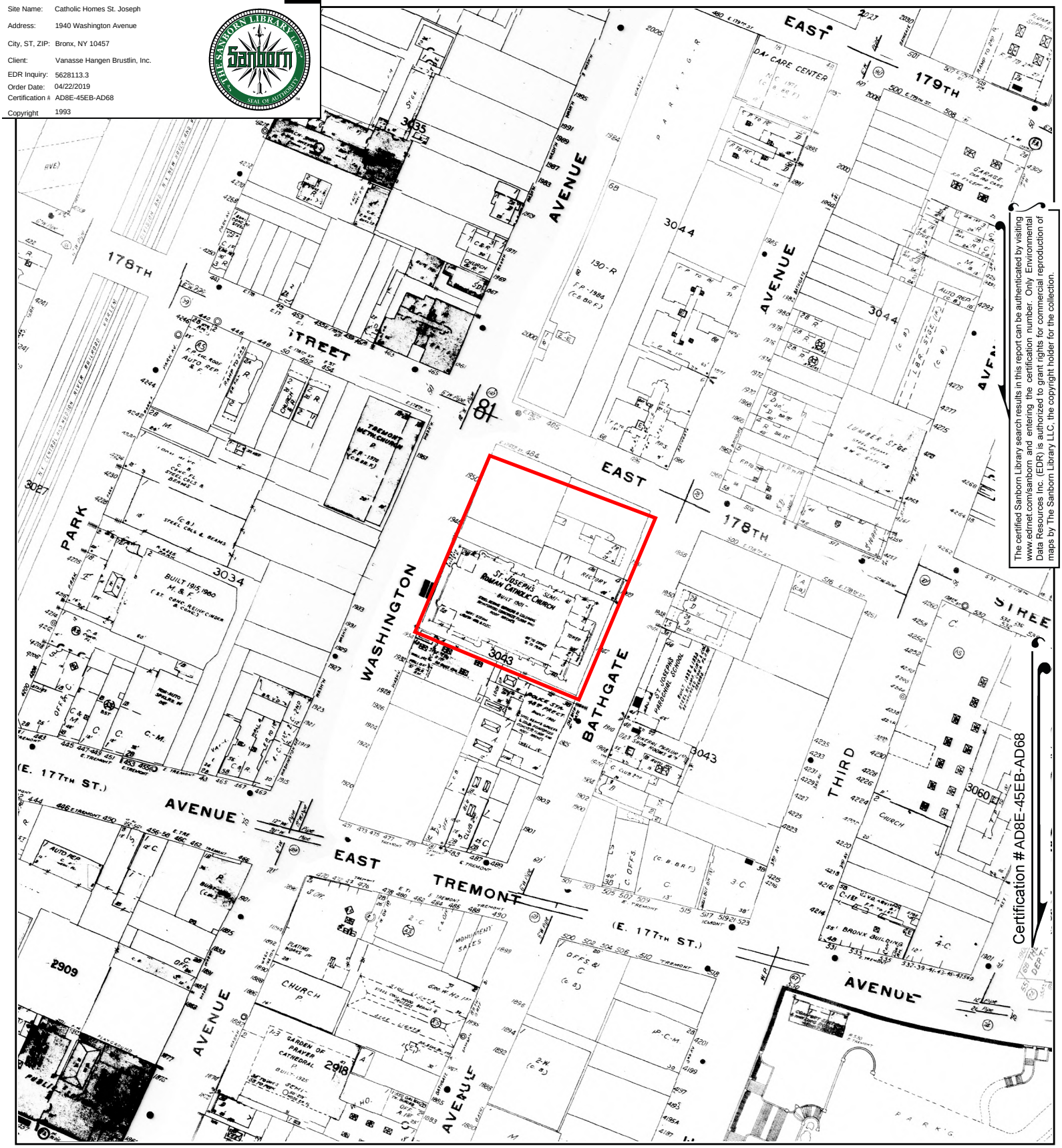
N

Certified Sanborn® Map

1993

Site Name: Catholic Homes St. Joseph
Address: 1940 Washington Avenue
City, ST, ZIP: Bronx, NY 10457
Client: Vanasse Hangen Brustlin, Inc.
EDR Inquiry: 5628113.3
Order Date: 04/22/2019
Certification #: AD8E-45EB-AD68
Copyright 1993



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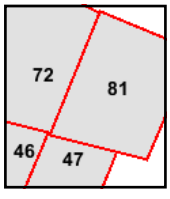

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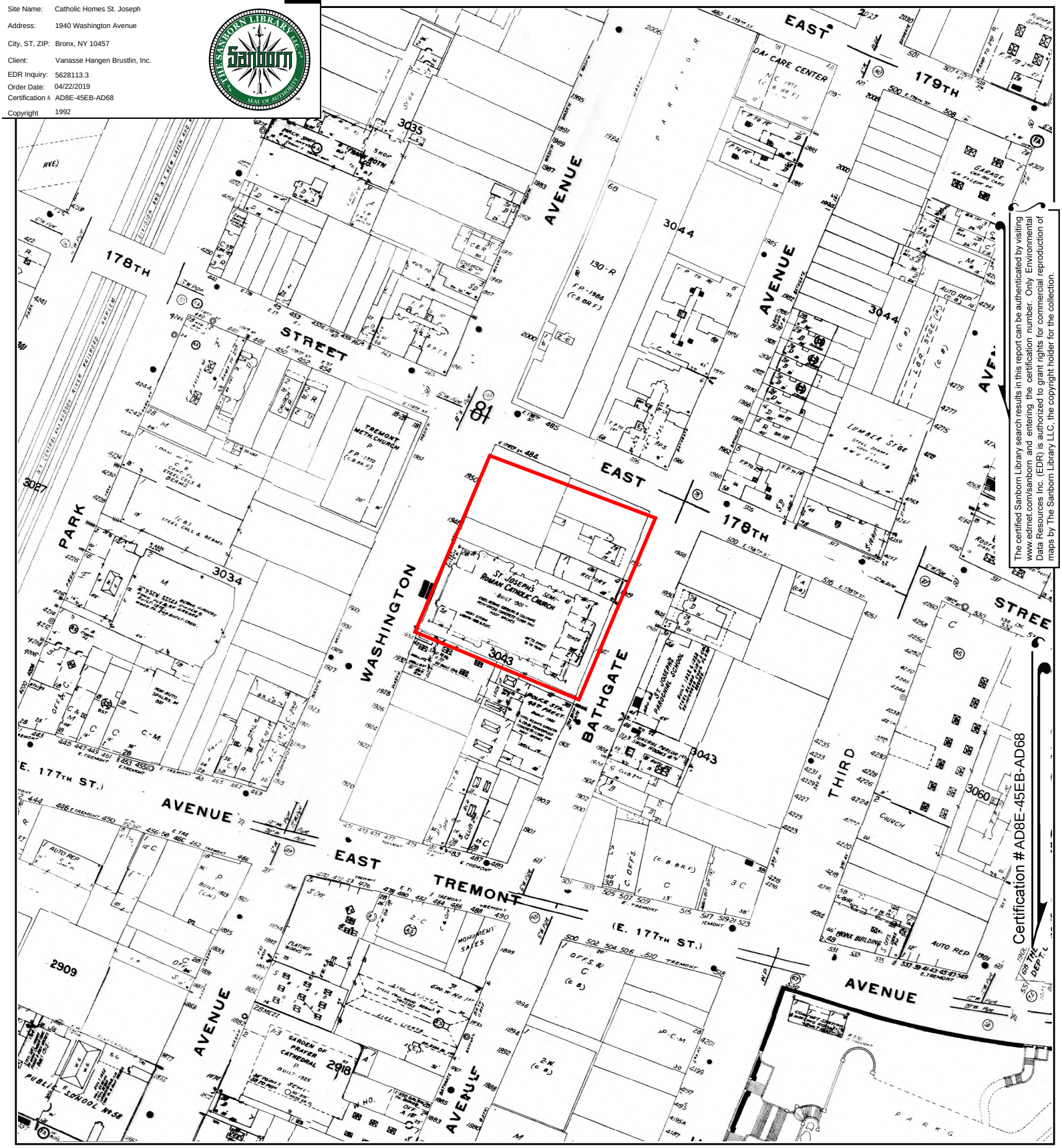
N

Certified Sanborn® Map

1992

Site Name: Catholic Homes St. Joseph
Address: 1940 Washington Avenue
City, ST, ZIP: Bronx, NY 10457
Client: Vanasse Hangen Brustlin, Inc.
EDR Inquiry: 5628113.3
Order Date: 04/22/2019
Certification #: AD8E-45EB-AD68
Copyright 1992



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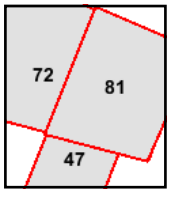

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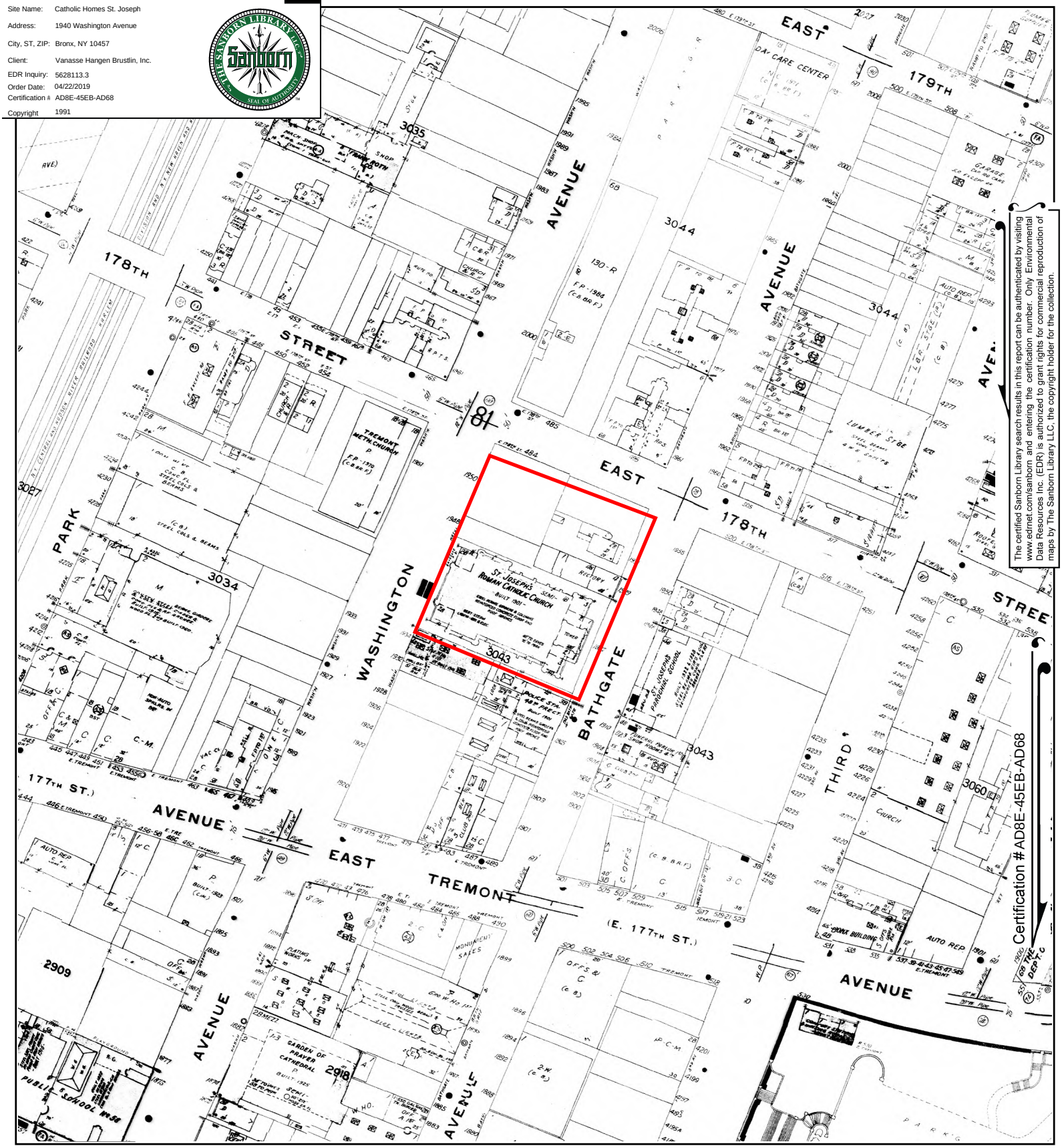
N

Certified Sanborn® Map

1991

Site Name: Catholic Homes St. Joseph
Address: 1940 Washington Avenue
City, ST, ZIP: Bronx, NY 10457
Client: Vanasse Hangen Brustlin, Inc.
EDR Inquiry: 5628113.3
Order Date: 04/22/2019
Certification #: AD8E-45EB-AD68
Copyright 1991



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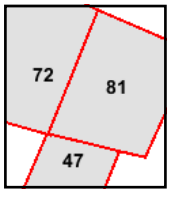

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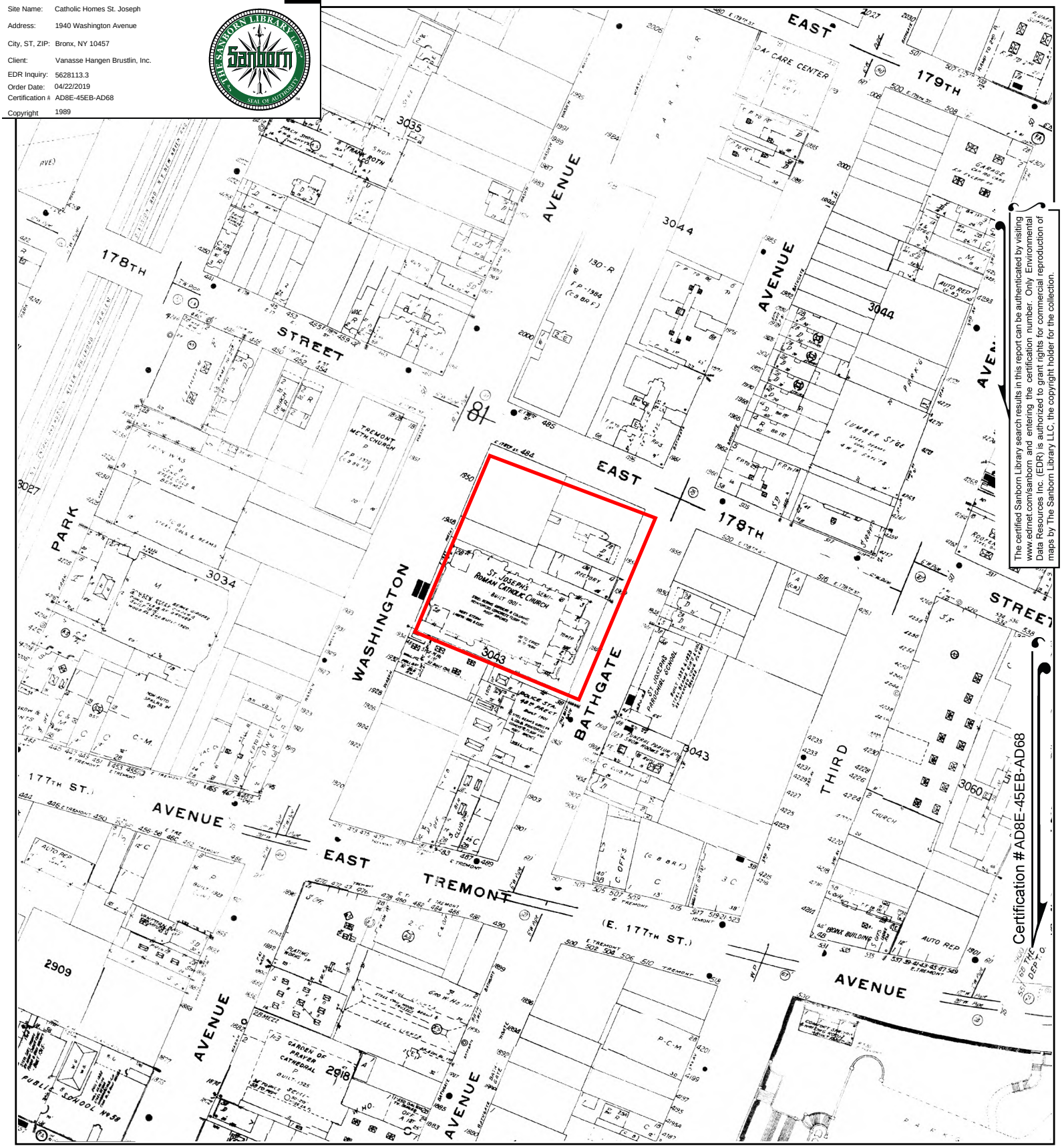
Certified Sanborn® Map

1989

Site Name: Catholic Homes St. Joseph
Address: 1940 Washington Avenue
City, ST, ZIP: Bronx, NY 10457
Client: Vanasse Hangen Brustlin, Inc.
EDR Inquiry: 5628113.3
Order Date: 04/22/2019
Certification #: AD8E-45EB-AD68
Copyright 1989



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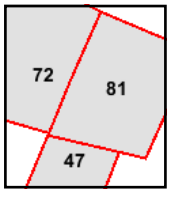

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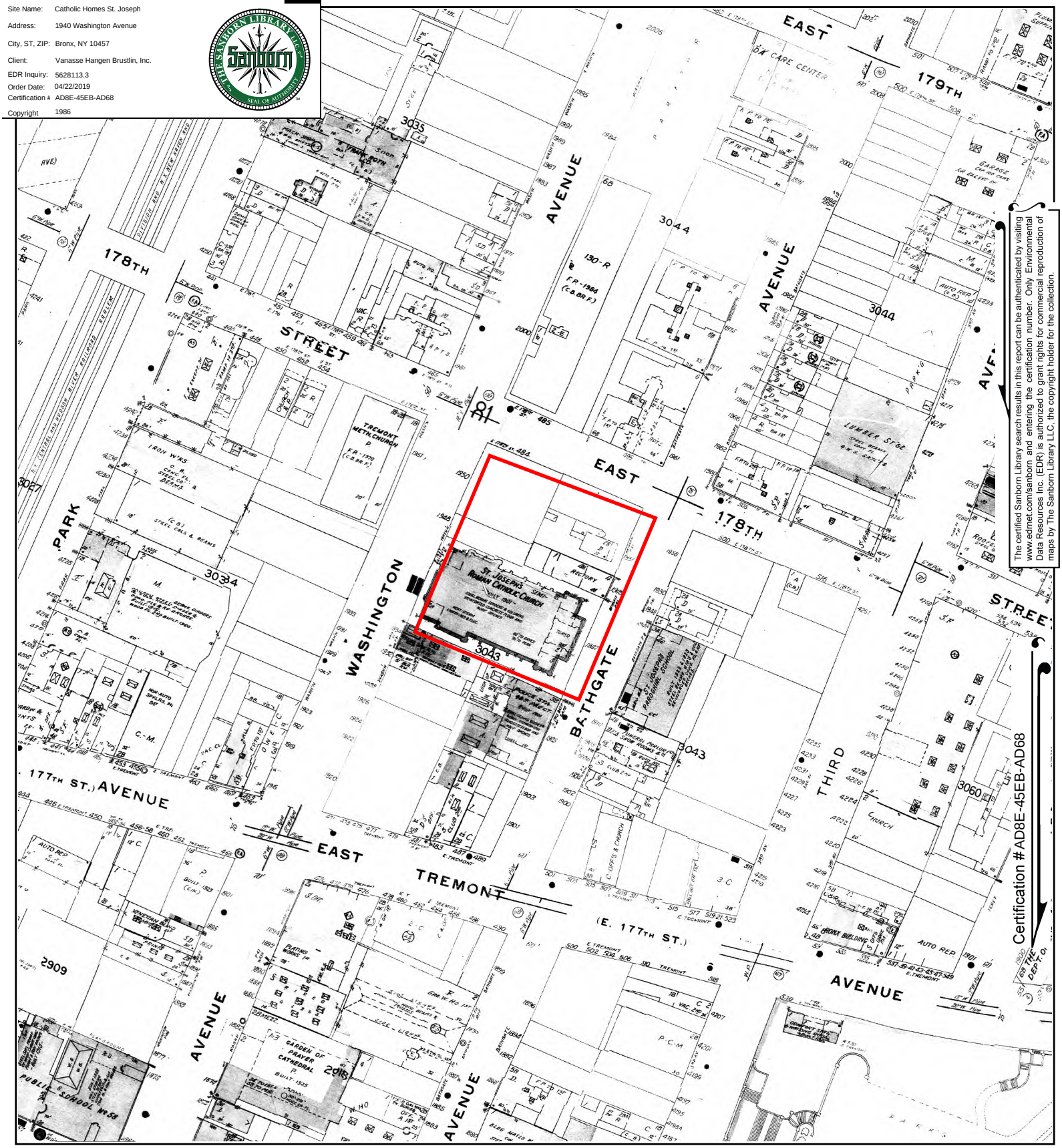
N

Certified Sanborn® Map

1986

Site Name: Catholic Homes St. Joseph
Address: 1940 Washington Avenue
City, ST, ZIP: Bronx, NY 10457
Client: Vanasse Hangen Brustlin, Inc.
EDR Inquiry: 5628113.3
Order Date: 04/22/2019
Certification #: AD8E-45EB-AD68
Copyright 1986



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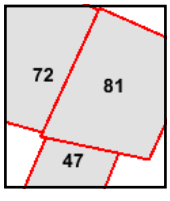

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N

Certified Sanborn® Map

1985

Site Name: Catholic Homes St. Joseph
Address: 1940 Washington Avenue
City, ST, ZIP: Bronx, NY 10457
Client: Vanasse Hangen Brustlin, Inc.
EDR Inquiry: 5628113.3
Order Date: 04/22/2019
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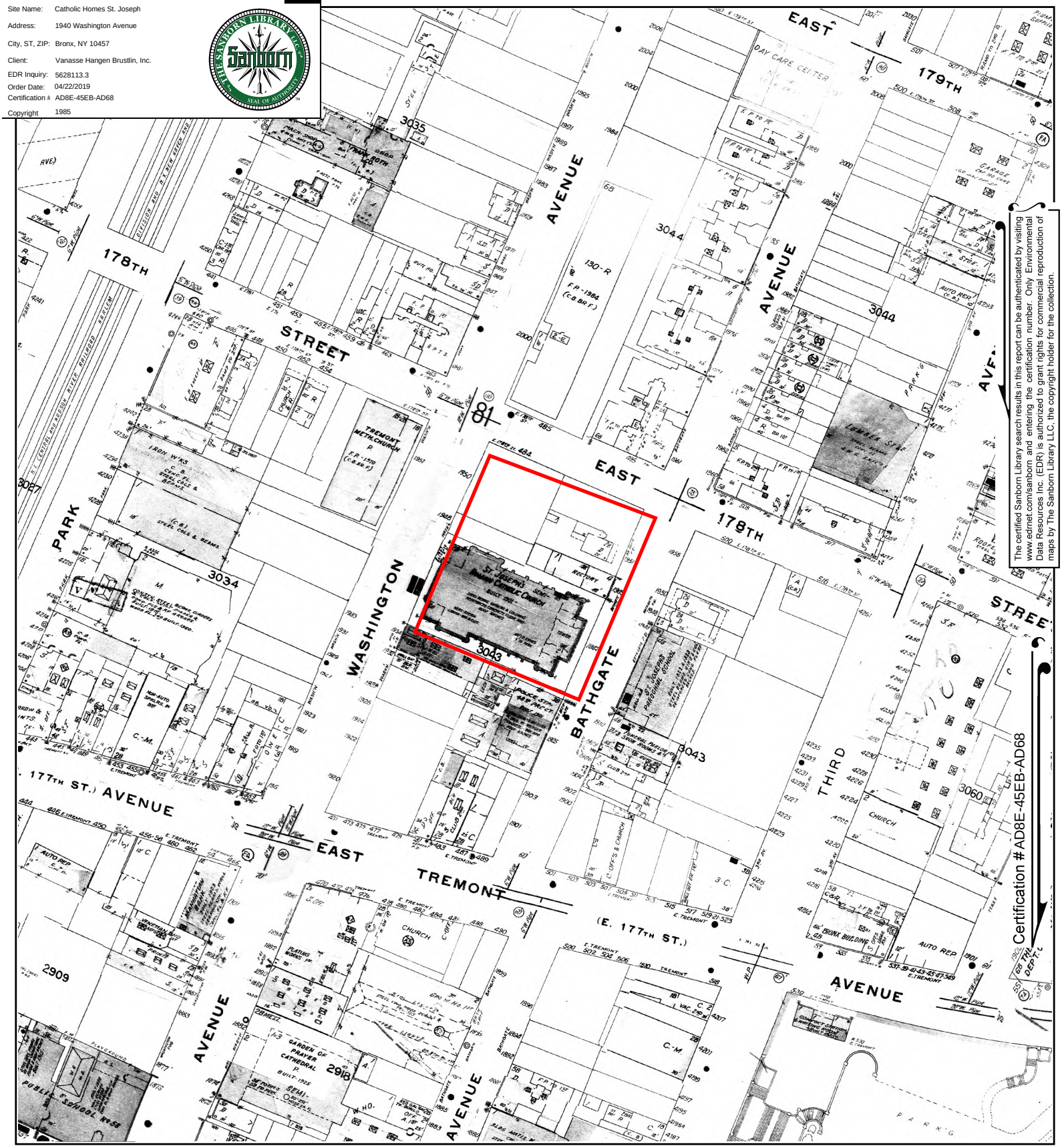
Copyright: 1985



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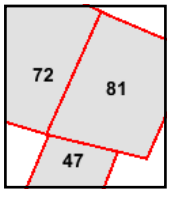

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Volume 15, Sheet 47

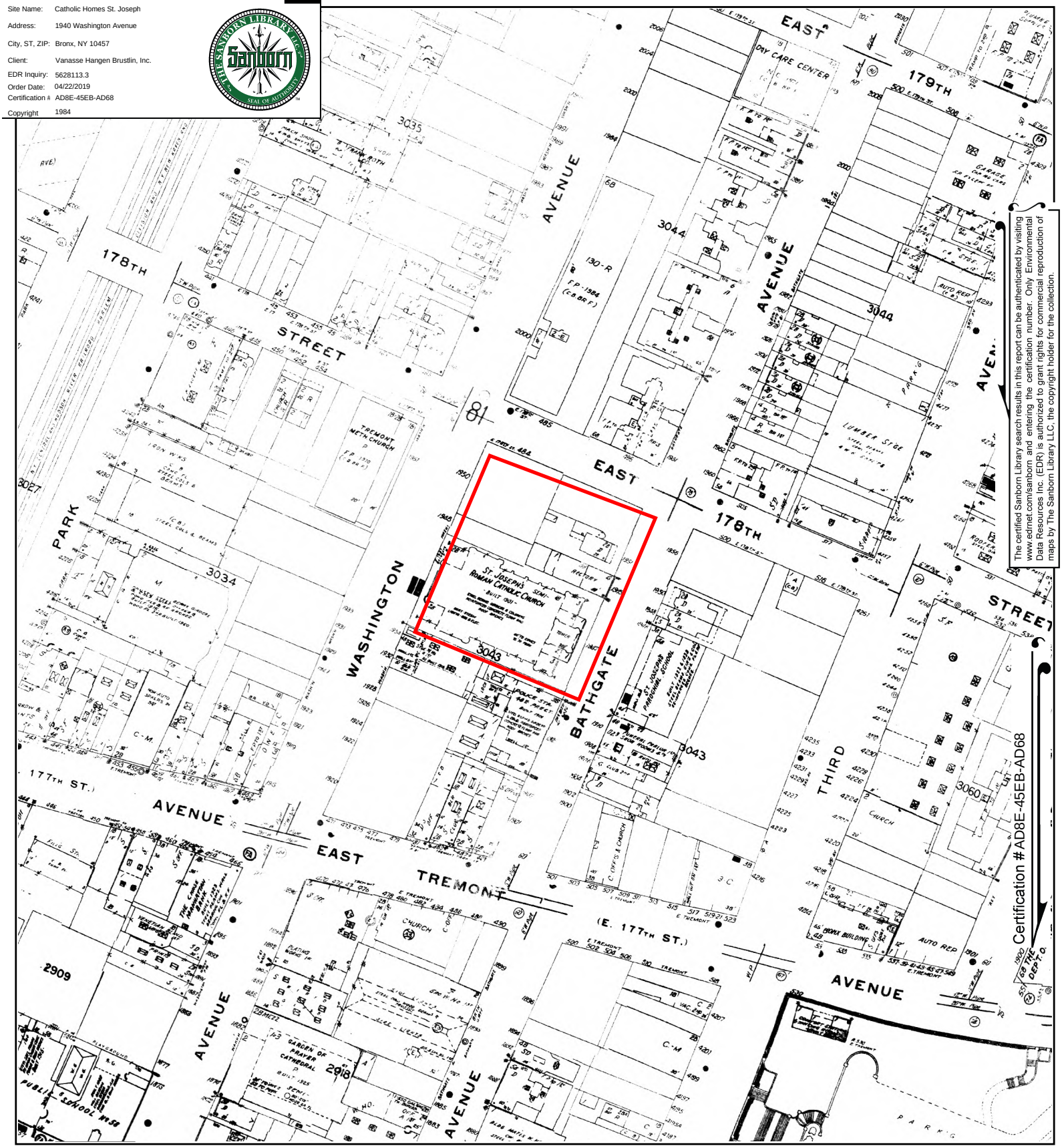
0 Feet 150 300 600

N

Certified Sanborn® Map

1984

Site Name:	Catholic Homes St. Joseph
Address:	1940 Washington Avenue
City, ST, ZIP:	Bronx, NY 10457
Client:	Vanasse Hangen Brustlin, Inc.
EDR Inquiry:	5628113.3
Order Date:	04/22/2019
Certification #	AD8E-45EB-AD68
Copyright	1984



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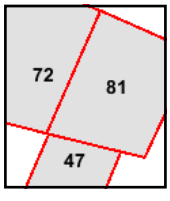

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Volume 15, Sheet 72

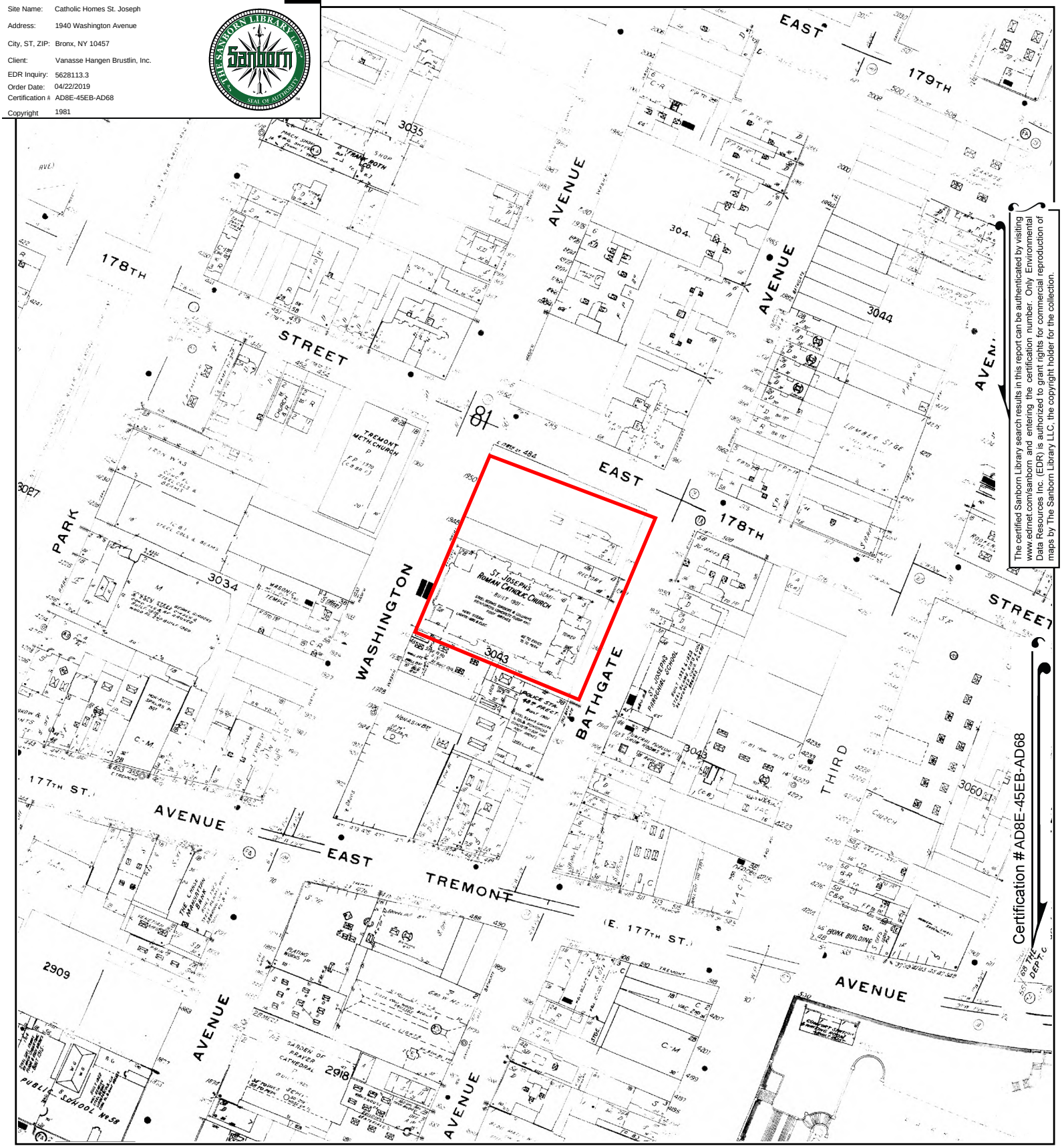
0 Feet 150 300 600

N

Certified Sanborn® Map

1981

Site Name: Catholic Homes St. Joseph
Address: 1940 Washington Avenue
City, ST, ZIP: Bronx, NY 10457
Client: Vanasse Hangen Brustlin, Inc.
EDR Inquiry: 5628113.3
Order Date: 04/22/2019
Certification #: AD8E-45EB-AD68
Copyright 1981



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Certification #AD8E-45EB-AD68

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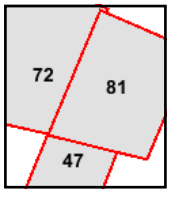

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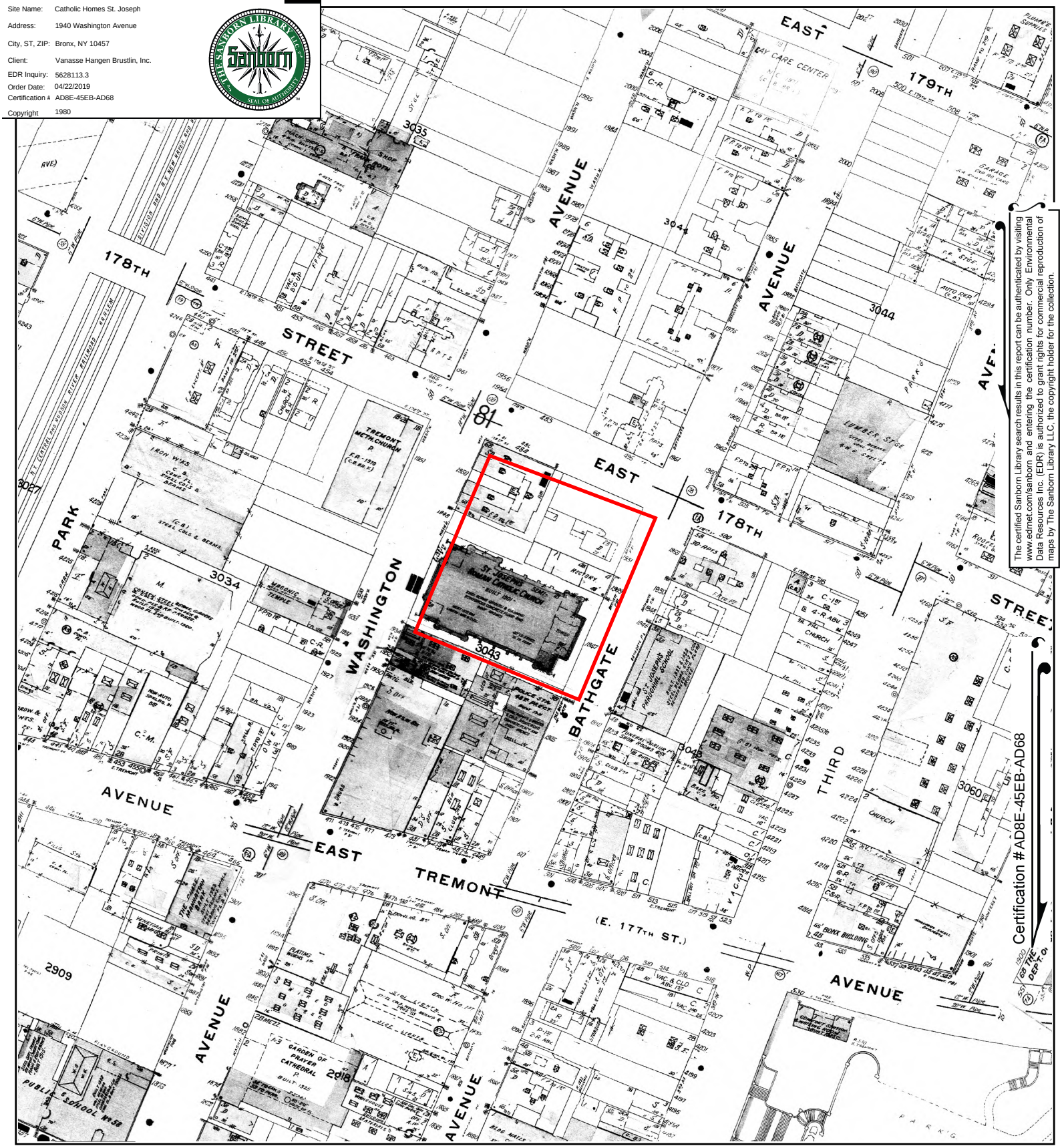
N

Certified Sanborn® Map

1980

Site Name: Catholic Homes St. Joseph
Address: 1940 Washington Avenue
City, ST, ZIP: Bronx, NY 10457
Client: Vanasse Hangen Brustlin, Inc.
EDR Inquiry: 5628113.3
Order Date: 04/22/2019
Certification #: AD8E-45EB-AD68
Copyright 1980



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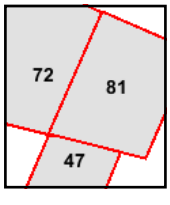

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Volume 15, Sheet 72
Volume 15, Sheet 47

N

Certified Sanborn® Map

1979

Site Name: Catholic Homes St. Joseph
Address: 1940 Washington Avenue
City, ST, ZIP: Bronx, NY 10457
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EDR Inquiry: 5628113.3
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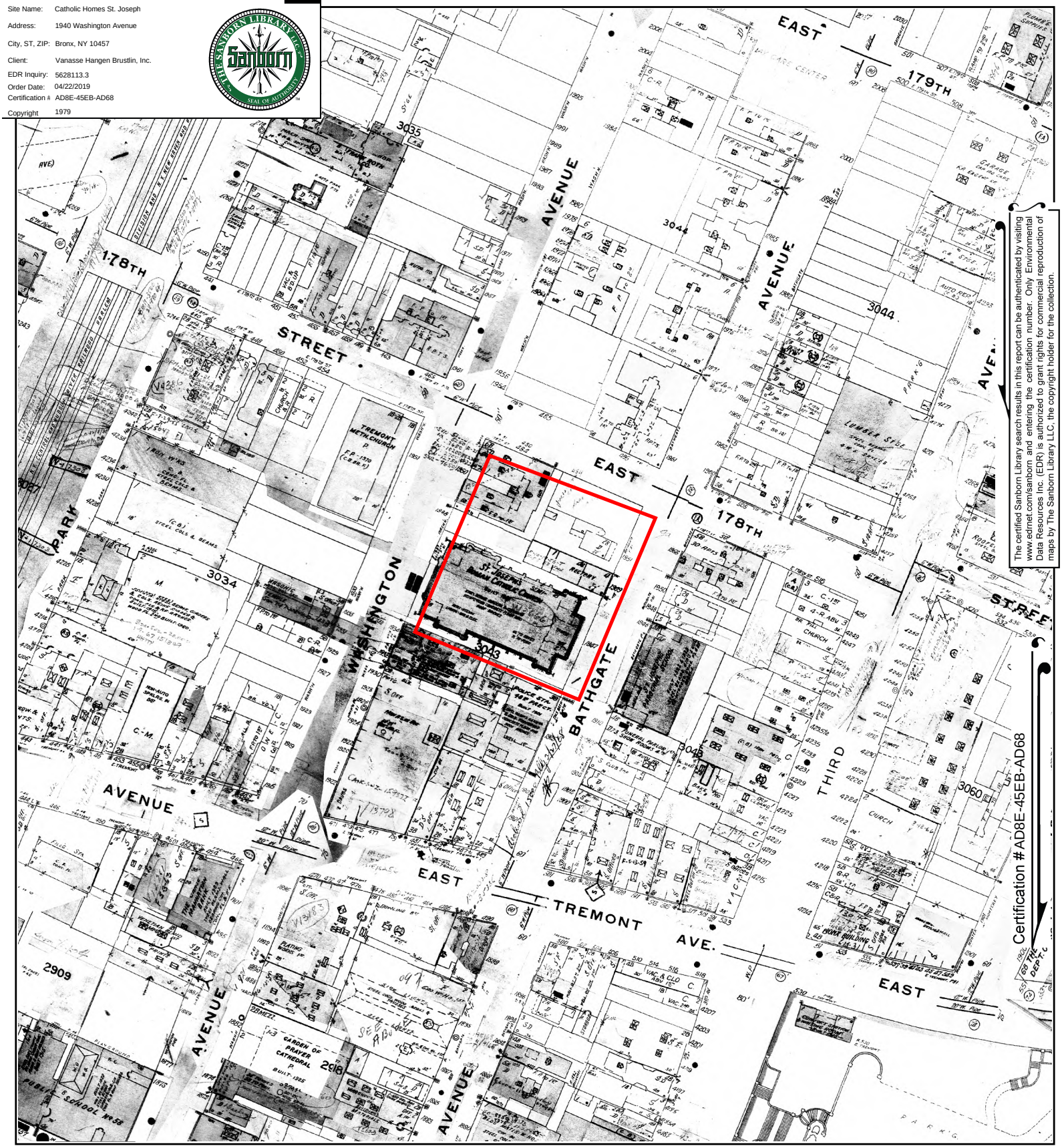
Certification #: AD8E-45EB-AD68
Copyright 1979



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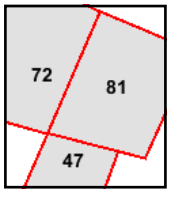

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N

Certified Sanborn® Map

1978

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City, ST, ZIP: Bronx, NY 10457
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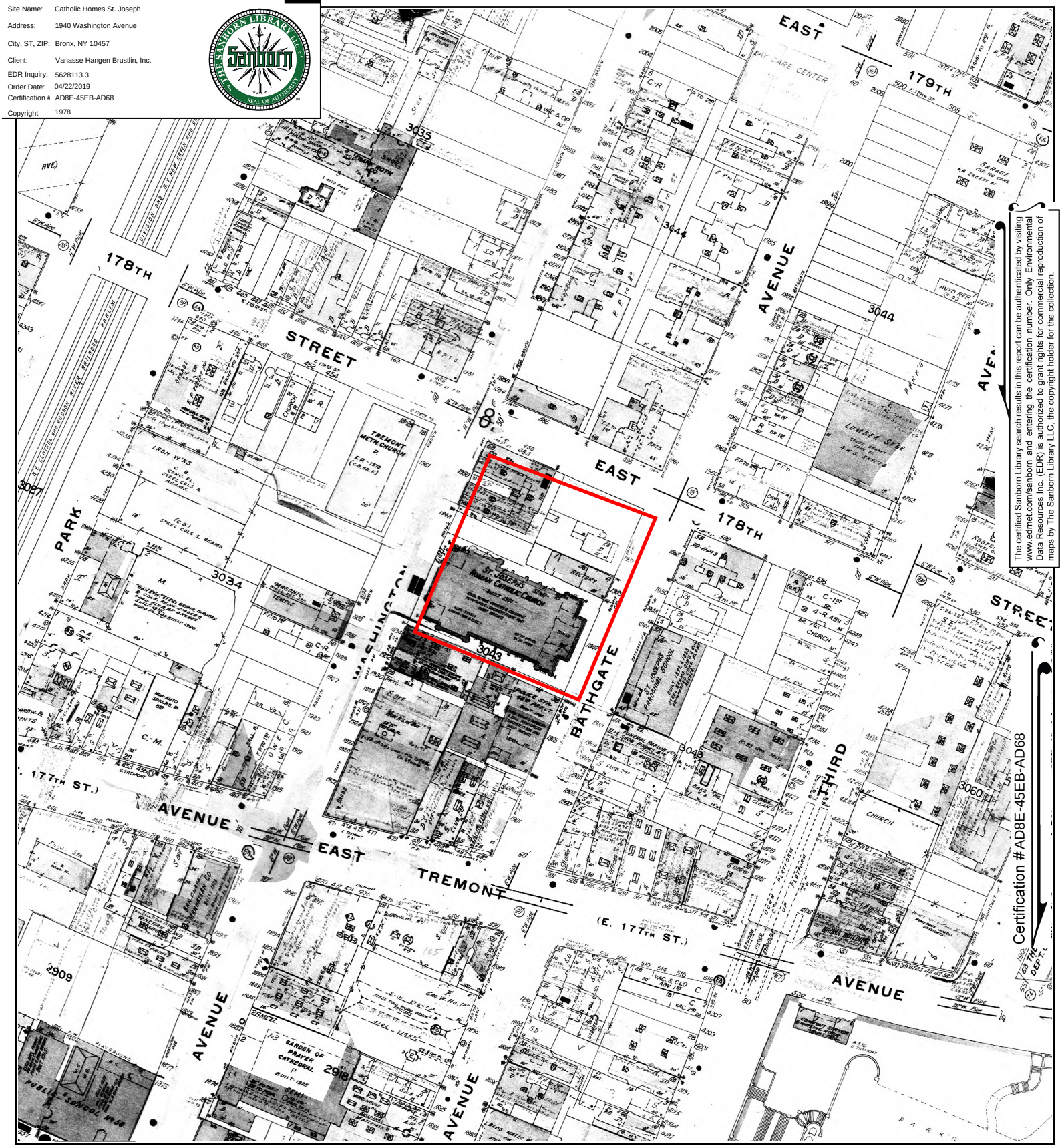
EDR Inquiry: 5628113.3
Order Date: 04/22/2019
Certification #: AD8E-45EB-AD68
Copyright 1978



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Certification #AD8E-45EB-AD68

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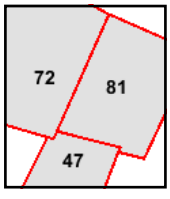
Outlined areas indicate map sheets within the collection.



Volume 15, Sheet 72
Volume 15, Sheet 47
Volume 15, Sheet 81

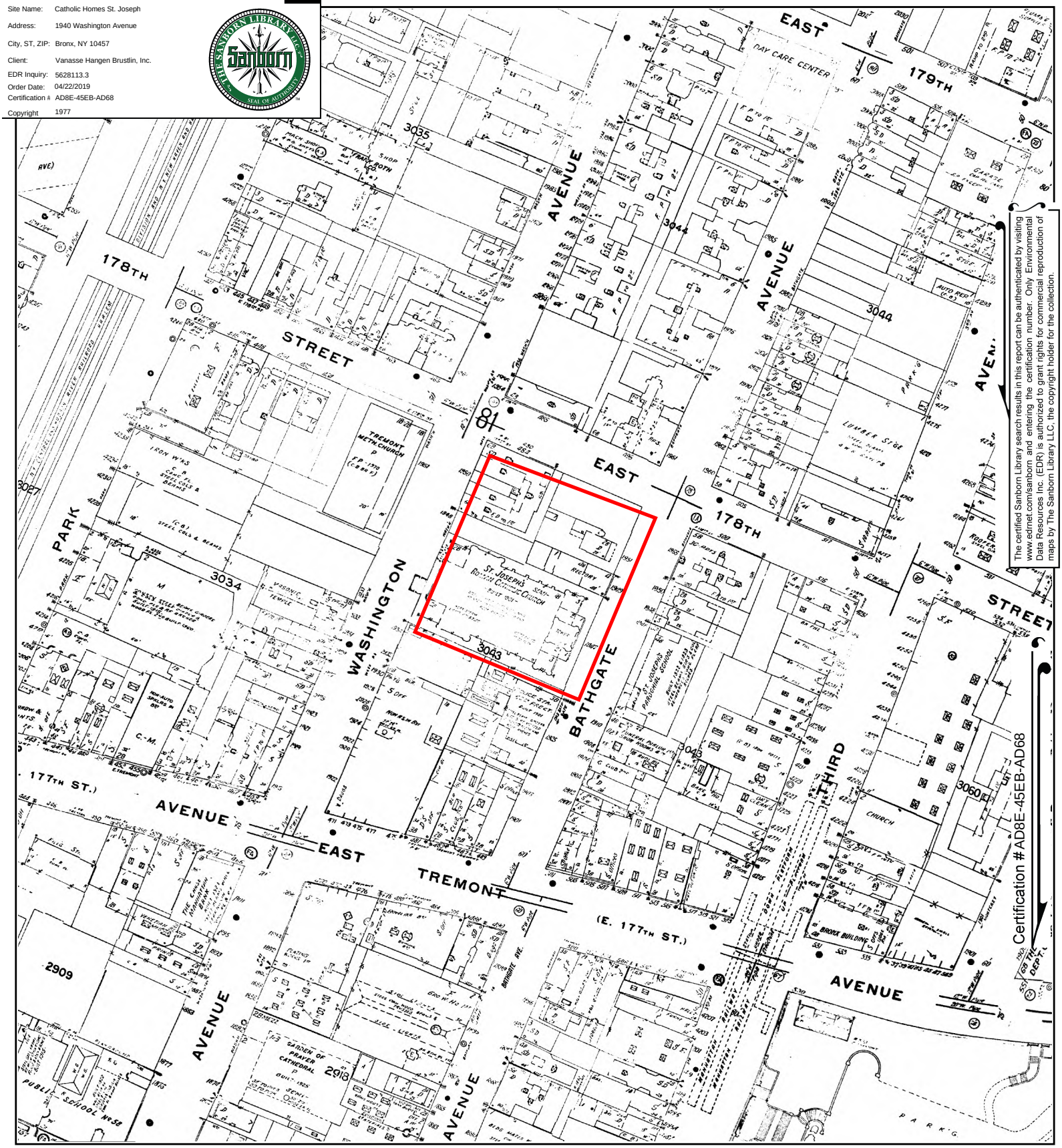
0 Feet 150 300 600

N

Certified Sanborn® Map

1977

Site Name: Catholic Homes St. Joseph
Address: 1940 Washington Avenue
City, ST, ZIP: Bronx, NY 10457
Client: Vanasse Hangen Brustlin, Inc.
EDR Inquiry: 5628113.3
Order Date: 04/22/2019
Certification #: AD8E-45EB-AD68
Copyright 1977



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Certification #AD8E-45EB-AD68

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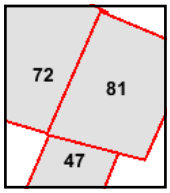
Outlined areas indicate map sheets within the collection.

0 Feet 150 300 600



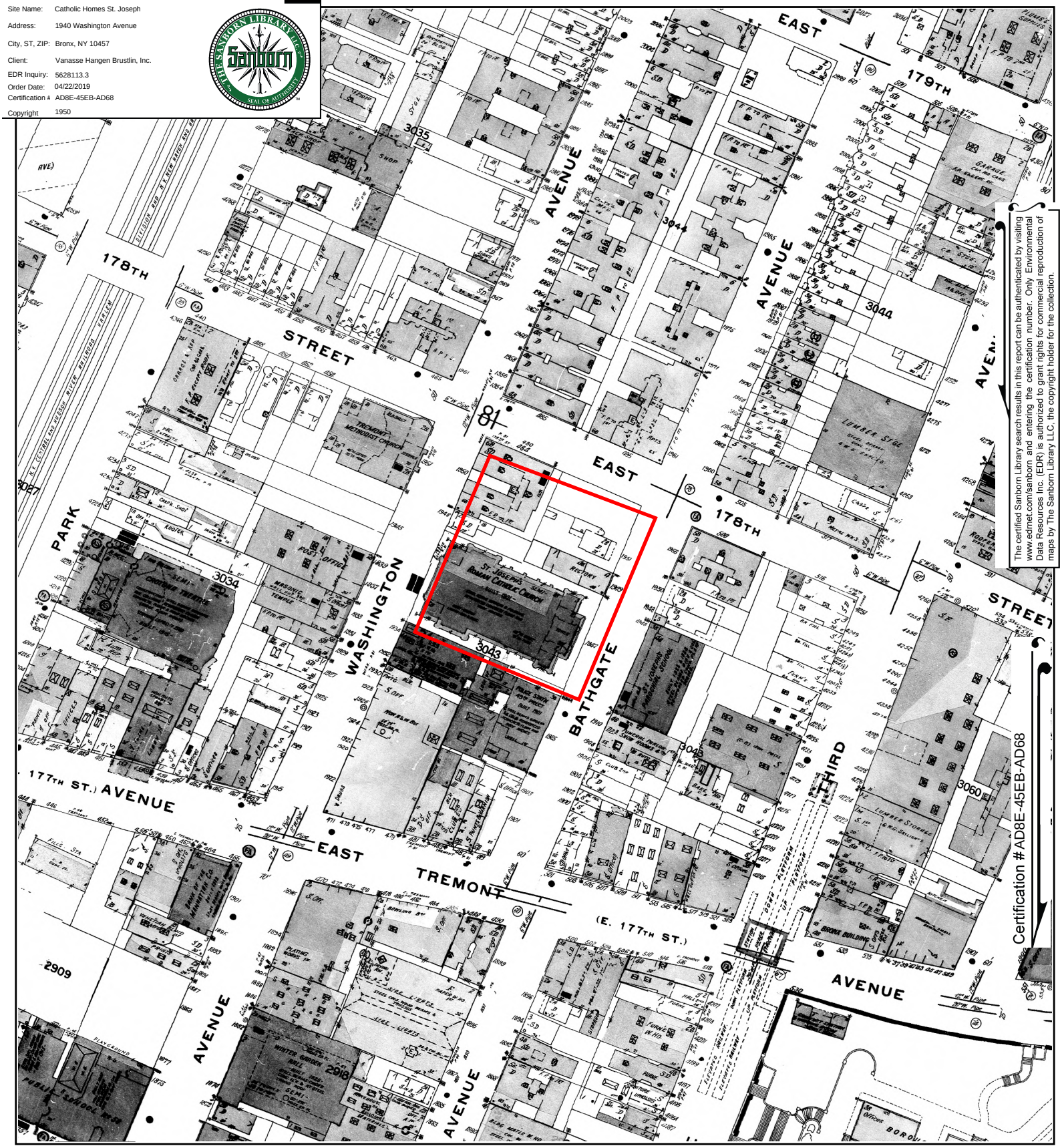
Volume 15, Sheet 81
Volume 15, Sheet 72
Volume 15, Sheet 47

N

Certified Sanborn® Map

1950

Site Name: Catholic Homes St. Joseph
Address: 1940 Washington Avenue
City, ST, ZIP: Bronx, NY 10457
Client: Vanasse Hangen Brustlin, Inc.
EDR Inquiry: 5628113.3
Order Date: 04/22/2019
Certification #: AD8E-45EB-AD68
Copyright 1950



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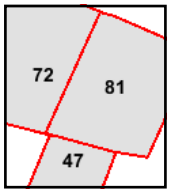
Certification #AD8E-45EB-AD68

This Certified Sanborn Map combines the following sheets.
Outlined areas indicate map sheets within the collection.

0 Feet 150 300 600



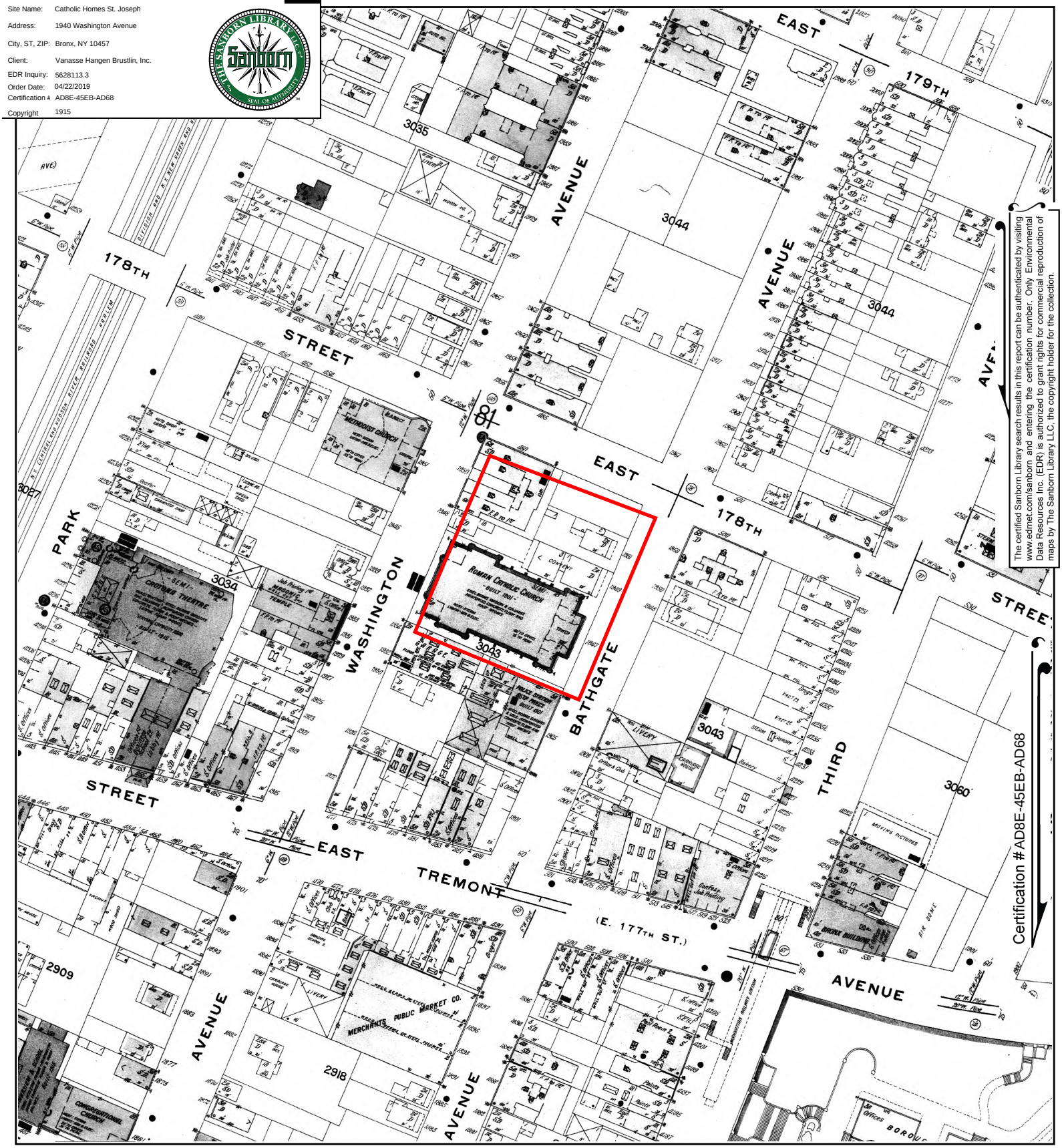
Volume 15, Sheet 81
Volume 15, Sheet 72
Volume 15, Sheet 47

N

Certified Sanborn® Map

1915

Site Name: Catholic Homes St. Joseph
Address: 1940 Washington Avenue
City, ST, ZIP: Bronx, NY 10457
Client: Vanasse Hangen Brustlin, Inc.
EDR Inquiry: 5628113.3
Order Date: 04/22/2019
Certification #: AD8E-45EB-AD68
Copyright 1915



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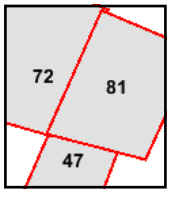
Certification #AD8E-45EB-AD68

This Certified Sanborn Map combines the following sheets.
Outlined areas indicate map sheets within the collection.

0 Feet 150 300 600



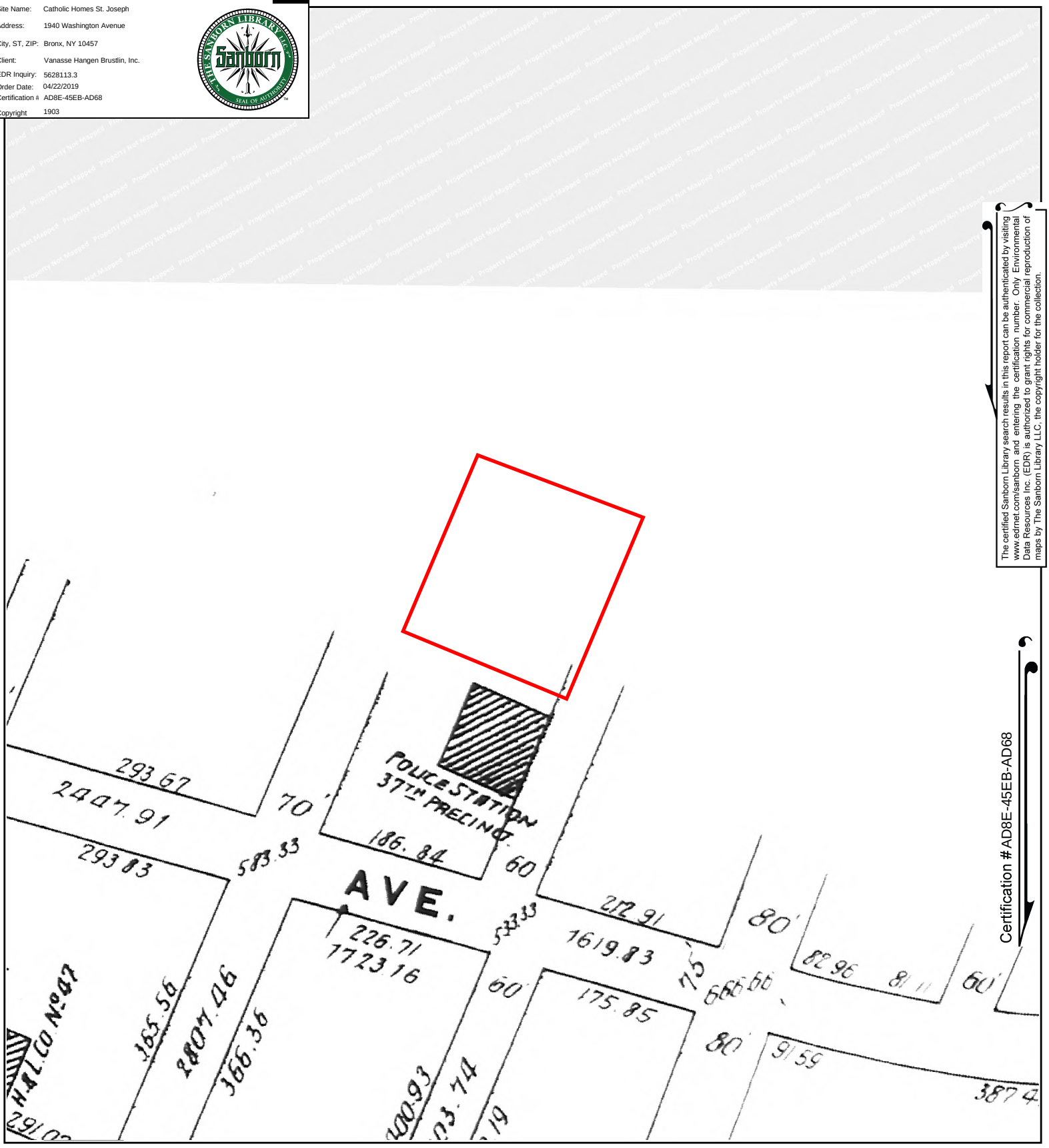
Volume 15, Sheet 81
Volume 15, Sheet 72
Volume 15, Sheet 47

N

Certified Sanborn® Map

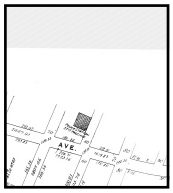
1903

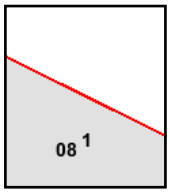
Site Name:	Catholic Homes St. Joseph
Address:	1940 Washington Avenue
City, ST, ZIP:	Bronx, NY 10457
Client:	Vanasse Hangen Brustlin, Inc.
EDR Inquiry:	5628113.3
Order Date:	04/22/2019
Certification #	AD8E-45EB-AD68
Copyright	1903



This Certified Sanborn Map combines the following sheets.
Outlined areas indicate map sheets within the collection.

0 Feet 150 300 600





Volume Atlas Maps, Sheet 1
Volume Atlas Maps, Sheet 08

N

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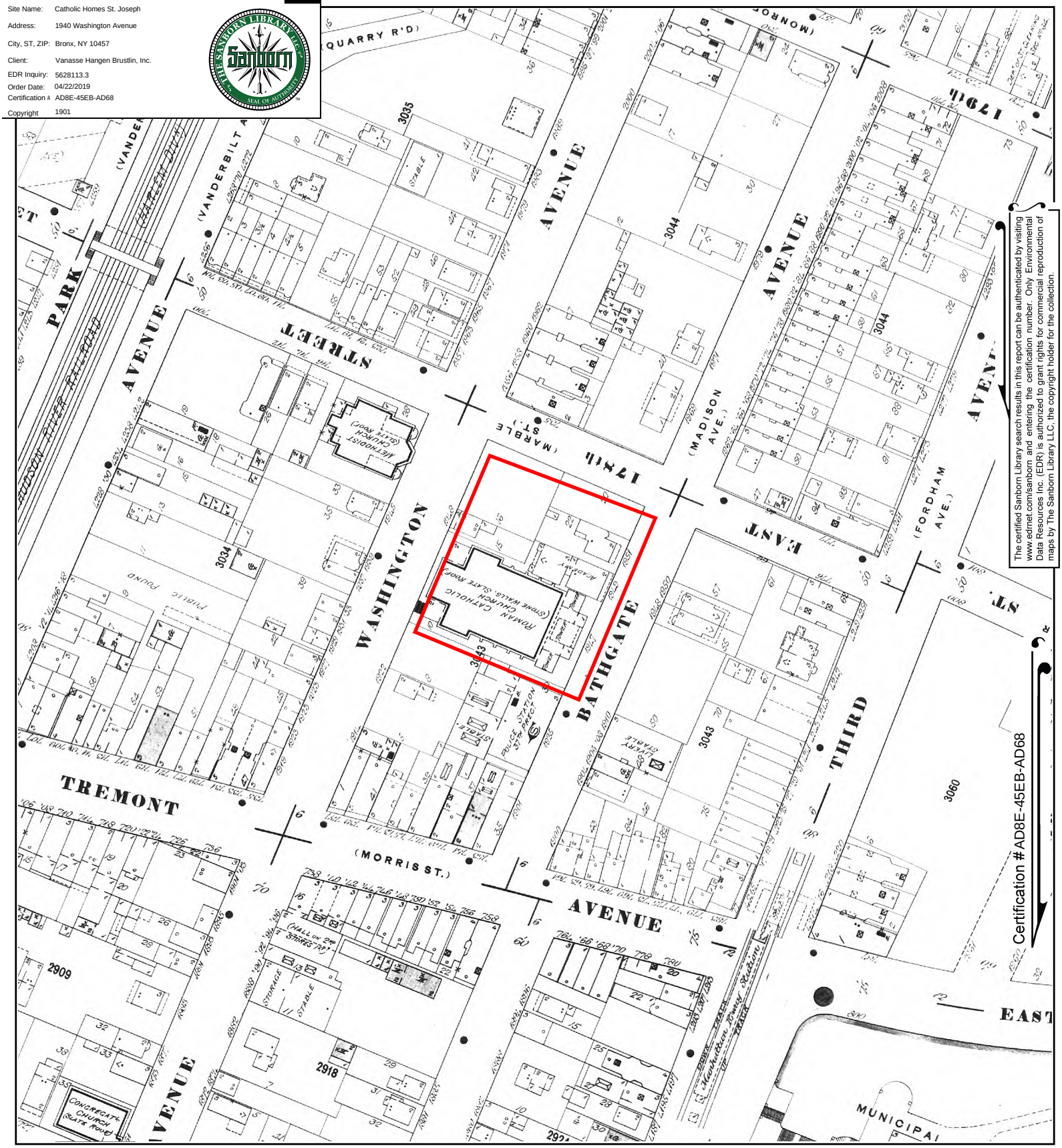
Certified Sanborn® Map

1901

Site Name:	Catholic Homes St. Joseph
Address:	1940 Washington Avenue
City, ST, ZIP:	Bronx, NY 10457
Client:	Vanasse Hangen Brustlin, Inc.
EDR Inquiry:	5628113.3
Order Date:	04/22/2019
Certification #	AD8E-45EB-AD68
Copyright	1901



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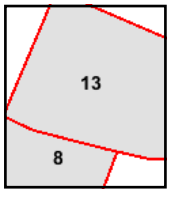
This Certified Sanborn Map combines the following sheets.
Outlined areas indicate map sheets within the collection.



Volume 14, Sheet 13
Volume 14, Sheet 8

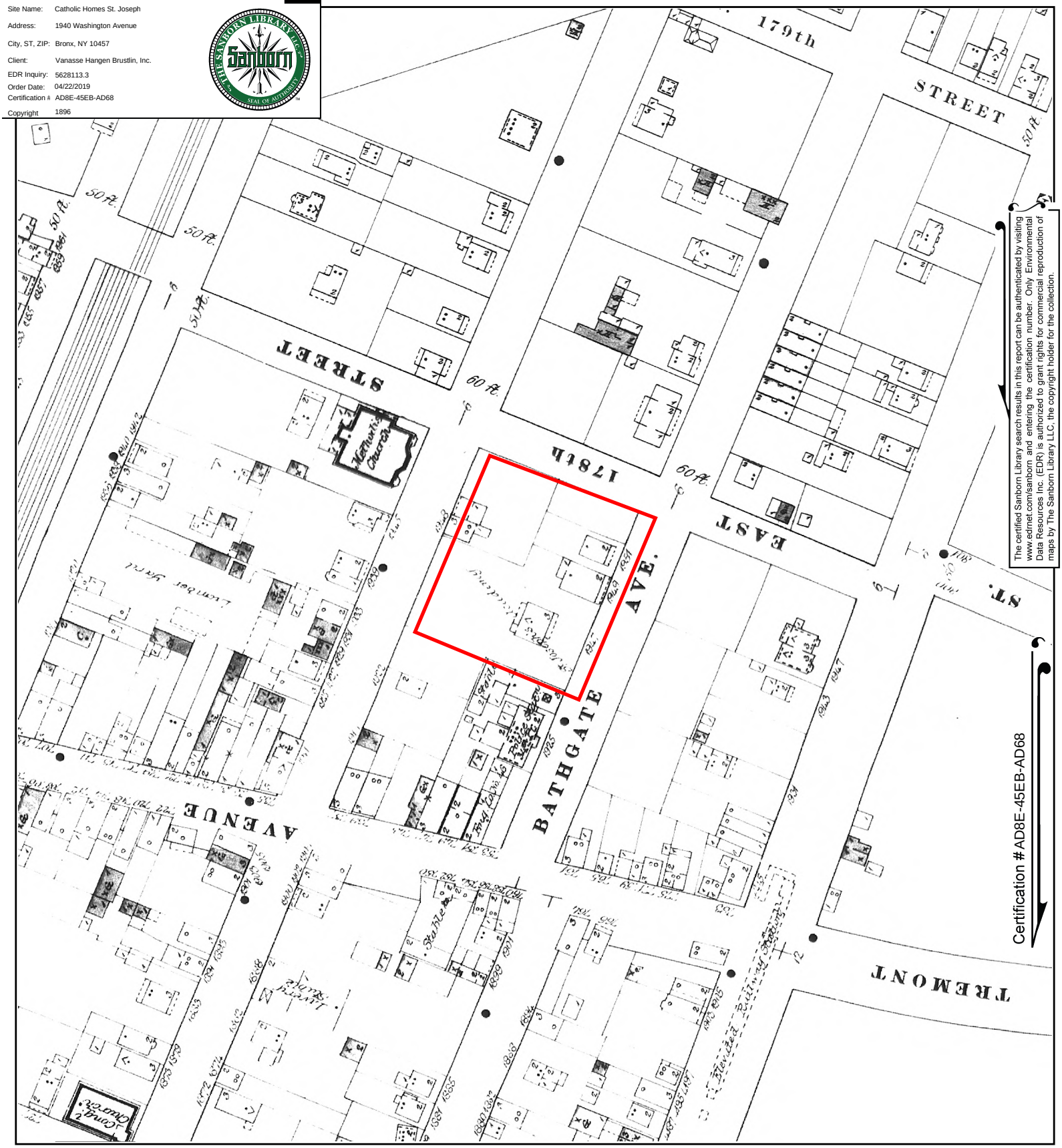
0 Feet 150 300 600

N

Certified Sanborn® Map

1896

Site Name: Catholic Homes St. Joseph
Address: 1940 Washington Avenue
City, ST, ZIP: Bronx, NY 10457
Client: Vanasse Hangen Brustlin, Inc.
EDR Inquiry: 5628113.3
Order Date: 04/22/2019
Certification #: AD8E-45EB-AD68
Copyright: 1896



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This Certified Sanborn Map combines the following sheets.
Outlined areas indicate map sheets within the collection.

0 Feet 150 300 600

Volume 12, Sheet 265
Volume 12, Sheet 263.5
Volume 12, Sheet 263
Volume 12, Sheet 263

N

Appendix E
Historical Aerial Photographs

Catholic Homes St. Joseph

1940 Washington Avenue

Bronx, NY 10457

Inquiry Number: 5628113.5

April 22, 2019

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

04/22/19

Site Name:

Catholic Homes St. Joseph
1940 Washington Avenue
Bronx, NY 10457
EDR Inquiry # 5628113.5

Client Name:

Vanasse Hangen Brustlin, Inc.
100 Motor Parkway, Ste. 135
Hauppauge, NY 11788
Contact: Ashley Monti

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

Search Results:

Year	Scale	Details	Source
2017	1"=500'	Flight Year: 2017	USDA/NAIP
2013	1"=500'	Flight Year: 2013	USDA/NAIP
2009	1"=500'	Flight Year: 2009	USDA/NAIP
2006	1"=500'	Flight Year: 2006	USDA/NAIP
1995	1"=500'	Acquisition Date: March 13, 1995	USGS/DOQQ
1991	1"=500'	Flight Date: March 09, 1991	NAPP
1984	1"=500'	Flight Date: March 26, 1984	USDA
1976	1"=500'	Flight Date: October 29, 1976	USGS
1974	1"=500'	Flight Date: September 15, 1974	NOAA
1966	1"=500'	Flight Date: January 12, 1966	USGS
1954	1"=500'	Flight Date: February 18, 1954	USGS
1951	1"=500'	Flight Date: April 21, 1951	EDR Proprietary Aerial Viewpoint
1924	1"=500'	Flight Date: July 01, 1924	FAIR

When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.

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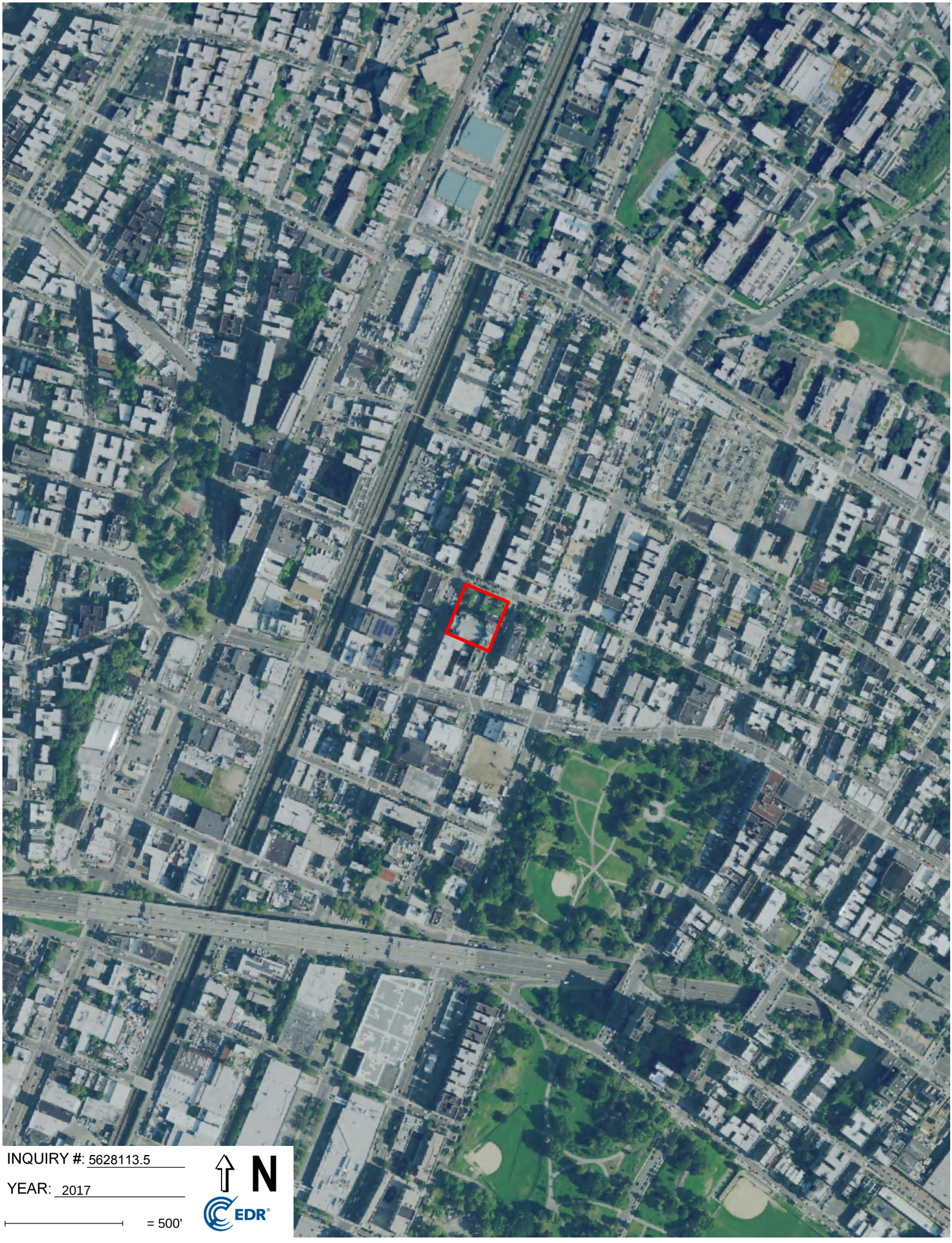

INQUIRY #: 5628113.5
YEAR: 2017
= 500'
N
EDR

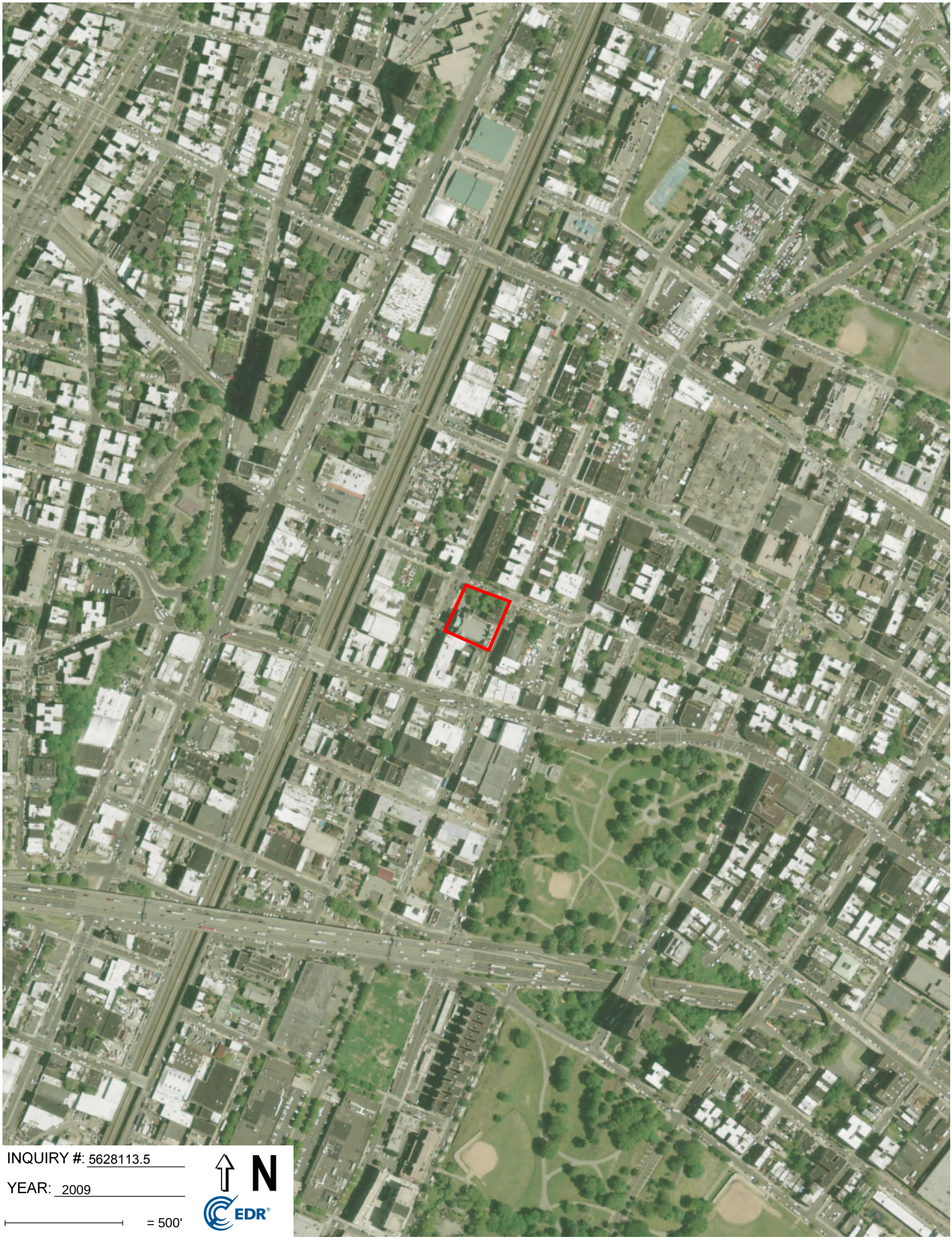
INQUIRY #: 5628113.5

YEAR: 2013

= 500'

N

EDR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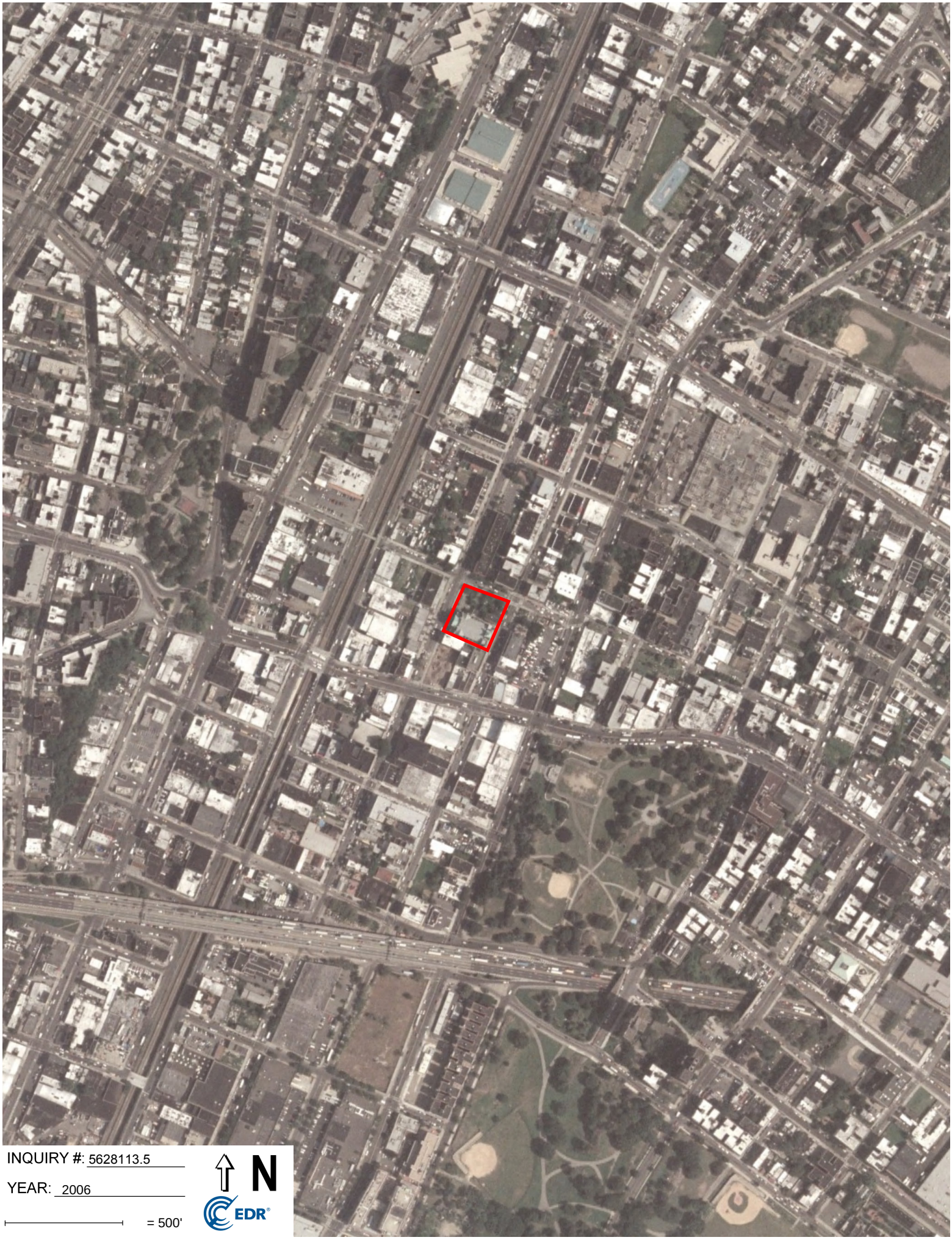
YEAR: 2009
= 500'
N
EDR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YEAR: 2006
= 500'
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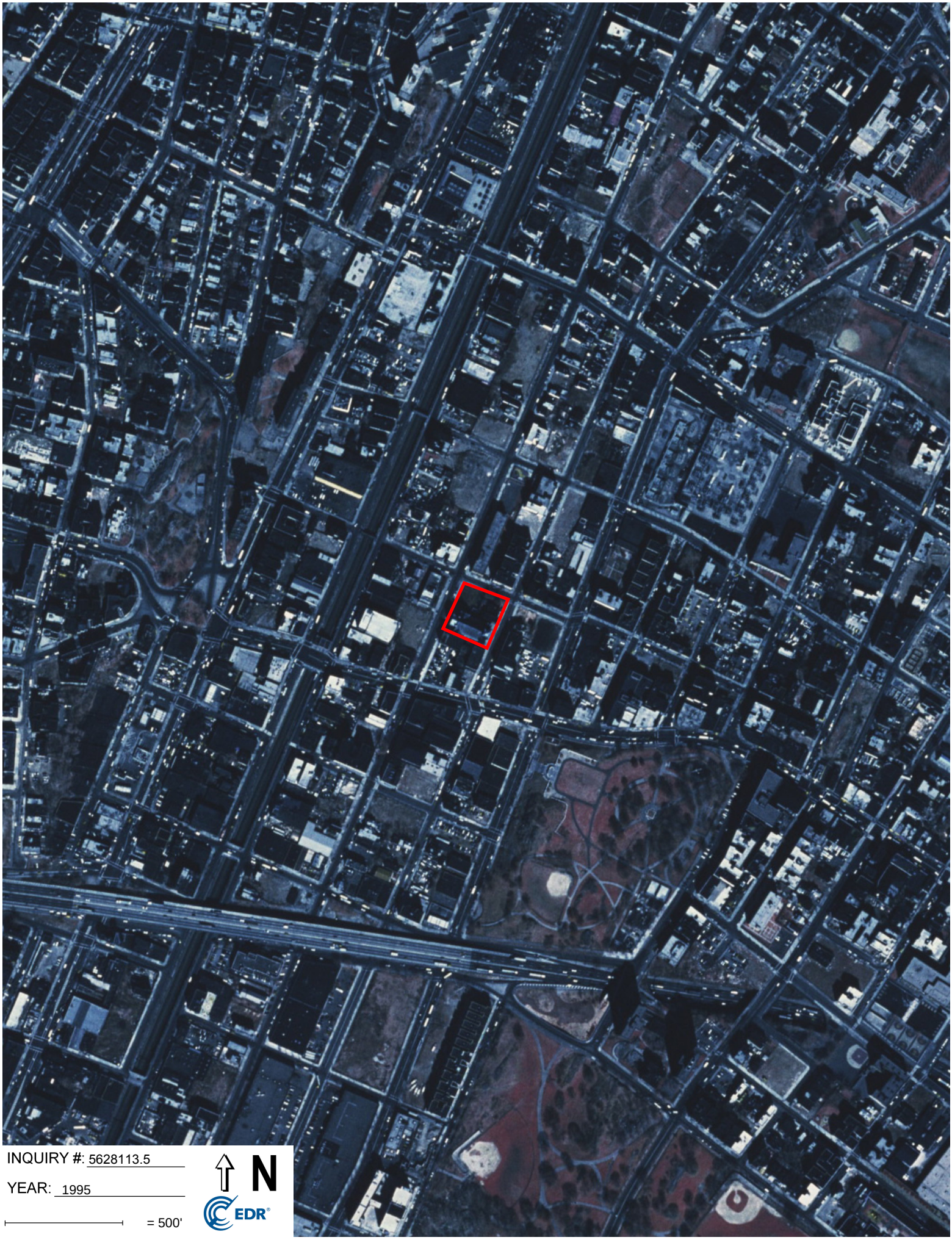
EDR


INQUIRY #: 5628113.5
YEAR: 1995
= 500'
N
EDR

INQUIRY #: 5628113.5
YEAR: 1991
= 500'
N
EDR

INQUIRY #: 5628113.5
YEAR: 1984
= 500'
N
EDR

INQUIRY #: 5628113.5

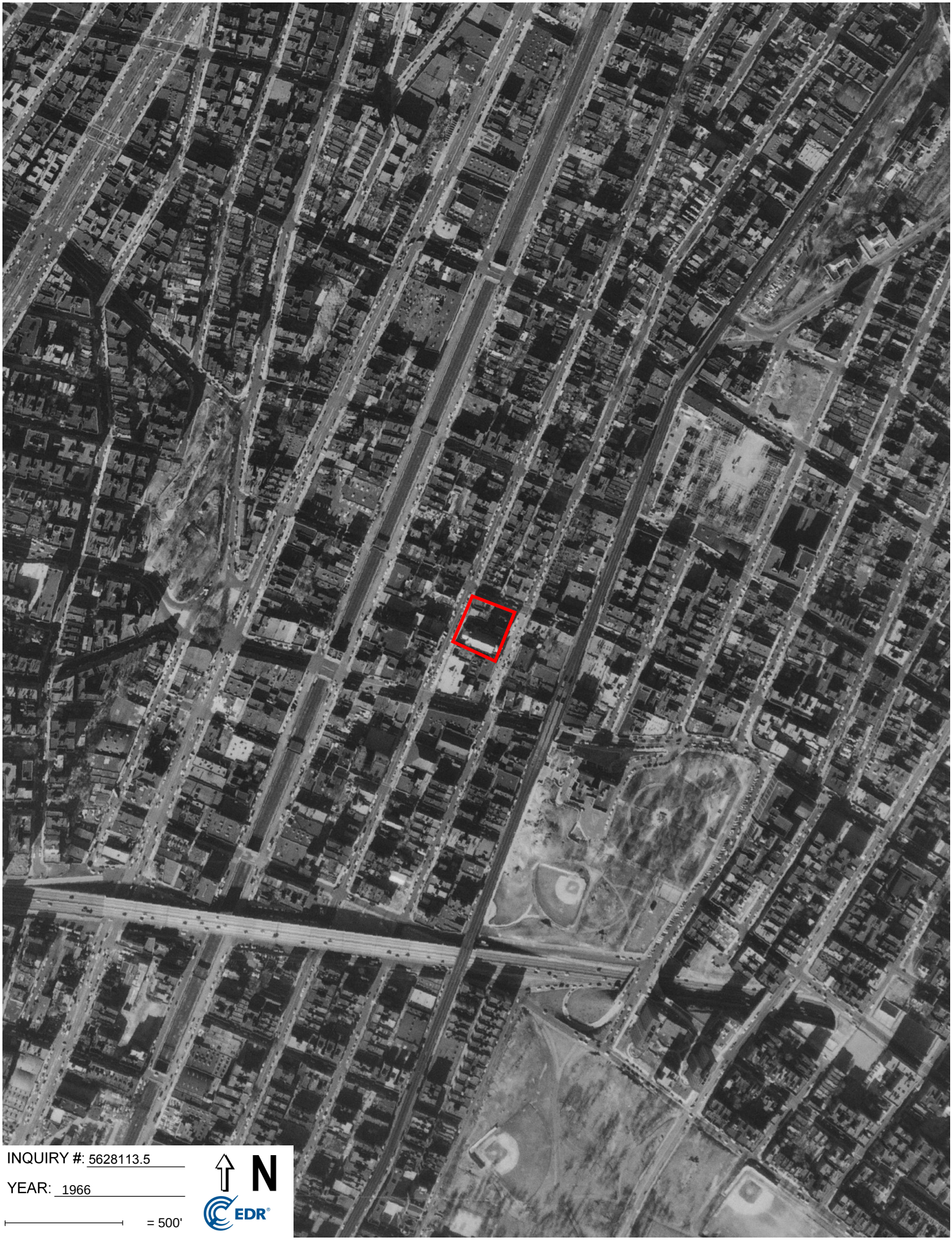
YEAR: 1976

= 500'

N

EDR

INQUIRY #: 5628113.5
YEAR: 1974
= 500'
N
EDR


INQUIRY #: 5628113.5
YEAR: 1966
= 500'
N
EDR

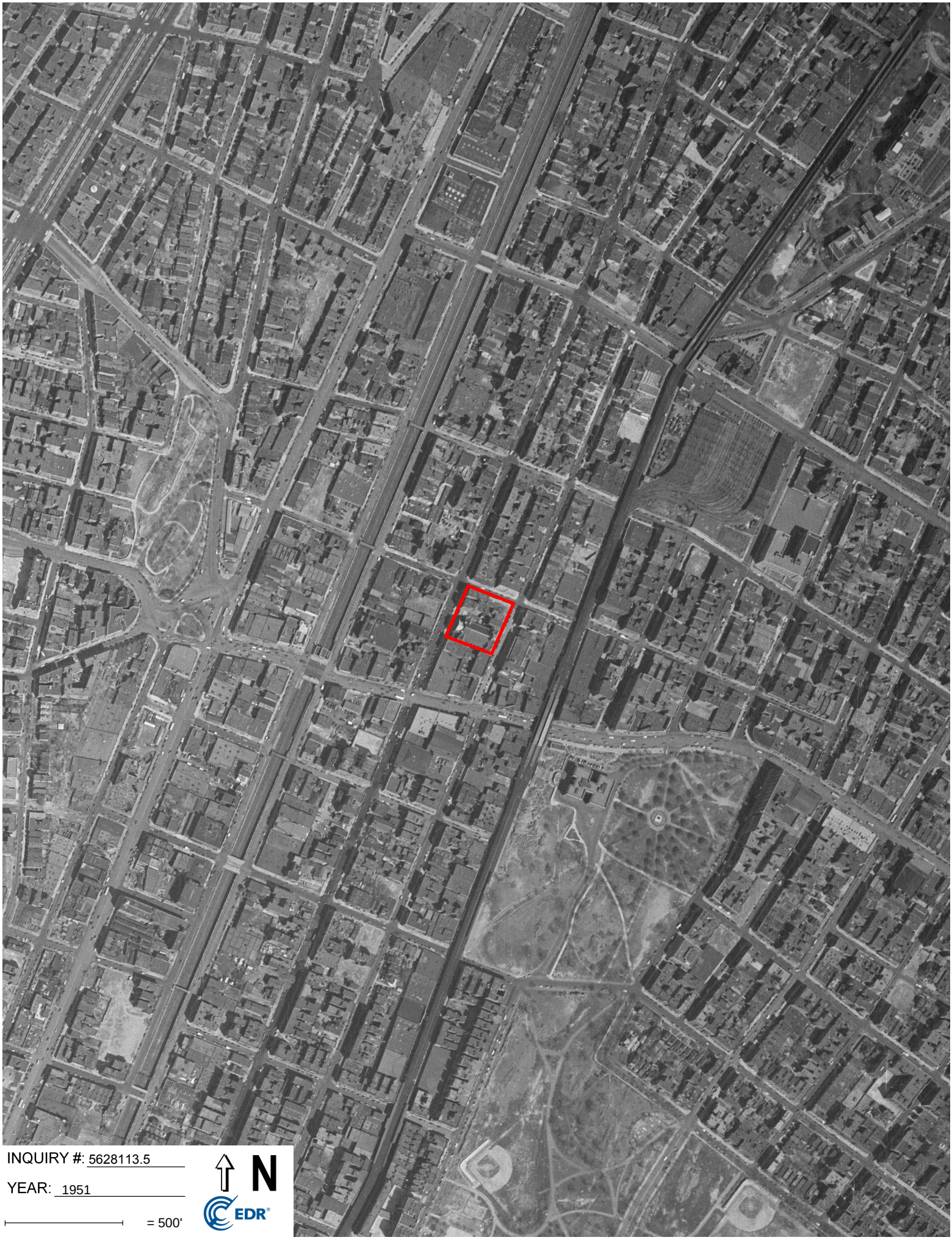
INQUIRY #: 5628113.5

YEAR: 1954

= 500'

N

EDR



INQUIRY #: 5628113.5

YEAR: 1951

= 500'

N

EDR

INQUIRY #: 5628113.5

YEAR: 1924

= 500'

N

EDR

Appendix F
Regulatory Agency Database Report

Catholic Homes St. Joseph
1940 Washington Avenue
Bronx, NY 10457

Inquiry Number: 5628113.2s
April 22, 2019

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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Overview Map	2
Detail Map	3
Map Findings Summary	4
Map Findings	8
Orphan Summary	695
Government Records Searched/Data Currency Tracking	GR-1

GEOCHECK ADDENDUM

Physical Setting Source Addendum	A-1
Physical Setting Source Summary	A-2
Physical Setting Source Map	A-7
Physical Setting Source Map Findings	A-8
Physical Setting Source Records Searched	PSGR-1

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

1940 WASHINGTON AVENUE
BRONX, NY 10457

COORDINATES

Latitude (North):	40.8477030 - 40° 50' 51.73''
Longitude (West):	73.8971730 - 73° 53' 49.82''
Universal Tranverse Mercator:	Zone 18
UTM X (Meters):	592965.9
UTM Y (Meters):	4522224.5
Elevation:	69 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	5940599 CENTRAL PARK, NY
Version Date:	2013

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20150522
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
1940 WASHINGTON AVENUE
BRONX, NY 10457

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
A1	ST JOSEPHS CHURCH	1948 WASHINGTON AVE	NY AST	Lower	1 ft.
A2	CON EDISON SERVICE B	1951 BATHGATE AVE FR	RCRA NonGen / NLR, NY MANIFEST	Higher	1 ft.
A3	BRONX SHEPHERDS REST	1932 WASHINGTON AVE	NJ MANIFEST	Lower	20, 0.004, SW
A4	BRONX SHEPHERDS REST	1932 WASHINGTON AVE	RCRA NonGen / NLR	Lower	20, 0.004, SW
A5	BRONX SHEPHERDS REST	1932 WASHINGTON AVE	NY MANIFEST	Lower	20, 0.004, SW
A6	CON EDISON	495 E 178TH ST	NJ MANIFEST	Higher	98, 0.019, NE
A7	CON EDISON	495 E 178TH ST	RCRA NonGen / NLR, FINDS, ECHO	Higher	98, 0.019, NE
A8	495 EAST 178TH ST HD	495 EAST 178 STREET	NY AST	Higher	98, 0.019, NE
B9	ST JOSEPHS SCHOOL	1946 BATHGATE AVENUE	NY AST	Higher	99, 0.019, ESE
B10	CON EDISON SERVICE B	1904 BATHGATE AVE FR	RCRA NonGen / NLR, FINDS	Lower	108, 0.020, SSE
B11	CON EDISON	1904 BATHGATE AVE FR	NY MANIFEST	Lower	108, 0.020, SSE
B12	QUEST PROPERTY MGMT	505 EAST 178TH STREE	NY AST	Higher	139, 0.026, ENE
A13	463 EAST 178TH ST. H	463 EAST 178TH ST	NY AST	Lower	150, 0.028, NNW
B14	LOT 43,TAXBLOCK 3043	503 EAST TREMONT AVE	NY E DESIGNATION	Lower	163, 0.031, SSE
B15	LOT 84,TAXBLOCK 3043	505 EAST TREMONT AVE	NY E DESIGNATION	Lower	175, 0.033, SSE
B16	CON EDISON	514 E 178TH STREET	NJ MANIFEST	Higher	198, 0.038, East
B17	CON EDISON	514 E 178TH STREET	RCRA NonGen / NLR	Higher	198, 0.038, East
B18	CON ED	514 E 178TH STREET	NY MANIFEST	Higher	198, 0.038, East
B19	LOT 80,TAXBLOCK 3043	513 EAST TREMONT AVE	NY E DESIGNATION	Lower	207, 0.039, SSE
C20	HANOV REALTY CORP	1975 BATHGATE AVE	NY Spills	Higher	211, 0.040, NNE
C21	1975 BATHGATE AVENUE	1975 BATHGATE AVENUE	NY AST	Higher	211, 0.040, NNE
B22	LOT 67,TAXBLOCK 3043	4231 3 AVENUE	NY E DESIGNATION	Higher	218, 0.041, ESE
D23	CON EDISON MANHOLE 5	BATHGATE AVE & E TRE	RCRA NonGen / NLR, NJ MANIFEST, NY MANIFEST	Lower	220, 0.042, South
B24	LOT 72,TAXBLOCK 3043	4223 3 AVENUE	NY E DESIGNATION	Higher	223, 0.042, SE
E25	LOT 93,TAXBLOCK 3044	4261 3 AVENUE	NY E DESIGNATION	Higher	231, 0.044, ENE
B26	CON EDISON SERVICE B	4225 3RD AVE	RCRA NonGen / NLR, NY MANIFEST	Higher	237, 0.045, ESE
F27	LOT 49,TAXBLOCK 3034	463 EAST TREMONT AVE	NY E DESIGNATION	Lower	247, 0.047, WSW
B28	LOT 77,TAXBLOCK 3043	521 EAST TREMONT AVE	NY E DESIGNATION	Lower	251, 0.048, SE
F29	CONSOLIDATED EDISON	WASHINGTON AVE & E T	NY MANIFEST	Lower	255, 0.048, SW
F30	221428; NWC WASHINGT	NWC WASHINGTON AVE A	NY Spills	Lower	257, 0.049, SW
C31	LOT 88,TAXBLOCK 3044	4263 3 AVENUE	NY E DESIGNATION	Higher	263, 0.050, ENE
E32	35 GAL HYDRAULIC FRO	3 AVENUE & 178 STREE	NY Spills	Higher	283, 0.054, East
D33	CON EDISON MANHOLE:	472 E TREMONT AVE FR	RCRA NonGen / NLR, NY MANIFEST	Lower	288, 0.055, SSW
F34	J & M CLEANERS	453 E TREMONT AVE	EDR Hist Cleaner	Lower	293, 0.055, WSW
F35	LOT 52,TAXBLOCK 3034	453 EAST TREMONT AVE	NY E DESIGNATION	Lower	293, 0.055, WSW
E36	MANHOLE 23853	3RD AV & E 178ST	NY Spills	Higher	294, 0.056, East
D37	LOT 15,TAXBLOCK 2924	500 EAST TREMONT AVE	NY E DESIGNATION	Lower	295, 0.056, South
D38	DUMONT CLEANERS INC	500 E TREMONT AVE	EDR Hist Cleaner	Lower	295, 0.056, South
D39	CON EDISON SERVICE B	478 E TREMONT FRONT	RCRA NonGen / NLR, FINDS	Lower	304, 0.058, SSW

MAPPED SITES SUMMARY

Target Property Address:
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MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
D40	CON EDISON	478 E TREMONT FRONT	NY MANIFEST	Lower	304, 0.058, SSW
C41	1985 BATHGATE AVE	1985 BATHGATE AVE	NY Spills	Higher	319, 0.060, NNE
D42	PHASE 2 - COMMERCIAL	516 EAST TREMONT AVE	NY Spills	Lower	332, 0.063, SSE
G43	FELIX HUNGRIA DBA FE	4246 PARK AVENUE	NY AST	Lower	340, 0.064, NW
G44	GARCIA ANDY	4246 PARK AVE	EDR Hist Auto	Lower	340, 0.064, NW
C45	LOT 82,TAXBLOCK 3044	4277 3 AVENUE	NY E DESIGNATION	Higher	344, 0.065, ENE
D46	220005; E. TREMONT E	E. TREMONT E/O 3RD A	NY Spills	Lower	346, 0.066, SE
F47	WASHINGTON HOME	464 EAST TREMONT AVE	NY Spills	Lower	346, 0.066, SW
B48	LOT 8,TAXBLOCK 3060	4226 3 AVENUE	NY E DESIGNATION	Higher	348, 0.066, ESE
F49	MAN HOLE 29750	1894 WASHINGTON ST	NY Spills	Lower	372, 0.070, SW
F50	KASS INDUSTRIAL SUPP	443 EAST TREMONT AVE	NY AST	Lower	375, 0.071, WSW
F51	LOT 1,TAXBLOCK 3034	4208 PARK AVENUE	NY E DESIGNATION	Lower	379, 0.072, West
F52	CON EDISON	447 E TREMONT AVE	RCRA NonGen / NLR, FINDS, ECHO	Lower	385, 0.073, WSW
F53	CON EDISON MANHOLE:	447 E TREMONT AVE FR	RCRA NonGen / NLR, NY MANIFEST	Lower	385, 0.073, WSW
F54	CON EDISON	447 E TREMONT AVE	NJ MANIFEST	Lower	385, 0.073, WSW
C55	1991 BATHGATE AVENUE	1991 BATHGATE AVENUE	NY AST, NY Spills	Higher	391, 0.074, NNE
H56	CON EDISON	535 E TREMONT AVE	RCRA NonGen / NLR	Lower	391, 0.074, SE
H57	535 E TREMONT AVE	535 EAST TREMONT AVE	NY AST	Lower	391, 0.074, SE
G58	CONSOLIDATED EDISON	PARK AVENUE & EAST 1	NY MANIFEST	Lower	396, 0.075, NW
H59	MANHOLE 23851	EA TREMONT A W OF 3R	NY Spills	Lower	399, 0.076, SE
F60	CON EDISON SERVICE B	452 E TREMONT AVE FR	RCRA NonGen / NLR, FINDS	Lower	406, 0.077, WSW
F61	CON EDISON	452 E TREMONT AVE FR	NY MANIFEST	Lower	406, 0.077, WSW
D62	CON EDISON SERVICE B	4203 3RD AVE FRONT O	RCRA NonGen / NLR, NY MANIFEST	Lower	414, 0.078, SSE
F63	LOT 26,TAXBLOCK 2909	1893 WASHINGTON AVEN	NY E DESIGNATION	Lower	416, 0.079, SW
C64	1993 BATHGATE AVE	1993 BATHGATE AVENUE	NY AST	Higher	430, 0.081, NNE
F65	LOT 28,TAXBLOCK 2909	1891 WASHINGTON AVEN	NY E DESIGNATION	Lower	440, 0.083, SW
G66	NYC DEP	E 178TH ST & PARK AV	RCRA NonGen / NLR, NY MANIFEST	Lower	442, 0.084, NW
I67	CON EDISON SERVICE B	1997 WASHINGTON AVE	RCRA NonGen / NLR, NY MANIFEST	Higher	443, 0.084, North
F68	LOT 10,TAXBLOCK 2909	446 EAST TREMONT AVE	NY E DESIGNATION	Lower	456, 0.086, WSW
I69	CHRIS AUTO SALES INC	4286 PARK AVE	EDR Hist Auto	Lower	462, 0.087, NNW
H70	1925 MONTEREY AVE	1925 MONTEREY AVE	NY LTANKS, NY AST	Higher	465, 0.088, ESE
F71	PERSONAL CAR AUDIO	450 EAST TREMONT AVE	EDR Hist Auto	Lower	482, 0.091, WSW
J72	WILFRID EAST & WEST	1880 BATHGATE AVE	RCRA NonGen / NLR	Lower	491, 0.093, South
K73	MANHOLE 23927	EAST TREEMONT / E PA	NY Spills	Lower	499, 0.095, WSW
G74	NYCDEP	E 178TH & PARK AVE	NY MANIFEST	Lower	499, 0.095, NW
F75	4196 PARK AVENUE	4196 PARK AVENUE	NY AST	Lower	502, 0.095, WSW
J76	1888 BATHGATE AVENUE	4181 THIRD AVENUE	NY AST	Lower	503, 0.095, South
J77	1888 BATHGATE AVENUE	4181 THIRD AVENUE	NY UST	Lower	503, 0.095, South
J78	CON EDISON MANHOLE:	4181 3RD AVE	RCRA NonGen / NLR, NY MANIFEST	Lower	503, 0.095, South

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J79	WILFRID REALTY CORP	4181 THIRD AVE	PA MANIFEST	Lower	503, 0.095, South
J80	1888 BATHGATE AVENUE	4181 3RD AVENUE	NY BROWNFIELDS	Lower	503, 0.095, South
J81	1888 BATHGATE AVENUE	4181 3RD AVE	RCRA-LQG	Lower	503, 0.095, South
K82	MANHOLE 23926 /AT PA	444 EAST TREMONT AV	NY Spills	Lower	511, 0.097, WSW
L83	NEW LOOK COLLISON, L	4309 3RD AVENUE	NY AST	Higher	517, 0.098, NE
H84	MONTEREY HOUSING DEV	2005 MONTEREY AVENUE	NY AST	Higher	527, 0.100, SE
L85	WASHINGTON PLUMBING	4290-92 THIRD AVE	RCRA NonGen / NLR, NY MANIFEST	Higher	530, 0.100, ENE
M86	EAST 178TH/MONTEREY	EAST 178TH ST/MONTER	NY Spills	Higher	540, 0.102, East
G87	CON EDISON	4237 PARK AVE FRONT	NY MANIFEST	Lower	547, 0.104, WNW
G88	CON EDISON SERVICE B	4237 PARK AVE FRONT	RCRA NonGen / NLR, FINDS	Lower	547, 0.104, WNW
H89	CON EDISON SERVICE B	1932 MONTEREY AVE FR	RCRA NonGen / NLR, FINDS	Higher	550, 0.104, ESE
H90	CON EDISON	1932 MONTEREY AVE FR	NY MANIFEST	Higher	550, 0.104, ESE
H91	CON EDISON SERVICE B	1938 MONTEREY AVE FR	RCRA NonGen / NLR	Higher	550, 0.104, ESE
H92	CON EDISON	1938 MONTEREY AVE FR	NY MANIFEST	Higher	550, 0.104, ESE
G93	SOIL	4259-4281 PARK AVE	NY Spills	Lower	553, 0.105, NW
M94	MONTEREY HOUSING DEV	2015 MONTEREY AVENUE	NY AST	Higher	555, 0.105, ENE
M95	2015 MONTERAY AVE	2015 MONTERAY AVE	NY Spills	Higher	555, 0.105, ENE
H96	NYNEX	MONTEREY AVE AND E T	NY MANIFEST	Higher	556, 0.105, SE
G97	FIVE STAR REALTY, LL	422 EAST 178TH STREE	NY AST	Lower	558, 0.106, NW
G98	BOILER ROOM	422 EAST 178TH STREE	NY Spills	Lower	558, 0.106, NW
I99	WASHINGTON AVE AND	E 179TH ST	NY Spills	Higher	563, 0.107, NNE
N100	OUR LADY OF GOOD COU	4221 PARK AVE	NY Spills	Lower	574, 0.109, West
K101	LOT 8,TAXBLOCK 2909	4184 PARK AVENUE	NY E DESIGNATION	Lower	575, 0.109, WSW
O102	4275 PARK AVENUE	4275 PARK AVENUE	NY UST	Lower	583, 0.110, NW
O103	4275 PARK AVENUE	4275 PARK AVENUE	NY AST	Lower	583, 0.110, NW
O104	4275 PARK AVENUE	4275 PARK AVENUE	NY VCP	Lower	583, 0.110, NW
O105	CONSTRUCTION SITE	4275 PARK AVE	NY Spills	Lower	583, 0.110, NW
O106	GARY FREDERIC LTD	4269 PARK AVENUE	NY AST	Lower	583, 0.110, NW
O107	LOT 48,TAXBLOCK 3028	4269 PARK AVENUE	NY E DESIGNATION	Lower	583, 0.110, NW
K108	CON EDISON	E TREMONT AVE & PARK	RCRA NonGen / NLR, FINDS, ECHO	Lower	584, 0.111, West
H109	I/F/O 1910 MONTEREY	555 EAST TREMONT AVE	NY Spills	Higher	593, 0.112, SE
H110	421 TREMONT LLC	555 EAST TREMONT AVE	NY AST	Higher	593, 0.112, SE
P111	2023 MONTEREY AVE	2023 MONTEREY AVENUE	NY AST	Higher	611, 0.116, ENE
L112	EAST 179TH ST SUB ST	E.179TH ST/3RD AVE	NY Spills	Higher	612, 0.116, NE
L113	MH 26025	179TH AND 3RD AV	NY Spills	Higher	612, 0.116, NE
L114	EAST 179TH ST SUB ST	3RD AVE/179TH ST	NY Spills	Higher	612, 0.116, NE
L115	MH464	179ST / 3RD AV	NY Spills	Higher	612, 0.116, NE
L116	179TH ST AND 3RD AVE	179TH ST AND 3RD AVE	NY Spills	Higher	612, 0.116, NE
L117	CON EDISON - SUB-STA	E. 179TH ST / 3RD AV	NY Spills	Higher	612, 0.116, NE

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L118	MANHOLE #26564	E 179TH ST & 3RD AVE	NY Spills	Higher	614, 0.116, NE
L119	CONSOLIDATED EDISON	E 179 ST & 3 AVE MH1	NY MANIFEST	Higher	614, 0.116, NE
L120	CON ED	179 ST & 3 AVE EXCAV	NY MANIFEST	Higher	614, 0.116, NE
Q121	TREMONT LIBRARY	1866 WASHINGTON AVE	NY AST	Lower	618, 0.117, SSW
K122	FRIEND FOREVER AUTO	4178 PARK AVENUE	NY AST	Lower	637, 0.121, WSW
J123	LOT 42,TAXBLOCK 2924	507 EAST 176 STREET	NY RES DECL	Lower	637, 0.121, South
J124	507 EAST 176 STREET	507 EAST 176 STREET	NY UST	Lower	637, 0.121, South
J125	VACANT LOT	507-513 E. 176TH ST.	NY Spills	Lower	637, 0.121, South
M126	MONTEREY REALTY PART	2018-2020-2022 MONTE	NY AST	Higher	643, 0.122, ENE
R127	F.D.N.Y.-RESCUE CO #	451 EAST 176TH STREE	NY AST	Lower	645, 0.122, SW
M128	MONTEREY GARDENS ASS	555 EAST 178TH STREE	NY UST	Higher	657, 0.124, East
O129	BRONX APARTMENTS, LL	4289 PARK AVENUE	NY AST	Lower	658, 0.125, NNW
Q130	CON EDISON MANHOLE 1	E WASHINGTON AVE & E	RCRA NonGen / NLR, NJ MANIFEST, NY MANIFEST	Lower	683, 0.129, SSW
Q131	NYC BD OF ED - PUBLI	459 E 176TH ST & WAS	RCRA-SQG, NY MANIFEST	Lower	683, 0.129, SSW
O132	BRONX APARTMENTS, LL	4293 PARK AVE	NY AST	Lower	685, 0.130, NNW
133	2028 WASHINGTON AVEN	2028 WASHINGTON AVEN	NY AST	Higher	694, 0.131, NNE
R134	PUBLIC SCHOOL 58 - B	459 EAST 176TH STREE	NY AST	Lower	710, 0.134, SW
M135	1975-77 LA FONTAINE	1975-77 LAFONTAINE A	NY AST	Higher	722, 0.137, ESE
O136	WEBSTER AVENUE RESID	411 EAST 178TH STREE	NY INST CONTROL	Lower	725, 0.137, NW
O137	411 EAST 178TH STREE	411 EAST 178TH STREE	NY VCP	Lower	725, 0.137, NW
O138	WEBSTER AVENUE RESID	411 EAST 178TH STREE	NY ENG CONTROLS	Lower	725, 0.137, NW
O139	WEBSTER AVENUE RESID	411 EAST 178TH STREE	NY BROWNFIELDS	Lower	725, 0.137, NW
S140	CON EDISON - MH 83	E179TH STREET AND PA	RCRA NonGen / NLR, NY MANIFEST	Lower	728, 0.138, NNW
M141	CON EDISON	1977 LAFONTAINE AVE	NY MANIFEST	Higher	740, 0.140, ESE
P142	CON EDISON - EAST 17	541 E 179TH ST	RCRA NonGen / NLR, FINDS, ECHO	Higher	743, 0.141, ENE
T143	CON EDISON MANHOLE 1	3RD AVE & E 176TH ST	RCRA NonGen / NLR, NJ MANIFEST, NY MANIFEST	Lower	749, 0.142, South
Q144	CON EDISON	1852 WASHINGTON AVE	NJ MANIFEST	Lower	762, 0.144, SSW
Q145	CON EDISON	1852 WASHINGTON AVE	RCRA NonGen / NLR	Lower	762, 0.144, SSW
Q146	R. AMPARO SALVAGE CO	1851 WASHINGTON AVE	NY SWF/LF, NY SPDES	Lower	765, 0.145, SW
Q147	R. AMPARO SALVAGE CO	1851 WASHINGTON AVEN	NY AST	Lower	765, 0.145, SW
S148	CONSOLIDATED EDISON	PARK AVENUE & EAST 1	NY MANIFEST	Lower	773, 0.146, NNW
S149	BRONX APARTMENTS, LL	4305 PARK AVENUE	NY AST	Lower	779, 0.148, NNW
U150	1940 WEBSTER AVENUE	1940 WEBSTER AVE	NY UST	Lower	786, 0.149, WNW
N151	CON EDISON SERVICE B	1938 WEBSTER AVE FRO	RCRA NonGen / NLR, NY MANIFEST	Lower	788, 0.149, WNW
N152	1934 WEBSTER AVE.	1934 WEBSTER AVE.	NY AST	Lower	789, 0.149, WNW
T153	EAGLE ACADEMY FOR YO	4143 THIRD AVENUE	NY UST	Lower	793, 0.150, South
P154	NYC DEPT OF EDUCATIO	560 E 179TH ST	RCRA-SQG, FINDS, ECHO	Higher	817, 0.155, ENE
P155	PUBLIC SCHOOL 211/25	560 EAST 179TH STREE	NY AST	Higher	817, 0.155, ENE
P156	NYC DEPT OF EDUCATIO	560 E 179TH ST	NY MANIFEST	Higher	817, 0.155, ENE

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P157	TRI-BEL, LP	2029 LA FONTAINE AVE	NY AST	Higher	825, 0.156, East
V158	TREMONT RENAISSANCE	1910-1916 WEBSTER AV	NY UST	Lower	827, 0.157, West
V159	CON EDISON SERVICE B	405 E TREMONT AVE	RCRA NonGen / NLR, NY MANIFEST	Lower	828, 0.157, West
R160	442 EAST 176TH STREE	442 EAST 176TH STREE	NY AST	Lower	831, 0.157, SW
U161	ZEPOL ENTERPRISES IN	1928Z WEBSTER AVE	RCRA NonGen / NLR, NY MANIFEST	Lower	836, 0.158, WNW
U162	CON EDISON SERVICE B	1928 WEBSTER AVE	RCRA NonGen / NLR, NY MANIFEST	Lower	838, 0.159, WNW
W163	CON EDISON	4340 3RD AVE	NY MANIFEST	Higher	843, 0.160, NE
W164	EAST 179TH ST SUB ST	4340 3RD AVE	NY LTANKS	Higher	843, 0.160, NE
W165	CON EDISON	4340 3 AVE	NJ MANIFEST	Higher	843, 0.160, NE
W166	CON EDISON	4340 3RD AVENUE	NY MANIFEST	Higher	843, 0.160, NE
W167	CON EDISON - E 179TH	4340 3RD AVE	RCRA-LQG, NY Spills, FINDS, ECHO, NY MANIFEST	Higher	843, 0.160, NE
W168	CON EDISON	4340 3 AVE	RCRA NonGen / NLR	Higher	843, 0.160, NE
W169	CON EDISON	4340 3RD AVE	NY MANIFEST	Higher	843, 0.160, NE
W170	EAST 179TH ST. CENTR	4340 3RD AVENUE	NY UST	Higher	843, 0.160, NE
W171	EAST 179TH ST. CENTR	4340 3RD AVENUE	NY AST	Higher	843, 0.160, NE
U172	BELL ATLANTIC-NY	WEBSTER AVE & 178TH	NY MANIFEST	Lower	877, 0.166, WNW
R173	CON EDISON SERVICE B	4144 PARK AVE	RCRA NonGen / NLR, NY MANIFEST	Lower	893, 0.169, SW
X174	CON EDISON	1969 WEBSTER AV	NY MANIFEST	Lower	894, 0.169, NW
175	G & J TRANSMISSION &	1840 WASHINGTON AVE	NY AST	Lower	903, 0.171, SSW
S176	JM AUTO SOLUTION INC	413 EAST 179TH STREE	NY AST	Lower	912, 0.173, NNW
X177	TWIN PARK SOUTHWEST	1985 WEBSTER AVE	NY AST	Lower	918, 0.174, NW
V178	CON EDISON TRANSFORM	TREMONT AVE & WEBSTE	RCRA NonGen / NLR	Lower	927, 0.176, West
Y179	NYC BD OF ED - MIDDL	571 E 179TH ST	RCRA NonGen / NLR, NY MANIFEST	Higher	929, 0.176, ENE
W180	P&P GENERAL MECHANIC	4343 THIRD AVENUE	NY AST	Higher	931, 0.176, NE
V181	CON EDISON SERVICE B	1889 WEBSTER AVE	RCRA NonGen / NLR, NY MANIFEST	Lower	960, 0.182, West
Z182	CON EDISON SERVICE B	2064 BATHGATE AVE FR	RCRA NonGen / NLR, NY MANIFEST	Higher	960, 0.182, NNE
U183	CONSOLIDATED EDISON	1880 VALENTINE AVE M	NY MANIFEST	Lower	962, 0.182, WNW
U184	MANHOLE #11975	1880 VALENTINE AVE	NY AST, NY Spills	Lower	962, 0.182, WNW
AA185	CON EDISON	593 E TREMONT AVE	RCRA NonGen / NLR, FINDS, ECHO	Higher	965, 0.183, ESE
AA186	CON EDISON	593 E TREMONT AVE	NY MANIFEST	Higher	965, 0.183, ESE
AA187	CON EDISON	593 E TREMONT AVE	NJ MANIFEST	Higher	965, 0.183, ESE
AA188	CON EDISON SERVICE B	1971 ARTHUR AVE FRON	RCRA NonGen / NLR, NY MANIFEST	Higher	978, 0.185, ESE
Y189	I.S. 118 - BRONX X11	577 EAST 179TH STREE	NY UST, NY AST	Higher	984, 0.186, ENE
X190	WEBSTER PLACE ASSOCI	1971 WEBSTER AVENUE	NY AST	Lower	990, 0.188, NW
AB191	BRYANT LUMBER & BLDG	4130 PARK AVE	NY AST	Lower	991, 0.188, SW
W192	CON ED	4361 3RD AVE	NY MANIFEST	Higher	997, 0.189, NE
W193	CON EDISON	4361 3RD AVE	NJ MANIFEST	Higher	997, 0.189, NE
W194	CON EDISON	4361 3RD AVE	RCRA NonGen / NLR	Higher	997, 0.189, NE
AC195	BP WEBSTER	1862 WEBSTER AVENUE	NY UST	Lower	1003, 0.190, WSW

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X196	CON EDISON SERVICE B	365 E 178TH ST FRONT	RCRA NonGen / NLR, NY MANIFEST	Lower	1009, 0.191, WNW
W197	QUALITY GENERAL REPA	4365 THIRD AVENUE	NY AST	Higher	1012, 0.192, NE
AD198	GASETERIA 175TH & TH	4115 THIRD AVENUE	NY UST	Lower	1039, 0.197, South
AD199	TEXACO/4115 3RD AVEN	4115 3RD AVENUE	NY LTANKS, NY Spills	Lower	1039, 0.197, South
AB200	THE SALVATION ARMY	4133 PARK AVE	NY AST	Lower	1050, 0.199, WSW
AB201	THE SALVATION ARMY	4133 PARK AVE	NY UST	Lower	1050, 0.199, WSW
AE202	2032 JOCHI AUTO REPA	2032 WEBSTER AVENUE	NY AST	Lower	1060, 0.201, NNW
AC203	1877 WEBSTER REALTY	1877 WEBSTER AVENUE	NY AST	Lower	1066, 0.202, West
AC204	CON EDISON	1877 WEBSTER AV	NY MANIFEST	Lower	1066, 0.202, West
AC205	SUNOCO SERVICE STATI	1860 WEBSTER AVE & 1	RCRA NonGen / NLR, FINDS, ECHO	Lower	1076, 0.204, WSW
Z206	2068-72-78 BATHGATE	2078 BATHGATE AVENUE	NY AST	Higher	1082, 0.205, NNE
AE207	CON EDISON	2021 WEBSTER AVE	NY MANIFEST	Lower	1091, 0.207, NNW
AE208	FELIX AUTO REPAIRS	2040 WEBSTER AVENUE	NY AST	Lower	1095, 0.207, NNW
X209	BELL ATLANTIC-NY	2033 VALENTINE AVE	RCRA NonGen / NLR, NY MANIFEST	Lower	1104, 0.209, WNW
AF210	NYC DEPT OF EDUCATIO	499 E 175TH ST	NY MANIFEST	Lower	1115, 0.211, SSW
AF211	NYC DEPT OF EDUCATIO	499 E 175TH ST	RCRA-SQG	Lower	1115, 0.211, SSW
AB212	CON EDISON - MANHOLE	PARK AVE	RCRA-LQG	Lower	1126, 0.213, SW
AB213	CON EDISON	4110 PARK AVE FRONT	NY MANIFEST	Lower	1126, 0.213, SW
AE214	2031 WEBSTER AVENUE	2031 WEBSTER AVE	NY AST	Lower	1130, 0.214, NNW
X215	CON EDISON	1984 VALENTINE AV	NY MANIFEST	Lower	1137, 0.215, NW
AA216	600 EAST 178TH ST LL	600 EAST 178TH STREE	NY AST	Higher	1138, 0.216, ESE
217	CON EDISON - MH 85	F.O 4360 PARK AVE	RCRA NonGen / NLR	Lower	1141, 0.216, North
Z218	CON EDISON SERVICE B	2090 BATHGATE AVE FR	RCRA NonGen / NLR, NY MANIFEST	Higher	1141, 0.216, NNE
AG219	BELLE APTS HDFC	601 E 178TH ST	NY AST	Higher	1149, 0.218, East
X220	TWIN PARKS SOUTHWEST	2000 VALENTINE AVENU	NY AST	Lower	1152, 0.218, NW
X221	CON EDISON MANHOLE:	2000 VALENTINE AVE F	RCRA NonGen / NLR, NY MANIFEST	Lower	1152, 0.218, NW
AC222	CON EDISON - MANHOLE	1842 WASHINGTON AVE	RCRA NonGen / NLR, NY MANIFEST	Lower	1154, 0.219, WSW
AF223	CONSOLIDATED EDISON	EAST 175TH & WASHING	NY MANIFEST	Lower	1163, 0.220, SSW
AF224	NYSDOT - CONTRACT D2	WASHINGTON AVE & E 1	RCRA NonGen / NLR	Lower	1163, 0.220, SSW
AF225	CON EDISON - GAS MAI	WASHINGTON AVE & E 1	RCRA-LQG, NJ MANIFEST, NY MANIFEST	Lower	1163, 0.220, SSW
AF226	CONSOLIDATED EDISON	WASHINGTON & 175TH S	NY MANIFEST	Lower	1163, 0.220, SSW
AF227	CON ED - V 2443	WASHINGTON AVE & E 1	RCRA NonGen / NLR, NY MANIFEST	Lower	1163, 0.220, SSW
AF228	CON EDISON MANHOLE 5	BATHGATE AVE & E 175	RCRA NonGen / NLR, NJ MANIFEST, NY MANIFEST	Lower	1164, 0.220, SSW
AE229	2037 WEBSTER AVENUE	2037 WEBSTER AVENUE	NY LTANKS, NY AST, NY Spills	Lower	1168, 0.221, NNW
AE230	CON EDISON	2043 WEBSTER AVE	NJ MANIFEST	Lower	1199, 0.227, NNW
AE231	CON EDISON	2043 WEBSTER AVE	NJ MANIFEST	Lower	1199, 0.227, NNW
AE232	CON ED	2043 WEBSTER AVE	NY MANIFEST	Lower	1199, 0.227, NNW
AE233	CON EDISON	2043 WEBSTER AVE	RCRA NonGen / NLR	Lower	1199, 0.227, NNW
AE234	CON EDISON	2043 WEBSTER AVE	RCRA NonGen / NLR	Lower	1199, 0.227, NNW

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AH235	NEW YORK AUTOMOTIVE	1828 WEBSTER AVE	RCRA NonGen / NLR, FINDS, ECHO, NY MANIFEST	Lower	1205, 0.228, WSW
AI236	CON EDISON	180TH ST & 3RD AVE	RCRA NonGen / NLR	Higher	1215, 0.230, NE
AI237	CON EDISON	180TH ST & 3RD AVE	NJ MANIFEST	Higher	1215, 0.230, NE
AI238	CON EDISON MANHOLE 2	3RD AVE & E 180 ST	RCRA NonGen / NLR	Higher	1215, 0.230, NE
AI239	CON EDISON	180TH ST & 3RD AVE	NY MANIFEST	Higher	1215, 0.230, NE
AG240	TRI-BEL, LP	611 EAST 178TH STREE	NY AST	Higher	1222, 0.231, ESE
AB241	CON EDISON TRANSFORM	E 175TH ST & PARK AV	RCRA NonGen / NLR, FINDS	Lower	1227, 0.232, SW
AB242	CONSOLIDATED EDISON	PARK AVENUE & EAST 1	NY MANIFEST	Lower	1229, 0.233, SW
AC243	SHELL SERVICE STATIO	1845 WEBSTER AVENUE	NY UST	Lower	1229, 0.233, WSW
AC244	SHELL OIL-NELSON'S A	1845 WEBSTER AVE	NY LTANKS, NY Spills, RCRA NonGen / NLR, US AIRS,...	Lower	1229, 0.233, WSW
AH245	THE SALVATION ARMY	4109 PARK AVE	NY AST	Lower	1231, 0.233, SW
AJ246	PREMIUM AUTO REPAIR	1805 WASHINGTON AVEN	NY AST	Lower	1238, 0.234, SSW
AJ247	CLOSED GAS STATION	1805 WASHINGTON AVE	NY LTANKS	Lower	1238, 0.234, SSW
AJ248	PREMIUM AUTO REPAIR	1805 WASHINGTON AVEN	NY UST	Lower	1238, 0.234, SSW
AJ249	CON EDISON	452 E 175TH ST	RCRA NonGen / NLR, FINDS, ECHO	Lower	1241, 0.235, SW
AJ250	CON EDISON	452 E 175TH ST	NY MANIFEST	Lower	1241, 0.235, SW
AJ251	CON EDISON	452 E 175TH ST	NJ MANIFEST	Lower	1241, 0.235, SW
AK252	CON EDISON	1932 ARTHUR AVE	RCRA NonGen / NLR, FINDS, ECHO	Higher	1242, 0.235, ESE
AK253	BRONX BERGEN BUILDIN	1932 ARTHUR AVENUE	NY AST	Higher	1242, 0.235, ESE
AK254	CON EDISON	1932 ARTHUR AVE	NY MANIFEST	Higher	1242, 0.235, ESE
AK255	NYCDEP - ABAX INC	1932 ARTHUR AVE 6TH	RCRA NonGen / NLR, FINDS, ECHO, NY MANIFEST	Higher	1242, 0.235, ESE
AK256	CON EDISON	1932 ARTHUR AVE	RCRA NonGen / NLR	Higher	1242, 0.235, ESE
AK257	CON EDISON	1932 ARTHUR AVE	NJ MANIFEST	Higher	1242, 0.235, ESE
AK258	CON EDISON	1932 ARTHUR AVE	NJ MANIFEST	Higher	1242, 0.235, ESE
AK259	CON EDISON	1932 ARTHUR AVE	NY MANIFEST	Higher	1242, 0.235, ESE
AG260	615 EAST 178TH STREE	615 EAST 178 STREET	NY AST	Higher	1253, 0.237, ESE
AL261	PEPSI BOTTLING COMPA	2044-2084 WEBSTER AV	NY AST	Lower	1258, 0.238, NNW
AK262	VIP COMMUNITY SERVIC	1910 ARTHUR AVE	NY AST	Higher	1263, 0.239, SE
AI263	CON EDISON	505 E 180TH ST	RCRA NonGen / NLR, FINDS, ECHO	Higher	1269, 0.240, NNE
AI264	CON EDISON	505 E 180TH ST	NY MANIFEST	Higher	1269, 0.240, NNE
AI265	CON EDISON	505 E 180TH ST	NJ MANIFEST	Higher	1269, 0.240, NNE
AG266	620 EAST 178 LLC	620 EAST 178TH STREE	NY AST	Higher	1273, 0.241, ESE
AJ267	CON EDISON	442 E 175TH ST FRONT	NJ MANIFEST	Lower	1277, 0.242, SW
AJ268	CON EDISON	442 E 175TH ST FRONT	RCRA NonGen / NLR, FINDS, ECHO	Lower	1277, 0.242, SW
AJ269	CON EDISON	442 E 175TH ST FRONT	NY MANIFEST	Lower	1277, 0.242, SW
AK270	CON EDISON	613 E TREMONT AVE	NJ MANIFEST	Higher	1282, 0.243, ESE
AK271	CON EDISON	613 E TREMONT AVE	RCRA NonGen / NLR, FINDS, ECHO	Higher	1282, 0.243, ESE
AK272	CON EDISON	613 E TREMONT AVE	NY MANIFEST	Higher	1282, 0.243, ESE
AL273	PEPSI COLA BOTTLING	2050 WEBSTER AVENUE	NY UST	Lower	1283, 0.243, NNW

MAPPED SITES SUMMARY

Target Property Address:
1940 WASHINGTON AVENUE
BRONX, NY 10457

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
AK274	BSP ARTHUR 1 LLC / 2	1892 ARTHUR AVENUE	NY AST	Higher	1285, 0.243, SE
AM275	CON EDISON - MANHOLE	EAST 180TH STREET &	RCRA-LQG, NJ MANIFEST, NY MANIFEST	Higher	1287, 0.244, NNE
AE276	CARIDAD DEL COBRE	2051 WEBSTER AVE	RCRA NonGen / NLR, FINDS, ECHO, NY MANIFEST	Lower	1287, 0.244, NNW
AE277	ASHER 26 MGMT LLC	2051 WEBSTER AVENUE	NY AST	Lower	1287, 0.244, NNW
AE278	CON EDISON SERVICE B	2051 WEBSTER AVE	RCRA NonGen / NLR, NY MANIFEST	Lower	1287, 0.244, NNW
AE279	APARTMENT BUILDING	2051 WEBSTER AVE	NY LTANKS, NY Spills	Lower	1287, 0.244, NNW
AE280	NEW CARIDAD DEL COBR	2051 WEBSTER AVENUE	NY DRYCLEANERS	Lower	1287, 0.244, NNW
AH281	CE - E. 175TH ST. ST	1815 - 1845 WEBSTER	NY VCP	Lower	1287, 0.244, WSW
AL282	CON EDISON SERVICE B	2061 WEBSTER AVE	RCRA NonGen / NLR, NY MANIFEST	Lower	1304, 0.247, NNW
283	CON EDISON	1884 ARTHUR AVE	NY AST, NY MANIFEST	Higher	1307, 0.248, SE
284	2028 VALENTINE AVE R	2028 VALENTINE AVENU	NY AST	Lower	1308, 0.248, NNW
AM285	CON EDISION - MH2600	489 E. 180TH STREET	RCRA NonGen / NLR	Higher	1313, 0.249, NNE
AM286	CONSOLIDATED EDISON	489 E. 180TH STREET	NY MANIFEST	Higher	1313, 0.249, NNE
AM287	GLOBAL MONTELLO GROU	495 EAST 180TH STREE	NY UST	Higher	1317, 0.249, NNE
AM288	GETTY # 275	495 E 180TH ST	RCRA NonGen / NLR, FINDS, ECHO, NY MANIFEST	Higher	1317, 0.249, NNE
AM289	LIRA SERVICE CENTER	495 EAST 180TH STREE	NY AST	Higher	1317, 0.249, NNE
AM290	485 EAST 180 STREET	485 EAST 180TH STREE	NY AST	Higher	1319, 0.250, NNE
291	CON EDISON SERVICE B	1859 CARTER AVE	RCRA NonGen / NLR, NY MANIFEST	Lower	1320, 0.250, West
292	4386 PARK AVE	4386 PARK AVE	NY LTANKS	Lower	1403, 0.266, North
293	CLOSED-LACKOF RECENT	1826 ARTHUR AV	NY LTANKS	Higher	1404, 0.266, SSE
294	E. 180-MONTEREY -NYC	2111 LA FONTAINE	NY LTANKS	Higher	1427, 0.270, ENE
AH295	CON EDISON - EAST 17	1815 - 1845 WEBSTER	EDR MGP	Lower	1463, 0.277, WSW
296	R2B2	1809 CARTER STREET	NY AST, NY SWRCY	Lower	1516, 0.287, WSW
297	FDNY 46	450 CROSS BRONX EXPR	NY LTANKS	Lower	1538, 0.291, SW
AN298	SPILL NUMBER 9905740	1966 ANTHONY AVE	NY LTANKS	Higher	1704, 0.323, NW
299	MULTI DWELING BLDG	1904 CROTONA AVE	NY LTANKS	Higher	1812, 0.343, SE
300	2096 VALENTINE AVE	2096 VALENTINE AVE	NY LTANKS	Lower	1837, 0.348, NNW
AO301	NYS DEP	2136 WEBSTER AVE	NY LTANKS, NY Spills	Lower	1854, 0.351, North
302	MURPHY HOUSES -NYCHA	1805 CROTONA AVE	NY LTANKS, NY Spills	Higher	1902, 0.360, SSE
AN303	JONAS BRONCK APARTME	230 EAST 179TH ST	NY LTANKS, NY UST	Higher	1905, 0.361, WNW
AO304	APT BUILDING	333 E 181ST ST	NY LTANKS	Higher	1957, 0.371, North
305	SPILL NUMBER 0403100	1724 WEBSTER AVE	NY LTANKS, NY Spills	Lower	1971, 0.373, SW
306	4422 THIRD AVE/BX/ST	4422 THIRD AVENUE	NY LTANKS	Higher	1993, 0.377, NE
307	ST THOMAS LUTHERAN C	222 E 178TH ST	NY LTANKS	Higher	2005, 0.380, WNW
308	700 OAKLAND PL	700 OAKLAND PL	NY LTANKS	Higher	2040, 0.386, East
AP309	CLOSED-LACKOF RECENT	230 EAST 179TH ST	NY LTANKS	Higher	2100, 0.398, WNW
310	SEMI UNDERGROUND TAN	2055 ANTHONY AVE	NY LTANKS	Higher	2127, 0.403, NW
AP311	ROYAL TERRACE ASSOCI	2020 GRAND CONCOURSE	NY LTANKS, NY UST, NY Spills	Higher	2155, 0.408, NW
312	SPILL NUMBER 0212638	2108 RYER AVE	NY LTANKS	Higher	2158, 0.409, NNW

MAPPED SITES SUMMARY

Target Property Address:
1940 WASHINGTON AVENUE
BRONX, NY 10457

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MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
AQ313	1916 GRAND CONCOURSE	1916 GRAND CONCOURSE	NY LTANKS, NY AST	Higher	2232, 0.423, WNW
AQ314	DEEGAN ENTERPRISES I	1930 GRAND CONCOURSE	NY SWF/LF, NY LTANKS	Higher	2238, 0.424, WNW
315	217 E. 176TH ST	217 E. 176TH ST	NY LTANKS	Higher	2241, 0.424, West
316	LSL SERVICE INC APTS	2162 VALENTINE AVE	NY LTANKS	Higher	2252, 0.427, NNW
317	2100 ANTHONY AVENUE	2100 ANTHONY AVE	NY LTANKS	Higher	2314, 0.438, NNW
318	CON EDISON	1688 WEBSTER AVE FRO	NY LTANKS, NY MANIFEST	Lower	2366, 0.448, SW
319	RESIDENCE	716 EAST 181ST ST	NY LTANKS	Higher	2467, 0.467, East
320	SPILL NUMBER 0313265	182ND ST/ HUGHES AVE	NY LTANKS	Higher	2476, 0.469, ENE
321	PROSPECT CLEANERS	1976 PROSPECT AVE	RCRA-SQG, NY LTANKS, ICIS, US AIRS, NY...	Higher	2495, 0.473, ESE
322	SPILL NUMBER 0204378	2065 GRAND CONCOURSE	NY LTANKS	Higher	2503, 0.474, NW
323	SPILL NUMBER 9804267	2095 GRAND CONCOURSE	NY LTANKS	Higher	2588, 0.490, NW
324	EAST 182 ST & BELMON	BELMONT AVE & E 182	NY LTANKS	Higher	2621, 0.496, ENE
325	KLEENER KING	1610 BATHGATE AVENUE	NY SHWS, NY DRYCLEANERS	Lower	2855, 0.541, SSW

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ---------- National Priority List Deletions

Federal CERCLIS list

FEDERAL FACILITY ---------- Federal Facility Site Information listing
SEMS ---------- Superfund Enterprise Management System

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE ---------- Superfund Enterprise Management System Archive

Federal RCRA CORRACTS facilities list

CORRACTS ---------- Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-CESQG ---------- RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

LUCIS ---------- Land Use Control Information System
US ENG CONTROLS ---------- Engineering Controls Sites List
US INST CONTROL ---------- Sites with Institutional Controls

Federal ERNS list

ERNS ---------- Emergency Response Notification System

EXECUTIVE SUMMARY

State and tribal leaking storage tank lists

INDIAN LUST - Leaking Underground Storage Tanks on Indian Land
NY HIST LTANKS - Listing of Leaking Storage Tanks

State and tribal registered storage tank lists

FEMA UST - Underground Storage Tank Listing
NY CBS UST - Chemical Bulk Storage Database
NY MOSF UST - Major Oil Storage Facilities Database
NY MOSF - Major Oil Storage Facility Site Listing
NY CBS - Chemical Bulk Storage Site Listing
NY CBS AST - Chemical Bulk Storage Database
NY MOSF AST - Major Oil Storage Facilities Database
INDIAN UST - Underground Storage Tanks on Indian Land
NY TANKS - Storage Tank Faciliy Listing

State and tribal voluntary cleanup sites

INDIAN VCP - Voluntary Cleanup Priority Listing

State and tribal Brownfields sites

NY ERP - Environmental Restoration Program Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS - A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

NY SWTIRE - Registered Waste Tire Storage & Facility List
INDIAN ODI - Report on the Status of Open Dumps on Indian Lands
DEBRIS REGION 9 - Torres Martinez Reservation Illegal Dump Site Locations
ODI - Open Dump Inventory
IHS OPEN DUMPS - Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL - Delisted National Clandestine Laboratory Register
NY DEL SHWS - Delisted Registry Sites
US CDL - National Clandestine Laboratory Register
NY PFAS - PFAS Contamination Site Location Listing

Local Lists of Registered Storage Tanks

NY HIST UST - Historical Petroleum Bulk Storage Database
NY HIST AST - Historical Petroleum Bulk Storage Database

Local Land Records

NY LIENS - Spill Liens Information

LIENS 2 ---------- CERCLA Lien Information

Records of Emergency Release Reports

HMIRS ---------- Hazardous Materials Information Reporting System
NY Hist Spills ---------- SPILLS Database
NY SPILLS 90 ---------- SPILLS 90 data from FirstSearch
NY SPILLS 80 ---------- SPILLS 80 data from FirstSearch

Other Ascertainable Records

FUDS ---------- Formerly Used Defense Sites
DOD ---------- Department of Defense Sites
SCRD DRYCLEANERS ---------- State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR ---------- Financial Assurance Information
EPA WATCH LIST ---------- EPA WATCH LIST
2020 COR ACTION ---------- 2020 Corrective Action Program List
TSCA ---------- Toxic Substances Control Act
TRIS ---------- Toxic Chemical Release Inventory System
SSTS ---------- Section 7 Tracking Systems
ROD ---------- Records Of Decision
RMP ---------- Risk Management Plans
RAATS ---------- RCRA Administrative Action Tracking System
PRP ---------- Potentially Responsible Parties
PADS ---------- PCB Activity Database System
FTTS ---------- FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS ---------- Material Licensing Tracking System
COAL ASH DOE ---------- Steam-Electric Plant Operation Data
COAL ASH EPA ---------- Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER ---------- PCB Transformer Registration Database
RADINFO ---------- Radiation Information Database
HIST FTTS ---------- FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS ---------- Incident and Accident Data
CONSENT ---------- Superfund (CERCLA) Consent Decrees
INDIAN RESERV ---------- Indian Reservations
FUSRAP ---------- Formerly Utilized Sites Remedial Action Program
UMTRA ---------- Uranium Mill Tailings Sites
LEAD SMELTERS ---------- Lead Smelter Sites
US MINES ---------- Mines Master Index File
ABANDONED MINES ---------- Abandoned Mines
DOCKET HWC ---------- Hazardous Waste Compliance Docket Listing
UXO ---------- Unexploded Ordnance Sites
FUELS PROGRAM ---------- EPA Fuels Program Registered Listing
NY AIRS ---------- Air Emissions Data
NY COAL ASH ---------- Coal Ash Disposal Site Listing
NY Financial Assurance ---------- Financial Assurance Information Listing
NY HSWDS ---------- Hazardous Substance Waste Disposal Site Inventory
NY VAPOR REOPENED ---------- Vapor Intrusion Legacy Site List
NY UIC ---------- Underground Injection Control Wells
NY COOLING TOWERS ---------- Registered Cooling Towers

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

NY RGA HWS ---------- Recovered Government Archive State Hazardous Waste Facilities List

EXECUTIVE SUMMARY

NY RGA LF..... Recovered Government Archive Solid Waste Facilities List

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Federal RCRA generators list

RCRA-LQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

A review of the RCRA-LQG list, as provided by EDR, and dated 03/25/2019 has revealed that there are 5 RCRA-LQG sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CON EDISON - E 179TH EPA ID:: NYR000007138	***4340 3RD AVE***	***NE 1/8 - 1/4 (0.160 mi.)***	***W167***	***306***
CON EDISON - MANHOLE EPA ID:: NYP004153169	***EAST 180TH STREET &***	***NNE 1/8 - 1/4 (0.244 mi.)***	***AM275***	***555***

Lower Elevation	Address	Direction / Distance	Map ID	Page
1888 BATHGATE AVENUE EPA ID:: NYR000233510	4181 3RD AVE	S 0 - 1/8 (0.095 mi.)	J81	130
CON EDISON - MANHOLE EPA ID:: NYP004726568	PARK AVE	SW 1/8 - 1/4 (0.213 mi.)	AB212	413
CON EDISON - GAS MAI EPA ID:: NYP004172730	***WASHINGTON AVE & E 1***	***SSW 1/8 - 1/4 (0.220 mi.)***	***AF225***	***438***

RCRA-SQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

A review of the RCRA-SQG list, as provided by EDR, and dated 03/25/2019 has revealed that there are 3 RCRA-SQG sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
NYC DEPT OF EDUCATIO EPA ID:: NYR000223461	***560 E 179TH ST***	***ENE 1/8 - 1/4 (0.155 mi.)***	***P154***	***281***

Lower Elevation	Address	Direction / Distance	Map ID	Page
NYC BD OF ED - PUBLI EPA ID:: NYR000009381	***459 E 176TH ST & WAS***	***SSW 1/8 - 1/4 (0.129 mi.)***	***Q131***	***208***
NYC DEPT OF EDUCATIO EPA ID:: NYR000213710	499 E 175TH ST	SSW 1/8 - 1/4 (0.211 mi.)	AF211	412

State- and tribal - equivalent CERCLIS

NY SHWS: The State Hazardous Waste Sites records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. The data come from the Department of Environmental Conservation's Inactive Hazardous waste Disposal Sites in New York State.

A review of the NY SHWS list, as provided by EDR, and dated 11/12/2018 has revealed that there is 1 NY SHWS site within approximately 1 mile of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
KLEENER KING Site Code: 434792	***1610 BATHGATE AVENUE***	***SSW 1/2 - 1 (0.541 mi.)***	***325***	***692***

State and tribal landfill and/or solid waste disposal site lists

NY SWF/LF: The Solid Waste Facilities/Landfill Sites records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. The data come from the list.

A review of the NY SWF/LF list, as provided by EDR, and dated 12/31/2018 has revealed that there are 2 NY SWF/LF sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
DEEGAN ENTERPRISES I	***1930 GRAND CONCOURSE***	***WNW 1/4 - 1/2 (0.424 mi.)***	***AQ314***	***669***

Lower Elevation	Address	Direction / Distance	Map ID	Page
R. AMPARO SALVAGE CO	***1851 WASHINGTON AVE***	***SW 1/8 - 1/4 (0.145 mi.)***	***Q146***	***265***

State and tribal leaking storage tank lists

NY LTANKS: Leaking Storage Tank Incident Reports. These records contain an inventory of reported leaking storage tank incidents reported from 4/1/86 through the most recent update. They can be either leaking underground storage tanks or leaking aboveground storage tanks. The causes of the incidents are tank test failures, tank failures or tank overfills

A review of the NY LTANKS list, as provided by EDR, and dated 11/12/2018 has revealed that there are 38 NY LTANKS sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
1925 MONTEREY AVE	***1925 MONTEREY AVE***	***ESE 0 - 1/8 (0.088 mi.)***	***H70***	***109***
Site ID: 92984				
Spill Number/Closed Date: 9204620 / 1992-07-22				
EAST 179TH ST SUB ST	4340 3RD AVE	NE 1/8 - 1/4 (0.160 mi.)	W164	302
Site ID: 160608				
Spill Number/Closed Date: 9703734 / 2002-05-29				
CLOSED-LACKOF RECENT	1826 ARTHUR AV	SSE 1/4 - 1/2 (0.266 mi.)	293	606
Site ID: 111211				
Spill Number/Closed Date: 8805780 / 2003-03-05				
E. 180-MONTEREY -NYC	2111 LA FONTAINE	ENE 1/4 - 1/2 (0.270 mi.)	294	608
Site ID: 161781				
Spill Number/Closed Date: 9807883 / 2017-02-07				
SPILL NUMBER 9905740	1966 ANTHONY AVE	NW 1/4 - 1/2 (0.323 mi.)	AN298	614
Site ID: 147864				
Spill Number/Closed Date: 9905740 / 2003-02-19				
MULTI DWELING BLDG	1904 CROTONA AVE	SE 1/4 - 1/2 (0.343 mi.)	299	615
Site ID: 121846				
Spill Number/Closed Date: 9512020 / 2003-10-27				
MURPHY HOUSES -NYCHA	***1805 CROTONA AVE***	***SSE 1/4 - 1/2 (0.360 mi.)***	***302***	***621***
Site ID: 167963				
Site ID: 250521				
Site ID: 143713				
Site ID: 143714				
Spill Number/Closed Date: 9600613 / 1996-04-25				
Spill Number/Closed Date: 0001287 / 2006-04-12				
Spill Number/Closed Date: 9006683 / 1995-04-26				
Spill Number/Closed Date: 9402159 / 2004-04-06				
JONAS BRONCK APARTME	***230 EAST 179TH ST***	***WNW 1/4 - 1/2 (0.361 mi.)***	***AN303***	***632***
Site ID: 316678				
Spill Number/Closed Date: 9800639 / 2005-07-22				
APT BUILDING	333 E 181ST ST	N 1/4 - 1/2 (0.371 mi.)	AO304	635
Site ID: 325197				
Spill Number/Closed Date: 0111048 / 2010-11-15				
4422 THIRD AVE/BX/ST	4422 THIRD AVENUE	NE 1/4 - 1/2 (0.377 mi.)	306	651
Site ID: 155167				
Spill Number/Closed Date: 9009146 / 1991-01-03				
ST THOMAS LUTHERAN C	222 E 178TH ST	WNW 1/4 - 1/2 (0.380 mi.)	307	652
Site ID: 300252				
Spill Number/Closed Date: 0103200 / 2005-07-12				
700 OAKLAND PL	700 OAKLAND PL	E 1/4 - 1/2 (0.386 mi.)	308	654

Site ID: 181115
Site ID: 392783
Spill Number/Closed Date: 0304733 / 2006-01-06
Spill Number/Closed Date: 0711322 / 2008-11-05

CLOSED-LACKOF RECENT	230 EAST 179TH ST	WNW 1/4 - 1/2 (0.398 mi.)	AP309	657
Site ID: 117138 Site ID: 117139 Spill Number/Closed Date: 8708460 / 2003-02-18 Spill Number/Closed Date: 8708931 / 2003-03-13				
SEMI UNDERGROUND TAN	2055 ANTHONY AVE	NW 1/4 - 1/2 (0.403 mi.)	310	659
Site ID: 450619 Spill Number/Closed Date: 1103070 / 2015-10-23				
ROYAL TERRACE ASSOCI	***2020 GRAND CONCOURSE***	***NW 1/4 - 1/2 (0.408 mi.)***	***AP311***	***660***
Site ID: 424773 Spill Number/Closed Date: 0911919 / 2010-05-05				
SPILL NUMBER 0212638	2108 RYER AVE	NNW 1/4 - 1/2 (0.409 mi.)	312	664
Site ID: 247930 Spill Number/Closed Date: 0212638 / 2003-03-24				
1916 GRAND CONCOURSE	***1916 GRAND CONCOURSE***	***WNW 1/4 - 1/2 (0.423 mi.)***	***AQ313***	***666***
Site ID: 312355 Spill Number/Closed Date: 8910174 / 2003-02-12				
DEEGAN ENTERPRISES I	***1930 GRAND CONCOURSE***	***WNW 1/4 - 1/2 (0.424 mi.)***	***AQ314***	***669***
Site ID: 214320 Spill Number/Closed Date: 0200210 / 2004-03-23				
217 E. 176TH ST	217 E. 176TH ST	W 1/4 - 1/2 (0.424 mi.)	315	670
Site ID: 290424 Spill Number/Closed Date: 9503959 / 1995-07-15				
LSL SERVICE INC APTS	2162 VALENTINE AVE	NNW 1/4 - 1/2 (0.427 mi.)	316	671
Site ID: 104445 Spill Number/Closed Date: 9507840 / 1995-09-26				
2100 ANTHONY AVENUE	2100 ANTHONY AVE	NNW 1/4 - 1/2 (0.438 mi.)	317	672
Site ID: 285570 Spill Number/Closed Date: 0004591 / 2003-12-15				
RESIDENCE	716 EAST 181ST ST	E 1/4 - 1/2 (0.467 mi.)	319	676
Site ID: 205484 Spill Number/Closed Date: 9600962 / 1996-04-19				
SPILL NUMBER 0313265	182ND ST/ HUGHES AVE	ENE 1/4 - 1/2 (0.469 mi.)	320	677
Site ID: 165162 Spill Number/Closed Date: 0313265 / 2004-03-04				
PROSPECT CLEANERS	***1976 PROSPECT AVE***	***ESE 1/4 - 1/2 (0.473 mi.)***	***321***	***678***
Site ID: 231696 Spill Number/Closed Date: 0312947 / 2004-03-08				
SPILL NUMBER 0204378	2065 GRAND CONCOURSE	NW 1/4 - 1/2 (0.474 mi.)	322	688
Site ID: 253235 Spill Number/Closed Date: 0204378 / 2004-08-17				
SPILL NUMBER 9804267	2095 GRAND CONCOURSE	NW 1/4 - 1/2 (0.490 mi.)	323	689
Site ID: 267486 Site ID: 267487 Spill Number/Closed Date: 9311552 / 1993-12-27 Spill Number/Closed Date: 9804267 / 1998-07-06				
EAST 182 ST & BELMON	BELMONT AVE & E 182	ENE 1/4 - 1/2 (0.496 mi.)	324	691

Site ID: 257045
Spill Number/Closed Date: 8801373 / 1993-02-23

Lower Elevation	Address	Direction / Distance	Map ID	Page
TEXACO/4115 3RD AVEN	***4115 3RD AVENUE***	***S 1/8 - 1/4 (0.197 mi.)***	***AD199***	***385***
Site ID: 278911				
Site ID: 114291				
Spill Number/Closed Date: 8801134 / 1989-02-04				
Spill Number/Closed Date: 8803618 / 1989-02-04				
2037 WEBSTER AVENUE	***2037 WEBSTER AVENUE***	***NNW 1/8 - 1/4 (0.221 mi.)***	***AE229***	***449***
Site ID: 98872				
Spill Number/Closed Date: 9415175 / 1995-09-13				
SHELL OIL-NELSON'S A	***1845 WEBSTER AVE***	***WSW 1/8 - 1/4 (0.233 mi.)***	***AC244***	***487***
Site ID: 204336				
Spill Number/Closed Date: 9411243 / 1998-09-02				
CLOSED GAS STATION	1805 WASHINGTON AVE	SSW 1/8 - 1/4 (0.234 mi.)	AJ247	500
Site ID: 229993				
Spill Number/Closed Date: 9808700 / 2003-03-03				
APARTMENT BUILDING	***2051 WEBSTER AVE***	***NNW 1/8 - 1/4 (0.244 mi.)***	***AE279***	***567***
Site ID: 401550				
Spill Number/Closed Date: 0804609 / 2008-07-23				
4386 PARK AVE	4386 PARK AVE	N 1/4 - 1/2 (0.266 mi.)	292	605
Site ID: 168919				
Spill Number/Closed Date: 9713748 / 2003-02-25				
FDNY 46	450 CROSS BRONX EXPR	SW 1/4 - 1/2 (0.291 mi.)	297	612
Site ID: 533707				
Spill Number/Closed Date: 1607055 / 2016-12-09				
2096 VALENTINE AVE	2096 VALENTINE AVE	NNW 1/4 - 1/2 (0.348 mi.)	300	616
Site ID: 239395				
Spill Number/Closed Date: 9613764 / 1997-02-24				
NYS DEP	***2136 WEBSTER AVE***	***N 1/4 - 1/2 (0.351 mi.)***	***AO301***	***617***
Site ID: 254573				
Spill Number/Closed Date: 9515934 / 2003-10-31				
SPILL NUMBER 0403100	***1724 WEBSTER AVE***	***SW 1/4 - 1/2 (0.373 mi.)***	***305***	***637***
Site ID: 313219				
Spill Number/Closed Date: 0403100 / 2004-06-22				
CON EDISON	***1688 WEBSTER AVE FRO***	***SW 1/4 - 1/2 (0.448 mi.)***	***318***	***673***
Site ID: 164209				
Spill Number/Closed Date: 9111496 / 1995-03-30				

State and tribal registered storage tank lists

NY UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the Department of Environmental Conservation's Petroleum Bulk Storage (PBS) Database

A review of the NY UST list, as provided by EDR, has revealed that there are 16 NY UST sites within

approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MONTEREY GARDENS ASS Database: UST, Date of Government Version: 02/11/2019	555 EAST 178TH STREE	E 0 - 1/8 (0.124 mi.)	M128	201
EAST 179TH ST. CENTR Database: UST, Date of Government Version: 02/11/2019	4340 3RD AVENUE	NE 1/8 - 1/4 (0.160 mi.)	W170	314
I.S. 118 - BRONX X11 Database: UST, Date of Government Version: 02/11/2019	***577 EAST 179TH STREE***	***ENE 1/8 - 1/4 (0.186 mi.)***	***Y189***	***353***
GLOBAL MONTELLO GROU Database: UST, Date of Government Version: 02/11/2019	495 EAST 180TH STREE	NNE 1/8 - 1/4 (0.249 mi.)	AM287	582

Lower Elevation	Address	Direction / Distance	Map ID	Page
1888 BATHGATE AVENUE Database: UST, Date of Government Version: 02/11/2019	4181 THIRD AVENUE	S 0 - 1/8 (0.095 mi.)	J77	119
4275 PARK AVENUE Database: UST, Date of Government Version: 02/11/2019	4275 PARK AVENUE	NW 0 - 1/8 (0.110 mi.)	O102	162
507 EAST 176 STREET Database: UST, Date of Government Version: 02/11/2019	507 EAST 176 STREET	S 0 - 1/8 (0.121 mi.)	J124	193
1940 WEBSTER AVENUE Database: UST, Date of Government Version: 02/11/2019	1940 WEBSTER AVE	WNW 1/8 - 1/4 (0.149 mi.)	U150	273
EAGLE ACADEMY FOR YO Database: UST, Date of Government Version: 02/11/2019	4143 THIRD AVENUE	S 1/8 - 1/4 (0.150 mi.)	T153	279
TREMONT RENAISSANCE Database: UST, Date of Government Version: 02/11/2019	1910-1916 WEBSTER AV	W 1/8 - 1/4 (0.157 mi.)	V158	289
BP WEBSTER Database: UST, Date of Government Version: 02/11/2019	1862 WEBSTER AVENUE	WSW 1/8 - 1/4 (0.190 mi.)	AC195	365
GASETERIA 175TH & TH Database: UST, Date of Government Version: 02/11/2019	4115 THIRD AVENUE	S 1/8 - 1/4 (0.197 mi.)	AD198	381
THE SALVATION ARMY Database: UST, Date of Government Version: 02/11/2019	4133 PARK AVE	WSW 1/8 - 1/4 (0.199 mi.)	AB201	393
SHELL SERVICE STATIO Database: UST, Date of Government Version: 02/11/2019	1845 WEBSTER AVENUE	WSW 1/8 - 1/4 (0.233 mi.)	AC243	473
PREMIUM AUTO REPAIR Database: UST, Date of Government Version: 02/11/2019	1805 WASHINGTON AVEN	SSW 1/8 - 1/4 (0.234 mi.)	AJ248	501
PEPSI COLA BOTTLING Database: UST, Date of Government Version: 02/11/2019	2050 WEBSTER AVENUE	NNW 1/8 - 1/4 (0.243 mi.)	AL273	548

NY AST: The Aboveground Storage Tank database contains registered ASTs. The data come from the Department of Environmental Conservation's Petroleum Bulk Storage (PBS) Database.

A review of the NY AST list, as provided by EDR, has revealed that there are 71 NY AST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
495 EAST 178TH ST HD Database: AST, Date of Government Version: 02/11/2019	495 EAST 178 STREET	NE 0 - 1/8 (0.019 mi.)	A8	20

Facility Id: 2-321850				
ST JOSEPHS SCHOOL Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-399752	1946 BATHGATE AVENUE	ESE 0 - 1/8 (0.019 mi.)	B9	22
QUEST PROPERTY MGMT Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-064513	505 EAST 178TH STREE	ENE 0 - 1/8 (0.026 mi.)	B12	27
1975 BATHGATE AVENUE Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-457167	1975 BATHGATE AVENUE	NNE 0 - 1/8 (0.040 mi.)	C21	38
1991 BATHGATE AVENUE Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-601087	***1991 BATHGATE AVENUE***	***NNE 0 - 1/8 (0.074 mi.)***	***C55***	***88***
1993 BATHGATE AVE Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-609267	1993 BATHGATE AVENUE	NNE 0 - 1/8 (0.081 mi.)	C64	101
1925 MONTEREY AVE Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-600926	***1925 MONTEREY AVE***	***ESE 0 - 1/8 (0.088 mi.)***	***H70***	***109***
NEW LOOK COLLISON, L Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-612705	4309 3RD AVENUE	NE 0 - 1/8 (0.098 mi.)	L83	134
MONTEREY HOUSING DEV Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-152560	2005 MONTEREY AVENUE	SE 0 - 1/8 (0.100 mi.)	H84	136
MONTEREY HOUSING DEV Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-150614	2015 MONTEREY AVENUE	ENE 0 - 1/8 (0.105 mi.)	M94	152
421 TREMONT LLC Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-510467	555 EAST TREMONT AVE	SE 0 - 1/8 (0.112 mi.)	H110	174
2023 MONTEREY AVE Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-152552	2023 MONTEREY AVENUE	ENE 0 - 1/8 (0.116 mi.)	P111	176
MONTEREY REALTY PART Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-347930	2018-2020-2022 MONTE	ENE 0 - 1/8 (0.122 mi.)	M126	196
2028 WASHINGTON AVEN Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-605700	2028 WASHINGTON AVEN	NNE 1/8 - 1/4 (0.131 mi.)	133	214
1975-77 LA FONTAINE Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-269700	1975-77 LAFONTAINE A	ESE 1/8 - 1/4 (0.137 mi.)	M135	219
PUBLIC SCHOOL 211/25 Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-352306	560 EAST 179TH STREE	ENE 1/8 - 1/4 (0.155 mi.)	P155	283
TRI-BEL, LP Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-601178	2029 LA FONTAINE AVE	E 1/8 - 1/4 (0.156 mi.)	P157	287
EAST 179TH ST. CENTR Database: AST, Date of Government Version: 02/11/2019	4340 3RD AVENUE	NE 1/8 - 1/4 (0.160 mi.)	W171	315

Facility Id: 2-452696

P&P GENERAL MECHANIC | 4343 THIRD AVENUE | NE 1/8 - 1/4 (0.176 mi.) | W180 | 332
Database: AST, Date of Government Version: 02/11/2019
Facility Id: 2-612136

I.S. 118 - BRONX X11 | ***577 EAST 179TH STREE*** | ***ENE 1/8 - 1/4 (0.186 mi.)*** | ***Y189*** | ***353***
Database: AST, Date of Government Version: 02/11/2019
Facility Id: 2-352039

QUALITY GENERAL REPA | 4365 THIRD AVENUE | NE 1/8 - 1/4 (0.192 mi.) | W197 | 379
Database: AST, Date of Government Version: 02/11/2019
Facility Id: 2-612302

2068-72-78 BATHGATE | 2078 BATHGATE AVENUE | NNE 1/8 - 1/4 (0.205 mi.) | Z206 | 403
Database: AST, Date of Government Version: 02/11/2019
Facility Id: 2-467863

600 EAST 178TH ST LL | 600 EAST 178TH STREE | ESE 1/8 - 1/4 (0.216 mi.) | AA216 | 420
Database: AST, Date of Government Version: 02/11/2019
Facility Id: 2-605895

BELLE APTS HDFC | 601 E 178TH ST | E 1/8 - 1/4 (0.218 mi.) | AG219 | 426
Database: AST, Date of Government Version: 02/11/2019
Facility Id: 2-612060

TRI-BEL, LP | 611 EAST 178TH STREE | ESE 1/8 - 1/4 (0.231 mi.) | AG240 | 467
Database: AST, Date of Government Version: 02/11/2019
Facility Id: 2-468398

BRONX BERGEN BUILDIN | 1932 ARTHUR AVENUE | ESE 1/8 - 1/4 (0.235 mi.) | AK253 | 511
Database: AST, Date of Government Version: 02/11/2019
Facility Id: 2-216933

615 EAST 178TH STREE | 615 EAST 178 STREET | ESE 1/8 - 1/4 (0.237 mi.) | AG260 | 523
Database: AST, Date of Government Version: 02/11/2019
Facility Id: 2-467413

VIP COMMUNITY SERVIC | 1910 ARTHUR AVE | SE 1/8 - 1/4 (0.239 mi.) | AK262 | 528
Database: AST, Date of Government Version: 02/11/2019
Facility Id: 2-340421
Facility Id: 2-338281

620 EAST 178 LLC | 620 EAST 178TH STREE | ESE 1/8 - 1/4 (0.241 mi.) | AG266 | 538
Database: AST, Date of Government Version: 02/11/2019
Facility Id: 2-605230

BSP ARTHUR 1 LLC / 2 | 1892 ARTHUR AVENUE | SE 1/8 - 1/4 (0.243 mi.) | AK274 | 553
Database: AST, Date of Government Version: 02/11/2019
Facility Id: 2-605103

CON EDISON | ***1884 ARTHUR AVE*** | ***SE 1/8 - 1/4 (0.248 mi.)*** | ***283*** | ***574***
Database: AST, Date of Government Version: 02/11/2019
Facility Id: 2-601018

LIRA SERVICE CENTER | 495 EAST 180TH STREE | NNE 1/8 - 1/4 (0.249 mi.) | AM289 | 595
Database: AST, Date of Government Version: 02/11/2019
Facility Id: 2-612315
Facility Id: 2-152889

485 EAST 180 STREET | 485 EAST 180TH STREE | NNE 1/8 - 1/4 (0.250 mi.) | AM290 | 601
Database: AST, Date of Government Version: 02/11/2019
Facility Id: 2-605310

Lower Elevation	Address	Direction / Distance	Map ID	Page

ST JOSEPHS CHURCH | 1948 WASHINGTON AVE | 0 - 1/8 (0.000 mi.) | A1 | 8
Database: AST, Date of Government Version: 02/11/2019

Facility Id: 2-399744				
463 EAST 178TH ST. H Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-284726	463 EAST 178TH ST	NNW 0 - 1/8 (0.028 mi.)	A13	29
FELIX HUNGRIA DBA FE Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-611200	4246 PARK AVENUE	NW 0 - 1/8 (0.064 mi.)	G43	72
KASS INDUSTRIAL SUPP Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-600754	443 EAST TREMONT AVE	WSW 0 - 1/8 (0.071 mi.)	F50	79
535 E TREMONT AVE Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-286532	535 EAST TREMONT AVE	SE 0 - 1/8 (0.074 mi.)	H57	91
4196 PARK AVENUE Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-605750	4196 PARK AVENUE	WSW 0 - 1/8 (0.095 mi.)	F75	115
1888 BATHGATE AVENUE Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-612938	4181 THIRD AVENUE	S 0 - 1/8 (0.095 mi.)	J76	117
FIVE STAR REALTY, LL Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-601291	422 EAST 178TH STREE	NW 0 - 1/8 (0.106 mi.)	G97	156
4275 PARK AVENUE Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-612433	4275 PARK AVENUE	NW 0 - 1/8 (0.110 mi.)	O103	165
GARY FREDERIC LTD Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-093971	4269 PARK AVENUE	NW 0 - 1/8 (0.110 mi.)	O106	169
TREMONT LIBRARY Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-612113	1866 WASHINGTON AVE	SSW 0 - 1/8 (0.117 mi.)	Q121	188
FRIEND FOREVER AUTO Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-610761	4178 PARK AVENUE	WSW 0 - 1/8 (0.121 mi.)	K122	190
F.D.N.Y.-RESCUE CO # Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-600563	451 EAST 176TH STREE	SW 0 - 1/8 (0.122 mi.)	R127	198
BRONX APARTMENTS, LL Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-468827	4289 PARK AVENUE	NNW 0 - 1/8 (0.125 mi.)	O129	203
BRONX APARTMENTS, LL Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-363170	4293 PARK AVE	NNW 1/8 - 1/4 (0.130 mi.)	O132	212
PUBLIC SCHOOL 58 - B Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-604510	459 EAST 176TH STREE	SW 1/8 - 1/4 (0.134 mi.)	R134	216
R. AMPARO SALVAGE CO Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-609845	1851 WASHINGTON AVEN	SW 1/8 - 1/4 (0.145 mi.)	Q147	267
BRONX APARTMENTS, LL Database: AST, Date of Government Version: 02/11/2019	4305 PARK AVENUE	NNW 1/8 - 1/4 (0.148 mi.)	S149	271

Facility Id: 2-363162

1934 WEBSTER AVE. Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-605672	1934 WEBSTER AVE.	WNW 1/8 - 1/4 (0.149 mi.)	N152	277
442 EAST 176TH STREE Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-605751	442 EAST 176TH STREE	SW 1/8 - 1/4 (0.157 mi.)	R160	294
G & J TRANSMISSION & Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-610873	1840 WASHINGTON AVE	SSW 1/8 - 1/4 (0.171 mi.)	175	320
JM AUTO SOLUTION INC Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-611854	413 EAST 179TH STREE	NNW 1/8 - 1/4 (0.173 mi.)	S176	322
TWIN PARK SOUTHWEST Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-601312	1985 WEBSTER AVE	NW 1/8 - 1/4 (0.174 mi.)	X177	325
MANHOLE #11975 Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-245038 Facility Id: 2-601309	***1880 VALENTINE AVE***	***WNW 1/8 - 1/4 (0.182 mi.)***	***U184***	***340***
WEBSTER PLACE ASSOCI Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-608915	1971 WEBSTER AVENUE	NW 1/8 - 1/4 (0.188 mi.)	X190	357
BRYANT LUMBER & BLDG Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-237248	4130 PARK AVE	SW 1/8 - 1/4 (0.188 mi.)	AB191	359
THE SALVATION ARMY Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-084727	4133 PARK AVE	WSW 1/8 - 1/4 (0.199 mi.)	AB200	391
2032 JOCHI AUTO REPA Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-609801	2032 WEBSTER AVENUE	NNW 1/8 - 1/4 (0.201 mi.)	AE202	395
1877 WEBSTER REALTY Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-285390	1877 WEBSTER AVENUE	W 1/8 - 1/4 (0.202 mi.)	AC203	397
FELIX AUTO REPAIRS Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-611569	2040 WEBSTER AVENUE	NNW 1/8 - 1/4 (0.207 mi.)	AE208	406
2031 WEBSTER AVENUE Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-605918	2031 WEBSTER AVE	NNW 1/8 - 1/4 (0.214 mi.)	AE214	416
TWIN PARKS SOUTHWEST Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-245046	2000 VALENTINE AVENU	NW 1/8 - 1/4 (0.218 mi.)	X220	428
2037 WEBSTER AVENUE Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-469408	***2037 WEBSTER AVENUE***	***NNW 1/8 - 1/4 (0.221 mi.)***	***AE229***	***449***
THE SALVATION ARMY Database: AST, Date of Government Version: 02/11/2019	4109 PARK AVE	SW 1/8 - 1/4 (0.233 mi.)	AH245	496

Facility Id: 2-084735

PREMIUM AUTO REPAIR Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-603404	1805 WASHINGTON AVEN	SSW 1/8 - 1/4 (0.234 mi.)	AJ246	498
PEPSI BOTTLING COMPA Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-600891	2044-2084 WEBSTER AV	NNW 1/8 - 1/4 (0.238 mi.)	AL261	526
ASHER 26 MGMT LLC Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-273805	2051 WEBSTER AVENUE	NNW 1/8 - 1/4 (0.244 mi.)	AE277	563
2028 VALENTINE AVE R Database: AST, Date of Government Version: 02/11/2019 Facility Id: 2-603752	2028 VALENTINE AVENU	NNW 1/8 - 1/4 (0.248 mi.)	284	578

State and tribal institutional control / engineering control registries

NY RES DECL: A restrictive declaration is a covenant running with the land which binds the present and future owners of the property. As a condition of certain special permits, the City Planning Commission may require an applicant to sign and record a restrictive declaration that places specified conditions on the future use and development of the property. Certain restrictive declarations are indicated by a D on zoning maps.

A review of the NY RES DECL list, as provided by EDR, has revealed that there is 1 NY RES DECL site within approximately 0.125 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
LOT 42,TAXBLOCK 2924 Database: ENV RES DECL, Date of Government Version: 10/17/2018	507 EAST 176 STREET	S 0 - 1/8 (0.121 mi.)	J123	192

NY ENG CONTROLS: Environmental Remediation sites that have engineering controls in place.

A review of the NY ENG CONTROLS list, as provided by EDR, and dated 11/12/2018 has revealed that there is 1 NY ENG CONTROLS site within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
WEBSTER AVENUE RESID Site Code: 499347	411 EAST 178TH STREE	NW 1/8 - 1/4 (0.137 mi.)	O138	243

Environmental Remediation sites that have institutional controls in place.

A review of the NY INST CONTROL list, as provided by EDR, and dated 11/12/2018 has revealed that there is 1 NY INST CONTROL site within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
WEBSTER AVENUE RESID Site Code: 499347	411 EAST 178TH STREE	NW 1/8 - 1/4 (0.137 mi.)	O136	222

EXECUTIVE SUMMARY

State and tribal voluntary cleanup sites

NY VCP: Voluntary Cleanup Agreements. The voluntary remedial program uses private monies to get contaminated sites remediated to levels allowing for the sites' productive use. The program covers virtually any kind of site and contamination.

A review of the NY VCP list, as provided by EDR, has revealed that there are 3 NY VCP sites within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
4275 PARK AVENUE Database: VCP NYC, Date of Government Version: 12/14/2018	4275 PARK AVENUE	NW 0 - 1/8 (0.110 mi.)	O104	167
411 EAST 178TH STREE Database: VCP NYC, Date of Government Version: 12/14/2018	411 EAST 178TH STREE	NW 1/8 - 1/4 (0.137 mi.)	O137	242
CE - E. 175TH ST. ST Database: VCP, Date of Government Version: 11/12/2018 Site Code: 57096	1815 - 1845 WEBSTER	WSW 1/8 - 1/4 (0.244 mi.)	AH281	570

State and tribal Brownfields sites

NY BROWNFIELDS: Brownfields Site List

A review of the NY BROWNFIELDS list, as provided by EDR, and dated 11/12/2018 has revealed that there are 2 NY BROWNFIELDS sites within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
1888 BATHGATE AVENUE Site Code: 537695	4181 3RD AVENUE	S 0 - 1/8 (0.095 mi.)	J80	127
WEBSTER AVENUE RESID Site Code: 499347	411 EAST 178TH STREE	NW 1/8 - 1/4 (0.137 mi.)	O139	250

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Landfill / Solid Waste Disposal Sites

Registered Recycling Facility List from the Department of Environmental Conservation.

A review of the NY SWRCY list, as provided by EDR, and dated 12/31/2018 has revealed that there is 1 NY SWRCY site within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
R2B2	***1809 CARTER STREET***	***WSW 1/4 - 1/2 (0.287 mi.)***	***296***	***610***

Records of Emergency Release Reports

NY Spills: Data collected on spills reported to NYSDEC. is required by one or more of the following: Article 12 of the Navigation Law, 6 NYCRR Section 613.8 (from PBS regs), or 6 NYCRR Section 595.2 (from CBS regs). It includes spills active as of April 1, 1986, as well as spills occurring since this date.

A review of the NY Spills list, as provided by EDR, and dated 11/12/2018 has revealed that there are 29 NY Spills sites within approximately 0.125 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
HANOV REALTY CORP Site ID: 149542 Spill Number/Closed Date: 9814869 / 1999-03-15	1975 BATHGATE AVE	NNE 0 - 1/8 (0.040 mi.)	C20	37
35 GAL HYDRAULIC FRO Site ID: 392151 Spill Number/Closed Date: 0710794 / 2008-03-20	3 AVENUE & 178 STREE	E 0 - 1/8 (0.054 mi.)	E32	50
MANHOLE 23853 Site ID: 349537 Spill Number/Closed Date: 0504709 / 2006-01-09	3RD AV & E 178ST	E 0 - 1/8 (0.056 mi.)	E36	54
1985 BATHGATE AVE Site ID: 238276 Spill Number/Closed Date: 9111313 / 1992-02-03	1985 BATHGATE AVE	NNE 0 - 1/8 (0.060 mi.)	C41	59
1991 BATHGATE AVENUE Site ID: 75312 Spill Number/Closed Date: 9509245 / 1995-10-26	***1991 BATHGATE AVENUE***	***NNE 0 - 1/8 (0.074 mi.)***	***C55***	***88***
EAST 178TH/MONTEREY Site ID: 175201 Spill Number/Closed Date: 0105523 / 2006-02-03	EAST 178TH ST/MONTER	E 0 - 1/8 (0.102 mi.)	M86	141
2015 MONTERAY AVE Site ID: 205418 Spill Number/Closed Date: 9700664 / 1997-04-15	2015 MONTERAY AVE	ENE 0 - 1/8 (0.105 mi.)	M95	154
WASHINGTON AVE AND Site ID: 78228 Spill Number/Closed Date: 9806226 / 1998-09-02	E 179TH ST	NNE 0 - 1/8 (0.107 mi.)	I99	160
I/F/O 1910 MONTEREY Site ID: 410943 Spill Number/Closed Date: 0813263 / 2009-03-13	555 EAST TREMONT AVE	SE 0 - 1/8 (0.112 mi.)	H109	172
EAST 179TH ST SUB ST Site ID: 89481 Spill Number/Closed Date: 9808761 / 2002-05-29	E.179TH ST/3RD AVE	NE 0 - 1/8 (0.116 mi.)	L112	178
MH 26025 Site ID: 114124 Spill Number/Closed Date: 0101390 / 2001-06-19	179TH AND 3RD AV	NE 0 - 1/8 (0.116 mi.)	L113	179
EAST 179TH ST SUB ST Site ID: 186711 Spill Number/Closed Date: 9609008 / 2002-05-29	3RD AVE/179TH ST	NE 0 - 1/8 (0.116 mi.)	L114	180
MH464 Site ID: 227231 Spill Number/Closed Date: 0108035 / 2002-02-08	179ST / 3RD AV	NE 0 - 1/8 (0.116 mi.)	L115	181
179TH ST AND 3RD AVE	179TH ST AND 3RD AVE	NE 0 - 1/8 (0.116 mi.)	L116	182

Site ID: 437049
Spill Number/Closed Date: 1003804 / 2010-07-07

CON EDISON - SUB-STA — E. 179TH ST / 3RD AV — NE 0 - 1/8 (0.116 mi.) — L117 — 183
Site ID: 200672
Spill Number/Closed Date: 9415459 / 2003-02-10

MANHOLE #26564 — E 179TH ST & 3RD AVE — NE 0 - 1/8 (0.116 mi.) — L118 — 184
Site ID: 135563
Spill Number/Closed Date: 0011015 / 2001-01-09

Lower Elevation	Address	Direction / Distance	Map ID	Page
221428; NWC WASHINGT Site ID: 442628 Spill Number/Closed Date: 1009091 / 2010-05-12	NWC WASHINGTON AVE A	SW 0 - 1/8 (0.049 mi.)	F30	49
PHASE 2 - COMMERCIAL Site ID: 531153 Spill Number/Closed Date: 1604641 / 2017-09-05	516 EAST TREMONT AVE	SSE 0 - 1/8 (0.063 mi.)	D42	60
220005; E. TREMONT E Site ID: 442590 Spill Number/Closed Date: 1008957 / 2010-01-25	E. TREMONT E/O 3RD A	SE 0 - 1/8 (0.066 mi.)	D46	75
WASHINGTON HOME Site ID: 390757 Spill Number/Closed Date: 0709647 / 2008-01-22	464 EAST TREMONT AVE	SW 0 - 1/8 (0.066 mi.)	F47	76
MAN HOLE 29750 Site ID: 167457 Spill Number/Closed Date: 0206475 / 2005-05-20	1894 WASHINGTON ST	SW 0 - 1/8 (0.070 mi.)	F49	78
MANHOLE 23851 Site ID: 349642 Spill Number/Closed Date: 0504708 / 2006-04-05	EA TREMONT A W OF 3R	SE 0 - 1/8 (0.076 mi.)	H59	95
MANHOLE 23927 Site ID: 209232 Spill Number/Closed Date: 0100443 / 2003-06-12	EAST TREEMONT / E PA	WSW 0 - 1/8 (0.095 mi.)	K73	113
MANHOLE 23926 /AT PA Site ID: 303349 Spill Number/Closed Date: 0204734 / 2002-10-28	444 EAST TREMONT AV	WSW 0 - 1/8 (0.097 mi.)	K82	132
SOIL Site ID: 477497 Spill Number/Closed Date: 1214265 / 2013-11-12	4259-4281 PARK AVE	NW 0 - 1/8 (0.105 mi.)	G93	150
BOILER ROOM Site ID: 469415 Spill Number/Closed Date: 1206416 / 2012-10-15	422 EAST 178TH STREE	NW 0 - 1/8 (0.106 mi.)	G98	159
OUR LADY OF GOOD COU Site ID: 309546 Spill Number/Closed Date: 9514379 / 1997-12-31	4221 PARK AVE	W 0 - 1/8 (0.109 mi.)	N100	161
CONSTRUCTION SITE Site ID: 510392 Spill Number/Closed Date: 1504063 / 2016-12-06	4275 PARK AVE	NW 0 - 1/8 (0.110 mi.)	O105	167
VACANT LOT Site ID: 374269 Spill Number/Closed Date: 0609916 / 2008-09-18	507-513 E. 176TH ST.	S 0 - 1/8 (0.121 mi.)	J125	195

Other Ascertainable Records

RCRA NonGen / NLR: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

A review of the RCRA NonGen / NLR list, as provided by EDR, and dated 03/25/2019 has revealed that there are 71 RCRA NonGen / NLR sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CON EDISON SERVICE B EPA ID:: NYP004453809	***1951 BATHGATE AVE FR***	***0 - 1/8 (0.000 mi.)***	***A2***	***10***
CON EDISON EPA ID:: NYP004829929	***495 E 178TH ST***	***NE 0 - 1/8 (0.019 mi.)***	***A7***	***18***
CON EDISON EPA ID:: NYP004844730	514 E 178TH STREET	E 0 - 1/8 (0.038 mi.)	B17	33
CON EDISON SERVICE B EPA ID:: NYP004417739	***4225 3RD AVE***	***ESE 0 - 1/8 (0.045 mi.)***	***B26***	***44***
CON EDISON SERVICE B EPA ID:: NYP004421434	***1997 WASHINGTON AVE***	***N 0 - 1/8 (0.084 mi.)***	***I67***	***106***
WASHINGTON PLUMBING EPA ID:: NYD987022472	***4290-92 THIRD AVE***	***ENE 0 - 1/8 (0.100 mi.)***	***L85***	***138***
CON EDISON SERVICE B EPA ID:: NYP004519450	***1932 MONTEREY AVE FR***	***ESE 0 - 1/8 (0.104 mi.)***	***H89***	***145***
CON EDISON SERVICE B EPA ID:: NYP004519468	1938 MONTEREY AVE FR	ESE 0 - 1/8 (0.104 mi.)	H91	147
CON EDISON - EAST 17 EPA ID:: NYR000015180	***541 E 179TH ST***	***ENE 1/8 - 1/4 (0.141 mi.)***	***P142***	***258***
CON EDISON EPA ID:: NYP004783254	4340 3 AVE	NE 1/8 - 1/4 (0.160 mi.)	W168	311
NYC BD OF ED - MIDDL EPA ID:: NYR000062646	***571 E 179TH ST***	***ENE 1/8 - 1/4 (0.176 mi.)***	***Y179***	***328***
CON EDISON SERVICE B EPA ID:: NYP004474516	***2064 BATHGATE AVE FR***	***NNE 1/8 - 1/4 (0.182 mi.)***	***Z182***	***336***
CON EDISON EPA ID:: NYP004786489	***593 E TREMONT AVE***	***ESE 1/8 - 1/4 (0.183 mi.)***	***AA185***	***347***
CON EDISON SERVICE B EPA ID:: NYP004451316	***1971 ARTHUR AVE FRON***	***ESE 1/8 - 1/4 (0.185 mi.)***	***AA188***	***351***
CON EDISON EPA ID:: NYP004764700	4361 3RD AVE	NE 1/8 - 1/4 (0.189 mi.)	W194	364
CON EDISON SERVICE B EPA ID:: NYP004469672	***2090 BATHGATE AVE FR***	***NNE 1/8 - 1/4 (0.216 mi.)***	***Z218***	***424***
CON EDISON EPA ID:: NYP004783445	180TH ST & 3RD AVE	NE 1/8 - 1/4 (0.230 mi.)	AI236	463
CON EDISON MANHOLE 2 EPA ID:: NYP004149530	3RD AVE & E 180 ST	NE 1/8 - 1/4 (0.230 mi.)	AI238	465
CON EDISON	***1932 ARTHUR AVE***	***ESE 1/8 - 1/4 (0.235 mi.)***	***AK252***	***509***

EPA ID:: NYP004728796				
NYCDEP - ABAX INC EPA ID:: NYR000074146	***1932 ARTHUR AVE 6TH***	***ESE 1/8 - 1/4 (0.235 mi.)***	***AK255***	***516***
CON EDISON EPA ID:: NYP004728788	1932 ARTHUR AVE	ESE 1/8 - 1/4 (0.235 mi.)	AK256	519
CON EDISON EPA ID:: NYP004766127	***505 E 180TH ST***	***NNE 1/8 - 1/4 (0.240 mi.)***	***AI263***	***535***
CON EDISON EPA ID:: NYP004725669	***613 E TREMONT AVE***	***ESE 1/8 - 1/4 (0.243 mi.)***	***AK271***	***546***
CON EDISION - MH2600 EPA ID:: NYP004093472	489 E. 180TH STREET	NNE 1/8 - 1/4 (0.249 mi.)	AM285	580
GETTY # 275 EPA ID:: NYD987035292	***495 E 180TH ST***	***NNE 1/8 - 1/4 (0.249 mi.)***	***AM288***	***591***

Lower Elevation	Address	Direction / Distance	Map ID	Page
BRONX SHEPHERDS REST EPA ID:: NYR000217489	1932 WASHINGTON AVE	SW 0 - 1/8 (0.004 mi.)	A4	13
CON EDISON SERVICE B EPA ID:: NYP004537072	***1904 BATHGATE AVE FR***	***SSE 0 - 1/8 (0.020 mi.)***	***B10***	***24***
CON EDISON MANHOLE 5 EPA ID:: NYP004232005	***BATHGATE AVE & E TRE***	***S 0 - 1/8 (0.042 mi.)***	***D23***	***40***
CON EDISON MANHOLE: EPA ID:: NYP004446613	***472 E TREMONT AVE FR***	***SSW 0 - 1/8 (0.055 mi.)***	***D33***	***51***
CON EDISON SERVICE B EPA ID:: NYP004508818	***478 E TREMONT FRONT***	***SSW 0 - 1/8 (0.058 mi.)***	***D39***	***56***
CON EDISON EPA ID:: NYP004829010	***447 E TREMONT AVE***	***WSW 0 - 1/8 (0.073 mi.)***	***F52***	***82***
CON EDISON MANHOLE: EPA ID:: NYP004446563	***447 E TREMONT AVE FR***	***WSW 0 - 1/8 (0.073 mi.)***	***F53***	***83***
CON EDISON EPA ID:: NYP004201422	535 E TREMONT AVE	SE 0 - 1/8 (0.074 mi.)	H56	91
CON EDISON SERVICE B EPA ID:: NYP004532602	***452 E TREMONT AVE FR***	***WSW 0 - 1/8 (0.077 mi.)***	***F60***	***96***
CON EDISON SERVICE B EPA ID:: NYP004427738	***4203 3RD AVE FRONT O***	***SSE 0 - 1/8 (0.078 mi.)***	***D62***	***99***
NYC DEP EPA ID:: NYP003662848	***E 178TH ST & PARK AV***	***NW 0 - 1/8 (0.084 mi.)***	***G66***	***104***
WILFRID EAST & WEST EPA ID:: NYR000233437	1880 BATHGATE AVE	S 0 - 1/8 (0.093 mi.)	J72	112
CON EDISON MANHOLE: EPA ID:: NYP004418430	***4181 3RD AVE***	***S 0 - 1/8 (0.095 mi.)***	***J78***	***122***
CON EDISON SERVICE B EPA ID:: NYP004531125	***4237 PARK AVE FRONT***	***WNW 0 - 1/8 (0.104 mi.)***	***G88***	***144***
CON EDISON EPA ID:: NYP004810319	***E TREMONT AVE & PARK***	***W 0 - 1/8 (0.111 mi.)***	***K108***	***171***
CON EDISON MANHOLE 1	***E WASHINGTON AVE & E***	***SSW 1/8 - 1/4 (0.129 mi.)***	***Q130***	***205***

EPA ID:: NYP004232583				
CON EDISON - MH 83 EPA ID:: NYP004109112	***E179TH STREET AND PA***	***NNW 1/8 - 1/4 (0.138 mi.)***	***S140***	***254***
CON EDISON MANHOLE 1 EPA ID:: NYP004220489	***3RD AVE & E 176TH ST***	***S 1/8 - 1/4 (0.142 mi.)***	***T143***	***260***
CON EDISON EPA ID:: NYP004829341	1852 WASHINGTON AVE	SSW 1/8 - 1/4 (0.144 mi.)	Q145	264
CON EDISON SERVICE B EPA ID:: NYP004324208	***1938 WEBSTER AVE FRO***	***WNW 1/8 - 1/4 (0.149 mi.)***	***N151***	***275***
CON EDISON SERVICE B EPA ID:: NYP004479002	***405 E TREMONT AVE***	***W 1/8 - 1/4 (0.157 mi.)***	***V159***	***291***
ZEPOL ENTERPRISES IN EPA ID:: NYD982743924	***1928Z WEBSTER AVE***	***WNW 1/8 - 1/4 (0.158 mi.)***	***U161***	***296***
CON EDISON SERVICE B EPA ID:: NYP004328514	***1928 WEBSTER AVE***	***WNW 1/8 - 1/4 (0.159 mi.)***	***U162***	***299***
CON EDISON SERVICE B EPA ID:: NYP004324984	***4144 PARK AVE***	***SW 1/8 - 1/4 (0.169 mi.)***	***R173***	***317***
CON EDISON TRANSFORM EPA ID:: NYP004144424	TREMONT AVE & WEBSTE	W 1/8 - 1/4 (0.176 mi.)	V178	327
CON EDISON SERVICE B EPA ID:: NYP004418166	***1889 WEBSTER AVE***	***W 1/8 - 1/4 (0.182 mi.)***	***V181***	***334***
CON EDISON SERVICE B EPA ID:: NYP004451118	***365 E 178TH ST FRONT***	***WNW 1/8 - 1/4 (0.191 mi.)***	***X196***	***376***
SUNOCO SERVICE STATI EPA ID:: NYD000707166	***1860 WEBSTER AVE & 1***	***WSW 1/8 - 1/4 (0.204 mi.)***	***AC205***	***401***
BELL ATLANTIC-NY EPA ID:: NYP000945220	***2033 VALENTINE AVE***	***WNW 1/8 - 1/4 (0.209 mi.)***	***X209***	***409***
CON EDISON - MH 85 EPA ID:: NYP004109138	F.O 4360 PARK AVE	N 1/8 - 1/4 (0.216 mi.)	217	422
CON EDISON MANHOLE: EPA ID:: NYP004439980	***2000 VALENTINE AVE F***	***NW 1/8 - 1/4 (0.218 mi.)***	***X221***	***430***
CON EDISON - MANHOLE EPA ID:: NYP004131736	***1842 WASHINGTON AVE***	***WSW 1/8 - 1/4 (0.219 mi.)***	***AC222***	***432***
NYSDOT - CONTRACT D2 EPA ID:: NYD986931590	WASHINGTON AVE & E 1	SSW 1/8 - 1/4 (0.220 mi.)	AF224	436
CON ED - V 2443 EPA ID:: NYP004012787	***WASHINGTON AVE & E 1***	***SSW 1/8 - 1/4 (0.220 mi.)***	***AF227***	***444***
CON EDISON MANHOLE 5 EPA ID:: NYP004218596	***BATHGATE AVE & E 175***	***SSW 1/8 - 1/4 (0.220 mi.)***	***AF228***	***446***
CON EDISON EPA ID:: NYP004828085	2043 WEBSTER AVE	NNW 1/8 - 1/4 (0.227 mi.)	AE233	457
CON EDISON EPA ID:: NYP004882284	2043 WEBSTER AVE	NNW 1/8 - 1/4 (0.227 mi.)	AE234	459
NEW YORK AUTOMOTIVE EPA ID:: NYR000020933	***1828 WEBSTER AVE***	***WSW 1/8 - 1/4 (0.228 mi.)***	***AH235***	***459***
CON EDISON TRANSFORM	***E 175TH ST & PARK AV***	***SW 1/8 - 1/4 (0.232 mi.)***	***AB241***	***469***

EPA ID:: NYP004561049				
SHELL OIL-NELSON'S A EPA ID:: NYD987006848	***1845 WEBSTER AVE***	***WSW 1/8 - 1/4 (0.233 mi.)***	***AC244***	***487***
CON EDISON EPA ID:: NYP004726055	***452 E 175TH ST***	***SW 1/8 - 1/4 (0.235 mi.)***	***AJ249***	***506***
CON EDISON EPA ID:: NYP004726576	***442 E 175TH ST FRONT***	***SW 1/8 - 1/4 (0.242 mi.)***	***AJ268***	***542***
CARIDAD DEL COBRE EPA ID:: NYD982537813	***2051 WEBSTER AVE***	***NNW 1/8 - 1/4 (0.244 mi.)***	***AE276***	***559***
CON EDISON SERVICE B EPA ID:: NYP004438933	***2051 WEBSTER AVE***	***NNW 1/8 - 1/4 (0.244 mi.)***	***AE278***	***565***
CON EDISON SERVICE B EPA ID:: NYP004330106	***2061 WEBSTER AVE***	***NNW 1/8 - 1/4 (0.247 mi.)***	***AL282***	***572***
CON EDISON SERVICE B EPA ID:: NYP004419222	***1859 CARTER AVE***	***W 1/8 - 1/4 (0.250 mi.)***	***291***	***603***

NY DRYCLEANERS: A listing of all registered drycleaning facilities.

A review of the NY DRYCLEANERS list, as provided by EDR, and dated 03/07/2018 has revealed that there is 1 NY DRYCLEANERS site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
NEW CARIDAD DEL COBR Facility Id: 2-6005-00826	2051 WEBSTER AVENUE	NNW 1/8 - 1/4 (0.244 mi.)	AE280	570

NY E DESIGNATION: Lots designation with an ?E? on the Zoning Maps of the City of New York for potential hazardous material contamination, air and/or noise quality impacts.

A review of the NY E DESIGNATION list, as provided by EDR, and dated 10/31/2018 has revealed that there are 19 NY E DESIGNATION sites within approximately 0.125 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
LOT 67,TAXBLOCK 3043	4231 3 AVENUE	ESE 0 - 1/8 (0.041 mi.)	B22	40
LOT 72,TAXBLOCK 3043	4223 3 AVENUE	SE 0 - 1/8 (0.042 mi.)	B24	44
LOT 93,TAXBLOCK 3044	4261 3 AVENUE	ENE 0 - 1/8 (0.044 mi.)	E25	44
LOT 88,TAXBLOCK 3044	4263 3 AVENUE	ENE 0 - 1/8 (0.050 mi.)	C31	50
LOT 82,TAXBLOCK 3044	4277 3 AVENUE	ENE 0 - 1/8 (0.065 mi.)	C45	75
LOT 8,TAXBLOCK 3060	4226 3 AVENUE	ESE 0 - 1/8 (0.066 mi.)	B48	78

Lower Elevation	Address	Direction / Distance	Map ID	Page
LOT 43,TAXBLOCK 3043	503 EAST TREMONT AVE	SSE 0 - 1/8 (0.031 mi.)	B14	31
LOT 84,TAXBLOCK 3043	505 EAST TREMONT AVE	SSE 0 - 1/8 (0.033 mi.)	B15	31
LOT 80,TAXBLOCK 3043	513 EAST TREMONT AVE	SSE 0 - 1/8 (0.039 mi.)	B19	36
LOT 49,TAXBLOCK 3034	463 EAST TREMONT AVE	WSW 0 - 1/8 (0.047 mi.)	F27	47
LOT 77,TAXBLOCK 3043	521 EAST TREMONT AVE	SE 0 - 1/8 (0.048 mi.)	B28	47
LOT 52,TAXBLOCK 3034	453 EAST TREMONT AVE	WSW 0 - 1/8 (0.055 mi.)	F35	54
LOT 15,TAXBLOCK 2924	500 EAST TREMONT AVE	S 0 - 1/8 (0.056 mi.)	D37	55
LOT 1,TAXBLOCK 3034	4208 PARK AVENUE	W 0 - 1/8 (0.072 mi.)	F51	81
LOT 26,TAXBLOCK 2909	1893 WASHINGTON AVEN	SW 0 - 1/8 (0.079 mi.)	F63	101

Lower Elevation	Address	Direction / Distance	Map ID	Page
LOT 28,TAXBLOCK 2909	1891 WASHINGTON AVEN	SW 0 - 1/8 (0.083 mi.)	F65	103
LOT 10,TAXBLOCK 2909	446 EAST TREMONT AVE	WSW 0 - 1/8 (0.086 mi.)	F68	108
LOT 8,TAXBLOCK 2909	4184 PARK AVENUE	WSW 0 - 1/8 (0.109 mi.)	K101	162
LOT 48,TAXBLOCK 3028	4269 PARK AVENUE	NW 0 - 1/8 (0.110 mi.)	O107	171

NY MANIFEST: Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

A review of the NY MANIFEST list, as provided by EDR, and dated 01/01/2019 has revealed that there are 84 NY MANIFEST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CON EDISON SERVICE B EPA ID: NYP004453809	***1951 BATHGATE AVE FR***	***0 - 1/8 (0.000 mi.)***	***A2***	***10***
CON ED EPA ID: NYP004844730	514 E 178TH STREET	E 0 - 1/8 (0.038 mi.)	B18	35
CON EDISON SERVICE B EPA ID: NYP004417739	***4225 3RD AVE***	***ESE 0 - 1/8 (0.045 mi.)***	***B26***	***44***
CON EDISON SERVICE B EPA ID: NYP004421434	***1997 WASHINGTON AVE***	***N 0 - 1/8 (0.084 mi.)***	***I67***	***106***
WASHINGTON PLUMBING EPA ID: NYD987022472	***4290-92 THIRD AVE***	***ENE 0 - 1/8 (0.100 mi.)***	***L85***	***138***
CON EDISON EPA ID: NYP004519450	1932 MONTEREY AVE FR	ESE 0 - 1/8 (0.104 mi.)	H90	146
CON EDISON EPA ID: NYP004519468	1938 MONTEREY AVE FR	ESE 0 - 1/8 (0.104 mi.)	H92	148
NYNEX EPA ID: NYP000926642	MONTEREY AVE AND E T	SE 0 - 1/8 (0.105 mi.)	H96	155
CONSOLIDATED EDISON EPA ID: NYP004102950	E 179 ST & 3 AVE MH1	NE 0 - 1/8 (0.116 mi.)	L119	185
CON ED EPA ID: NYP004104659	179 ST & 3 AVE EXCAV	NE 0 - 1/8 (0.116 mi.)	L120	187
CON EDISON EPA ID: NYP004635462	1977 LAFONTAINE AVE	ESE 1/8 - 1/4 (0.140 mi.)	M141	256
NYC DEPT OF EDUCATIO EPA ID: NYR000223461	560 E 179TH ST	ENE 1/8 - 1/4 (0.155 mi.)	P156	285
CON EDISON EPA ID: NYR000007133	4340 3RD AVE	NE 1/8 - 1/4 (0.160 mi.)	W163	301
CON EDISON EPA ID: NYP004710372	4340 3RD AVENUE	NE 1/8 - 1/4 (0.160 mi.)	W166	304
CON EDISON - E 179TH EPA ID: NYR000007138	***4340 3RD AVE***	***NE 1/8 - 1/4 (0.160 mi.)***	***W167***	***306***
CON EDISON EPA ID: NYP004783254	4340 3RD AVE	NE 1/8 - 1/4 (0.160 mi.)	W169	313
NYC BD OF ED - MIDDL	***571 E 179TH ST***	***ENE 1/8 - 1/4 (0.176 mi.)***	***Y179***	***328***

EPA ID: NYR000062646				
CON EDISON SERVICE B EPA ID: NYP004474516	***2064 BATHGATE AVE FR***	***NNE 1/8 - 1/4 (0.182 mi.)***	***Z182***	***336***
CON EDISON EPA ID: NYP004786489	593 E TREMONT AVE	ESE 1/8 - 1/4 (0.183 mi.)	AA186	348
CON EDISON SERVICE B EPA ID: NYP004451316	***1971 ARTHUR AVE FRON***	***ESE 1/8 - 1/4 (0.185 mi.)***	***AA188***	***351***
CON ED EPA ID: NYP004764700	4361 3RD AVE	NE 1/8 - 1/4 (0.189 mi.)	W192	361
CON EDISON SERVICE B EPA ID: NYP004469672	***2090 BATHGATE AVE FR***	***NNE 1/8 - 1/4 (0.216 mi.)***	***Z218***	***424***
CON EDISON EPA ID: NYP004783445	180TH ST & 3RD AVE	NE 1/8 - 1/4 (0.230 mi.)	AI239	466
CON EDISON EPA ID: NYP004728788	1932 ARTHUR AVE	ESE 1/8 - 1/4 (0.235 mi.)	AK254	514
NYCDEP - ABAX INC EPA ID: NYR000074146	***1932 ARTHUR AVE 6TH***	***ESE 1/8 - 1/4 (0.235 mi.)***	***AK255***	***516***
CON EDISON EPA ID: NYP004728796	1932 ARTHUR AVE	ESE 1/8 - 1/4 (0.235 mi.)	AK259	522
CON EDISON EPA ID: NYP004766127	505 E 180TH ST	NNE 1/8 - 1/4 (0.240 mi.)	AI264	536
CON EDISON EPA ID: NYP004725669	613 E TREMONT AVE	ESE 1/8 - 1/4 (0.243 mi.)	AK272	547
CON EDISON - MANHOLE EPA ID: NYP004153169	***EAST 180TH STREET &***	***NNE 1/8 - 1/4 (0.244 mi.)***	***AM275***	***555***
CON EDISON EPA ID: NYP004671384	***1884 ARTHUR AVE***	***SE 1/8 - 1/4 (0.248 mi.)***	***283***	***574***
CONSOLIDATED EDISON EPA ID: NYP004093472	489 E. 180TH STREET	NNE 1/8 - 1/4 (0.249 mi.)	AM286	581
GETTY # 275 EPA ID: NYD987035292	***495 E 180TH ST***	***NNE 1/8 - 1/4 (0.249 mi.)***	***AM288***	***591***

Lower Elevation	**Address**	**Direction / Distance**	**Map ID**	**Page**
BRONX SHEPHERDS REST EPA ID: NYR000217489	1932 WASHINGTON AVE	SW 0 - 1/8 (0.004 mi.)	A5	16
CON EDISON EPA ID: NYP004537072	1904 BATHGATE AVE FR	SSE 0 - 1/8 (0.020 mi.)	B11	25
CON EDISON MANHOLE 5 EPA ID: NYP004232005	***BATHGATE AVE & E TRE***	***S 0 - 1/8 (0.042 mi.)***	***D23***	***40***
CONSOLIDATED EDISON EPA ID: NYP004056180	WASHINGTON AVE & E T	SW 0 - 1/8 (0.048 mi.)	F29	47
CON EDISON MANHOLE: EPA ID: NYP004446613	***472 E TREMONT AVE FR***	***SSW 0 - 1/8 (0.055 mi.)***	***D33***	***51***
CON EDISON EPA ID: NYP004508818	478 E TREMONT FRONT	SSW 0 - 1/8 (0.058 mi.)	D40	57
CON EDISON MANHOLE:	***447 E TREMONT AVE FR***	***WSW 0 - 1/8 (0.073 mi.)***	***F53***	***83***

EPA ID: NYP004829010 EPA ID: NYP004446563				
CONSOLIDATED EDISON EPA ID: NYP004155719	PARK AVENUE & EAST 1	NW 0 - 1/8 (0.075 mi.)	G58	93
CON EDISON EPA ID: NYP004532602	452 E TREMONT AVE FR	WSW 0 - 1/8 (0.077 mi.)	F61	97
CON EDISON SERVICE B EPA ID: NYP004427738	***4203 3RD AVE FRONT O***	***SSE 0 - 1/8 (0.078 mi.)***	***D62***	***99***
NYC DEP EPA ID: NYP003662848	***E 178TH ST & PARK AV***	***NW 0 - 1/8 (0.084 mi.)***	***G66***	***104***
NYCDEP EPA ID: NYP003662849	E 178TH & PARK AVE	NW 0 - 1/8 (0.095 mi.)	G74	114
CON EDISON MANHOLE: EPA ID: NYP004418430 EPA ID: NYR000233510	***4181 3RD AVE***	***S 0 - 1/8 (0.095 mi.)***	***J78***	***122***
CON EDISON EPA ID: NYP004531125	4237 PARK AVE FRONT	WNW 0 - 1/8 (0.104 mi.)	G87	142
CON EDISON MANHOLE 1 EPA ID: NYP004232583	***E WASHINGTON AVE & E***	***SSW 1/8 - 1/4 (0.129 mi.)***	***Q130***	***205***
NYC BD OF ED - PUBLI EPA ID: NYR000009381	***459 E 176TH ST & WAS***	***SSW 1/8 - 1/4 (0.129 mi.)***	***Q131***	***208***
CON EDISON - MH 83 EPA ID: NYP004109112	***E179TH STREET AND PA***	***NNW 1/8 - 1/4 (0.138 mi.)***	***S140***	***254***
CON EDISON MANHOLE 1 EPA ID: NYP004220489	***3RD AVE & E 176TH ST***	***S 1/8 - 1/4 (0.142 mi.)***	***T143***	***260***
CONSOLIDATED EDISON EPA ID: NYP004155727	PARK AVENUE & EAST 1	NNW 1/8 - 1/4 (0.146 mi.)	S148	269
CON EDISON SERVICE B EPA ID: NYP004324208	***1938 WEBSTER AVE FRO***	***WNW 1/8 - 1/4 (0.149 mi.)***	***N151***	***275***
CON EDISON SERVICE B EPA ID: NYP004479002	***405 E TREMONT AVE***	***W 1/8 - 1/4 (0.157 mi.)***	***V159***	***291***
ZEPOL ENTERPRISES IN EPA ID: NYD982743924	***1928Z WEBSTER AVE***	***WNW 1/8 - 1/4 (0.158 mi.)***	***U161***	***296***
CON EDISON SERVICE B EPA ID: NYP004328514	***1928 WEBSTER AVE***	***WNW 1/8 - 1/4 (0.159 mi.)***	***U162***	***299***
BELL ATLANTIC-NY EPA ID: NYP000942425	WEBSTER AVE & 178TH	WNW 1/8 - 1/4 (0.166 mi.)	U172	316
CON EDISON SERVICE B EPA ID: NYP004324984	***4144 PARK AVE***	***SW 1/8 - 1/4 (0.169 mi.)***	***R173***	***317***
CON EDISON EPA ID: NYP004692794	1969 WEBSTER AV	NW 1/8 - 1/4 (0.169 mi.)	X174	319
CON EDISON SERVICE B EPA ID: NYP004418166	***1889 WEBSTER AVE***	***W 1/8 - 1/4 (0.182 mi.)***	***V181***	***334***
CONSOLIDATED EDISON EPA ID: NYP004134664	1880 VALENTINE AVE M	WNW 1/8 - 1/4 (0.182 mi.)	U183	338
CON EDISON SERVICE B EPA ID: NYP004451118	***365 E 178TH ST FRONT***	***WNW 1/8 - 1/4 (0.191 mi.)***	***X196***	***376***
CON EDISON	1877 WEBSTER AV	W 1/8 - 1/4 (0.202 mi.)	AC204	399

EPA ID: NYP004704318				
CON EDISON EPA ID: NYP004635538	2021 WEBSTER AVE	NNW 1/8 - 1/4 (0.207 mi.)	AE207	405
BELL ATLANTIC-NY EPA ID: NYP000945220	***2033 VALENTINE AVE***	***WNW 1/8 - 1/4 (0.209 mi.)***	***X209***	***409***
NYC DEPT OF EDUCATIO EPA ID: NYR000213710	499 E 175TH ST	SSW 1/8 - 1/4 (0.211 mi.)	AF210	410
CON EDISON EPA ID: NYP004726568	4110 PARK AVE FRONT	SW 1/8 - 1/4 (0.213 mi.)	AB213	415
CON EDISON EPA ID: NYP004687307	1984 VALENTINE AV	NW 1/8 - 1/4 (0.215 mi.)	X215	418
CON EDISON MANHOLE: EPA ID: NYP004439980	***2000 VALENTINE AVE F***	***NW 1/8 - 1/4 (0.218 mi.)***	***X221***	***430***
CON EDISON - MANHOLE EPA ID: NYP004131736	***1842 WASHINGTON AVE***	***WSW 1/8 - 1/4 (0.219 mi.)***	***AC222***	***432***
CONSOLIDATED EDISON EPA ID: NYP004230744	EAST 175TH & WASHING	SSW 1/8 - 1/4 (0.220 mi.)	AF223	435
CON EDISON - GAS MAI EPA ID: NYP004172730	***WASHINGTON AVE & E 1***	***SSW 1/8 - 1/4 (0.220 mi.)***	***AF225***	***438***
CONSOLIDATED EDISON EPA ID: NYP004231353	WASHINGTON & 175TH S	SSW 1/8 - 1/4 (0.220 mi.)	AF226	442
CON ED - V 2443 EPA ID: NYP004012787	***WASHINGTON AVE & E 1***	***SSW 1/8 - 1/4 (0.220 mi.)***	***AF227***	***444***
CON EDISON MANHOLE 5 EPA ID: NYP004218596	***BATHGATE AVE & E 175***	***SSW 1/8 - 1/4 (0.220 mi.)***	***AF228***	***446***
CON ED EPA ID: NYP004828085	2043 WEBSTER AVE	NNW 1/8 - 1/4 (0.227 mi.)	AE232	456
NEW YORK AUTOMOTIVE EPA ID: NYR000020933	***1828 WEBSTER AVE***	***WSW 1/8 - 1/4 (0.228 mi.)***	***AH235***	***459***
CONSOLIDATED EDISON EPA ID: NYP004156717 EPA ID: NYP004156725	PARK AVENUE & EAST 1	SW 1/8 - 1/4 (0.233 mi.)	AB242	470
SHELL OIL-NELSON'S A EPA ID: NYD987006848	***1845 WEBSTER AVE***	***WSW 1/8 - 1/4 (0.233 mi.)***	***AC244***	***487***
CON EDISON EPA ID: NYP004726055	452 E 175TH ST	SW 1/8 - 1/4 (0.235 mi.)	AJ250	507
CON EDISON EPA ID: NYP004726576	442 E 175TH ST FRONT	SW 1/8 - 1/4 (0.242 mi.)	AJ269	543
CARIDAD DEL COBRE EPA ID: NYD982537813	***2051 WEBSTER AVE***	***NNW 1/8 - 1/4 (0.244 mi.)***	***AE276***	***559***
CON EDISON SERVICE B EPA ID: NYP004438933	***2051 WEBSTER AVE***	***NNW 1/8 - 1/4 (0.244 mi.)***	***AE278***	***565***
CON EDISON SERVICE B EPA ID: NYP004330106	***2061 WEBSTER AVE***	***NNW 1/8 - 1/4 (0.247 mi.)***	***AL282***	***572***
CON EDISON SERVICE B EPA ID: NYP004419222	***1859 CARTER AVE***	***W 1/8 - 1/4 (0.250 mi.)***	***291***	***603***

PA MANIFEST: Hazardous waste manifest information.

A review of the PA MANIFEST list, as provided by EDR, and dated 12/31/2017 has revealed that there is 1 PA MANIFEST site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
WILFRID REALTY CORP Generator EPA Id: NYR000233510	4181 THIRD AVE	S 0 - 1/8 (0.095 mi.)	J79	125

NJ MANIFEST: Hazardous waste manifest information.

A review of the NJ MANIFEST list, as provided by EDR, and dated 12/31/2017 has revealed that there are 23 NJ MANIFEST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CON EDISON EPA Id: NYP004829929	495 E 178TH ST	NE 0 - 1/8 (0.019 mi.)	A6	17
CON EDISON EPA Id: NYP004844730	514 E 178TH STREET	E 0 - 1/8 (0.038 mi.)	B16	32
CON EDISON EPA Id: NYP004783254	4340 3 AVE	NE 1/8 - 1/4 (0.160 mi.)	W165	303
CON EDISON EPA Id: NYP004786489	593 E TREMONT AVE	ESE 1/8 - 1/4 (0.183 mi.)	AA187	349
CON EDISON EPA Id: NYP004764700	4361 3RD AVE	NE 1/8 - 1/4 (0.189 mi.)	W193	363
CON EDISON EPA Id: NYP004783445	180TH ST & 3RD AVE	NE 1/8 - 1/4 (0.230 mi.)	AI237	464
CON EDISON EPA Id: NYP004728796	1932 ARTHUR AVE	ESE 1/8 - 1/4 (0.235 mi.)	AK257	520
CON EDISON EPA Id: NYP004728788	1932 ARTHUR AVE	ESE 1/8 - 1/4 (0.235 mi.)	AK258	521
CON EDISON EPA Id: NYP004766127	505 E 180TH ST	NNE 1/8 - 1/4 (0.240 mi.)	AI265	537
CON EDISON EPA Id: NYP004725669	613 E TREMONT AVE	ESE 1/8 - 1/4 (0.243 mi.)	AK270	544
CON EDISON - MANHOLE EPA Id: NYP004153169	***EAST 180TH STREET &***	***NNE 1/8 - 1/4 (0.244 mi.)***	***AM275***	***555***

Lower Elevation	Address	Direction / Distance	Map ID	Page
BRONX SHEPHERDS REST EPA Id: NYR000217489	1932 WASHINGTON AVE	SW 0 - 1/8 (0.004 mi.)	A3	12
CON EDISON MANHOLE 5 EPA Id: NYP004232005	***BATHGATE AVE & E TRE***	***S 0 - 1/8 (0.042 mi.)***	***D23***	***40***
CON EDISON EPA Id: NYP004829010	447 E TREMONT AVE	WSW 0 - 1/8 (0.073 mi.)	F54	86
CON EDISON MANHOLE 1 EPA Id: NYP004232583	***E WASHINGTON AVE & E***	***SSW 1/8 - 1/4 (0.129 mi.)***	***Q130***	***205***
CON EDISON MANHOLE 1	***3RD AVE & E 176TH ST***	***S 1/8 - 1/4 (0.142 mi.)***	***T143***	***260***

EPA Id: NYP004220489				
CON EDISON EPA Id: NYP004829341	1852 WASHINGTON AVE	SSW 1/8 - 1/4 (0.144 mi.)	Q144	263
CON EDISON - GAS MAI EPA Id: NYP004172730	***WASHINGTON AVE & E 1***	***SSW 1/8 - 1/4 (0.220 mi.)***	***AF225***	***438***
CON EDISON MANHOLE 5 EPA Id: NYP004218596	***BATHGATE AVE & E 175***	***SSW 1/8 - 1/4 (0.220 mi.)***	***AF228***	***446***
CON EDISON EPA Id: NYP004882284	2043 WEBSTER AVE	NNW 1/8 - 1/4 (0.227 mi.)	AE230	454
CON EDISON EPA Id: NYP004828085	2043 WEBSTER AVE	NNW 1/8 - 1/4 (0.227 mi.)	AE231	455
CON EDISON EPA Id: NYP004726055	452 E 175TH ST	SW 1/8 - 1/4 (0.235 mi.)	AJ251	508
CON EDISON EPA Id: NYP004726576	442 E 175TH ST FRONT	SW 1/8 - 1/4 (0.242 mi.)	AJ267	541

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

A review of the EDR MGP list, as provided by EDR, has revealed that there is 1 EDR MGP site within approximately 1 mile of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
CON EDISON - EAST 17	1815 - 1845 WEBSTER	WSW 1/4 - 1/2 (0.277 mi.)	AH295	610

EDR Hist Auto: EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

A review of the EDR Hist Auto list, as provided by EDR, has revealed that there are 3 EDR Hist Auto

sites within approximately 0.125 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
GARCIA ANDY	4246 PARK AVE	NW 0 - 1/8 (0.064 mi.)	G44	74
CHRIS AUTO SALES INC	4286 PARK AVE	NNW 0 - 1/8 (0.087 mi.)	I69	108
PERSONAL CAR AUDIO	450 EAST TREMONT AVE	WSW 0 - 1/8 (0.091 mi.)	F71	112

EDR Hist Cleaner: EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

A review of the EDR Hist Cleaner list, as provided by EDR, has revealed that there are 2 EDR Hist Cleaner sites within approximately 0.125 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
J & M CLEANERS	453 E TREMONT AVE	WSW 0 - 1/8 (0.055 mi.)	F34	53
DUMONT CLEANERS INC	500 E TREMONT AVE	S 0 - 1/8 (0.056 mi.)	D38	56

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 3 records.

Site Name	Database(s)
NORTH OF BRUSH AVENUE LOT	NY SHWS
AT WEBSTER AVE	NY LTANKS
FORDHAM U PHYS PLANT	NY LTANKS

OVERVIEW MAP - 5628113.2S

Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites

0 1/4 1/2 1 Miles

Indian Reservations BIA

County Boundary

Power transmission lines

100-year flood zone

500-year flood zone

National Wetland Inventory

State Wetlands

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	Catholic Homes St. Joseph	CLIENT:	Vanasse Hangen Brustlin, Inc.
ADDRESS:	1940 Washington Avenue Bronx NY 10457	CONTACT:	Ashley Monti
LAT/LONG:	40.847703 / 73.897173	INQUIRY #:	5628113.2s
		DATE:	April 22, 2019 10:24 am

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DETAIL MAP - 5628113.2S

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	Catholic Homes St. Joseph	CLIENT:	Vanasse Hangen Brustlin, Inc.
ADDRESS:	1940 Washington Avenue Bronx NY 10457	CONTACT:	Ashley Monti
LAT/LONG:	40.847703 / 73.897173	INQUIRY #:	5628113.2s
		DATE:	April 22, 2019 10:28 am

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	1.000		0	0	0	0	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site list								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		1	4	NR	NR	NR	5
RCRA-SQG	0.250		0	3	NR	NR	NR	3
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	TP		NR	NR	NR	NR	NR	0
State- and tribal - equivalent CERCLIS								
NY SHWS	1.000		0	0	0	1	NR	1
State and tribal landfill and/or solid waste disposal site lists								
NY SWF/LF	0.500		0	1	1	NR	NR	2
State and tribal leaking storage tank lists								
INDIAN LUST	0.500		0	0	0	NR	NR	0
NY LTANKS	0.500		1	6	31	NR	NR	38
NY HIST LTANKS	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
FEMA UST	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
NY UST	0.250		4	12	NR	NR	NR	16
NY CBS UST	0.250		0	0	NR	NR	NR	0
NY MOSF UST	0.500		0	0	0	NR	NR	0
NY MOSF	0.500		0	0	0	NR	NR	0
NY CBS	0.250		0	0	NR	NR	NR	0
NY AST	0.250		27	44	NR	NR	NR	71
NY CBS AST	0.250		0	0	NR	NR	NR	0
NY MOSF AST	0.500		0	0	0	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
NY TANKS	0.250		0	0	NR	NR	NR	0
State and tribal institutional control / engineering control registries								
NY RES DECL	0.125		1	NR	NR	NR	NR	1
NY ENG CONTROLS	0.500		0	1	0	NR	NR	1
NY INST CONTROL	0.500		0	1	0	NR	NR	1
State and tribal voluntary cleanup sites								
NY VCP	0.500		1	2	0	NR	NR	3
INDIAN VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
NY BROWNFIELDS	0.500		1	1	0	NR	NR	2
NY ERP	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
NY SWTIRE	0.500		0	0	0	NR	NR	0
NY SWRCY	0.500		0	0	1	NR	NR	1
INDIAN ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	TP		NR	NR	NR	NR	NR	0
NY DEL SHWS	1.000		0	0	0	0	NR	0
US CDL	TP		NR	NR	NR	NR	NR	0
NY PFAS	0.500		0	0	0	NR	NR	0
Local Lists of Registered Storage Tanks								
NY HIST UST	0.250		0	0	NR	NR	NR	0
NY HIST AST	TP		NR	NR	NR	NR	NR	0
Local Land Records								
NY LIENS	TP		NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
LIENS 2	TP		NR	NR	NR	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0
NY Spills	0.125		29	NR	NR	NR	NR	29
NY Hist Spills	0.125		0	NR	NR	NR	NR	0
NY SPILLS 90	0.125		0	NR	NR	NR	NR	0
NY SPILLS 80	0.125		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		23	48	NR	NR	NR	71
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
DOT OPS	TP		NR	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	TP		NR	NR	NR	NR	NR	0
DOCKET HWC	TP		NR	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
ECHO	TP		NR	NR	NR	NR	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
NY AIRS	TP		NR	NR	NR	NR	NR	0
NY COAL ASH	0.500		0	0	0	NR	NR	0
NY DRYCLEANERS	0.250		0	1	NR	NR	NR	1
NY E DESIGNATION	0.125		19	NR	NR	NR	NR	19

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
NY Financial Assurance	TP		NR	NR	NR	NR	NR	0
NY HSWDS	0.500		0	0	0	NR	NR	0
NY MANIFEST	0.250		24	60	NR	NR	NR	84
PA MANIFEST	0.250		1	0	NR	NR	NR	1
NJ MANIFEST	0.250		5	18	NR	NR	NR	23
NY SPDES	TP		NR	NR	NR	NR	NR	0
NY VAPOR REOPENED	0.500		0	0	0	NR	NR	0
NY UIC	TP		NR	NR	NR	NR	NR	0
NY COOLING TOWERS	TP		NR	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	1	0	NR	1
EDR Hist Auto	0.125		3	NR	NR	NR	NR	3
EDR Hist Cleaner	0.125		2	NR	NR	NR	NR	2
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
NY RGA HWS	TP		NR	NR	NR	NR	NR	0
NY RGA LF	TP		NR	NR	NR	NR	NR	0
- Totals --		0	142	202	34	1	0	379

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1 **ST JOSEPHS CHURCH** **NY AST** **U003391524**
1948 WASHINGTON AVE **N/A**
< 1/8 **NEW YORK, NY 10457**
1 ft.

Site 1 of 9 in cluster A

Relative: **Lower**
Actual: **66 ft.**

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-399744
Program Type:	PBS
UTM X:	592969.37019
UTM Y:	4522504.26800
Expiration Date:	10/06/2012
Site Type:	Religious Building (Church, Synagogue, Mosque, Temple, etc.)

Affiliation Records:

Site Id:	19048
Affiliation Type:	Facility Owner
Company Name:	ST JOSEPHS PARISH
Contact Type:	PASTOR
Contact Name:	REVEREND RUFINO LECUMBERRI
Address1:	1949 BATHGATE AVE
Address2:	Not reported
City:	NEW YORK
State:	NY
Zip Code:	10457
Country Code:	001
Phone:	(718) 731-2504
EMail:	Not reported
Fax Number:	Not reported
Modified By:	kakyer
Date Last Modified:	2007-09-20

Site Id:	19048
Affiliation Type:	Mail Contact
Company Name:	ST JOSEPHS PARISH
Contact Type:	Not reported
Contact Name:	REV. RUFINO LECUMBERRI
Address1:	1949 BATHGATE AVE
Address2:	Not reported
City:	NEW YORK
State:	NY
Zip Code:	10457
Country Code:	001
Phone:	(212) 731-2504
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Site Id:	19048
Affiliation Type:	Facility Operator
Company Name:	ST JOSEPHS CHURCH
Contact Type:	Not reported
Contact Name:	ALFREDO ROMAN
Address1:	Not reported
Address2:	Not reported
City:	Not reported

ST JOSEPHS CHURCH (Continued) **U003391524**

State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 731-2504
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Site Id:	19048
Affiliation Type:	Emergency Contact
Company Name:	ST JOSEPHS PARISH
Contact Type:	Not reported
Contact Name:	REV. RUFINO LECUMBERRI
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 731-2504
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Tank Info:

Tank Number:	001
Tank Id:	21659
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

Equipment Records:

	B00 - Tank External Protection - None
	F00 - Pipe External Protection - None
	C01 - Pipe Location - Aboveground
	I04 - Overfill - Product Level Gauge (A/G)
	G00 - Tank Secondary Containment - None
	J02 - Dispenser - Suction Dispenser
	A00 - Tank Internal Protection - None
	D01 - Pipe Type - Steel/Carbon Steel/Iron
	H00 - Tank Leak Detection - None
	L09 - Piping Leak Detection - Exempt Suction Piping
Tank Location:	Aboveground - contact with soil.... Tank bottom rests on soil, allowing no visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	01/01/1911
Capacity Gallons:	3000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True

ST JOSEPHS CHURCH (Continued) **U003391524**

Modified By: kakyer
Last Modified: 04/14/2017
Material Name: #2 fuel oil (on-site consumption)

A2 **CON EDISON SERVICE BOX: 22471** **RCRA NonGen / NLR** **1016971637**
1951 BATHGATE AVE FRONT OF **NY MANIFEST** **NYP004453809**
< 1/8 **BRONX, NY 10457**
1 ft.

Site 2 of 9 in cluster A

Relative: Higher
Actual: 78 ft.

RCRA NonGen / NLR:
Date form received by agency: 03/27/2014
Facility name: CON EDISON SERVICE BOX: 22471
Facility address: 1951 BATHGATE AVE FRONT OF
BRONX, NY 10457
EPA ID: NYP004453809
Mailing address: IRVING PL, 15TH FL NE
NEW YORK, NY 10003
Contact: THOMAS TEELING
Contact address: Not reported
Not reported
Contact country: Not reported
Contact telephone: 212-460-3770
Contact email: Not reported
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 02/27/2014
Site name: CON EDISON SERVICE BOX: 22471
Classification: Conditionally Exempt Small Quantity Generator

Violation Status: No violations found

NY MANIFEST:
Country: USA
EPA ID: NYP004453809
Facility Status: Not reported
Location Address 1: 1951 BATHGATE AVE

CON EDISON SERVICE BOX: 22471 (Continued) **1016971637**

Code:	BP
Location Address 2:	SB22471
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	10461
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYP004453809
Mailing Name:	CON EDISON
Mailing Contact:	CON EDISION
Mailing Address 1:	4 IRVING PL
Mailing Address 2:	15TH FL
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	10003
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	Not reported

NY MANIFEST:

Document ID:	Not reported
Manifest Status:	Not reported
seq:	Not reported
Year:	2014
Trans1 State ID:	NJD003812047
Trans2 State ID:	Not reported
Generator Ship Date:	02/27/2014
Trans1 Recv Date:	02/27/2014
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	03/03/2014
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004453809
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD991291105
TSDF ID 2:	Not reported
Manifest Tracking Number:	002219068GBF
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H110
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported

CON EDISON SERVICE BOX: 22471 (Continued) **1016971637**

Quantity:	185
Units:	P - Pounds
Number of Containers:	1
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

A3 **BRONX SHEPHERDS RESTORATION CORPORATION** **NJ MANIFEST** **S120679075**
SW **1932 WASHINGTON AVE** **N/A**
< 1/8 **BRONX, NY 10457**
0.004 mi.
20 ft. **Site 3 of 9 in cluster A**

Relative:
Lower

Actual:
61 ft.

NJ MANIFEST:

EPA Id:	NYR000217489
Mail Address:	E 171ST ST
Mail City/State/Zip:	BRONX, NY 10457
Facility Phone:	Not reported
Emergency Phone:	Not reported
Contact:	ANTHONY LOWE
Comments:	Not reported
SIC Code:	Not reported
County:	NY005
Municipal:	Not reported
Previous EPA Id:	Not reported
Gen Flag:	Not reported
Trans Flag:	Not reported
TSDF Flag:	Not reported
Name Change:	Not reported
Date Change:	Not reported

Manifest:

Manifest Number:	011643222JJK
EPA ID:	NYR000217489
Date Shipped:	2/26/2015
TSDF EPA ID:	NJD980536593
Transporter EPA ID:	NYD064748304
Transporter 2 EPA ID:	Not reported
Transporter 3 EPA ID:	Not reported
Transporter 4 EPA ID:	Not reported
Transporter 5 EPA ID:	Not reported
Transporter 6 EPA ID:	Not reported
Transporter 7 EPA ID:	Not reported
Transporter 8 EPA ID:	Not reported
Transporter 9 EPA ID:	Not reported
Transporter 10 EPA ID:	Not reported
Date Trans1 Transported Waste:	Not reported
Date Trans2 Transported Waste:	Not reported

BRONX SHEPHERDS RESTORATION CORPORATION (Continued) **S120679075**

Date Trans3 Transported Waste:	Not reported
Date Trans4 Transported Waste:	Not reported
Date Trans5 Transported Waste:	Not reported
Date Trans6 Transported Waste:	Not reported
Date Trans7 Transported Waste:	Not reported
Date Trans8 Transported Waste:	Not reported
Date Trans9 Transported Waste:	Not reported
Date Trans10 Transported Waste:	Not reported
Date TSDF Received Waste:	Not reported
TSDF EPA Facility Name:	Not reported
QTY Units:	Not reported
Transporter SEQ ID:	Not reported
Transporter-1 Date:	Not reported
Waste SEQ ID:	Not reported
Waste Type Code 2:	Not reported
Waste Type Code 3:	Not reported
Waste Type Code 4:	Not reported
Waste Type Code 5:	Not reported
Waste Type Code 6:	Not reported
Date Accepted:	Not reported
Manifest Discrepancy Type:	Not reported
Data Entry Number:	Not reported
Was Load Rejected:	BRONX, NY 10457
Reason Load Was Rejected:	Not reported

A4 **BRONX SHEPHERDS RESTORATION CORPORATION** **RCRA NonGen / NLR** **1017780156**
SW **1932 WASHINGTON AVE** **NYR000217489**
< 1/8 **BRONX, NY 10457**
0.004 mi.
20 ft. **Site 4 of 9 in cluster A**

Relative:
Lower

Actual:
61 ft.

RCRA NonGen / NLR:

Date form received by agency:	04/18/2017
Facility name:	BRONX SHEPHERDS RESTORATION CORPORATION
Facility address:	1932 WASHINGTON AVE BRONX, NY 10457
EPA ID:	NYR000217489
Mailing address:	E 171ST ST BRONX, NY 10457
Contact:	ANTHONY LOWE
Contact address:	E 171ST ST BRONX, NY 10457
Contact country:	US
Contact telephone:	718-299-0500
Contact email:	ALOWE@BRONXSHEPHERDS.ORG
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	ANTHONY LOWE
Owner/operator address:	Not reported Not reported
Owner/operator country:	US
Owner/operator telephone:	Not reported

BRONX SHEPHERDS RESTORATION CORPORATION (Continued) **1017780156**

Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 06/01/2014
Owner/Op end date: Not reported

Owner/operator name: ANTHONY LOWE
Owner/operator address: Not reported
Not reported
Owner/operator country: Not reported
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 06/01/2014
Owner/Op end date: Not reported

Owner/operator name: BRONX SHEPHERDS RESTORATION CORPORATION
Owner/operator address: E 171ST ST
BRONX, NY 10457
Owner/operator country: US
Owner/operator telephone: 718-299-0500
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 04/01/2000
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

. Waste code: D001
. Waste name: IGNITABLE WASTE

. Waste code: D002
. Waste name: CORROSIVE WASTE

BRONX SHEPHERDS RESTORATION CORPORATION (Continued) **1017780156**

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Historical Generators:
Date form received by agency: 02/19/2015
Site name: BRONX SHEPHERDS RESTORATION CORPORATION
Classification: Small Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE WASTE

. Waste code: D002
. Waste name: CORROSIVE WASTE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF

BRONX SHEPHERDS RESTORATION CORPORATION (Continued) **1017780156**

THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Violation Status: No violations found

A5 **BRONX SHEPHERDS RESTORATION CORPORATION** **NY MANIFEST** **S117742316**
SW **1932 WASHINGTON AVE** **N/A**
< 1/8 **BRONX, NY 10457**
0.004 mi.
20 ft. **Site 5 of 9 in cluster A**

Relative:
Lower

Actual:
61 ft.

NY MANIFEST:

Country:	USA
EPA ID:	NYR000217489
Facility Status:	Not reported
Location Address 1:	1932 WASHINGTON AVE
Code:	BP
Location Address 2:	Not reported
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	10457
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYR000217489
Mailing Name:	BRONX SHEPHERDS RESTORATION CORPORATION
Mailing Contact:	BRONX SHEPHERDS RESTORATION CORP
Mailing Address 1:	445 E 107TH ST
Mailing Address 2:	Not reported
Mailing City:	BRONX
Mailing State:	NY
Mailing Zip:	10457
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	5167813000

NY MANIFEST:

Document ID:	Not reported
Manifest Status:	Not reported
seq:	Not reported
Year:	2015
Trans1 State ID:	NYD064748304
Trans2 State ID:	NJD080631369
Generator Ship Date:	02/26/2015
Trans1 Recv Date:	02/26/2015
Trans2 Recv Date:	02/27/2015
TSD Site Recv Date:	03/03/2015
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000217489
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD980536593
TSDF ID 2:	Not reported
Manifest Tracking Number:	011643222JJK
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N

BRONX SHEPHERDS RESTORATION CORPORATION (Continued) **S117742316**

Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H141
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	3175
Units:	P - Pounds
Number of Containers:	9
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	1
Waste Code:	D001
Waste Code 1_2:	F003
Waste Code 1_3:	Not reported
Waste Code 1_4:	D035
Waste Code 1_5:	F005
Waste Code 1_6:	D008

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

A6 **CON EDISON** **NJ MANIFEST** **S120675919**
NE **495 E 178TH ST** **N/A**
< 1/8 **BRONX, NY 10457**
0.019 mi.
98 ft. **Site 6 of 9 in cluster A**

Relative:
Higher

Actual:
78 ft.

NJ MANIFEST:

EPA Id:	NYP004829929
Mail Address:	IRVING PL 15TH FL NE
Mail City/State/Zip:	NEW YORK, NY 10003
Facility Phone:	Not reported
Emergency Phone:	Not reported
Contact:	THOMAS TEELING
Comments:	Not reported
SIC Code:	Not reported
County:	NY005
Municipal:	Not reported
Previous EPA Id:	Not reported
Gen Flag:	Not reported
Trans Flag:	Not reported
TSDF Flag:	Not reported
Name Change:	Not reported
Date Change:	Not reported

Manifest:

Manifest Number:	002661346GBF
EPA ID:	NYP004829929
Date Shipped:	8/26/2015

CON EDISON (Continued) **S120675919**

TSDF EPA ID:	NJD991291105
Transporter EPA ID:	NJD003812047
Transporter 2 EPA ID:	Not reported
Transporter 3 EPA ID:	Not reported
Transporter 4 EPA ID:	Not reported
Transporter 5 EPA ID:	Not reported
Transporter 6 EPA ID:	Not reported
Transporter 7 EPA ID:	Not reported
Transporter 8 EPA ID:	Not reported
Transporter 9 EPA ID:	Not reported
Transporter 10 EPA ID:	Not reported
Date Trans1 Transported Waste:	Not reported
Date Trans2 Transported Waste:	Not reported
Date Trans3 Transported Waste:	Not reported
Date Trans4 Transported Waste:	Not reported
Date Trans5 Transported Waste:	Not reported
Date Trans6 Transported Waste:	Not reported
Date Trans7 Transported Waste:	Not reported
Date Trans8 Transported Waste:	Not reported
Date Trans9 Transported Waste:	Not reported
Date Trans10 Transported Waste:	Not reported
Date TSDF Received Waste:	Not reported
TSDF EPA Facility Name:	Not reported
QTY Units:	Not reported
Transporter SEQ ID:	Not reported
Transporter-1 Date:	Not reported
Waste SEQ ID:	Not reported
Waste Type Code 2:	Not reported
Waste Type Code 3:	Not reported
Waste Type Code 4:	Not reported
Waste Type Code 5:	Not reported
Waste Type Code 6:	Not reported
Date Accepted:	Not reported
Manifest Discrepancy Type:	Not reported
Data Entry Number:	Not reported
Was Load Rejected:	NEW YORK, NY 10003
Reason Load Was Rejected:	Not reported

A7 **CON EDISON** **RCRA NonGen / NLR** **1019907082**
NE **495 E 178TH ST** **FINDS** **NYP004829929**
< 1/8 **BRONX, NY 10457** **ECHO**
0.019 mi.
98 ft. **Site 7 of 9 in cluster A**

Relative:
Higher

Actual:
78 ft.

RCRA NonGen / NLR:

Date form received by agency:	08/26/2015
Facility name:	CON EDISON
Facility address:	495 E 178TH ST BRONX, NY 10457
EPA ID:	NYP004829929
Mailing address:	IRVING PL 15TH FL NE NEW YORK, NY 10003
Contact:	THOMAS TEELING
Contact address:	Not reported Not reported
Contact country:	Not reported

CON EDISON (Continued) **1019907082**

Contact telephone: 212-460-3770
Contact email: Not reported
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 08/26/2015
Site name: CON EDISON
Classification: Large Quantity Generator

Violation Status: No violations found

FINDS:

Registry ID: 110069683774

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1019907082
Registry ID: 110069683774
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110069683774

A8
NE
< 1/8
0.019 mi.
98 ft.

495 EAST 178TH ST HDFC
495 EAST 178 STREET
BRONX, NY 10457

Site 8 of 9 in cluster A

NY AST **U003390706**
N/A

Relative:
Higher

Actual:
78 ft.

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-321850
Program Type:	PBS
UTM X:	593002.54125
UTM Y:	4522493.01949
Expiration Date:	08/28/2022
Site Type:	Apartment Building/Office Building

Affiliation Records:

Site Id:	14975
Affiliation Type:	Facility Owner
Company Name:	495 EAST 178 ST. HDFC
Contact Type:	AGENT
Contact Name:	VICTOR BERMEO
Address1:	20 TUCKAHOE ROAD
Address2:	Not reported
City:	YONKERS
State:	NY
Zip Code:	10710
Country Code:	001
Phone:	(914) 207-1744
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MFLEONAR
Date Last Modified:	2018-02-13

Site Id:	14975
Affiliation Type:	Mail Contact
Company Name:	FINGER MANAGEMENT CORP.
Contact Type:	Not reported
Contact Name:	VICTOR BERMEO
Address1:	20 TUCKAHOE ROAD
Address2:	Not reported
City:	YONKERS
State:	NY
Zip Code:	10710
Country Code:	001
Phone:	(914) 207-1744
EMail:	VICTOR@FINGERMANAGEMENTCORP.COM
Fax Number:	Not reported
Modified By:	MFLEONAR
Date Last Modified:	2018-02-13

Site Id:	14975
Affiliation Type:	Facility Operator
Company Name:	495 EAST 178TH ST HDFC
Contact Type:	Not reported
Contact Name:	MALCOLM DOCTOR
Address1:	Not reported
Address2:	Not reported
City:	Not reported

495 EAST 178TH ST HDFC (Continued) **U003390706**

State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(347) 693-0300
EMail:	Not reported
Fax Number:	Not reported
Modified By:	DAFRANCI
Date Last Modified:	2018-02-21

Site Id:	14975
Affiliation Type:	Emergency Contact
Company Name:	495 EAST 178 ST. HDFC
Contact Type:	Not reported
Contact Name:	FINGER MANAGEMENT CORP.
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(914) 207-1744
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MFLEONAR
Date Last Modified:	2018-02-13

Tank Info:

Tank Number:	001
Tank Id:	19853
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

Equipment Records:

	H06 - Tank Leak Detection - Impervious Barrier/Concrete Pad (A/G)
	I04 - Overfill - Product Level Gauge (A/G)
	E00 - Piping Secondary Containment - None
	L09 - Piping Leak Detection - Exempt Suction Piping
	C03 - Pipe Location - Aboveground/Underground Combination
	J02 - Dispenser - Suction Dispenser
	B00 - Tank External Protection - None
	F00 - Pipe External Protection - None
	G02 - Tank Secondary Containment - Vault (w/access)
	A00 - Tank Internal Protection - None
	D01 - Pipe Type - Steel/Carbon Steel/Iron
	K00 - Spill Prevention - None
Tank Location:	Aboveground - on saddles, legs, racks, etc.... Tank bottom is elevated above grade or tank pad, allowing visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	10/26/1941
Capacity Gallons:	4000
Tightness Test Method:	21
Date Test:	01/18/2018
Next Test Date:	Not reported

495 EAST 178TH ST HDFC (Continued) **U003390706**

Date Tank Closed:	Not reported
Register:	True
Modified By:	BKFALVEY
Last Modified:	03/02/2018
Material Name:	#4 fuel oil (on-site consumption)

B9 **ST JOSEPHS SCHOOL** **NY AST** **U003391525**
ESE **1946 BATHGATE AVENUE** **N/A**
< 1/8 **BRONX, NY 10457**
0.019 mi.
99 ft. **Site 1 of 15 in cluster B**

Relative:
Higher

Actual:
74 ft.

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-399752
Program Type:	PBS
UTM X:	593011.25580
UTM Y:	4522430.96029
Expiration Date:	02/03/2013
Site Type:	School

Affiliation Records:

Site Id:	19049
Affiliation Type:	Facility Owner
Company Name:	ST JOSEPHS PARISH
Contact Type:	PASTOR
Contact Name:	REV RUFINO LECUMBERRI
Address1:	1949 BATHGATE AVE
Address2:	Not reported
City:	NEW YORK
State:	NY
Zip Code:	10457
Country Code:	001
Phone:	(718) 731-2504
EMail:	Not reported
Fax Number:	Not reported
Modified By:	msbaptis
Date Last Modified:	2008-02-01

Site Id:	19049
Affiliation Type:	Mail Contact
Company Name:	ST JOSEPHS PARISH
Contact Type:	Not reported
Contact Name:	REV.RUFINO LECUMBERRI
Address1:	1949 BATHGATE AVENUE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10457
Country Code:	001
Phone:	(212) 731-2504
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

ST JOSEPHS SCHOOL (Continued) **U003391525**

Site Id:	19049
Affiliation Type:	Facility Operator
Company Name:	ST JOSEPHS SCHOOL
Contact Type:	Not reported
Contact Name:	ALFREDO ROMAN
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(212) 731-3504
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Site Id:	19049
Affiliation Type:	Emergency Contact
Company Name:	ST JOSEPHS PARISH
Contact Type:	Not reported
Contact Name:	REV. RUFINO LECUMBERRI
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 731-2504
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Tank Info:

Tank Number:	001
Tank Id:	21660
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

Equipment Records:

F00 - Pipe External Protection - None
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
L09 - Piping Leak Detection - Exempt Suction Piping
G03 - Tank Secondary Containment - Vault (w/o access)
H00 - Tank Leak Detection - None
J02 - Dispenser - Suction Dispenser
I04 - Overfill - Product Level Gauge (A/G)
D01 - Pipe Type - Steel/Carbon Steel/Iron
A00 - Tank Internal Protection - None

Tank Location:	Aboveground - contact with soil.... Tank bottom rests on soil, allowing no visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service

ST JOSEPHS SCHOOL (Continued) **U003391525**

Pipe Model:	Not reported
Install Date:	01/01/1960
Capacity Gallons:	3000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	msbaptis
Last Modified:	04/14/2017
Material Name:	#2 fuel oil (on-site consumption)

B10 **CON EDISON SERVICE BOX: 22469** **RCRA NonGen / NLR** **1017775860**
SSE **1904 BATHGATE AVE FRONT OF** **FINDS** **NYP004537072**
< 1/8 **BRONX, NY 10457**
0.020 mi.
108 ft. **Site 2 of 15 in cluster B**

Relative: **Lower**

Actual: **63 ft.**

RCRA NonGen / NLR:

Date form received by agency:	06/20/2014
Facility name:	CON EDISON SERVICE BOX: 22469
Facility address:	1904 BATHGATE AVE FRONT OF BRONX, NY 10457
EPA ID:	NYP004537072
Mailing address:	IRVING PL, 15TH FL NE NEW YORK, NY 10003
Contact:	THOMAS TEELING
Contact address:	Not reported Not reported
Contact country:	Not reported
Contact telephone:	212-460-3770
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Historical Generators:

Date form received by agency:	05/20/2014
Site name:	CON EDISON
Classification:	Large Quantity Generator

CON EDISON SERVICE BOX: 22469 (Continued) **1017775860**

Date form received by agency: 05/20/2014
Site name: CON EDISON
Classification: Not a generator, verified

Violation Status: No violations found

FINDS:

Registry ID: 110063795415

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

B11 **CON EDISON** **NY MANIFEST** **S117061403**
SSE **1904 BATHGATE AVE FRONT OF** **N/A**
< 1/8 **BRONX, NY 10457**
0.020 mi.
108 ft. **Site 3 of 15 in cluster B**

Relative:
Lower

Actual:
63 ft.

NY MANIFEST:
Country: USA
EPA ID: NYP004537072
Facility Status: Not reported
Location Address 1: 1904 BATHGATE AVE
Code: BP
Location Address 2: SB 22469
Total Tanks: Not reported
Location City: BRONX
Location State: NY
Location Zip: 10457
Location Zip 4: Not reported

NY MANIFEST:
EPAID: NYP004537072
Mailing Name: CON EDISON
Mailing Contact: TOM TEELING
Mailing Address 1: 4 IRVING PLACE 15TH FLOOR
Mailing Address 2: Not reported
Mailing City: NEW YORK
Mailing State: NY
Mailing Zip: 10003
Mailing Zip 4: Not reported
Mailing Country: USA
Mailing Phone: Not reported

NY MANIFEST:
Document ID: Not reported
Manifest Status: Not reported
seq: Not reported

CON EDISON (Continued) **S117061403**

Year:	2014
Trans1 State ID:	NJD003812047
Trans2 State ID:	Not reported
Generator Ship Date:	05/20/2014
Trans1 Recv Date:	05/20/2014
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	05/27/2014
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004537072
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD991291105
TSDF ID 2:	Not reported
Manifest Tracking Number:	002422959GBF
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H110
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	100
Units:	P - Pounds
Number of Containers:	1
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

B12 **QUEST PROPERTY MGMT II CORP.** **NY AST** **A100173265**
ENE **505 EAST 178TH STREET** **N/A**
< 1/8 **BRONX, NY 10457**
0.026 mi.
139 ft. **Site 4 of 15 in cluster B**

Relative:
Higher

Actual:
81 ft.

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-064513
Program Type:	PBS
UTM X:	593041.98384
UTM Y:	4522475.88436
Expiration Date:	11/17/2020
Site Type:	Apartment Building/Office Building

Affiliation Records:

Site Id:	1353
Affiliation Type:	Facility Owner
Company Name:	505 EAST 178 LLC
Contact Type:	MEMBER
Contact Name:	MICHAEL TOIKACH
Address1:	P.O. BOX 350737
Address2:	Not reported
City:	BROOKLYN
State:	NY
Zip Code:	11235
Country Code:	001
Phone:	(718) 407-0360
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NTFREEMA
Date Last Modified:	2015-10-19

Site Id:	1353
Affiliation Type:	Mail Contact
Company Name:	QUEST PROPERTY MGMT II CORP.
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	P.O. BOX 350737
Address2:	Not reported
City:	BROOKLYN
State:	NY
Zip Code:	11235
Country Code:	001
Phone:	(718) 407-0360
EMail:	Not reported
Fax Number:	Not reported
Modified By:	KXTANG
Date Last Modified:	2005-10-18

Site Id:	1353
Affiliation Type:	Facility Operator
Company Name:	QUEST PROPERTY MGMT II CORP.
Contact Type:	Not reported
Contact Name:	MICHAEL TOIKACH
Address1:	Not reported
Address2:	Not reported
City:	Not reported

QUEST PROPERTY MGMT II CORP. (Continued) **A100173265**

State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 407-0360
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NTFREEMA
Date Last Modified:	2015-10-19

Site Id:	1353
Affiliation Type:	Emergency Contact
Company Name:	QUEST PROPERTY MGMT II CORP
Contact Type:	Not reported
Contact Name:	MICHAEL TOIKACH
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(718) 407-0360 2
EMail:	Not reported
Fax Number:	Not reported
Modified By:	BVCAMPBE
Date Last Modified:	2010-11-04

Tank Info:

Tank Number:	001
Tank Id:	2390
Material Code:	0003
Common Name of Substance:	#6 Fuel Oil (On-Site Consumption)

Equipment Records:

G00 - Tank Secondary Containment - None
I04 - Overfill - Product Level Gauge (A/G)
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
K00 - Spill Prevention - None
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None
L00 - Piping Leak Detection - None

Tank Location:	Aboveground - contact with soil.... Tank bottom rests on soil, allowing no visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	01/01/1928
Capacity Gallons:	3500
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported

QUEST PROPERTY MGMT II CORP. (Continued) **A100173265**

Register: True
Modified By: NTFREEMA
Last Modified: 04/14/2017
Material Name: #6 fuel oil (on-site consumption)

A13 **463 EAST 178TH ST. HDFC** **NY AST** **A100173365**
NNW **463 EAST 178TH ST** **N/A**
< 1/8 **BRONX, NY 10457**
0.028 mi.
150 ft. **Site 9 of 9 in cluster A**

Relative:
Lower

Actual:
62 ft.

AST:
Region: STATE
DEC Region: 2
Site Status: Active
Facility Id: 2-284726
Program Type: PBS
UTM X: 592936.01102
UTM Y: 4522543.09093
Expiration Date: 10/23/2020
Site Type: Apartment Building/Office Building

Affiliation Records:
Site Id: 12629
Affiliation Type: Facility Owner
Company Name: 463 EAST 178TH ST. HDFC
Contact Type: AGENT
Contact Name: VICTOR BERMEO
Address1: 463 EAST 178TH STREET
Address2: Not reported
City: BRONX
State: NY
Zip Code: 10457
Country Code: 001
Phone: (914) 207-1744
EMail: Not reported
Fax Number: Not reported
Modified By: NTFREEMA
Date Last Modified: 2015-10-02

Site Id: 12629
Affiliation Type: Mail Contact
Company Name: 463 EAST 178TH ST. HDFC C/O FINGER MGMT CORP
Contact Type: Not reported
Contact Name: VICTOR BERMEO
Address1: 20 TUCKAHOE RD
Address2: Not reported
City: YONKERS
State: NY
Zip Code: 10710
Country Code: 001
Phone: (917) 207-1744
EMail: VICTOR@FINGERMANAGEMENT.COM
Fax Number: Not reported
Modified By: NTFREEMA
Date Last Modified: 2015-10-02

Site Id: 12629

463 EAST 178TH ST. HDFC (Continued) **A100173365**

Affiliation Type:	Facility Operator
Company Name:	463 EAST 178TH ST. HDFC
Contact Type:	Not reported
Contact Name:	JUAN AYALA
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(646) 730-2754
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MSBAPTIS
Date Last Modified:	2013-09-17

Site Id:	12629
Affiliation Type:	Emergency Contact
Company Name:	463 EAST 178TH ST. HDFC C/O FINGER MGMT CORP
Contact Type:	Not reported
Contact Name:	JUAN AYALA
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(646) 730-2754
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MSBAPTIS
Date Last Modified:	2013-09-17

Tank Info:

Tank Number:	001
Tank Id:	15125
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

Equipment Records:

I04 - Overfill - Product Level Gauge (A/G)
G00 - Tank Secondary Containment - None
J02 - Dispenser - Suction Dispenser
E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None
L09 - Piping Leak Detection - Exempt Suction Piping
B02 - Tank External Protection - Original Sacrificial Anode
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
K00 - Spill Prevention - None

Tank Location:	Aboveground - contact with soil.... Tank bottom rests on soil, allowing no visual inspection.
Tank Type:	Steel/Carbon Steel/Iron

463 EAST 178TH ST. HDFC (Continued) **A100173365**

Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	02/17/1981
Capacity Gallons:	5000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	NTFREEMA
Last Modified:	04/14/2017
Material Name:	#2 fuel oil (on-site consumption)

B14 **LOT 43,TAXBLOCK 3043** **NY E DESIGNATION** **S110670330**
SSE **503 EAST TREMONT AVENUE** **N/A**
< 1/8 **BRONX, NY 10457**
0.031 mi.
163 ft. **Site 5 of 15 in cluster B**

Relative: **Lower**
Actual: **58 ft.**

E DESIGNATION:

Tax Lot(s):	43
Tax Block:	3043
Borough Code:	BX
E-No:	E-255
Effective Date:	10/13/2010
Satisfaction Date:	Not reported
Ceqr Number:	10DCP043X
Ulurp Number:	100407ZMX
Zoning Map No:	3c, 3d
Description:	Air Quality - #2 Fuel Oil or #4 Fuel Oil or Natural Gas for HVAC systems
Lot Remediation Date:	Not reported
Description:	Exhaust stack location limitations
Lot Remediation Date:	Not reported

B15 **LOT 84,TAXBLOCK 3043** **NY E DESIGNATION** **S110670439**
SSE **505 EAST TREMONT AVENUE** **N/A**
< 1/8 **BRONX, NY 10457**
0.033 mi.
175 ft. **Site 6 of 15 in cluster B**

Relative: **Lower**
Actual: **58 ft.**

E DESIGNATION:

Tax Lot(s):	84
Tax Block:	3043
Borough Code:	BX
E-No:	E-255
Effective Date:	10/13/2010
Satisfaction Date:	Not reported
Ceqr Number:	10DCP043X
Ulurp Number:	100407ZMX
Zoning Map No:	3c, 3d
Description:	Air Quality - #2 Fuel Oil or #4 Fuel Oil or Natural Gas for HVAC systems

LOT 84,TAXBLOCK 3043 (Continued) **S110670439**

Lot Remediation Date: Not reported

Description: Exhaust stack location limitations
Lot Remediation Date: Not reported

B16 **CON EDISON** **NJ MANIFEST** **S120677244**
East **514 E 178TH STREET** **N/A**
< 1/8 **BRONX, NY 10457**
0.038 mi.
198 ft. **Site 7 of 15 in cluster B**

Relative:
Higher

Actual:
80 ft.

NJ MANIFEST:

EPA Id:	NYP004844730
Mail Address:	IRVING PLACE, 15TH FL NE
Mail City/State/Zip:	NEW YORK, NY 10003
Facility Phone:	Not reported
Emergency Phone:	Not reported
Contact:	THERESA BURKARD
Comments:	Not reported
SIC Code:	Not reported
County:	NY005
Municipal:	Not reported
Previous EPA Id:	Not reported
Gen Flag:	Not reported
Trans Flag:	Not reported
TSDF Flag:	Not reported
Name Change:	Not reported
Date Change:	Not reported

Manifest:

Manifest Number:	002661090GBF
EPA ID:	NYP004844730
Date Shipped:	9/28/2015
TSDF EPA ID:	NJD991291105
Transporter EPA ID:	NJD003812047
Transporter 2 EPA ID:	Not reported
Transporter 3 EPA ID:	Not reported
Transporter 4 EPA ID:	Not reported
Transporter 5 EPA ID:	Not reported
Transporter 6 EPA ID:	Not reported
Transporter 7 EPA ID:	Not reported
Transporter 8 EPA ID:	Not reported
Transporter 9 EPA ID:	Not reported
Transporter 10 EPA ID:	Not reported
Date Trans1 Transported Waste:	Not reported
Date Trans2 Transported Waste:	Not reported
Date Trans3 Transported Waste:	Not reported
Date Trans4 Transported Waste:	Not reported
Date Trans5 Transported Waste:	Not reported
Date Trans6 Transported Waste:	Not reported
Date Trans7 Transported Waste:	Not reported
Date Trans8 Transported Waste:	Not reported
Date Trans9 Transported Waste:	Not reported
Date Trans10 Transported Waste:	Not reported
Date TSDF Received Waste:	Not reported
TSDF EPA Facility Name:	Not reported
QTY Units:	Not reported
Transporter SEQ ID:	Not reported

CON EDISON (Continued) **S120677244**

Transporter-1 Date:	Not reported
Waste SEQ ID:	Not reported
Waste Type Code 2:	Not reported
Waste Type Code 3:	Not reported
Waste Type Code 4:	Not reported
Waste Type Code 5:	Not reported
Waste Type Code 6:	Not reported
Date Accepted:	Not reported
Manifest Discrepancy Type:	Not reported
Data Entry Number:	Not reported
Was Load Rejected:	NEW YORK, NY 10003
Reason Load Was Rejected:	Not reported

B17 **CON EDISON** **RCRA NonGen / NLR** **1019325651**
East **514 E 178TH STREET** **NYP004844730**
< 1/8 **BRONX, NY 10457**
0.038 mi.
198 ft. **Site 8 of 15 in cluster B**

Relative:
Higher

Actual:
80 ft.

RCRA NonGen / NLR:

Date form received by agency:	02/05/2016
Facility name:	CON EDISON
Site name:	CON EDISON - SERVICE BOX 13691
Facility address:	514 E 178TH STREET BRONX, NY 10457
EPA ID:	NYP004844730
Mailing address:	IRVING PLACE, 15TH FL NE NEW YORK, NY 10003
Contact:	THERESA BURKARD
Contact address:	IRVING PLACE, 15TH FL NE NEW YORK, NY 10003
Contact country:	US
Contact telephone:	212-460-2262
Contact email:	BURKARDT@CONED.COM
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	CONSOLIDATED EDISON COMPANY OF NY, INC.
Owner/operator address:	IRVING PLACE NEW YORK, NY 10003
Owner/operator country:	US
Owner/operator telephone:	Not reported
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	09/28/2015
Owner/Op end date:	Not reported

Owner/operator name:	CONSOLIDATED EDISON COMPANY OF NY, INC.
Owner/operator address:	IRVING PLACE NEW YORK, NY 10003

CON EDISON (Continued) **1019325651**

Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 09/28/2015
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

. Waste code: D008
. Waste name: LEAD

Historical Generators:
Date form received by agency: 09/28/2015
Site name: CON EDISON
Classification: Not a generator, verified

Date form received by agency: 09/28/2015
Site name: CON EDISON
Classification: Large Quantity Generator

Biennial Reports:

Last Biennial Reporting Year: 2017

Annual Waste Handled:
Waste code: D008
Waste name: LEAD
Amount (Lbs): 3000

Violation Status: No violations found

B18 **CON ED** **NY MANIFEST** **S118462969**
East **514 E 178TH STREET** **N/A**
< 1/8 **BRONX, NY 10457**
0.038 mi.
198 ft. **Site 9 of 15 in cluster B**

Relative:
Higher

Actual:
80 ft.

NY MANIFEST:

Country:	USA
EPA ID:	NYP004844730
Facility Status:	Not reported
Location Address 1:	514 E 178TH STREET
Code:	BP
Location Address 2:	Not reported
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	10457
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYP004844730
Mailing Name:	CON ED
Mailing Contact:	TOM TEELING
Mailing Address 1:	4 IRVING PLACE - 15TH FLOOR
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	10003
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	2124603770

NY MANIFEST:

Document ID:	Not reported
Manifest Status:	Not reported
seq:	Not reported
Year:	2015
Trans1 State ID:	NJD003812047
Trans2 State ID:	Not reported
Generator Ship Date:	09/28/2015
Trans1 Recv Date:	09/28/2015
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	10/02/2015
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004844730
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD991291105
TSDF ID 2:	Not reported
Manifest Tracking Number:	002661090GBF
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported

CON ED (Continued) **S118462969**

Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H110
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	3000
Units:	P - Pounds
Number of Containers:	1
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

B19 **LOT 80,TAXBLOCK 3043** **NY E DESIGNATION** **S110670436**
SSE **513 EAST TREMONT AVENUE** **N/A**
< 1/8 **BRONX, NY 10457**
0.039 mi.
207 ft. **Site 10 of 15 in cluster B**

Relative: **Lower**
Actual: **58 ft.**

E DESIGNATION:

Tax Lot(s):	80
Tax Block:	3043
Borough Code:	BX
E-No:	E-255
Effective Date:	10/13/2010
Satisfaction Date:	Not reported
Ceqr Number:	10DCP043X
Ulurp Number:	100407ZMX
Zoning Map No:	3c, 3d
Description:	Air Quality - #2 Fuel Oil or #4 Fuel Oil or Natural Gas for HVAC systems
Lot Remediation Date:	Not reported
Description:	Exhaust stack location limitations
Lot Remediation Date:	Not reported

C20 **HANOV REALTY CORP** **NY Spills** **S103829026**
NNE **1975 BATHGATE AVE** **N/A**
< 1/8 **BRONX, NY**
0.040 mi.
211 ft. **Site 1 of 7 in cluster C**

Relative:
Higher

Actual:
80 ft.

SPILLS:

Spill Number/Closed Date:	9814869 / 1999-03-15
Facility ID:	9814869
Facility Type:	ER
DER Facility ID:	127201
Site ID:	149542
DEC Region:	2
Spill Cause:	Equipment Failure
Spill Class:	C4
SWIS:	0301
Spill Date:	1999-03-15
Investigator:	JXZHAO
Referred To:	Not reported
Reported to Dept:	1999-03-15
CID:	384
Water Affected:	Not reported
Spill Source:	Commercial Vehicle
Spill Notifier:	Responsible Party
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	False
Remediation Phase:	0
Date Entered In Computer:	1999-03-15
Spill Record Last Update:	1999-03-15
Spiller Name:	JENNA MATOS
Spiller Company:	CASTLE OIL
Spiller Address:	290 LOCUST AV
Spiller Company:	001
Contact Name:	HAL
DEC Memo:	"Prior to Sept, 2004 data translation this spill Lead_DEC Field was ZHAO 1:40PM SPILL ON OUTSIDE CONCRETE SIDEWALK. IT HAS BEEN CLEANED UP COMPLETELY."
Remarks:	"caller states oil popped out of fill box. castle oil will be doing clean up. crew is enroute."

All Materials:

Site ID:	149542
Operable Unit ID:	1072461
Operable Unit:	01
Material ID:	311539
Material Code:	0003A
Material Name:	#6 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	10.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

C21 **1975 BATHGATE AVENUE** **NY AST** **U003394532**
NNE **1975 BATHGATE AVENUE** **N/A**
< 1/8 **BRONX, NY 10457**
0.040 mi.
211 ft. **Site 2 of 7 in cluster C**

Relative:
Higher

Actual:
80 ft.

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-457167
Program Type:	PBS
UTM X:	593021.96251
UTM Y:	4522536.93932
Expiration Date:	01/18/2024
Site Type:	Apartment Building/Office Building

Affiliation Records:

Site Id:	20188
Affiliation Type:	Facility Owner
Company Name:	HANOZ REALTY CORP
Contact Type:	VP
Contact Name:	AARON BAUER
Address1:	1624 WEBSTER AVENUE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10457
Country Code:	001
Phone:	(718) 583-4905
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MSBAPTIS
Date Last Modified:	2014-01-16

Site Id:	20188
Affiliation Type:	Facility Operator
Company Name:	1975 BATHGATE AVENUE
Contact Type:	Not reported
Contact Name:	JUAN HERNANDEZ
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(347) 591-3512
EMail:	Not reported
Fax Number:	Not reported
Modified By:	JSMACRI
Date Last Modified:	2019-01-22

Site Id:	20188
Affiliation Type:	Emergency Contact
Company Name:	HANOZ REALTY CORP
Contact Type:	Not reported
Contact Name:	AARON BAUER
Address1:	Not reported
Address2:	Not reported
City:	Not reported

1975 BATHGATE AVENUE (Continued) **U003394532**

State: NN
Zip Code: Not reported
Country Code: 001
Phone: (212) 731-2383
EMail: Not reported
Fax Number: Not reported
Modified By: TRANSLAT
Date Last Modified: 2004-03-04

Site Id: 20188
Affiliation Type: Mail Contact
Company Name: BB & BB MGMT. CORP.
Contact Type: Not reported
Contact Name: AARON BAUER
Address1: 1624 WEBSTER AVENUE
Address2: Not reported
City: BRONX
State: NY
Zip Code: 10457
Country Code: 001
Phone: (718) 583-4905
EMail: Not reported
Fax Number: Not reported
Modified By: JSMACRI
Date Last Modified: 2019-01-22

Tank Info:

Tank Number: 001
Tank Id: 36785
Material Code: 0003
Common Name of Substance: #6 Fuel Oil (On-Site Consumption)

Equipment Records:

J02 - Dispenser - Suction Dispenser
E00 - Piping Secondary Containment - None
G03 - Tank Secondary Containment - Vault (w/o access)
H00 - Tank Leak Detection - None
I00 - Overfill - None
F00 - Pipe External Protection - None
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
K00 - Spill Prevention - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
A00 - Tank Internal Protection - None

Tank Location: Aboveground - on saddles, legs, racks, etc.... Tank bottom is elevated above grade or tank pad, allowing visual inspection.
Tank Type: Steel/Carbon Steel/Iron
Tank Status: In Service
Pipe Model: Not reported
Install Date: 01/01/1944
Capacity Gallons: 3000
Tightness Test Method: -
Date Test: Not reported
Next Test Date: Not reported
Date Tank Closed: Not reported

1975 BATHGATE AVENUE (Continued) **U003394532**

Register: True
Modified By: JSMACRI
Last Modified: 01/22/2019
Material Name: #4 fuel oil (on-site consumption)

B22 **LOT 67,TAXBLOCK 3043** **NY E DESIGNATION** **S110670408**
ESE **4231 3 AVENUE** **N/A**
< 1/8 **BRONX, NY 10457**
0.041 mi.
218 ft. **Site 11 of 15 in cluster B**

Relative:
Higher

Actual:
78 ft.

E DESIGNATION:
Tax Lot(s): 67
Tax Block: 3043
Borough Code: BX
E-No: E-255
Effective Date: 10/13/2010
Satisfaction Date: Not reported
Ceqr Number: 10DCP043X
Ulurp Number: 100407ZMX
Zoning Map No: 3c, 3d

Description: Air Quality - #2 Fuel Oil or #4 Fuel Oil or Natural Gas for HVAC systems
Lot Remediation Date: Not reported

Description: Exhaust stack location limitations
Lot Remediation Date: Not reported

D23 **CON EDISON MANHOLE 5306** **RCRA NonGen / NLR** **1014919046**
South **BATHGATE AVE & E TREMONT AVE** **NJ MANIFEST** **NYP004232005**
< 1/8 **BRONX, NY 10457** **NY MANIFEST**
0.042 mi.
220 ft. **Site 1 of 9 in cluster D**

Relative:
Lower

Actual:
56 ft.

RCRA NonGen / NLR:
Date form received by agency: 04/21/2011
Facility name: CON EDISON MANHOLE 5306
Facility address: BATHGATE AVE & E TREMONT AVE
NE COR
BRONX, NY 10457
EPA ID: NYP004232005
Mailing address: IRVING PLAZA RM 828
NEW YORK, NY 10003
Contact: GINO FRABASILE
Contact address: Not reported
Not reported
Contact country: Not reported
Contact telephone: 914-925-6219
Contact email: Not reported
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:
U.S. importer of hazardous waste: No

CON EDISON MANHOLE 5306 (Continued) **1014919046**

Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 03/22/2011
Site name: CON EDISON MANHOLE 5306
Classification: Conditionally Exempt Small Quantity Generator

Violation Status: No violations found

NJ MANIFEST:
EPA Id: NYP004232005
Mail Address: IRVING PLAZA RM 828
Mail City/State/Zip: NEW YORK, NY 10003
Facility Phone: Not reported
Emergency Phone: Not reported
Contact: GINO FRABASILE
Comments: Not reported
SIC Code: Not reported
County: NY005
Municipal: Not reported
Previous EPA Id: Not reported
Gen Flag: Not reported
Trans Flag: Not reported
TSDF Flag: Not reported
Name Change: Not reported
Date Change: Not reported

Manifest:
Manifest Number: 007658354JJK
EPA ID: NYP004232005
Date Shipped: 3/22/2011
TSDF EPA ID: NJD002200046
Transporter EPA ID: NYD006982359
Transporter 2 EPA ID: Not reported
Transporter 3 EPA ID: Not reported
Transporter 4 EPA ID: Not reported
Transporter 5 EPA ID: Not reported
Transporter 6 EPA ID: Not reported
Transporter 7 EPA ID: Not reported
Transporter 8 EPA ID: Not reported
Transporter 9 EPA ID: Not reported
Transporter 10 EPA ID: Not reported
Date Trans1 Transported Waste: Not reported
Date Trans2 Transported Waste: Not reported
Date Trans3 Transported Waste: Not reported

CON EDISON MANHOLE 5306 (Continued) **1014919046**

Date Trans4 Transported Waste:	Not reported
Date Trans5 Transported Waste:	Not reported
Date Trans6 Transported Waste:	Not reported
Date Trans7 Transported Waste:	Not reported
Date Trans8 Transported Waste:	Not reported
Date Trans9 Transported Waste:	Not reported
Date Trans10 Transported Waste:	Not reported
Date TSDF Received Waste:	Not reported
TSDF EPA Facility Name:	Not reported
QTY Units:	Not reported
Transporter SEQ ID:	Not reported
Transporter-1 Date:	Not reported
Waste SEQ ID:	Not reported
Waste Type Code 2:	Not reported
Waste Type Code 3:	Not reported
Waste Type Code 4:	Not reported
Waste Type Code 5:	Not reported
Waste Type Code 6:	Not reported
Date Accepted:	Not reported
Manifest Discrepancy Type:	Not reported
Data Entry Number:	Not reported
Was Load Rejected:	NEW YORK, NY 10003
Reason Load Was Rejected:	Not reported

Waste:

Manifest Year:	Not reported
Waste Code:	D008
Hand Code:	H111
Quantity:	400.00 Pounds

NY MANIFEST:

Country:	USA
EPA ID:	NYP004232005
Facility Status:	Not reported
Location Address 1:	N/E/C TREMONT AVE & BATHGATE AVE
Code:	BP
Location Address 2:	Not reported
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	10451
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYP004232005
Mailing Name:	CONSOLIDATED EDISON
Mailing Contact:	TOM TEELING
Mailing Address 1:	4 IRVING PLACE RM 828
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	10003
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	2124603770

CON EDISON MANHOLE 5306 (Continued) **1014919046**

NY MANIFEST:

Document ID:	Not reported
Manifest Status:	Not reported
seq:	Not reported
Year:	2011
Trans1 State ID:	NYD006982359
Trans2 State ID:	Not reported
Generator Ship Date:	03/22/2011
Trans1 Recv Date:	03/22/2011
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	03/24/2011
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004232005
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD002200046
TSDF ID 2:	Not reported
Manifest Tracking Number:	007658354JJK
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	Y
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H111
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	400.0
Units:	P - Pounds
Number of Containers:	1.0
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1.0
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

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-1 additional NY MANIFEST: record(s) in the EDR Site Report.

B24
SE
< 1/8
0.042 mi.
223 ft.

LOT 72,TAXBLOCK 3043
4223 3 AVENUE
BRONX, NY 10457

Site 12 of 15 in cluster B

NY E DESIGNATION **S110670422**
N/A

Relative:
Higher

Actual:
70 ft.

E DESIGNATION:

Tax Lot(s):	72
Tax Block:	3043
Borough Code:	BX
E-No:	E-255
Effective Date:	10/13/2010
Satisfaction Date:	Not reported
Ceqr Number:	10DCP043X
Ulurp Number:	100407ZMX
Zoning Map No:	3c, 3d
Description:	Air Quality - #2 Fuel Oil or #4 Fuel Oil or Natural Gas for HVAC systems
Lot Remediation Date:	Not reported
Description:	Exhaust stack location limitations
Lot Remediation Date:	Not reported

E25
ENE
< 1/8
0.044 mi.
231 ft.

LOT 93,TAXBLOCK 3044
4261 3 AVENUE
BRONX, NY 10457

Site 1 of 3 in cluster E

NY E DESIGNATION **S117676634**
N/A

Relative:
Higher

Actual:
79 ft.

E DESIGNATION:

Tax Lot(s):	93
Tax Block:	3044
Borough Code:	BX
E-No:	E-255
Effective Date:	10/13/2010
Satisfaction Date:	Not reported
Ceqr Number:	10DCP043X
Ulurp Number:	100407ZMX
Zoning Map No:	3c, 3d
Description:	Hazardous Materials* Phase I and Phase II Testing Protocol
Lot Remediation Date:	Not reported

B26
ESE
< 1/8
0.045 mi.
237 ft.

CON EDISON SERVICE BOX: 13692
4225 3RD AVE
BRONX, NY 10465

Site 13 of 15 in cluster B

RCRA NonGen / NLR **1016968165**
NY MANIFEST **NYP004417739**

Relative:
Higher

Actual:
72 ft.

RCRA NonGen / NLR:

Date form received by agency:	02/13/2014
Facility name:	CON EDISON SERVICE BOX: 13692
Facility address:	4225 3RD AVE BRONX, NY 10465
EPA ID:	NYP004417739
Mailing address:	IRVING PL, 15TH FL NE NEW YORK, NY 10003

CON EDISON SERVICE BOX: 13692 (Continued) **1016968165**

Contact: THOMAS TEELING
Contact address: Not reported
Not reported
Contact country: Not reported
Contact telephone: 212-460-3770
Contact email: Not reported
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 01/13/2014
Site name: CON EDISON SERVICE BOX: 13692
Classification: Conditionally Exempt Small Quantity Generator

Violation Status: No violations found

NY MANIFEST:
Country: USA
EPA ID: NYP004417739
Facility Status: Not reported
Location Address 1: OPP 4226 THIRD AVE
Code: BP
Location Address 2: SB13692
Total Tanks: Not reported
Location City: BRONX
Location State: NY
Location Zip: 10461
Location Zip 4: Not reported

NY MANIFEST:
EPAID: NYP004417739
Mailing Name: CON EDISON
Mailing Contact: CON EDISON
Mailing Address 1: 4 IRVING PLACE
Mailing Address 2: 15TH FL
Mailing City: NEW YORK
Mailing State: NY
Mailing Zip: 10003
Mailing Zip 4: Not reported

CON EDISON SERVICE BOX: 13692 (Continued) **1016968165**

Mailing Country:	USA
Mailing Phone:	Not reported

NY MANIFEST:

Document ID:	Not reported
Manifest Status:	Not reported
seq:	Not reported
Year:	2014
Trans1 State ID:	NJD003812047
Trans2 State ID:	Not reported
Generator Ship Date:	01/13/2014
Trans1 Recv Date:	01/13/2014
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	01/17/2014
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004417739
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD991291105
TSDF ID 2:	Not reported
Manifest Tracking Number:	002085519GBF
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H110
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	60
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	1
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

F27
WSW
< 1/8
0.047 mi.
247 ft.

LOT 49,TAXBLOCK 3034
463 EAST TREMONT AVENUE
BRONX, NY

Site 1 of 19 in cluster F

NY E DESIGNATION **S110670359**
N/A

Relative:
Lower

Actual:
48 ft.

E DESIGNATION:

Tax Lot(s):	49
Tax Block:	3034
Borough Code:	Not reported
E-No:	E-255
Effective Date:	10/13/2010
Satisfaction Date:	Not reported
Ceqr Number:	10DCP043X
Ulurp Number:	100407ZMX
Zoning Map No:	3c, 3d
Description:	Hazardous Materials* Phase I and Phase II Testing Protocol
Lot Remediation Date:	Not reported

B28
SE
< 1/8
0.048 mi.
251 ft.

LOT 77,TAXBLOCK 3043
521 EAST TREMONT AVENUE
BRONX, NY 10457

Site 14 of 15 in cluster B

NY E DESIGNATION **S110670429**
N/A

Relative:
Lower

Actual:
60 ft.

E DESIGNATION:

Tax Lot(s):	77
Tax Block:	3043
Borough Code:	BX
E-No:	E-255
Effective Date:	10/13/2010
Satisfaction Date:	Not reported
Ceqr Number:	10DCP043X
Ulurp Number:	100407ZMX
Zoning Map No:	3c, 3d
Description:	Air Quality - #2 Fuel Oil or #4 Fuel Oil or Natural Gas for HVAC systems
Lot Remediation Date:	Not reported
Description:	Exhaust stack location limitations
Lot Remediation Date:	Not reported

F29
SW
< 1/8
0.048 mi.
255 ft.

CONSOLIDATED EDISON
WASHINGTON AVE & E TREMONT
BRONX, NY

Site 2 of 19 in cluster F

NY MANIFEST **1009239022**
N/A

Relative:
Lower

Actual:
51 ft.

NY MANIFEST:

Country:	USA
EPA ID:	NYP004056180
Facility Status:	Not reported
Location Address 1:	WASHINGTON AVE & E TREMONT
Code:	BP
Location Address 2:	Not reported
Total Tanks:	Not reported

CONSOLIDATED EDISON (Continued) **1009239022**

Location City: BRONX
Location State: NY
Location Zip: Not reported
Location Zip 4: Not reported

NY MANIFEST:
EPAID: NYP004056180
Mailing Name: CONSOLIDATED EDISON
Mailing Contact: FRANKLIN MURRAY
Mailing Address 1: 4 IRVING PLACE RM 828
Mailing Address 2: Not reported
Mailing City: NEW YORK
Mailing State: NY
Mailing Zip: 10003
Mailing Zip 4: Not reported
Mailing Country: USA
Mailing Phone: 2124602808

NY MANIFEST:
Document ID: NYE0439704
Manifest Status: Not reported
seq: 01
Year: 2000
Trans1 State ID: 48122AN
Trans2 State ID: Not reported
Generator Ship Date: 06/08/2000
Trans1 Recv Date: 06/08/2000
Trans2 Recv Date: Not reported
TSD Site Recv Date: 06/12/2000
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: NYP004056180
Trans1 EPA ID: NYD006982359
Trans2 EPA ID: Not reported
TSDF ID 1: NYD077444263
TSDF ID 2: Not reported
Manifest Tracking Number: Not reported
Import Indicator: Not reported
Export Indicator: Not reported
Discr Quantity Indicator: Not reported
Discr Type Indicator: Not reported
Discr Residue Indicator: Not reported
Discr Partial Reject Indicator: Not reported
Discr Full Reject Indicator: Not reported
Manifest Ref Number: Not reported
Alt Facility RCRA ID: Not reported
Alt Facility Sign Date: Not reported
MGMT Method Type Code: Not reported
Waste Code: B007 - OTHER MISCELLANEOUS PCB WASTES
Waste Code: Not reported
Waste Code: Not reported
Waste Code: Not reported
Waste Code: Not reported
Waste Code: Not reported
Quantity: 00127
Units: K - Kilograms (2.2 pounds)
Number of Containers: 002

CONSOLIDATED EDISON (Continued) **1009239022**

Container Type: DM - Metal drums, barrels
Handling Method: L Landfill.
Specific Gravity: 01.00

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-1 additional NY MANIFEST: record(s) in the EDR Site Report.

F30 **221428; NWC WASHINGTON AVE AND E. TREMONT AVE** **NY Spills** **S110750523**
SW **NWC WASHINGTON AVE AND E. TREMONT AVE** **N/A**
< 1/8 **BRONX, NY**
0.049 mi.
257 ft. **Site 3 of 19 in cluster F**

Relative: **Lower**
Actual: **51 ft.**

SPILLS:

Spill Number/Closed Date:	1009091 / 2010-05-12
Facility ID:	1009091
Facility Type:	ER
DER Facility ID:	397598
Site ID:	442628
DEC Region:	2
Spill Cause:	Equipment Failure
Spill Class:	D4
SWIS:	0301
Spill Date:	2010-05-11
Investigator:	DMPOKRZY
Referred To:	Not reported
Reported to Dept:	2010-06-30
CID:	Not reported
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Responsible Party
Cleanup Ceased:	Not reported
Cleanup Meets Std:	Not reported
Last Inspection:	Not reported
Recommended Penalty:	Not reported
UST Trust:	Not reported
Remediation Phase:	0
Date Entered In Computer:	2010-11-24
Spill Record Last Update:	2010-11-24
Spiller Name:	ERT DESK
Spiller Company:	CON EDISON
Spiller Address:	5030 BROADWAY
Spiller Company:	001
Contact Name:	ERT DESK
DEC Memo:	""
Remarks:	"Street Address = NWC Washington Ave & E. Tremont Ave Spill Volume = 1 Unit of Measure = Pint Substance Name = Dielectric Fluid - Distribution Feeder (Cable Oil) Cause Reason = Other Status Reason = Agency Approval Not Required"

All Materials:

Site ID:	442628
Operable Unit ID:	1193130
Operable Unit:	01
Material ID:	2188451
Material Code:	0541A
Material Name:	dielectric fluid

221428; NWC WASHINGTON AVE AND E. TREMONT AVE (Continued) **S110750523**

Case No.:	Not reported
Material FA:	Petroleum
Quantity:	.00
Units:	G
Recovered:	Not reported
Oxygenate:	Not reported

C31 **LOT 88,TAXBLOCK 3044** **NY E DESIGNATION** **S110670440**
ENE **4263 3 AVENUE** **N/A**
< 1/8 **BRONX, NY 10457**
0.050 mi.
263 ft. **Site 3 of 7 in cluster C**

Relative:
Higher

Actual:
79 ft.

E DESIGNATION:

Tax Lot(s):	88
Tax Block:	3044
Borough Code:	BX
E-No:	E-255
Effective Date:	10/13/2010
Satisfaction Date:	Not reported
Ceqr Number:	10DCP043X
Ulurp Number:	100407ZMX
Zoning Map No:	3c, 3d
Description:	Hazardous Materials* Phase I and Phase II Testing Protocol
Lot Remediation Date:	Not reported

E32 **35 GAL HYDRAULIC FROM VEH #60581** **NY Spills** **S108982024**
East **3 AVENUE & 178 STREET** **N/A**
< 1/8 **BRONX, NY**
0.054 mi.
283 ft. **Site 2 of 3 in cluster E**

Relative:
Higher

Actual:
78 ft.

SPILLS:

Spill Number/Closed Date:	0710794 / 2008-03-20
Facility ID:	0710794
Facility Type:	ER
DER Facility ID:	341756
Site ID:	392151
DEC Region:	2
Spill Cause:	Equipment Failure
Spill Class:	C4
SWIS:	0301
Spill Date:	2008-01-11
Investigator:	gdbreen
Referred To:	Not reported
Reported to Dept:	2008-01-11
CID:	444
Water Affected:	Not reported
Spill Source:	Commercial Vehicle
Spill Notifier:	Responsible Party
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	False

35 GAL HYDRAULIC FROM VEH #60581 (Continued) **S108982024**

UST Trust:	Not reported
Remediation Phase:	0
Date Entered In Computer:	2008-01-11
Spill Record Last Update:	2008-03-20
Spiller Name:	ERTSDESK
Spiller Company:	CON EDISON VEH #60581
Spiller Address:	3RD AVE & 178TH STREET
Spiller Company:	999
Contact Name:	ERTSDESK
DEC Memo:	"03/20/08 - See eDocs for Con Ed report detailing cleanup and closure. 209452. see eDocs"
Remarks:	"LEAKING FROM TRUCK AND CLEANING UP AT THIS TIME: CONED#209452"

All Materials:

Site ID:	392151
Operable Unit ID:	1149178
Operable Unit:	01
Material ID:	2139684
Material Code:	0010
Material Name:	hydraulic oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	35.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

D33 **CON EDISON MANHOLE: 23929** **RCRA NonGen / NLR 1016970930**
SSW **472 E TREMONT AVE FRONT OF** **NY MANIFEST NYP004446613**
< 1/8 **BRONX, NY 10453**
0.055 mi.
288 ft. **Site 2 of 9 in cluster D**

Relative: **Lower**

Actual: **53 ft.**

RCRA NonGen / NLR:

Date form received by agency:	03/20/2014
Facility name:	CON EDISON MANHOLE: 23929
Facility address:	472 E TREMONT AVE FRONT OF BRONX, NY 10453
EPA ID:	NYP004446613
Mailing address:	IRVING PL, 15TH FL NE NEW YORK, NY 10003
Contact:	THOMAS TEELING
Contact address:	Not reported Not reported
Contact country:	Not reported
Contact telephone:	212-460-3770
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No

CON EDISON MANHOLE: 23929 (Continued) **1016970930**

Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 02/20/2014
Site name: CON EDISON MANHOLE: 23929
Classification: Conditionally Exempt Small Quantity Generator

Violation Status: No violations found

NY MANIFEST:
Country: USA
EPA ID: NYP004446613
Facility Status: Not reported
Location Address 1: 472 ETREMONT
Code: BP
Location Address 2: SB23929
Total Tanks: Not reported
Location City: BRONX
Location State: NY
Location Zip: 10461
Location Zip 4: Not reported

NY MANIFEST:
EPAID: NYP004446613
Mailing Name: CON EDISON
Mailing Contact: CON EDISON
Mailing Address 1: 4 IRVING ST
Mailing Address 2: 15TH FL
Mailing City: NEW YORK
Mailing State: NY
Mailing Zip: 10003
Mailing Zip 4: Not reported
Mailing Country: USA
Mailing Phone: Not reported

NY MANIFEST:
Document ID: Not reported
Manifest Status: Not reported
seq: Not reported
Year: 2014
Trans1 State ID: NJD003812047
Trans2 State ID: Not reported
Generator Ship Date: 02/20/2014
Trans1 Recv Date: 02/20/2014
Trans2 Recv Date: Not reported
TSD Site Recv Date: 02/25/2014
Part A Recv Date: Not reported
Part B Recv Date: Not reported

CON EDISON MANHOLE: 23929 (Continued) **1016970930**

Generator EPA ID:	NYP004446613
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD991291105
TSDF ID 2:	Not reported
Manifest Tracking Number:	002219041GBF
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H110
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	500
Units:	P - Pounds
Number of Containers:	1
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

F34 **J & M CLEANERS** **EDR Hist Cleaner** **1018504809**
WSW **453 E TREMONT AVE** **N/A**
< 1/8 **BRONX, NY 10457**
0.055 mi.
293 ft. **Site 4 of 19 in cluster F**

Relative: EDR Hist Cleaner
Lower

Actual: Year: Name: Type:
48 ft. 2007 J & M CLEANERS Laundry And Drycleaner Agents

F35
WSW
< 1/8
0.055 mi.
293 ft.

LOT 52,TAXBLOCK 3034
453 EAST TREMONT AVENUE
BRONX, NY 10457

Site 5 of 19 in cluster F

NY E DESIGNATION **S110670371**
N/A

Relative:
Lower

Actual:
48 ft.

E DESIGNATION:

Tax Lot(s):	52
Tax Block:	3034
Borough Code:	BX
E-No:	E-255
Effective Date:	10/13/2010
Satisfaction Date:	Not reported
Ceqr Number:	10DCP043X
Ulurp Number:	100407ZMX
Zoning Map No:	3c, 3d
Description:	Air Quality - #2 Fuel Oil or #4 Fuel Oil or Natural Gas for HVAC systems
Lot Remediation Date:	Not reported
Description:	Exhaust stack location limitations
Lot Remediation Date:	Not reported
Description:	Hazardous Materials* Phase I and Phase II Testing Protocol
Lot Remediation Date:	Not reported

E36
East
< 1/8
0.056 mi.
294 ft.

MANHOLE 23853
3RD AV & E 178ST
BRONX, NY

Site 3 of 3 in cluster E

NY Spills **S106969815**
N/A

Relative:
Higher

Actual:
78 ft.

SPILLS:

Spill Number/Closed Date:	0504709 / 2006-01-09
Facility ID:	0504709
Facility Type:	ER
DER Facility ID:	295977
Site ID:	349537
DEC Region:	2
Spill Cause:	Equipment Failure
Spill Class:	C4
SWIS:	0301
Spill Date:	2005-07-19
Investigator:	SKARAKHA
Referred To:	Not reported
Reported to Dept:	2005-07-19
CID:	41
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Other
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	False
Remediation Phase:	0
Date Entered In Computer:	2005-07-20
Spill Record Last Update:	2006-01-09
Spiller Name:	Not reported

MANHOLE 23853 (Continued) **S106969815**

Spiller Company: CON ED
Spiller Address: Not reported
Spiller Company: 999
Contact Name: ERT DESK'
DEC Memo: "e2mis no 159847 J. Cucinello discovered a leaking 3c800 PILC joint with aproximately 1/2 pt. dielectric fluid leaking from wipe to the floor in MH 23853 (w/s 3rd Ave 82' n/o E. 178th St. on the sidewalk). Unable to verify feeder at this time. Ducting was taken and provided to engineering to review. No sewers, waterways or private property affected. No samples taken, env. tag 43752 placed in structure along with 'D' fault tag D02955."
Remarks: "1/2 PINT FLUID SPILLED - REF 159847 - CONTAINED - NO TO FIVE QUESTIONS"

All Materials:
Site ID: 349537
Operable Unit ID: 1107129
Operable Unit: 01
Material ID: 2097022
Material Code: 0541A
Material Name: dielectric fluid
Case No.: Not reported
Material FA: Petroleum
Quantity: .00
Units: G
Recovered: .00
Oxygenate: Not reported

D37 **LOT 15,TAXBLOCK 2924** **NY E DESIGNATION** **S110670150**
South **500 EAST TREMONT AVENUE** **N/A**
< 1/8 **BRONX, NY**
0.056 mi.
295 ft. **Site 3 of 9 in cluster D**

Relative: **Lower**
Actual: **54 ft.**

E DESIGNATION:
Tax Lot(s): 15
Tax Block: 2924
Borough Code: Not reported
E-No: E-255
Effective Date: 10/13/2010
Satisfaction Date: Not reported
Ceqr Number: 10DCP043X
Ulurp Number: 100407ZMX
Zoning Map No: 3c, 3d

Description: Hazardous Materials* Phase I and Phase II Testing Protocol
Lot Remediation Date: Not reported

D38 **DUMONT CLEANERS INC** **EDR Hist Cleaner** **1019977745**
South **500 E TREMONT AVE** **N/A**
< 1/8 **BRONX, NY 10457**
0.056 mi.
295 ft. **Site 4 of 9 in cluster D**

Relative: EDR Hist Cleaner
Lower

Actual: **54 ft.**

Year:	Name:	Type:
1974	DUMONT CLEANERS INC	Drycleaning Plants, Except Rugs
1975	DUMONT CLEANERS INC	Drycleaning Plants, Except Rugs
1976	DUMONT CLEANERS INC	Drycleaning Plants, Except Rugs
1977	DUMONT CLEANERS INC	Drycleaning Plants, Except Rugs
1978	DUMONT CLEANERS INC	Drycleaning Plants, Except Rugs
1979	DUMONT CLEANERS INC	Drycleaning Plants, Except Rugs
1980	DUMONT CLEANERS INC	Drycleaning Plants, Except Rugs
1982	DUMONT CLEANERS INC	Drycleaning Plants, Except Rugs
1983	DUMONT CLEANERS INC	Drycleaning Plants, Except Rugs

D39 **CON EDISON SERVICE BOX: 14000** **RCRA NonGen / NLR** **1017773103**
SSW **478 E TREMONT FRONT OF** **FINDS** **NYP004508818**
< 1/8 **BRONX, NY 10457**
0.058 mi.
304 ft. **Site 5 of 9 in cluster D**

Relative: RCRA NonGen / NLR:
Lower

Actual: **53 ft.**

Date form received by agency:	05/23/2014
Facility name:	CON EDISON SERVICE BOX: 14000
Facility address:	478 E TREMONT FRONT OF BRONX, NY 10457
EPA ID:	NYP004508818
Mailing address:	IRVING PL, 15TH FL NE NEW YORK, NY 10003
Contact:	THOMAS TEELING
Contact address:	Not reported Not reported
Contact country:	Not reported
Contact telephone:	212-460-3770
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

CON EDISON SERVICE BOX: 14000 (Continued) **1017773103**

Historical Generators:
Date form received by agency: 04/23/2014
Site name: CON EDISON
Classification: Large Quantity Generator

Date form received by agency: 04/23/2014
Site name: CON EDISON
Classification: Not a generator, verified

Violation Status: No violations found

FINDS:

Registry ID: 110063761193

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

D40 CON EDISON **NY MANIFEST** **S117058747**
SSW 478 E TREMONT FRONT OF **N/A**
< 1/8 BRONX, NY 10457
0.058 mi.
304 ft. Site 6 of 9 in cluster D

Relative: Lower
Actual: 53 ft.

NY MANIFEST:
Country: USA
EPA ID: NYP004508818
Facility Status: Not reported
Location Address 1: 478 EAST TREMONT AV
Code: BP
Location Address 2: SB14000
Total Tanks: Not reported
Location City: BRONX
Location State: NY
Location Zip: 10461
Location Zip 4: Not reported

NY MANIFEST:
EPAID: NYP004508818
Mailing Name: CON EDISON
Mailing Contact: CON EDISON
Mailing Address 1: 4 IRVING PL
Mailing Address 2: 15TH ST
Mailing City: NEW YORK
Mailing State: NY
Mailing Zip: 10003
Mailing Zip 4: Not reported
Mailing Country: USA
Mailing Phone: Not reported

CON EDISON (Continued) **S117058747**

NY MANIFEST:

Document ID:	Not reported
Manifest Status:	Not reported
seq:	Not reported
Year:	2014
Trans1 State ID:	NJD003812047
Trans2 State ID:	Not reported
Generator Ship Date:	04/23/2014
Trans1 Recv Date:	04/23/2014
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	04/24/2014
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004508818
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD991291105
TSDF ID 2:	Not reported
Manifest Tracking Number:	002418352GBF
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H110
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	65
Units:	P - Pounds
Number of Containers:	1
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

C41 **1985 BATHGATE AVE** **NY Spills** **S102142571**
NNE **1985 BATHGATE AVE** **N/A**
< 1/8 **BRONX, NY**
0.060 mi.
319 ft. **Site 4 of 7 in cluster C**

Relative:
Higher

Actual:
83 ft.

SPILLS:

Spill Number/Closed Date:	9111313 / 1992-02-03
Facility ID:	9111313
Facility Type:	ER
DER Facility ID:	196253
Site ID:	238276
DEC Region:	2
Spill Cause:	Equipment Failure
Spill Class:	Not reported
SWIS:	0301
Spill Date:	1992-01-31
Investigator:	SJMILLER
Referred To:	Not reported
Reported to Dept:	1992-02-03
CID:	Not reported
Water Affected:	Not reported
Spill Source:	Tank Truck
Spill Notifier:	Local Agency
Cleanup Ceased:	1992-02-03
Cleanup Meets Std:	True
Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	False
Remediation Phase:	0
Date Entered In Computer:	1992-02-10
Spill Record Last Update:	1992-02-12
Spiller Name:	Not reported
Spiller Company:	Not reported
Spiller Address:	Not reported
Spiller Company:	001
Contact Name:	Not reported
DEC Memo:	"Prior to Sept, 2004 data translation this spill Lead_DEC Field was MILLER "
Remarks:	"MS. LOCHARD (212)792-7450, NOTIFIED DEP @ 10:00, COUNTY OIL SPRASHED OIL ONTO HOUSES, COUNTY OIL (718)626-7000, PAUL WONG ON SCENCE."

All Materials:

Site ID:	238276
Operable Unit ID:	961443
Operable Unit:	01
Material ID:	416355
Material Code:	0002A
Material Name:	#4 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1.00
Units:	Not reported
Recovered:	.00
Oxygenate:	Not reported

D42 **PHASE 2 - COMMERCIAL** **NY Spills** **S118707421**
SSE **516 EAST TREMONT AVE** **N/A**
< 1/8 **BRONX, NY**
0.063 mi.
332 ft. **Site 7 of 9 in cluster D**

Relative: **Lower**
Actual: **57 ft.**

SPILLS:

Spill Number/Closed Date:	1604641 / 2017-09-05
Facility ID:	1604641
Facility Type:	ER
DER Facility ID:	485217
Site ID:	531153
DEC Region:	2
Spill Cause:	Unknown
Spill Class:	C4
SWIS:	0301
Spill Date:	2016-06-08
Investigator:	PXLAKHAN
Referred To:	Not reported
Reported to Dept:	2016-08-08
CID:	Not reported
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Other
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	False
Remediation Phase:	0
Date Entered In Computer:	2016-08-08
Spill Record Last Update:	2017-09-06
Spiller Name:	Not reported
Spiller Company:	ARP LLC
Spiller Address:	Not reported
Spiller Company:	999
Contact Name:	SEAN HARISSON
DEC Memo:	"8/11/16: Mahat t/c: DEC Mahat left a voice message to notifier to call back with more information on the spill case. Sean Harrison ****** Env. Cosultant sharrison@brinkenv.com 1805 Atlantic Avenue Manasquan, NJ 08736 Phone: 732-223-2225 Fax: 732-223-3666 Web: www.BrinkEnv.com 8/12/16: Mahat t/c: DEC Mahat received a call from Mr. Harrison informing that the UST closure letter and Soil Investigation letter will be submitted to the Department shortly. Spill case has been assigned to DEC PM Omar as day time runner for the spill date. DEC is waiting for a closure report. 8/12/2016: Rashad Received email from Sean: As I discussed with Santosh this morning on the phone, our UST Closure Letter Report and Soil Investigation Report are provided in the dropbox below. Based on our investigation, no compounds were detected above the CP-51 Cleanup Levels. Additionally, two (2) other consultants conducted soil investigations and their sampling reports are also provided in the dropbox below. TRC detected toluene in three (3) samples at concentrations ranging between 13 and 18 mg/kg and Restoration & Conservation, LLC detected 1,2,4-trimethylbenzene at 4 mg/kg. https://www.dropbox.com/sh/rhj4c23mv2nq5y2/ AAB25w1AWlAk53EcDNcXwWUza?dl=0 Please review the reports and let me know if there is anything else required to close out this spill case. Please don t hesitate to give me a ring if you have questions.

PHASE 2 - COMMERCIAL (Continued) **S118707421**

Downloaded 4 documents for site, they have been uploaded to D2. Review of UST Closure letter by Brinckerhoff dated August 4th is as follows: On May 9, 2016 during a site inspection to photo document an UST that was previously encountered by NYCSCA during construction. The UST was encountered during excavation of soil in the basement of the existing building at the site for the construction of a proposed sewer ejector pit. Based on the initial inspection, only a portion of the UST was visible since the remaining portion of the UST was covered by concrete and soil. At the time the size and extent of UST was unknown as well as any contents were unknown, no holes or openings were observed. On May 26th they returned to investigate contents of UST, they removed concrete on top of the UST. The UST was identified to be 550 gallons In size and about half filled with gasoline. An additional 550 gallon UST was found. UST2 was on quarter filled with gasoline. On May 27th AARCO pumped out the tanks and cleaned the interior of the tanks. AARCO cut tanks and removed them. Also the underground piping that connected both USTs and extended parallel along both USTs were cut and removed, no other piping was found. Inspection of interior and exterior portions of both USTs found no evidence of cracks or holes. Concrete was observed beneath the base of both USTs. The concrete was observed to be intact and no evidence of staining was found. No evidence indicative of a leak or discharge from UST-1 or UST-2 were observed based on visual, olfactory, and PID. Since concrete was observed beneath both USTs and no evidence indicative of a leak or discharge was observed in the soil surrounding UST1 and UST2 based on visual, olfactory and PID screening, no post excavation soil samples were collected. AARCO constructed wooden framework adjacent to the eastern half of UST-1 and filled the remaining portion of UST-1 and entire UST-2 with clean sand, AARCO then capped the top of both USTs with concrete, affadivits are attached. Review of Soil Investigation by Brinckerhoff dated June 24, 2016 is as follows: On June 16 an investigation occurred in 2 below grade ejector pits. One soil sample from the depth interval within each of the below grade pits exhibiting the highest contamination were taken for sampling. In ejector pit#2 a hand auger was advanced to approximately 6-9.5 feet below basement floor grade. PID readings were recorded up to 1340ppm between 7-8.5 feet. Groundwater was encountered about 8 feet below grade, no free product or sheen was observed. In the elevator pit a auger was advanced about 5.5 feet - 9 feet bg. Elevated PID readings up to 1479ppm were observed between 8-9 feet below basement grade. The analytical results indicate that the soil samples, collected and analyzed as part of this investigation, do not contain detectable contaminants of concern. Only exceedance is .17ppm Acetone in Sample S-1. Review of Restoration and Conservation sampling report is as follows: Ejector Pit 1 sample results had exceedances in 1,2,4 Trimethylbenzene-4ppm, no other exceedances were recorded in ejector pit 1, 2 or elevator pit. Review of TRC Site Inspection and Sampling Report dated July 11, 2016 is as follows: The inspection was performed on June 27, 2016 responding to reports of heavy petroleum odors and soil staining discovered during excavation for an elevator pit and ejector pit. Two USTs were discovered by the contractor during excavation for ejector pit 1. The USTs were cleaned and partially removed to accommodate installation of the ejector pit. Petroleum staining and odors in each of the pits at approximately the same elevation, about 8.5 feet below basement level and about 18 feet below first floor. Brinkerhoff Environmental Services collected two

PHASE 2 - COMMERCIAL (Continued) **S118707421**

samples (discussed above) neither found contamination. However no samples were collected in ejector pit 1. Restoration and Conservation LLC collected one sample from each pit, one from ejector pit#1, one from ejector pit#2 and one from an elevator pit. TRC also performed sampling on July 1st and collected a total of 3 samples. Sample results collected at 8.5-9.5 feet below basement which is about 15 feet below street level, ground water is expected to be about 18 feet below ground level or 10-12.5 feet below basement level. In ejector pit 1 have exceedances in toluene-13ppm, ejector pit 2 had exceedance in toluene-14ppn, elevator pit toluene-18ppm. Sample results from Brinckerhoff do not indicate petroleum contamination within the excavation areas. Samples collected by R&C were diluted, resulting in (for several compounds) detection limits above CP-51 Criteria, and the R&C results are therefore inconclusive as to whether or not soil within the excavation areas exhibit characterizes of petroleum contamination. Due to incomplete information and inconclusive sampling results from others, TRC collected soil samples within the ejector and elevator pit excavations for analysis. The concentrations for Toluene detected in the ejector and elevator pit excavations exceed CP-51 SCL. Additionally, elevated PID reading were recorded during screening of the pits and petroleum staining odors were consistently observed in the excavations, indicating the presence of petroleum-contaminated soil at approximately 18-20 feet below street grade. However we note the following: There is no known source of petroleum contamination at the Site. Documentation of removal of the USTs from ejector pit 1 has not to date been made available; however it has been reported verbally to TRC that there was no evidence of a release from the USTs. Additionally, there was no evidence of impact observed above the interval of petroleum-contaminated soil in the pits. Additionally, the known petroleum contaminated material at the site appears to be present consistently throughout the part of the site inspected by TRC in a narrow interval near the presumed elevation of the water table. It is possible that the petroleum contamination has migrated from an offsite source. Additional investigation would be necessary to determine the source of the petroleum contamination. 516 East Tremont Ave has alternate address of 508-518 East Tremont Ave and 4199-4205 3rd Avenue. No PBS registrations or additional spills found for site. Consulted with DEC Vought and sent follow up email to Sean: Thank you for the reports. I have a few follow up questions: Do you have any information on the prior use of this site? What will the future use of the site be? Is this site in any NYCOER or NYSDEC program? Sean replied: Do you have any information on the prior use of this site? Yes, the existing building was historically utilized for mixed residential and commercial uses. A Phase I ESA was performed for the site in 2012 and the report is provided in the above dropbox link for your reference. What will the future use of the site be? The two upper floors of the existing building are currently being utilized as offices for the NYPD Parking Enforcement Division and the basement, ground floor and first floor will be utilized as a school. Is this site in any NYCOER or NYSDEC program? No it s not. Also attached was Phase 1, it has been uploaded to D2. Spoke to Mr. Kanaparthi from NYCSCA and let him know what I will be sending summary to DOH to review. 8/15/2016: Rashad Sent email to Mr. Kanaparthi: I am following up on our conversation from last week on 516 Tremont Ave. Will TRC or Brinckerhoff be submitting a proposal/work plan for further investigation at this site? Bob wrote: The spill incident is being

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handled by the landlord and we recommend that all communications should be directed to the landlord. Sent email to Sean: Thank you for the additional information. Will additional work/investigation be done for this site? 8/17/2016: Rashad Received email from Sean: The project is currently on hold since we called in the spill; however, we are looking for your guidance on whether additional investigation is necessary? Please advise. Discussed case with DEC Vought and I will be preparing Report Receipt Review letter. Letter was emailed to Sean with cc to Bob Kanaparthi. Letter was uploaded to D2. 8/22/2016: Rashad Received email from Sean on 8/18: I reviewed your letter and there are some discrepancies that do not accurately represent the documentation that was provided to you and do not accurately represent the actions that have already been completed at the site. On August 12th, 2016, I submitted the following documents to you in a dropbox: " Soil Investigation Summary Report, dated June 24, 2016, prepared by Brinkerhoff; " Site Inspection and Sampling Report, dated July 11, 2016, prepared by TRC Solutions; " Chemical Testing & Soil Characterization Report, dated June 29, 2016, prepared Restoration & Conservation LLC; and " Underground Storage Tank (UST) Closure Letter Report, dated August 4, 2016, prepared by Brinkerhoff. We request the first paragraph of your letter be revised to acknowledge that you received and reviewed all of the aforementioned documentation. Also, a Petroleum Bulk Storage (PBS) Application to register and close the USTs has already been submitted to the DEC PBS Unit and the documentation was provided to you in the UST Closure Letter Report as Appendix V. We request that line item #3 in your letter be removed since this action has already been completed. Please note that the current site owner is not developing this site for a school. One (1) of the current tenants of the building, the NYCSCA, is redeveloping the basement, ground floor and first floor as a school. We request the sentence As you are aware, the current site owner intends to develop this site for a school be revised. Additionally, we will forward you the development plans from the NYCSCA; however, please note that per the NYSDOH Soil Vapor Guidance Document October 2006 Air Matrix Tables 1 and 2, the installation of a vapor barrier or sub-slab depressurization system (SSDS) is only required when the concentrations of chlorinated solvent compounds from a sub-slab soil vapor sample and indoor air sample are compared against each other and indicate a mitigation action. Since, only petroleum-related compounds (toluene and 1,2,4-trimethylenezne) were detected in reported soil investigations and no chlorinated solvents were detected, this does not apply and it is very unlikely that a vapor barrier or SSDS will need to be installed. We request that the letter be revised to accurately represent the documentation that was provided and to accurately represent the actions that have already been completed at the site. Please let me know if you have any questions. 8/23/2016: Rashad Consulted with DEC Vought and sent email to NYCSCA, Sean, and NYSDOH on 8/22: The Department has received your comments and we seek clarification on the below before we can revise the letter. I have copied the NYCSCA above as your email below notes that One (1) of the current tenants of the building, the NYCSCA, is redeveloping the basement, ground floor and first floor as a school . The Department seeks to clarify who is performing the redevelopment so that an updated requirement letter may be addressed to one or both parties. If necessary, we will consult with the Office of General Counsel to confirm who the responsible parties are. Also note that we have copied the NYSDOH above so that they may address the comments on

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the requirement for an SSDS/vapor barrier system. We have also sent the NYSDOH a separate email with a summary and background information on this site. Once the above issues are clarified, the Department will send out a revised letter with copies to all above. Please also note that my supervisor, Jeff Vought is copied on this email. Thanks. 8/24/2016: Rashad Worked with DEC Vought and consulted with NYSDOH, OGC, and spoke with NYCSCA and sent following email to all parties: We consulted with the NYSDOH and we spoke with the NYCSCA and the Department needs the following: 1.Submission of development plans including depths of planned buildings, site plans showing future use of the basement and building locations, and discussion of vapor mitigation techniques used in the development of the site such as sub-slab depressurization systems, vapor barriers and /or moisture barriers. 2.During our discussion with the NYCSCA they indicated that there may be additional excavation. The Department requires collection of additional confirmation samples, if further excavation occurs, as per the letter to you dated August 17, 2016, including collection of sidewall samples. We consulted with our Office of General Counsel as to who the Department s revised requirement letter will be addressed to and they noted that it should be addressed to ARP, LLC. With respect to your request of revising the sentence As you are aware, the current site owner intends to develop this site for a school , the Department suggests the following, As you are aware, the current site is being partially redeveloped into a school . In regards to SSDS only being required at chlorinated solvent impacted sites, we confirmed with the NYSDOH that they may also be required for petroleum contamination and they offered the follow guidance: 1.7.2 Chlorinated and non-chlorinated volatile chemical sites The guidance should be used when evaluating soil vapor intrusion at chlorinated and non-chlorinated volatile chemical sites, including petroleum hydrocarbon sites and manufactured gas plant sites. While the likelihood for exposures related to soil vapor intrusion may differ between sites due to site-specific conditions and chemical-specific properties, the extent of volatile chemical contamination and the nature of the contamination, these factors should be considered when developing the conceptual site model and implementing an investigation plan (as discussed in Sections 1.5 and 1.6). For example, if the conceptual site model suggests that soil vapor intrusion is not a concern at a petroleum hydrocarbon site due to biodegradation, the work plan might include the measurement of select bioparameters (e.g., oxygen, carbon dioxide, methane, etc.), along with the petroleum hydrocarbons, at varying depths to demonstrate bioattenuation in the vadose. The work plan might include sub-slab vapor sampling as well to demonstrate that conditions beneath nearby buildings are also resulting in bioattenuation of the petroleum hydrocarbons. Once the Department and NYSDOH receive and review the above we will possibly hold a teleconference with all parties, and formalize our requirements in writing via letter. Please note the letter may require the installation of sidewalk monitoring wells, determination of groundwater flow direction, and collection of groundwater samples. We would much appreciate if you can keep everyone above posted on your reply so that way we all may be informed. 8/26/2016: Rashad Received email from Lee of NYCSCA: In the interest of time, and in response to your 8/24 email request to Sean Harrison, please find the drawings and specifications for the planned development of the building related to school construction in the referenced drop box link:

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https://www.dropbox.com/sh/xlgawb6ialzvkvm/AACUddU9TMMzf2nHJ-SqJUxwa?dl=0. As discussed on the phone, we would very much appreciate NYSDOH s determination as to whether or not mitigative measures/engineering controls are required based on the data provided to you by the landlord s environmental consultant and a review of the drawings for the school. Please let us know if you require additional information from SCA. 9/6/2016: Rashad Received comments from Nate seeking vapor barrier clarification, sent email to NYCSCA: After discussing the development plans with the NYSDOH, we would like clarification on the proposed vapor barrier found in the Specifications Volume 1. Please submit a scaled site plan with the locations of the vapor barrier installation, please also clarify whether it will be installed under exterior walls only or between the contamination and concrete slab across the entire building. It is also recommended that a 20-mil vapor barrier be installed. Due to the numerous files that were sent it is possible that we may have additional questions and may request a teleconference after we receive and review the above requested information. Thank you. 9/7/2016: Rashad Deborah replied: Rashad, this is a retrofit of an existing building and no work is anticipated on the exterior foundation walls. The vapor barrier specified in Specification 07272 is for damp proofing and is not a gas vapor barrier. Further, it is only being installed above grade. I hope this clarifies for you. Should you have any questions or concerns, please give me a call. 9/14/16-Vought-Conference call with NYSDOH Hughes/Walz and NYCDOH D'Andrea. Teleconference set up by DEC Rashad earlier during week as per suggestion by NYSDOH. Discussion included brief site history including lack of proposal of SSDS to date and possible future reluctance by SCA to install one. Vought noted that he and DEC Omar to confer with OGC Urda on possibly requiring SCA to install SSDS despite them not being a property owner or discharger. NYSDOH also discussed that if SCA does not feel an SSDS is warranted during call on Friday that further investigation will be needed in the basement (eg further soil, soil vapor, possible gw). Vought noted that Department required further delineation whether via wells in the sidewalk post development of further geoprobe soil borings in basement, if feasible. 9/16/2016: Rashad Held conference call with DEC Jeff, NYCSCA, NYSDOH, Brinckerhoff Environmental, TRC, and property owners to discuss next possible steps. We discussed that installation of an SSDS with sidewalk monitoring wells would be needed to delineate and determine if there is an off site source or complete delineation of soil, gw, and soil vapor in the basement would be needed to prove that no ssds is needed. Brinckerhoff will discuss various options with property owner and make choice, then submit work plan. 11/1/2016: Rashad Sent Sean from Brinkerhoff email seeking project update. 11/2/2016: Rashad Sean replied: The SCA s environmental consultant, TRC Solutions, is now handling the remediation of this spill number and all correspondence should be made directly through them. We are no longer involved. Emailed Ms Guterman asking for update and TRC contact info. 11/3/2016: Rashad Ms. Guterman responded yesterday: SCA s involvement was limited to removal and proper disposal of the soil from three ejector/elevator pits so that we could proceed with construction. We also designed and will oversee the installation of the SSDS to address any potential soil vapor issues. We are not involved in remediation of the spill case and would appreciate you discussing with the landlord. Radame Perez (property owner or representing owner) responds: Deborah Lee

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please contact me to discuss. As we see it, TRC s involvement- namely the removing/disposing of the soil and overseeing the installation of the SSDS is in effect, the remediation steps to address the spill number. Accordingly, these steps will need to be incorporated into a closure report to close out the spill with DEC. Therefore, once again, TRC Solutions is handling the remediation of this spill number and all correspondence should be made directly through them. Brinkerhoff Environmental is not retained for this nor are they involved. Please contact Anthony D Angelo or I to discuss and / or for any further required clarification. Sent review letter so all parties. Email: Ms. Guterman, Please supply us with the SSDS design plans so that NYSDEC and NYSDOH can review/comment on the plans. Radame, As discussed during our teleconference on 9/16, offsite monitoring well installation in addition to the installation of an SSDS is required. NYCSCA and TRC will be installing the SSDS, however monitoring well installation and (possible) further remediation is required by the property owner. Please see attached letter for details. Feel free to contact me if you have any questions and keep us posted on the results. Thanks. 11/4/2016: Rashad Received SSDS design from NYCSCA, design was uploaded to D2. 11/7/2016: Rashad Received comments on SSDS from Nate: I have reviewed the sub-slab depressurization system (SSDS) design and specification plans for the PS 909X NYCSCA project. Based on that review I offer the following; it is referenced in the document that the Liquid Boot GeoVent system will be placed within the gas permeable layer rather than perforated/slotted PVC pipe for the lateral portions of the system. The DOH has not overseen a project using the GeoVent product previously, as with all active SSDSs the effectiveness of the system to create an adequate negative pressure will need to be verified. The results of the pressure differential testing will need to be provided to DOH for review. Spoke to Nate, I will be forwarding comments to all parties: See comments below from NYSDOH regarding the SSDS design/specs and please let us know your thoughts. Please keep in mind that the Department cannot certify that the vapor mitigation system will not pose a health risk until the results of the pressure differential testing prove the system is adequate. Thank you. Ms. Guterman responded: Rashad, just so we are on the same page: If the SSDS is installed and pressure testing demonstrates it is effective, will the Department then certify to SCA that the space is environmentally suitable for occupancy? Nate’s response was forwarded to all parties: The short answer is yes. If the system is proven to provide adequate negative pressure throughout the building, then vapor intrusion will not occur making the space suitable for occupancy. The only caveat is that the SSDS will need to be maintained and periodically certified that it is still operating as designed as it was when it was originally commissioned. 1/13/2017 Austin This spill report is being transferred from Rashad Omar to Pratik Lakhani end. 2/1/17-Vought- Assisting DEC Lakhani on spill. Vought received email from Brinkerhoff Environmental (Sean Harrision Email:sharrison@brinkenv.com Ph:732-223-2225) on 1/26/17 that Good Morning Jeffrey, Please see the attached letter. Can you inform us who the new PM for this spill case is? I ve tried reaching out to Rashad multiple times and just got his voicemail indicating he is no longer with DEC. Please let us know. Thank you, . In email string was earlier email to DEC Omar dated 1/26/17 that Rashad, I tried sending you an attachment yesterday but it didn t go through for some reason. Please see the dropbox link below:

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https://www.dropbox.com/sh/fwc0qotx94rlbs5/AAAQ8f_oTFBWQS3Q292nXoEoa?dl=0 Thank you, . Vought uploaded letter to D2 and reviewed: Response Letter to DEC (Brinkerhoff-Gene Santana)-1/25/17. Letter notes that Brinkerhoff retained by ARP, LLC c/o Mastermind Ltd. to address remedial requirements of DEC letter dated 11/3/16. Letter notes Brinkerhoff will perform the investigation activities and submit a report for DEC review. 2/1/17-Vought-Sent email to Brinkerhoff (Harrison) with a cc to all parties that Sean, Rashad is no longer with the DEC and the spill has been transferred to Pratik Lakhani, copied above, here in the Spills Unit. Pratik is new to the unit and I as such I will assist him on the above spill as I did Rashad. I have also reattached your letter and included NYSDOH, NYCDHOH, and the School Construction Authority on this email so that they may be informed. To bring you as well as those copied above up to speed, I have include Rashad s most recent spill notes below which may assist in fulfillment of DEC s requirement letter from 11/3/16. His recent notes are as follows: 11/7/2016: Rashad Received comments on SSDS from Nate: I have reviewed the sub-slab depressurization system (SSDS) design and specification plans for the PS 909X NYCSCA project. Based on that review I offer the following; it is referenced in the document that the Liquid Boot GeoVent system will be placed within the gas permeable layer rather than perforated/slotted PVC pipe for the lateral portions of the system. The DOH has not overseen a project using the GeoVent product previously, as with all active SSDSs the effectiveness of the system to create an adequate negative pressure will need to be verified. The results of the pressure differential testing will need to be provided to DOH for review. Spoke to Nate, I will be forwarding comments to all parties: See comments below from NYSDOH regarding the SSDS design/specs and please let us know your thoughts. Please keep in mind that the Department cannot certify that the vapor mitigation system will not pose a health risk until the results of the pressure differential testing prove the system is adequate. Thank you. Ms. Guterman responded: Rashad, just so we are on the same page: If the SSDS is installed and pressure testing demonstrates it is effective, will the Department then certify to SCA that the space is environmentally suitable for occupancy? Nate’s response was forwarded to all parties: The short answer is yes. If the system is proven to provide adequate negative pressure throughout the building, then vapor intrusion will not occur making the space suitable for occupancy. The only caveat is that the SSDS will need to be maintained and periodically certified that it is still operating as designed as it was when it was originally commissioned. As per Brinkerhoff s attached letter, the NYSDEC and NYSDOH look forward to the results of the investigation and look forward to receiving the resulting report.Please send all further correspondence to Pratik Lakhani above with a cc to me as well as NYSDOH. You can also reach Pratik at (718)482-4038 if needed. Thanks for your patience, 03/01/17 - Lakhani Called Sean Harrison and he informed that three (3) weeks ago, monitoring wells were installed on the sidewalks. Soil borings were also installed and two (2) soil samples were taken from each boring. Sean will send the soil data results to DEC Lakhani. Last week samples, were taken from the wells and Sean is awaiting the analysis results. As for the SSDS, the subgrade has been installed. The SSDS is being installed by SCA. Pressure differential testing has not been done yet. SCA contact is Tanya Amusina. 03/02/17 - Lakhani Soil samples do not show VOC exceedances above CP-51 standards. Tanya

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Amusina's contact information: Tanya Amusina NYCSCA Project Officer Cell: 917-417-8922 TAMUSINA@nycsca.org 03/03/17 - Lakhani Emailed SCA Tanya Amusina the following: I hope this email find you in good health. I am the new project manager for the above spill case. I received your contact from Sean Harrison of Brinkerhoff Environmental Services, Inc. From my understanding, SCA is responsible for the installation of the sub-slab depressurization system (SSDS) at the site. When is the system scheduled to be installed? Please remember that as per the NYSDOH, once the SSDS is installed, pressure testing must be conducted to prove that the SSDS is effective. Please update me on any other activities regarding the site. 03/15/17 - Lakhani Emailed SCA Tanya, and cc'ed SCA Gutterman and SCA Kanaparthi, seeking an update on the installation of the SSDS. SCA Bob Kanaparthi responded and informed that the SSDS is currently being constructed and expected to be completed by August 2017. Once installation and testing is completed, SCA will provide all testing/certifications required. 04/03/17 - Lakhani Spill Closure Report (Brinkerhoff, 3/29/17) - Brinkerhoff directed the installation of three (3) groundwater monitoring wells. AARCO installed the monitoring wells to depths between approx. 23' and 25'bgs. During advancement of the boreholes, Brinkerhoff continuously screened the soil and no evidence of contamination was observed. Since no evidence of soil contamination was observed during the three (3) well installations, two (@) deep soil samples were collected above the groundwater interface from each borehole. In total, Brinkerhoff collected six (6) soil samples and sent them to the lab to be analyzed. The analytical results from the six (6) soil samples detected no compounds at concentrations above CP-51 standards. Following sample collection from each soil boring, the boreholes were converted to permanent wells using two PVC, 0.02 slotted well screens. Free phase product was not detected in any of the three (3) monitoring wells. The depth to groundwater ranged from 14.3'-16.1'bgs. Groundwater flow was anticipated to be towards the north-northwest. One (1) groundwater sample was collected from each well. The analytical results detected no petroleum related compounds at concentrations above standards. However, three (3) chlorinated related compounds were detected above standards: PCE 2.2 ug/L(MW-1), PCE 54 ug/L(MW-2), PCE 2.3 ug/L(MW-3), TCE 16 ug/L(MW-1), TCE 31 ug/L(MW-2), TCE 5.6 ug/L(MW-3). One of the active tenants of the site building, the NYCSCA, is currently redeveloping the basement, ground floor, and first floor of the site building as a school. As part of the redevelopment, the NYCSCA's contractor performed soil excavation and off-site removal of non-haz petroleum contaminated soil - overseen by TRC, the consultant. As part of redevelopment, the NYCSCA installed a vapor barrier membrane and an active SSDS beneath the foundation slab in the basement of the building. TRC designed the vapor barrier membrane and SSDS and oversaw the installation. At the time of preparation of this report, the vapor barrier membrane and all components of the SSDS have been installed. However, the contractor is still reportedly installing the riser piping and roof components of the SSDS. In the Soil Investigation Report dated 06/24/16, two (2) soil samples were taken - one from ejector pit #2 (S-1) and the other from the elevator pit (S-2). Results were as follow: benzene 64 ppb(S-1, 7'-8'bgs), benzene 250 ppb(S-2, 6.5'-7.5'bgs), xylenes 500 ppb(S-2, 6.5'-7.5'bgs), PCE 64 ppb(S-1, 7'-8'bgs), PCE 250 ppb(S-2, 6.5'-7.5'bgs). 04/05/17 - Lakhani DEC Lakhani responded to Sean Harrison informing him that the spill cannot be closed until pressure testing is completed on the

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SSDS. Because as per NYSDOH, the system must be proven to provide adequate negative pressure throughout the building, confirming that vapor intrusion will not occur and make the space suitable for occupancy. After reviewing the report, there were no endpoint samples taken from the elevator pit and ejector pit #2, even though both areas contained contamination prior to excavation. DEC Lakhani sent a report review & receipt letter requiring endpoint samples to be collected from the elevator pit and ejector pit #2 and a submission of a surrounding area site plan. Moreover, Sean was informed that the spill will be closed pending submission of the pressure test on the SSDS, acceptable results from the endpoint samples, and submission of surrounding area site plan. 04/11/17 - Lakhani Sean responded confirming with property owner that the NYCSCA will distribute the results for NYSDEC's and NYSDOH's review once the testing is complete. No post-excavation samples were collected from the base of the elevator pit or ejector pit. Brinkerhoff was not involved during the soil excavation/removal activities of these pits. The NYCSCA's consultant, TRC Companies, Inc., performed the oversight and in the attached email, the NYCSCA confirmed that the petroleum-contaminated material was removed from both pits. 04/14/17 - Lakhani Sent email to NYCSCA Kanaparthi, Guterman, Wagner, and Lempert about necessary endpoint sampling in ejector pit #2 and the elevator pit. 4/18/17-Vought-Received call from and spoke to SCA Guterman and Michael Wagner who had expressed concern that DEC was continuing to require endpoint soil samples from excavations for elevator pit despite knowledge that all the contamination could not be removed as part of development, and hence the installation of an active SSDS and DEC requirement for Brinkerhoff to submit well installation plan to see if remaining contamination was posed a threat for off-site mobility. Vought noted that in general, DEC always required collection of endpoint samples as it was necessary to characterize soil contamination that remained in place. SCA Guterman noted that due to ongoing development, the excavations were already backfilled and it was no longer feasible for endpoint samples to be collected. SCA Guterman also inquired as to if Brinkerhoff (consultant for site owner) had submitted a well installation plan to date and she also noted that SCA was hoping school could be opened in September. SCA Wagner also confirmed the need for pressure testing of the SSDS in the summer before the possible school opening in September. Vought spoke to DEC Lakahani so that he would send an email to SCA that noted the following: 1)DEC, after further consideration, was no longer requiring collection of endpoint samples 2)Information as to whether DEC received the well installation plan from Brinkerhoff (and if it was not received, then Lakahani would send an inquiry to Brinkerhoff at to it's status with a cc to SCA) 3)Scheduled plans for this summer's pressure testing of the SSDS as per NYSDOH requirements before the school possibly opened in September (with a cc to NYSDOH Walz on the email) 4)Clarification of Lakhani email from 4/5/17 that spill will be considered for closure upon receiving confirmation of the effectiveness of the SSDDS AS WELL AS confirming that there was no off-site impact from the remaining contamination as evidenced by Brinkerhoff's monitoring wells that remain to be installed. DEC Lakhani sent the following email to NYCSCA Guterman: I hope you re doing well. After further consideration and discussion with Jeffrey Vought, DEC is no longer requiring collection of endpoint samples in the area of the elevator pit and ejector pit #2. Moreover, Brinkerhoff has sent me the well installation plan in a closure

PHASE 2 - COMMERCIAL (Continued) **S118707421**

report that I ve attached to this email. Brinkerhoff directed the installation of three (3) groundwater monitoring wells. AARCO installed the monitoring wells to depths between 23' and 25'bgs. During advancement of the boreholes, Brinkerhoff continuously screened the soil and no evidence of contamination was observed. Since no evidence of soil contamination was observed during the three (3) well installations, two (2) deep soil samples were collected above the groundwater interface from each borehole. In total, Brinkerhoff collected six (6) soil samples and sent them to the lab to be analyzed. The analytical results from the six (6) soil samples detected no compounds at concentrations above CP-51 standards. Following sample collection from each soil boring, the boreholes were converted to permanent wells. Free phase product was not detected in any of the three (3) monitoring wells. The depth to groundwater ranged from 14.3'-16.1'bgs. Groundwater flow was anticipated to be towards the north-northwest. One (1) groundwater sample was collected from each well. The analytical results detected no petroleum related compounds at concentrations above standards. However, chlorinated related compounds were detected above standards with maximum concentrations of 54 ug/L of PCE in MW-2 and 31 ug/L of TCE in MW-2. Due to the prior review of the vapor mitigation efforts by NYSDOH, and in an effort to keep everyone copied above informed, at the time of preparation of this report, the vapor barrier membrane and all components of the SSDS had been installed. However, the contractor is installing the riser piping and roof components of the SSDS. NYCSCA has scheduled plans for this summer s pressure testing of the SSDS as per NYSDOH requirements before the school could possibly be opened in September. We are hoping that NYSDOH can perform and expeditious review of the pressure testing so we can help NYCSCA meet their deadline. Finally, the spill will be considered for closure upon receiving confirmation of the effectiveness of the SSDS, as well as confirmation via continued quarterly sampling of monitoring wells that there is no off-site impact from the residual contamination as evidenced by Brinkerhoff s monitoring wells. If you have any questions, please contact me at (718) 482-4038. 06/15/17 - Lakhani Sean Harrison emailed the results of a second round of groundwater sampling: Prior to sample collection, an interface probe, capable of detecting a free-phase product thickness of 0.01 feet, was used to gauge each well identified as MW-1 through MW-3. Free-phase product was not detected in any of the three (3) monitoring wells, and the depth to groundwater ranged from 14.14 to 15.89 feet below the existing sidewalk grade. Groundwater flow was determined to be towards the north-northwest direction which is consistent with the data recorded in the February 22, 2017 sampling event. One (1) groundwater sample was collected from each well. The analytical results from the three (3) groundwater samples detected no petroleum-related compounds at concentrations above TOGS. However, three (3) chlorinated-related compounds were detected at concentrations above TOGS. These compounds are unrelated to this spill investigation, and the source of these contaminants is unknown. 06/16/17 - Lakhani Sent the following email to Nathan Walz regarding ejector pits at the site: Nathan, I hope you re doing well. You ve already provided commentary on the active SSDS that was installed at the above site. However, there has been a new concern recently brought to light. In the cellar of the building there are three (3) permanent ejector pits that have already been installed which pump sewage out to the sewer. These ejector pits were excavated and

PHASE 2 - COMMERCIAL (Continued) **S118707421**

installed because NYCSCA is currently redeveloping the cellar, ground floor, and first floor of the site building as a school. TRC oversaw the installation of these ejector pits. Upon excavating these pits, soil contamination was observed, however, not all the contamination was removed as part of the development. My preliminary discussions with TRC indicated that these pits were sealed but I have no further information on the method of sealing and the structure of the pits. As a refresher, the groundwater at the site is impacted by chlorinated solvents, namely PCE and TCE. Wells down-gradient of the ejector pits have been sampled and returned with concentrations of 72 ug/L and 56 ug/L for PCE and TCE respectively. I wanted to bring this to your attention as NYSDOH may have additional requirements regarding indoor air that are influenced by these ejector pits, despite there being an active SSDS installed and to see if they posed a possible vapor intrusion concern. If they do pose a possible vapor intrusion concern, please let us all know and I am hoping that via this email that SCA/TRC can provide more information on the structure and use of the pits especially with respect to any vapor intrusion issues. Please also note that SCA is in discussions with Jane O Connell regarding possible BCP entry and as such I have copied her above as well. 06/20/17 - Lakhani Spoke to NYCSCA Guterman and staff on 06/19/17 and they informed that the ejector pits were installed in concrete and had a crystalline water proofing applied to the inside and outside of the pit (two membranes). The pit was then filled with a gas permeable aggregate. NYCSCA Guterman emailed to clarify the structure of the pits and the engineering controls installed to prevent vapor intrusion. The ejector pits are constructed of concrete walls and bottom and surrounded by gas permeable aggregate to ensure communication with the SSDS and allow evacuation of the vapors. In addition, the exterior of the pits are coated with a waterproofing material and the interior of the pits are coated with a crystalline waterproofing material. The ejector pits were considered during the design of the SSDS and should not represent a new concern regarding soil vapor intrusion. Further, NYCSCA will b conducting vacuum field tests during the commissioning of the system to ensure proper operation of the SSDS. DEC Jane confirmed that the site is not applying to BCP. 08/25/17 - Lakhani Sean emailed to inform that Brinkerhoff performed another round of groundwater sampling on 08/24/17. He also sent the Certificate of Compliance for the SSDS that was installed at the site. The client confirmed that the SCA's consultant is currently preparing the SMP for the system. 09/01/17 - Lakhani Brinkerhoff Sean sent the results from the recent groundwater sampling event conducted at the site. They are still waiting to receive the SMP from SCA's consultant. Sampling Results Summary Letter (Brinkerhoff, 08/30/17) - Prior to sample collection, an interface probe was used to gauge each well identified as MW-1 through MW-3. Free Phase product was not detected in any of the three (3) wells. The depth to groundwater ranged from 14.35' to 16.09'bg. Groundwater flows to the north-northwest. One (1) sample was collected from each well. Results are as follow: TCE 24 ug/L(MW-1), PCE 63 ug/L(MW-2), TCE 42 ug/L(MW-2). Contaminants are within attenuation range. Consulted with DEC Jane O'Connell who informed that the concentrations of the contaminants are low and do not warrant an investigation to take place to locate the source. There are no known sensitive receptors downgradient of the site. The active SSDS has been installed and was tested effective. 09/05/17 - Lakhani Brinkerhoff Sean sent the SMP for the site. The SMP was also sent to

PHASE 2 - COMMERCIAL (Continued) **S118707421**

NYSDOH Nathan Walz for review. 09/06/17 - Lakhani NYSDOH reviewed the SSDS SMP and offered the following comment: Pressure differential testing should be performed at the monitoring points that are associated with the SSDS fan unit(s) if they are functioning at a lower vacuum than previously inspected or original commissioning values. This testing should be done to verify that the SSDS is still creating an adequate negative pressure, results of this testing should be included on the inspection form and corrective actions taken as necessary. Comments were forwarded to SCA and consultants. Spill is closed. DEC Requires: 1)As per NYSDOH Walz the effectiveness of the system to create an adequate negative pressure will need to be verified. The results of the pressure differential testing will need to be provided to DOH for review. - to be performed by SCA as tenant 2)Site Management Plan for SSDS operation as NYSDOH Walz noted that the SSDS will need to be maintained and periodically certified that it is still operating as designed as it was when it was originally commissioned. - to be performed by SCA as tenant 3)Submission of off-site (sidewalk) well installation plan by property owners consultant Brinkerhoff 3)cc to Vought, NYSDOH Hughes/Walz, NYCDOH D'Andrea, SCA Gutterman/Kanaparthi, Brinkerhoff Harrison"

Remarks: "The cleanup is still pending."

All Materials:

Site ID:	531153
Operable Unit ID:	1279937
Operable Unit:	01
Material ID:	2285028
Material Code:	0064A
Material Name:	unknown material
Case No.:	Not reported
Material FA:	Other
Quantity:	Not reported
Units:	Not reported
Recovered:	Not reported
Oxygenate:	Not reported

G43 **FELIX HUNGRIA DBA FELIX AUTO BODY AND REPAIR** **NY AST** **A100348616**
NW **4246 PARK AVENUE** **N/A**
< 1/8 **BRONX, NY 10457**
0.064 mi.
340 ft. **Site 1 of 10 in cluster G**

Relative: **Lower**
Actual: **52 ft.**

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-611200
Program Type:	PBS
UTM X:	592847.88101
UTM Y:	4522531.71012
Expiration Date:	10/29/2019
Site Type:	Auto Service/Repair (No Gasoline Sales)

Affiliation Records:

Site Id:	421164
Affiliation Type:	Facility Owner
Company Name:	FELIX HUNGRIA
Contact Type:	Not reported

FELIX HUNGRIA DBA FELIX AUTO BODY AND REPAIR (Continued) **A100348616**

Contact Name:	Not reported
Address1:	1482 MONTGOMERY AVE, 2B
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10453
Country Code:	001
Phone:	(917) 217-6697
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2014-12-23

Site Id:	421164
Affiliation Type:	Mail Contact
Company Name:	UNITED AUTO MERCHANTS ASSOC.
Contact Type:	Not reported
Contact Name:	PEDRO J. ESTEVEZ
Address1:	1332 COMMERCE AVENUE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10461
Country Code:	001
Phone:	(347) 590-1142
EMail:	COMPLIANCE@UAMANY.ORG
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2014-12-23

Site Id:	421164
Affiliation Type:	Facility Operator
Company Name:	FELIX HUNGRIA DBA FELIX AUTO BODY AND REPAIR
Contact Type:	Not reported
Contact Name:	FELIX HUNGRIA
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(917) 217-6697
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2014-12-23

Site Id:	421164
Affiliation Type:	Emergency Contact
Company Name:	FELIX HUNGRIA
Contact Type:	Not reported
Contact Name:	FELIX HUNGRIA
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported

FELIX HUNGRIA DBA FELIX AUTO BODY AND REPAIR (Continued) **A100348616**

Country Code:	999
Phone:	(917) 217-6697
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2014-12-23

Tank Info:

Tank Number:	08315
Tank Id:	231363
Material Code:	0022
Common Name of Substance:	Waste Oil/Used Oil

Equipment Records:

J00 - Dispenser - None
G00 - Tank Secondary Containment - None
L00 - Piping Leak Detection - None
D00 - Pipe Type - No Piping
F00 - Pipe External Protection - None
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None
K00 - Spill Prevention - None
I01 - Overfill - Float Vent Valve
A00 - Tank Internal Protection - None

Tank Location:	Aboveground - on saddles, legs, racks, etc.... Tank bottom is elevated above grade or tank pad, allowing visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	08/25/2007
Capacity Gallons:	275
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	NRLOMBAR
Last Modified:	04/14/2017
Material Name:	waste oil/used oil

G44 **GARCIA ANDY** **EDR Hist Auto** **1020436977**
NW **4246 PARK AVE** **N/A**
< 1/8 **BRONX, NY 10457**
0.064 mi.
340 ft. **Site 2 of 10 in cluster G**

Relative: EDR Hist Auto
Lower

Actual: **52 ft.**

Year:	Name:	Type:
1992	ANDY AUTO REPAIR	General Automotive Repair Shops
1993	ANDY AUTO REPAIR	General Automotive Repair Shops
1994	ANDY AUTO REPAIR	General Automotive Repair Shops
1995	GARCIA ANDY	General Automotive Repair Shops
1996	GARCIA ANDY	General Automotive Repair Shops

GARCIA ANDY (Continued) **1020436977**

1997	GARCIA ANDY	General Automotive Repair Shops
1998	GARCIA ANDY	General Automotive Repair Shops
1999	GARCIA ANDY	General Automotive Repair Shops
2000	GARCIA ANDY	General Automotive Repair Shops
2001	GARCIA ANDY	General Automotive Repair Shops
2001	ARTURO TRANSMISSION INC	Automotive Transmission Repair Shops
2002	GARCIA ANDY	General Automotive Repair Shops
2002	ARTURO TRANSMISSION INC	Automotive Transmission Repair Shops
2003	ARTURO TRANSMISSION INC	Automotive Transmission Repair Shops
2003	GARCIA ANDY	General Automotive Repair Shops
2004	GARCIA ANDY	General Automotive Repair Shops
2004	ARTURO TRANSMISSION INC	Automotive Transmission Repair Shops
2005	GARCIA ANDY	General Automotive Repair Shops

C45 **LOT 82,TAXBLOCK 3044** **NY E DESIGNATION** **S110670437**
ENE **4277 3 AVENUE** **N/A**
< 1/8 **BRONX, NY 10457**
0.065 mi.
344 ft. **Site 5 of 7 in cluster C**

Relative: **Higher**
Actual: **80 ft.**

E DESIGNATION:

Tax Lot(s):	82
Tax Block:	3044
Borough Code:	BX
E-No:	E-255
Effective Date:	10/13/2010
Satisfaction Date:	Not reported
Ceqr Number:	10DCP043X
Ulurp Number:	100407ZMX
Zoning Map No:	3c, 3d
Description:	Hazardous Materials* Phase I and Phase II Testing Protocol
Lot Remediation Date:	Not reported

D46 **220005; E. TREMONT E/O 3RD AVENUE** **NY Spills** **S110750389**
SE **E. TREMONT E/O 3RD AVENUE** **N/A**
< 1/8 **BRONX, NY**
0.066 mi.
346 ft. **Site 8 of 9 in cluster D**

Relative: **Lower**
Actual: **62 ft.**

SPILLS:

Spill Number/Closed Date:	1008957 / 2010-01-25
Facility ID:	1008957
Facility Type:	ER
DER Facility ID:	397563
Site ID:	442590
DEC Region:	2
Spill Cause:	Unknown
Spill Class:	D4
SWIS:	0301
Spill Date:	2010-01-24
Investigator:	DMPOKRZY
Referred To:	Not reported
Reported to Dept:	2010-06-30
CID:	Not reported
Water Affected:	Not reported

220005; E. TREMONT E/O 3RD AVENUE (Continued) **S110750389**

Spill Source:	Commercial/Industrial
Spill Notifier:	Responsible Party
Cleanup Ceased:	Not reported
Cleanup Meets Std:	Not reported
Last Inspection:	Not reported
Recommended Penalty:	Not reported
UST Trust:	Not reported
Remediation Phase:	0
Date Entered In Computer:	2010-11-24
Spill Record Last Update:	2010-11-24
Spiller Name:	ERT DESK
Spiller Company:	CON EDISON
Spiller Address:	5030 BROADWAY
Spiller Company:	001
Contact Name:	ERT DESK
DEC Memo:	""
Remarks:	"Street Address = S/S E. Tremont E/O 3rd Avenue Spill Volume = 1.5 Unit of Measure = Quart Substance Name = Unknown Oil Cause Reason = Unknown Status Reason = Agency Approval Not Required"

All Materials:

Site ID:	442590
Operable Unit ID:	1193092
Operable Unit:	01
Material ID:	2188356
Material Code:	0066A
Material Name:	unknown petroleum
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	.00
Units:	G
Recovered:	Not reported
Oxygenate:	Not reported

F47 **WASHINGTON HOME** **NY Spills** **S108980993**
SW **464 EAST TREMONT AVE** **N/A**
< 1/8 **BRONX, NY**
0.066 mi.
346 ft. **Site 6 of 19 in cluster F**

Relative: **Lower**
Actual: **48 ft.**

SPILLS:

Spill Number/Closed Date:	0709647 / 2008-01-22
Facility ID:	0709647
Facility Type:	ER
DER Facility ID:	340367
Site ID:	390757
DEC Region:	2
Spill Cause:	Equipment Failure
Spill Class:	C4
SWIS:	0301
Spill Date:	2007-12-07
Investigator:	SFRAHMAN
Referred To:	Not reported
Reported to Dept:	2007-12-07
CID:	444
Water Affected:	Not reported
Spill Source:	Private Dwelling

WASHINGTON HOME (Continued) **S108980993**

Spill Notifier:	Other
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	Not reported
Remediation Phase:	0
Date Entered In Computer:	2007-12-07
Spill Record Last Update:	2008-01-22
Spiller Name:	EDA WASHINGTON
Spiller Company:	WASHINGTON HOME
Spiller Address:	464 EAST TREEMONT AVE
Spiller Company:	001
Contact Name:	EDA WASHINGTON
DEC Memo:	"12/08/07-Vought-Duty Desk officer. Called and spoke to Tony Monaco (Petro 718-333-8863 800-758-3835 fax: 718-333-8836). Petro onsite and made delivery and spill of ten gallons in basement which was confirmed by driver. Spill contained to basement but when driver came back to clean up spill he was refused access by Washington. One of tenants also witnessed spill. Cause of spill may be broken fill. If Washington allows access Petro will come in and investigate and put down speedy dry (at least). Vought called Wahsington and left message with Ms. Washington to return call immediately and told her that letter would be sent requiring cleanup. DEC requires: 1)tightness testing of tank system and repair if fail 2)cleanup of basement spill 3)cc to Petro. Vought sent letter with above requirements and one month due date to owner as per ACRIS: Ms. Eda Washington Morning Star Baptist Church, Inc. A Religous Corporation 217 East 123rd Street New York, NY 10035 01/02/08 Spoke with Eda Washington, sent her the letter, dated 12/08/07 at new address: Morning Star Full Gospel Assembly 464 E Tremont Avenue Bronx, NY 10457 Attn: Sue Washington (SR) 01/22/08 Rec'd letter from Petro confirming the repair was done, surface spill was cleaned up, there was no soil contamination observed.Spill closed.(SR) "
Remarks:	"FAULTY PIPE IN BASEMENT: AND HOMEOWNER WOULD NOT LET PETRO GO IN AND CLEAN IT:"

All Materials:

Site ID:	390757
Operable Unit ID:	1147852
Operable Unit:	01
Material ID:	2138325
Material Code:	0001A
Material Name:	#2 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	10.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

B48
ESE
< 1/8
0.066 mi.
348 ft.

LOT 8,TAXBLOCK 3060
4226 3 AVENUE
BRONX, NY

Site 15 of 15 in cluster B

NY E DESIGNATION **S110670434**
N/A

Relative:
Higher

Actual:
76 ft.

E DESIGNATION:

Tax Lot(s):	8
Tax Block:	3060
Borough Code:	Not reported
E-No:	E-255
Effective Date:	10/13/2010
Satisfaction Date:	Not reported
Ceqr Number:	10DCP043X
Ulurp Number:	100407ZMX
Zoning Map No:	3c, 3d
Description:	Hazardous Materials* Phase I and Phase II Testing Protocol
Lot Remediation Date:	Not reported

F49
SW
< 1/8
0.070 mi.
372 ft.

MAN HOLE 29750
1894 WASHINGTON ST
BRONX, NY

Site 7 of 19 in cluster F

NY Spills **S106007729**
N/A

Relative:
Lower

Actual:
51 ft.

SPILLS:

Spill Number/Closed Date:	0206475 / 2005-05-20
Facility ID:	0206475
Facility Type:	ER
DER Facility ID:	141100
Site ID:	167457
DEC Region:	2
Spill Cause:	Equipment Failure
Spill Class:	C4
SWIS:	0301
Spill Date:	2002-09-22
Investigator:	JHOCONNE
Referred To:	Not reported
Reported to Dept:	2002-09-22
CID:	405
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Responsible Party
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	False
Remediation Phase:	0
Date Entered In Computer:	2002-09-22
Spill Record Last Update:	2005-05-20
Spiller Name:	Not reported
Spiller Company:	CON EDISON
Spiller Address:	4 IRVING PLACE
Spiller Company:	001
Contact Name:	MARK SCHLAGEL
DEC Memo:	"Prior to Sept, 2004 data translation this spill Lead_DEC Field was O'CONNELL e2mis no. 145-196: 22-September-2002 17:23 Hrs. Transmission Operations Supervisor Harry C. Watson, Jr., No. 10161,

MAN HOLE 29750 (Continued) **S106007729**

reports while attempting to take an oil sample from feeder 71 in manhole 1894 located in front of 1894 Washington Avenue (109 feet south of East Tremont Avenue), Bronx, finding 9 gallons of dielectric fluid leak from a valve on top of the feeder pipe and is contained with 500 gallons of water in the manhole. No fire or smoke is/was involved. No sewers, waterways, or private property affected. Crew tightened valve and the leak has been stopped. Chem Lab has been contacted and is on route to sample oil for PCBs. Cleanup will be performed by vendor pending test results. Vendor, Clean Harbors has been contacted and they will perform the clean up. Cleanup completed: 22 Sept 02 Cleanup Activities: TIGHTENED VALVE, BLOCKED NEARBY SEWERS/DRAINS WITH SPILL KITS, REMOVED/RECOVERED LIQUID/SOLIDS, REMOVED VISIBLE TRACES OF OIL, WASHED STAINED AREAS."

Remarks: "spill from a bad valve on the feeder pipe - no sewers/wateways/private property/smoke/fire - on 500 gallons of water - is all contained"

All Materials:

Site ID:	167457
Operable Unit ID:	859135
Operable Unit:	01
Material ID:	517081
Material Code:	0541A
Material Name:	dielectric fluid
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	9.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

F50 **KASS INDUSTRIAL SUPPLY CORP.** **NY AST** **U003395737**
WSW **443 EAST TREMONT AVE.** **N/A**
< 1/8 **BRONX, NY 10457**
0.071 mi.
375 ft. **Site 8 of 19 in cluster F**

Relative: **Lower**

Actual: **46 ft.**

AST:

Region:	STATE
DEC Region:	2
Site Status:	Unregulated/Closed
Facility Id:	2-600754
Program Type:	PBS
UTM X:	592826.62454
UTM Y:	4522394.85817
Expiration Date:	N/A
Site Type:	Private Residence

Affiliation Records:

Site Id:	22732
Affiliation Type:	Facility Owner
Company Name:	TREPARK REALTY
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	P.O. BOX 309
Address2:	Not reported
City:	BRONX
State:	NY

KASS INDUSTRIAL SUPPLY CORP. (Continued) **U003395737**

Zip Code:	10457
Country Code:	001
Phone:	(212) 299-6060
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Site Id:	22732
Affiliation Type:	Mail Contact
Company Name:	KASS INDUSTRIAL SUPPLY. CORPORATION
Contact Type:	Not reported
Contact Name:	SUPER FACILITY MANAGER
Address1:	443 EAST TREMONT AVENUE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10457
Country Code:	001
Phone:	(212) 299-6060
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Site Id:	22732
Affiliation Type:	Facility Operator
Company Name:	KASS INDUSTRIAL SUPPLY CORP.
Contact Type:	Not reported
Contact Name:	ALLEN KASS
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(212) 299-6060
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Site Id:	22732
Affiliation Type:	Emergency Contact
Company Name:	TREPARK REALTY
Contact Type:	Not reported
Contact Name:	MARTIN KASS
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(201) 784-6063
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT

KASS INDUSTRIAL SUPPLY CORP. (Continued) **U003395737**

Date Last Modified: 2004-03-04

Tank Info:

Tank Number: 001
Tank Id: 43643
Material Code: 0001
Common Name of Substance: #2 Fuel Oil (On-Site Consumption)

Equipment Records:

L09 - Piping Leak Detection - Exempt Suction Piping
G00 - Tank Secondary Containment - None
J02 - Dispenser - Suction Dispenser
C01 - Pipe Location - Aboveground
B00 - Tank External Protection - None
F00 - Pipe External Protection - None
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
H01 - Tank Leak Detection - Interstitial - Electronic Monitoring
I01 - Overfill - Float Vent Valve

Tank Location: Aboveground - on saddles, legs, racks, etc.... Tank bottom is elevated above grade or tank pad, allowing visual inspection.
Tank Type: Steel/Carbon Steel/Iron
Tank Status: Closed - Removed
Pipe Model: Not reported
Install Date: Not reported
Capacity Gallons: 1500
Tightness Test Method: -
Date Test: Not reported
Next Test Date: Not reported
Date Tank Closed: 12/19/2011
Register: True
Modified By: LXZIELIN
Last Modified: 04/14/2017
Material Name: #2 fuel oil (on-site consumption)

F51 **LOT 1,TAXBLOCK 3034** **NY E DESIGNATION** **S110670109**
West **4208 PARK AVENUE** **N/A**
< 1/8 **BRONX, NY**
0.072 mi.
379 ft. **Site 9 of 19 in cluster F**

Relative: **Lower**
Actual: **49 ft.**

E DESIGNATION:
Tax Lot(s): 1
Tax Block: 3034
Borough Code: Not reported
E-No: E-255
Effective Date: 10/13/2010
Satisfaction Date: Not reported
Ceqr Number: 10DCP043X
Ulurp Number: 100407ZMX
Zoning Map No: 3c, 3d

Description: Air Quality - #2 Fuel Oil or #4 Fuel Oil or Natural Gas for HVAC systems
Lot Remediation Date: Not reported

LOT 1,TAXBLOCK 3034 (Continued) **S110670109**

Description: Exhaust stack location limitations
Lot Remediation Date: Not reported

Description: Hazardous Materials* Phase I and Phase II Testing Protocol
Lot Remediation Date: Not reported

F52 **CON EDISON** **RCRA NonGen / NLR** **1019907004**
WSW **447 E TREMONT AVE** **FINDS** **NYP004829010**
< 1/8 **BRONX, NY 10457** **ECHO**
0.073 mi.
385 ft. **Site 10 of 19 in cluster F**

Relative:
Lower

Actual:
46 ft.

RCRA NonGen / NLR:
Date form received by agency: 08/24/2015
Facility name: CON EDISON
Facility address: 447 E TREMONT AVE
BRONX, NY 10457
EPA ID: NYP004829010
Mailing address: IRVING PL 15TH FL NE
NEW YORK, NY 10003
Contact: THOMAS TEELING
Contact address: Not reported
Not reported
Contact country: Not reported
Contact telephone: 212-460-3770
Contact email: Not reported
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 08/24/2015
Site name: CON EDISON
Classification: Large Quantity Generator

Violation Status: No violations found

FINDS:

Registry ID: 110069680009

CON EDISON (Continued) **1019907004**

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1019907004
Registry ID:	110069680009
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110069680009

F53 WSW < 1/8 0.073 mi. 385 ft. **CON EDISON MANHOLE: 23927** **RCRA NonGen / NLR 1016970925**
447 E TREMONT AVE FRONT OF **NY MANIFEST NYP004446563**
BRONX, NY 10453

Site 11 of 19 in cluster F

Relative: Lower

Actual: 46 ft.

RCRA NonGen / NLR:

Date form received by agency:	03/20/2014
Facility name:	CON EDISON MANHOLE: 23927
Facility address:	447 E TREMONT AVE FRONT OF BRONX, NY 10453
EPA ID:	NYP004446563
Mailing address:	IRVING PL, 15TH FL NE NEW YORK, NY 10003
Contact:	THOMAS TEELING
Contact address:	Not reported Not reported
Contact country:	Not reported
Contact telephone:	212-460-3770
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

CON EDISON MANHOLE: 23927 (Continued) **1016970925**

Historical Generators:
Date form received by agency: 02/20/2014
Site name: CON EDISON MANHOLE: 23927
Classification: Conditionally Exempt Small Quantity Generator

Violation Status: No violations found

NY MANIFEST:
Country: USA
EPA ID: NYP004829010
Facility Status: Not reported
Location Address 1: 447 E TREMONT AVE
Code: BP
Location Address 2: SB 13990
Total Tanks: Not reported
Location City: BRONX
Location State: NY
Location Zip: 10457
Location Zip 4: Not reported

NY MANIFEST:
EPAID: NYP004829010
Mailing Name: CON EDISON
Mailing Contact: DENNIS HUACON
Mailing Address 1: 4 IRVING PL 15TH FL
Mailing Address 2: Not reported
Mailing City: NEW YORK
Mailing State: NY
Mailing Zip: 10003
Mailing Zip 4: Not reported
Mailing Country: USA
Mailing Phone: 2124603770

NY MANIFEST:
Document ID: Not reported
Manifest Status: Not reported
seq: Not reported
Year: 2015
Trans1 State ID: NJD003812047
Trans2 State ID: Not reported
Generator Ship Date: 08/24/2015
Trans1 Recv Date: 08/24/2015
Trans2 Recv Date: Not reported
TSD Site Recv Date: 08/24/2015
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: NYP004829010
Trans1 EPA ID: Not reported
Trans2 EPA ID: Not reported
TSDF ID 1: NJD991291105
TSDF ID 2: Not reported
Manifest Tracking Number: 002661338GBF
Import Indicator: N
Export Indicator: N
Discr Quantity Indicator: N
Discr Type Indicator: N
Discr Residue Indicator: N

CON EDISON MANHOLE: 23927 (Continued) **1016970925**

Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H110
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	200
Units:	P - Pounds
Number of Containers:	1
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Country:	USA
EPA ID:	NYP004446563
Facility Status:	Not reported
Location Address 1:	447 E TREMONT AVE
Code:	BP
Location Address 2:	SB23927
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	10461
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYP004446563
Mailing Name:	CON EDISON
Mailing Contact:	CON EDISON
Mailing Address 1:	4 IRVING ST
Mailing Address 2:	15TH FL
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	10003
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	Not reported

NY MANIFEST:

Document ID:	Not reported
Manifest Status:	Not reported
seq:	Not reported
Year:	2014
Trans1 State ID:	NJD003812047

CON EDISON MANHOLE: 23927 (Continued) **1016970925**

Trans2 State ID:	Not reported
Generator Ship Date:	02/20/2014
Trans1 Recv Date:	02/20/2014
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	02/25/2014
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004446563
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD991291105
TSDF ID 2:	Not reported
Manifest Tracking Number:	002219042GBF
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H110
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	700
Units:	P - Pounds
Number of Containers:	1
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

F54 **CON EDISON** **NJ MANIFEST** **S120675834**
WSW **447 E TREMONT AVE** **N/A**
< 1/8 **BRONX, NY 10457**
0.073 mi.
385 ft. **Site 12 of 19 in cluster F**

Relative: NJ MANIFEST:
Lower

EPA Id:	NYP004829010
Mail Address:	IRVING PL 15TH FL NE
Mail City/State/Zip:	NEW YORK, NY 10003
Facility Phone:	Not reported

Actual:
46 ft.

CON EDISON (Continued) **S120675834**

Emergency Phone:	Not reported
Contact:	THOMAS TEELING
Comments:	Not reported
SIC Code:	Not reported
County:	NY005
Municipal:	Not reported
Previous EPA Id:	Not reported
Gen Flag:	Not reported
Trans Flag:	Not reported
TSDF Flag:	Not reported
Name Change:	Not reported
Date Change:	Not reported

Manifest:

Manifest Number:	002661338GBF
EPA ID:	NYP004829010
Date Shipped:	8/24/2015
TSDF EPA ID:	NJD991291105
Transporter EPA ID:	NJD003812047
Transporter 2 EPA ID:	Not reported
Transporter 3 EPA ID:	Not reported
Transporter 4 EPA ID:	Not reported
Transporter 5 EPA ID:	Not reported
Transporter 6 EPA ID:	Not reported
Transporter 7 EPA ID:	Not reported
Transporter 8 EPA ID:	Not reported
Transporter 9 EPA ID:	Not reported
Transporter 10 EPA ID:	Not reported
Date Trans1 Transported Waste:	Not reported
Date Trans2 Transported Waste:	Not reported
Date Trans3 Transported Waste:	Not reported
Date Trans4 Transported Waste:	Not reported
Date Trans5 Transported Waste:	Not reported
Date Trans6 Transported Waste:	Not reported
Date Trans7 Transported Waste:	Not reported
Date Trans8 Transported Waste:	Not reported
Date Trans9 Transported Waste:	Not reported
Date Trans10 Transported Waste:	Not reported
Date TSDF Received Waste:	Not reported
TSDF EPA Facility Name:	Not reported
QTY Units:	Not reported
Transporter SEQ ID:	Not reported
Transporter-1 Date:	Not reported
Waste SEQ ID:	Not reported
Waste Type Code 2:	Not reported
Waste Type Code 3:	Not reported
Waste Type Code 4:	Not reported
Waste Type Code 5:	Not reported
Waste Type Code 6:	Not reported
Date Accepted:	Not reported
Manifest Discrepancy Type:	Not reported
Data Entry Number:	Not reported
Was Load Rejected:	NEW YORK, NY 10003
Reason Load Was Rejected:	Not reported

C55 **1991 BATHGATE AVENUE** **NY AST** **S102151024**
NNE **1991 BATHGATE AVENUE** **NY Spills** **N/A**
< 1/8 **BRONX, NY**
0.074 mi.
391 ft. **Site 6 of 7 in cluster C**

Relative:
Higher

Actual:
87 ft.

AST:

Region:	STATE
DEC Region:	2
Site Status:	Unregulated/Closed
Facility Id:	2-601087
Program Type:	PBS
UTM X:	593052.34510
UTM Y:	4522583.69008
Expiration Date:	N/A
Site Type:	Apartment Building/Office Building

Affiliation Records:

Site Id:	23057
Affiliation Type:	Mail Contact
Company Name:	ADVANTAGE PROPERTY MANAGEMENT SERVICES LLC
Contact Type:	Not reported
Contact Name:	VITO DEFAZIO
Address1:	2844 8TH AVE
Address2:	GROUND FLOOR
City:	NEW YORK
State:	NY
Zip Code:	10039
Country Code:	001
Phone:	(646) 979-2500
EMail:	VDEFAZIO@ADVANTAGERENY.COM
Fax Number:	Not reported
Modified By:	MRBARROW
Date Last Modified:	2018-06-14

Site Id:	23057
Affiliation Type:	Facility Operator
Company Name:	1991 BATHGATE AVENUE
Contact Type:	Not reported
Contact Name:	VICTOR JUSINO
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 294-6773
EMail:	Not reported
Fax Number:	Not reported
Modified By:	KXTANG
Date Last Modified:	2006-04-20

Site Id:	23057
Affiliation Type:	Emergency Contact
Company Name:	EAST TREMONT HDFC
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	Not reported
Address2:	Not reported
City:	Not reported

1991 BATHGATE AVENUE (Continued) **S102151024**

State: NN
Zip Code: Not reported
Country Code: 999
Phone: Not reported
EMail: Not reported
Fax Number: Not reported
Modified By: MRBARROW
Date Last Modified: 2018-06-14

Site Id: 23057
Affiliation Type: Facility Owner
Company Name: EAST TREMONT HDFC
Contact Type: MANAGING AGENT
Contact Name: LAKESHA BAKER
Address1: 477 MADISON AVE-6TH FL
Address2: Not reported
City: NEW YORK
State: NY
Zip Code: 10022
Country Code: 001
Phone: (646) 979-2500
EMail: Not reported
Fax Number: Not reported
Modified By: MRBARROW
Date Last Modified: 2018-06-14

Tank Info:

Tank Number: 1
Tank Id: 44785
Material Code: 0001
Common Name of Substance: #2 Fuel Oil (On-Site Consumption)

Equipment Records:

I05 - Overfill - Vent Whistle
G03 - Tank Secondary Containment - Vault (w/o access)
H00 - Tank Leak Detection - None
L09 - Piping Leak Detection - Exempt Suction Piping
C03 - Pipe Location - Aboveground/Underground Combination
J02 - Dispenser - Suction Dispenser
A00 - Tank Internal Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
D01 - Pipe Type - Steel/Carbon Steel/Iron
F01 - Pipe External Protection - Painted/Asphalt Coating

Tank Location: Aboveground - on saddles, legs, racks, etc.... Tank bottom is elevated above grade or tank pad, allowing visual inspection.
Tank Type: Steel/Carbon Steel/Iron
Tank Status: Closed - Removed
Pipe Model: Not reported
Install Date: 01/01/1995
Capacity Gallons: 1500
Tightness Test Method: -
Date Test: Not reported
Next Test Date: Not reported
Date Tank Closed: 07/16/2014
Register: True

1991 BATHGATE AVENUE (Continued) **S102151024**

Modified By: MRBARROW
Last Modified: 06/14/2018
Material Name: #2 fuel oil (on-site consumption)

SPILLS:
Spill Number/Closed Date: 9509245 / 1995-10-26
Facility ID: 9509245
Facility Type: ER
DER Facility ID: 70503
Site ID: 75312
DEC Region: 2
Spill Cause: Equipment Failure
Spill Class: C4
SWIS: 0301
Spill Date: 1995-10-26
Investigator: LUCE
Referred To: Not reported
Reported to Dept: 1995-10-26
CID: 216
Water Affected: Not reported
Spill Source: Institutional, Educational, Gov., Other
Spill Notifier: Responsible Party
Cleanup Ceased: Not reported
Cleanup Meets Std: False
Last Inspection: Not reported
Recommended Penalty: False
UST Trust: False
Remediation Phase: 0
Date Entered In Computer: 1995-10-26
Spill Record Last Update: 1995-11-06
Spiller Name: MR CAREY
Spiller Company: CASTLE OIL CORP
Spiller Address: 290 LOCUST AVE
Spiller Company: 001
Contact Name: MR CAREY
DEC Memo: ""
Remarks: "APARTMENT BUILDING LEAK ON SIDE OF BUILDING NEAR ALLEY CAUSED BY GAUGE FAULTED CREW ENROUTE TO CLEAN UP NO NEED FOR DEC AT THIS TIME "

All Materials:
Site ID: 75312
Operable Unit ID: 1023444
Operable Unit: 01
Material ID: 360208
Material Code: 0001A
Material Name: #2 fuel oil
Case No.: Not reported
Material FA: Petroleum
Quantity: 30.00
Units: G
Recovered: .00
Oxygenate: Not reported

H56 **CON EDISON** **RCRA NonGen / NLR** **1014397803**
SE **535 E TREMONT AVE** **NYP004201422**
< 1/8 **BRONX, NY 10457**
0.074 mi.
391 ft. **Site 1 of 12 in cluster H**

Relative: **Lower**
Actual: **68 ft.**

RCRA NonGen / NLR:

Date form received by agency:	01/24/2010
Facility name:	CON EDISON
Facility address:	535 E TREMONT AVE BRONX, NY 10457
EPA ID:	NYP004201422
Mailing address:	4 IRVING PL, RM 828 NEW YORK, NY 10003
Contact:	NEIL SKOW
Contact address:	Not reported Not reported
Contact country:	Not reported
Contact telephone:	718-204-4249
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Violation Status: No violations found

H57 **535 E TREMONT AVE** **NY AST** **U003389391**
SE **535 EAST TREMONT AVENUE** **N/A**
< 1/8 **BRONX, NY 10457**
0.074 mi.
391 ft. **Site 2 of 12 in cluster H**

Relative: **Lower**
Actual: **68 ft.**

AST:

Region:	STATE
DEC Region:	2
Site Status:	Unregulated/Closed
Facility Id:	2-286532
Program Type:	PBS
UTM X:	593077.43935
UTM Y:	4522310.09835
Expiration Date:	N/A
Site Type:	Other

535 E TREMONT AVE (Continued) **U003389391**

Affiliation Records:

Site Id:	12783
Affiliation Type:	Mail Contact
Company Name:	535 E. TREMONT AVE. LLC
Contact Type:	AGENT
Contact Name:	JOSEPH L. BAVARO
Address1:	503 S. BROADWAY SUITE 235
Address2:	Not reported
City:	YONKERS
State:	NY
Zip Code:	10705
Country Code:	001
Phone:	(718) 513-6252
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MSBAPTIS
Date Last Modified:	2009-03-10

Site Id:	12783
Affiliation Type:	Facility Operator
Company Name:	535 E TREMONT AVE
Contact Type:	Not reported
Contact Name:	FEDERICO FELIZ
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(347) 270-6490
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MSBAPTIS
Date Last Modified:	2009-03-10

Site Id:	12783
Affiliation Type:	Emergency Contact
Company Name:	535 E. TREMONT AVE. LLC
Contact Type:	Not reported
Contact Name:	JOSEPH L. BAVARO
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(718) 513-6252
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MSBAPTIS
Date Last Modified:	2009-03-10

Site Id:	12783
Affiliation Type:	Facility Owner
Company Name:	535 E. TREMONT AVE. LLC
Contact Type:	AGENT
Contact Name:	JOSEPH L. BAVARO

535 E TREMONT AVE (Continued) **U003389391**

Address1:	503 S. BROADWAY SUITE 235
Address2:	Not reported
City:	YONKERS
State:	NY
Zip Code:	10705
Country Code:	001
Phone:	(718) 513-6252
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MSBAPTIS
Date Last Modified:	2009-03-10

Tank Info:

Tank Number:	001
Tank Id:	16574
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

Equipment Records:

G00 - Tank Secondary Containment - None
H00 - Tank Leak Detection - None
I00 - Overfill - None
A00 - Tank Internal Protection - None
D00 - Pipe Type - No Piping
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None

Tank Location:	Aboveground - contact with soil.... Tank bottom rests on soil, allowing no visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	Closed - Removed
Pipe Model:	Not reported
Install Date:	01/01/1987
Capacity Gallons:	3000
Tightness Test Method:	-
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	11/24/2015
Register:	True
Modified By:	LXZIELIN
Last Modified:	04/14/2017
Material Name:	#2 fuel oil (on-site consumption)

G58 **CONSOLIDATED EDISON** **NY MANIFEST** **S109584364**
NW **PARK AVENUE & EAST 178 STREET** **N/A**
< 1/8 **BRONX, NY 10451**
0.075 mi.
396 ft. **Site 3 of 10 in cluster G**

Relative: **Lower**
Actual: **44 ft.**

NY MANIFEST:

Country:	USA
EPA ID:	NYP004155719
Facility Status:	Not reported
Location Address 1:	PARK AVENUE & EAST 178 STREET
Code:	BP
Location Address 2:	Not reported

CONSOLIDATED EDISON (Continued) **S109584364**

Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	10451
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYP004155719
Mailing Name:	CONSOLIDATED EDISON
Mailing Contact:	FRANKLIN MURRAY
Mailing Address 1:	4 IRVING PLACE RM 828
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	10003
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	2124602808

NY MANIFEST:

Document ID:	Not reported
Manifest Status:	Not reported
seq:	Not reported
Year:	2008
Trans1 State ID:	NJD003812047
Trans2 State ID:	NJD003812047
Generator Ship Date:	01/11/2008
Trans1 Recv Date:	01/11/2008
Trans2 Recv Date:	01/14/2008
TSD Site Recv Date:	01/14/2008
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004155719
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD991291105
TSDF ID 2:	Not reported
Manifest Tracking Number:	000183770GBF
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H141
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	350.0
Units:	G - Gallons (liquids only)* (8.3 pounds)

CONSOLIDATED EDISON (Continued) **S109584364**

Number of Containers:	1.0
Container Type:	CM - Metal boxes, cases, roll-offs
Handling Method:	L Landfill.
Specific Gravity:	1.0
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

H59 **MANHOLE 23851** **NY Spills** **S106971164**
SE **EA TREMONT A W OF 3RD AVE** **N/A**
< 1/8 **BRONX, NY**
0.076 mi.
399 ft. **Site 3 of 12 in cluster H**

Relative: **Lower**

Actual: **65 ft.**

SPILLS:

Spill Number/Closed Date:	0504708 / 2006-04-05
Facility ID:	0504708
Facility Type:	ER
DER Facility ID:	296074
Site ID:	349642
DEC Region:	2
Spill Cause:	Equipment Failure
Spill Class:	C4
SWIS:	0301
Spill Date:	2005-07-19
Investigator:	JHOCONNE
Referred To:	Not reported
Reported to Dept:	2005-07-19
CID:	41
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Responsible Party
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	False
Remediation Phase:	0
Date Entered In Computer:	2005-07-20
Spill Record Last Update:	2006-04-05
Spiller Name:	Not reported
Spiller Company:	CON ED
Spiller Address:	Not reported
Spiller Company:	999
Contact Name:	ERT DESK'
DEC Memo:	"4/5/05 - See e-docs for spill closure documentation. (JHO) "
Remarks:	"ONE QUART - DEFAULT - REF 159841 - NO TO FIVE QUESTIONS"

All Materials:

Site ID:	349642
Operable Unit ID:	1107231

MANHOLE 23851 (Continued) **S106971164**

Operable Unit:	01
Material ID:	2097125
Material Code:	0541A
Material Name:	dielectric fluid
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

F60 **CON EDISON SERVICE BOX: 13994** **RCRA NonGen / NLR** **1017775426**
WSW **452 E TREMONT AVE FRONT OF** **FINDS** **NYP004532602**
< 1/8 **BRONX, NY 10457**
0.077 mi.
406 ft. **Site 13 of 19 in cluster F**

Relative:
Lower

Actual:
42 ft.

RCRA NonGen / NLR:

Date form received by agency:	06/15/2014
Facility name:	CON EDISON SERVICE BOX: 13994
Facility address:	452 E TREMONT AVE FRONT OF BRONX, NY 10457
EPA ID:	NYP004532602
Mailing address:	IRVING PL, 15TH FL NE NEW YORK, NY 10003
Contact:	THOMAS TEELING
Contact address:	Not reported Not reported
Contact country:	Not reported
Contact telephone:	212-460-3770
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Historical Generators:

Date form received by agency:	05/15/2014
Site name:	CON EDISON
Classification:	Large Quantity Generator

CON EDISON SERVICE BOX: 13994 (Continued) **1017775426**

Date form received by agency: 05/15/2014
Site name: CON EDISON
Classification: Not a generator, verified

Violation Status: No violations found

FINDS:

Registry ID: 110063773910

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

F61 **CON EDISON** **NY MANIFEST** **S117060997**
WSW **452 E TREMONT AVE FRONT OF** **N/A**
< 1/8 **BRONX, NY 10457**
0.077 mi.
406 ft. **Site 14 of 19 in cluster F**

Relative:
Lower

Actual:
42 ft.

NY MANIFEST:
Country: USA
EPA ID: NYP004532602
Facility Status: Not reported
Location Address 1: 452 E TREMONT AV
Code: BP
Location Address 2: SB13994
Total Tanks: Not reported
Location City: BRONX
Location State: NY
Location Zip: 10461
Location Zip 4: Not reported

NY MANIFEST:
EPAID: NYP004532602
Mailing Name: CON EDISON
Mailing Contact: CON EDISON
Mailing Address 1: 4 IRVING PL
Mailing Address 2: 15TH FL
Mailing City: NEW YORK
Mailing State: NY
Mailing Zip: 10003
Mailing Zip 4: Not reported
Mailing Country: USA
Mailing Phone: Not reported

NY MANIFEST:
Document ID: Not reported
Manifest Status: Not reported
seq: Not reported

CON EDISON (Continued) **S117060997**

Year:	2014
Trans1 State ID:	NJD003812047
Trans2 State ID:	Not reported
Generator Ship Date:	05/15/2014
Trans1 Recv Date:	05/15/2014
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	05/16/2014
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004532602
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD991291105
TSDF ID 2:	Not reported
Manifest Tracking Number:	002418519GBF
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H110
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	85
Units:	P - Pounds
Number of Containers:	1
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

D62 **CON EDISON SERVICE BOX: 13687** **RCRA NonGen / NLR** **1016969125**
SSE **4203 3RD AVE FRONT OF** **NY MANIFEST** **NYP004427738**
< 1/8 **BRONX, NY 10465**
0.078 mi.
414 ft. **Site 9 of 9 in cluster D**

Relative:
Lower

Actual:
61 ft.

RCRA NonGen / NLR:

Date form received by agency:	02/28/2014
Facility name:	CON EDISON SERVICE BOX: 13687
Facility address:	4203 3RD AVE FRONT OF BRONX, NY 10465
EPA ID:	NYP004427738
Mailing address:	IRVING PL, 15TH FL NE NEW YORK, NY 10003
Contact:	THOMAS TEELING
Contact address:	Not reported Not reported
Contact country:	Not reported
Contact telephone:	212-460-3770
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Historical Generators:

Date form received by agency:	01/28/2014
Site name:	CON EDISON SERVICE BOX: 13687
Classification:	Conditionally Exempt Small Quantity Generator
Violation Status:	No violations found

NY MANIFEST:

Country:	USA
EPA ID:	NYP004427738
Facility Status:	Not reported
Location Address 1:	4203 THIRD AVE
Code:	BP
Location Address 2:	Not reported
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	10457

CON EDISON SERVICE BOX: 13687 (Continued) **1016969125**

Location Zip 4: Not reported

NY MANIFEST:
EPAID: NYP004427738
Mailing Name: CON EDISON
Mailing Contact: CON EDISON
Mailing Address 1: 4 IRVING PLACE
Mailing Address 2: 15TH FL
Mailing City: NEW YORK
Mailing State: NY
Mailing Zip: 10003
Mailing Zip 4: Not reported
Mailing Country: USA
Mailing Phone: Not reported

NY MANIFEST:
Document ID: Not reported
Manifest Status: Not reported
seq: Not reported
Year: 2014
Trans1 State ID: NJD003812047
Trans2 State ID: Not reported
Generator Ship Date: 01/28/2014
Trans1 Recv Date: 01/28/2014
Trans2 Recv Date: Not reported
TSD Site Recv Date: 01/31/2014
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: NYP004427738
Trans1 EPA ID: Not reported
Trans2 EPA ID: Not reported
TSDF ID 1: NJD991291105
TSDF ID 2: Not reported
Manifest Tracking Number: 002219045GBF
Import Indicator: N
Export Indicator: N
Discr Quantity Indicator: N
Discr Type Indicator: N
Discr Residue Indicator: N
Discr Partial Reject Indicator: N
Discr Full Reject Indicator: N
Manifest Ref Number: Not reported
Alt Facility RCRA ID: Not reported
Alt Facility Sign Date: Not reported
MGMT Method Type Code: H141
Waste Code: Not reported
Waste Code: Not reported
Waste Code: Not reported
Waste Code: Not reported
Waste Code: Not reported
Waste Code: Not reported
Quantity: 50
Units: P - Pounds
Number of Containers: 1
Container Type: TT - Cargo tank, tank trucks
Handling Method: T Chemical, physical, or biological treatment.
Specific Gravity: 1

CON EDISON SERVICE BOX: 13687 (Continued) **1016969125**

Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

F63 **LOT 26,TAXBLOCK 2909** **NY E DESIGNATION** **S110670213**
SW **1893 WASHINGTON AVENUE** **N/A**
< 1/8 **BRONX, NY 10457**
0.079 mi.
416 ft. **Site 15 of 19 in cluster F**

Relative: **Lower**
Actual: **48 ft.**

E DESIGNATION:

Tax Lot(s):	26
Tax Block:	2909
Borough Code:	BX
E-No:	E-255
Effective Date:	10/13/2010
Satisfaction Date:	Not reported
Ceqr Number:	10DCP043X
Ulurp Number:	100407ZMX
Zoning Map No:	3c, 3d
Description:	Hazardous Materials* Phase I and Phase II Testing Protocol
Lot Remediation Date:	Not reported

C64 **1993 BATHGATE AVE** **NY AST** **A100300862**
NNE **1993 BATHGATE AVENUE** **N/A**
< 1/8 **BRONX, NY 10457**
0.081 mi.
430 ft. **Site 7 of 7 in cluster C**

Relative: **Higher**
Actual: **89 ft.**

AST:

Region:	STATE
DEC Region:	2
Site Status:	Unregulated/Closed
Facility Id:	2-609267
Program Type:	PBS
UTM X:	593042.46667
UTM Y:	4522547.76771
Expiration Date:	N/A
Site Type:	Apartment Building/Office Building

Affiliation Records:

Site Id:	31112
Affiliation Type:	Facility Owner
Company Name:	TRI-BEL, LP
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	660 EAST 183RD ST.
Address2:	Not reported
City:	BRONX

1993 BATHGATE AVE (Continued) **A100300862**

State: NY
Zip Code: 10458
Country Code: 001
Phone: (718) 295-2882
EMail: Not reported
Fax Number: Not reported
Modified By: TRANSLAT
Date Last Modified: 2004-03-04

Site Id: 31112
Affiliation Type: Mail Contact
Company Name: TRI-BEL, LP
Contact Type: Not reported
Contact Name: Not reported
Address1: 660 EAST 183RD STREET
Address2: Not reported
City: BRONX
State: NY
Zip Code: 10458
Country Code: 001
Phone: (718) 295-2882
EMail: Not reported
Fax Number: Not reported
Modified By: TRANSLAT
Date Last Modified: 2004-03-04

Site Id: 31112
Affiliation Type: Facility Operator
Company Name: 1993 BATHGATE AVE
Contact Type: Not reported
Contact Name: BELMONT ARTHUR LDC
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 001
Phone: (718) 295-2882
EMail: Not reported
Fax Number: Not reported
Modified By: TRANSLAT
Date Last Modified: 2004-03-04

Site Id: 31112
Affiliation Type: Emergency Contact
Company Name: TRI-BEL, LP
Contact Type: Not reported
Contact Name: SONNY CARRERO
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 001
Phone: (718) 295-2882
EMail: Not reported
Fax Number: Not reported

1993 BATHGATE AVE (Continued) **A100300862**

Modified By: TRANSLAT
Date Last Modified: 2004-03-04

Tank Info:

Tank Number: ONE
Tank Id: 66972
Material Code: 0001
Common Name of Substance: #2 Fuel Oil (On-Site Consumption)

Equipment Records:

I05 - Overfill - Vent Whistle
D01 - Pipe Type - Steel/Carbon Steel/Iron
A00 - Tank Internal Protection - None
C01 - Pipe Location - Aboveground
F00 - Pipe External Protection - None
B00 - Tank External Protection - None
H00 - Tank Leak Detection - None
G00 - Tank Secondary Containment - None
J02 - Dispenser - Suction Dispenser

Tank Location: Aboveground - on saddles, legs, racks, etc.... Tank bottom is elevated above grade or tank pad, allowing visual inspection.
Tank Type: Steel/Carbon Steel/Iron
Tank Status: Closed - Removed
Pipe Model: Not reported
Install Date: Not reported
Capacity Gallons: 2000
Tightness Test Method: NN
Date Test: Not reported
Next Test Date: Not reported
Date Tank Closed: 12/01/1999
Register: True
Modified By: TRANSLAT
Last Modified: 04/14/2017
Material Name: #2 fuel oil (on-site consumption)

F65 **LOT 28,TAXBLOCK 2909** **NY E DESIGNATION** **S110670228**
SW **1891 WASHINGTON AVENUE** **N/A**
< 1/8 **BRONX, NY 10457**
0.083 mi.
440 ft. **Site 16 of 19 in cluster F**

Relative: **Lower**
Actual: **48 ft.**

E DESIGNATION:
Tax Lot(s): 28
Tax Block: 2909
Borough Code: BX
E-No: E-255
Effective Date: 10/13/2010
Satisfaction Date: Not reported
Ceqr Number: 10DCP043X
Ulurp Number: 100407ZMX
Zoning Map No: 3c, 3d

Description: Hazardous Materials* Phase I and Phase II Testing Protocol
Lot Remediation Date: Not reported

G66 **NYC DEP** **RCRA NonGen / NLR** **1014395392**
NW **E 178TH ST & PARK AVE** **NY MANIFEST** **NYP003662848**
< 1/8 **BRONX, NY 10457**
0.084 mi.
442 ft. **Site 4 of 10 in cluster G**

Relative:
Lower

Actual:
38 ft.

RCRA NonGen / NLR:

Date form received by agency:	05/08/2006
Facility name:	NYC DEP
Facility address:	E 178TH ST & PARK AVE BRONX, NY 10457
EPA ID:	NYP003662848
Mailing address:	JUNCTION BLVD FLUSHING, NY 11373
Contact:	JOANNE NURSE
Contact address:	JUNCTION BLVD FLUSHING, NY 11373
Contact country:	US
Contact telephone:	718-595-4675
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Violation Status: No violations found

NY MANIFEST:

Country:	USA
EPA ID:	NYP003662848
Facility Status:	Not reported
Location Address 1:	E 178TH ST & PARK AVE
Code:	BP
Location Address 2:	Not reported
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	Not reported
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYP003662848
Mailing Name:	NYCDEP
Mailing Contact:	N/S

NYC DEP (Continued) **1014395392**

Mailing Address 1:	96 HORACE HARDING EXPW 1ST FL
Mailing Address 2:	Not reported
Mailing City:	CORONA
Mailing State:	NY
Mailing Zip:	11368
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	9176823156

NY MANIFEST:

Document ID:	NYG4455657
Manifest Status:	Not reported
seq:	01
Year:	2006
Trans1 State ID:	NYD049178296
Trans2 State ID:	Not reported
Generator Ship Date:	05/02/2006
Trans1 Recv Date:	05/02/2006
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	06/29/2006
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP003662848
Trans1 EPA ID:	70491PANY
Trans2 EPA ID:	Not reported
TSDF ID 1:	OHD083377010
TSDF ID 2:	Not reported
Manifest Tracking Number:	Not reported
Import Indicator:	Not reported
Export Indicator:	Not reported
Discr Quantity Indicator:	Not reported
Discr Type Indicator:	Not reported
Discr Residue Indicator:	Not reported
Discr Partial Reject Indicator:	Not reported
Discr Full Reject Indicator:	Not reported
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	Not reported
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	00080
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

I67 **CON EDISON SERVICE BOX: 10141** **RCRA NonGen / NLR** **1016968529**
North **1997 WASHINGTON AVE FRONT OF** **NY MANIFEST** **NYP004421434**
< 1/8 **BRONX, NY 10451**
0.084 mi.
443 ft. **Site 1 of 3 in cluster I**

Relative:
Higher

Actual:
69 ft.

RCRA NonGen / NLR:

Date form received by agency:	02/17/2014
Facility name:	CON EDISON SERVICE BOX: 10141
Facility address:	1997 WASHINGTON AVE FRONT OF BRONX, NY 10451
EPA ID:	NYP004421434
Mailing address:	IRVING PL, 15TH FL NE NEW YORK, NY 10003
Contact:	THOMAS TEELING
Contact address:	Not reported Not reported
Contact country:	Not reported
Contact telephone:	212-460-3770
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Historical Generators:

Date form received by agency:	01/17/2014
Site name:	CON EDISON SERVICE BOX: 10141
Classification:	Conditionally Exempt Small Quantity Generator
Violation Status:	No violations found

NY MANIFEST:

Country:	USA
EPA ID:	NYP004421434
Facility Status:	Not reported
Location Address 1:	1997 WASHINGTON AVE
Code:	BP
Location Address 2:	SB10141
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	10461

CON EDISON SERVICE BOX: 10141 (Continued) **1016968529**

Location Zip 4: Not reported

NY MANIFEST:
EPAID: NYP004421434
Mailing Name: CON EDISON
Mailing Contact: CON EDISON
Mailing Address 1: 4 IRVING PLACE
Mailing Address 2: 15TH FL
Mailing City: NEW YORK
Mailing State: NY
Mailing Zip: 10003
Mailing Zip 4: Not reported
Mailing Country: USA
Mailing Phone: Not reported

NY MANIFEST:
Document ID: Not reported
Manifest Status: Not reported
seq: Not reported
Year: 2014
Trans1 State ID: NJD003812047
Trans2 State ID: Not reported
Generator Ship Date: 01/17/2014
Trans1 Recv Date: 01/17/2014
Trans2 Recv Date: Not reported
TSD Site Recv Date: 01/17/2014
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: NYP004421434
Trans1 EPA ID: Not reported
Trans2 EPA ID: Not reported
TSDF ID 1: NJD991291105
TSDF ID 2: Not reported
Manifest Tracking Number: 002085551GBF
Import Indicator: N
Export Indicator: N
Discr Quantity Indicator: N
Discr Type Indicator: N
Discr Residue Indicator: N
Discr Partial Reject Indicator: N
Discr Full Reject Indicator: N
Manifest Ref Number: Not reported
Alt Facility RCRA ID: Not reported
Alt Facility Sign Date: Not reported
MGMT Method Type Code: H110
Waste Code: Not reported
Waste Code: Not reported
Waste Code: Not reported
Waste Code: Not reported
Waste Code: Not reported
Waste Code: Not reported
Quantity: 45
Units: G - Gallons (liquids only)* (8.3 pounds)
Number of Containers: 1
Container Type: TT - Cargo tank, tank trucks
Handling Method: T Chemical, physical, or biological treatment.
Specific Gravity: 1

CON EDISON SERVICE BOX: 10141 (Continued) **1016968529**

Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

F68 **LOT 10,TAXBLOCK 2909** **NY E DESIGNATION** **S110670119**
WSW **446 EAST TREMONT AVENUE** **N/A**
< 1/8 **BRONX, NY 10457**
0.086 mi.
456 ft. **Site 17 of 19 in cluster F**

Relative: **Lower**
Actual: **42 ft.**

E DESIGNATION:

Tax Lot(s):	10
Tax Block:	2909
Borough Code:	BX
E-No:	E-255
Effective Date:	10/13/2010
Satisfaction Date:	Not reported
Ceqr Number:	10DCP043X
Ulurp Number:	100407ZMX
Zoning Map No:	3c, 3d
Description:	Hazardous Materials* Phase I and Phase II Testing Protocol
Lot Remediation Date:	Not reported

I69 **CHRIS AUTO SALES INC** **EDR Hist Auto** **1021723837**
NNW **4286 PARK AVE** **N/A**
< 1/8 **BRONX, NY 10457**
0.087 mi.
462 ft. **Site 2 of 3 in cluster I**

Relative: **Lower**
Actual: **54 ft.**

EDR Hist Auto

Year:	Name:	Type:
2005	CHRIS AUTO SLAES	Gasoline Service Stations
2006	CHRIS AUTO SALES INC	Gasoline Service Stations
2007	CHRIS AUTO SALES INC	Gasoline Service Stations
2008	CHRIS AUTO SALES INC	Gasoline Service Stations
2009	CHRIS AUTO SALES INC	Gasoline Service Stations
2010	CHRIS AUTO SALES INC	Gasoline Service Stations
2011	CHRIS AUTO SALES INC	Gasoline Service Stations
2012	CHRIS AUTO SALES INC	Gasoline Service Stations
2013	EXECUTIVE AUTO MALL INC	General Automotive Repair Shops
2014	EXECUTIVE AUTO MALL INC	General Automotive Repair Shops

H70 **1925 MONTEREY AVE** **NY LTANKS** **S103517659**
ESE **1925 MONTEREY AVE** **NY AST** **N/A**
< 1/8 **BRONX, NY**
0.088 mi.
465 ft. **Site 4 of 12 in cluster H**

Relative:
Higher

Actual:
75 ft.

LTANKS:

Spill Number/Closed Date:	9204620 / 1992-07-22
Facility ID:	9204620
Site ID:	92984
Spill Date:	1992-07-22
Spill Cause:	Tank Overfill
Spill Source:	Commercial/Industrial
Spill Class:	C3
Cleanup Ceased:	1992-07-22
SWIS:	0301
Investigator:	KSTANG
Referred To:	Not reported
Reported to Dept:	1992-07-22
CID:	Not reported
Water Affected:	Not reported
Spill Notifier:	Other
Last Inspection:	Not reported
Recommended Penalty:	False
Meets Standard:	True
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	1992-07-27
Spill Record Last Update:	2004-09-30
Spiller Name:	Not reported
Spiller Company:	Not reported
Spiller Address:	Not reported
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	83383
DEC Memo:	"Prior to Sept, 2004 data translation this spill Lead_DEC Field was TANG "
Remarks:	"SORBENT APPLIED; SPILL TEAM ENROUTE TO PICK UP."

All Materials:

Site ID:	92984
Operable Unit ID:	968267
Operable Unit:	01
Material ID:	412321
Material Code:	0002A
Material Name:	#4 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	15.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

AST:

Region:	STATE

1925 MONTEREY AVE (Continued) **S103517659**

DEC Region: 2
Site Status: Active
Facility Id: 2-600926
Program Type: PBS
UTM X: 593129.05882
UTM Y: 4522359.18585
Expiration Date: 04/20/2021
Site Type: Apartment Building/Office Building

Affiliation Records:

Site Id: 22896
Affiliation Type: Mail Contact
Company Name: 1925 LLC
Contact Type: Not reported
Contact Name: BEN BENJAMIN
Address1: PO BOX 40491
Address2: Not reported
City: BROOKLYN
State: NY
Zip Code: 11204
Country Code: 001
Phone: (718) 436-3022
EMail: NYCPDR@YAHOO.COM
Fax Number: Not reported
Modified By: MRBARROW
Date Last Modified: 2016-04-27

Site Id: 22896
Affiliation Type: Facility Operator
Company Name: 1925 LLC
Contact Type: Not reported
Contact Name: GARRIDO PENA
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 001
Phone: (718) 466-1850
EMail: Not reported
Fax Number: Not reported
Modified By: KXTANG
Date Last Modified: 2006-04-20

Site Id: 22896
Affiliation Type: Emergency Contact
Company Name: 1925 LLC
Contact Type: Not reported
Contact Name: GARRIDO PENA
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 999
Phone: (646) 234-2452
EMail: Not reported
Fax Number: Not reported

1925 MONTEREY AVE (Continued) **S103517659**

Modified By:	BVCAMPBE
Date Last Modified:	2012-02-22
Site Id:	22896
Affiliation Type:	Facility Owner
Company Name:	1925 LLC
Contact Type:	VP
Contact Name:	BEN HOFFMAN
Address1:	PO BOX 40491
Address2:	Not reported
City:	BROOKLYN
State:	NY
Zip Code:	11204
Country Code:	001
Phone:	(718) 436-3022
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MRBARROW
Date Last Modified:	2016-04-27

Tank Info:

Tank Number:	1
Tank Id:	44613
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

Equipment Records:

	L09 - Piping Leak Detection - Exempt Suction Piping
	G03 - Tank Secondary Containment - Vault (w/o access)
	H00 - Tank Leak Detection - None
	J02 - Dispenser - Suction Dispenser
	F00 - Pipe External Protection - None
	B00 - Tank External Protection - None
	C01 - Pipe Location - Aboveground
	I01 - Overfill - Float Vent Valve
	A00 - Tank Internal Protection - None
	D01 - Pipe Type - Steel/Carbon Steel/Iron
Tank Location:	Aboveground - on saddles, legs, racks, etc.... Tank bottom is elevated above grade or tank pad, allowing visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	01/01/1931
Capacity Gallons:	4000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	MRBARROW
Last Modified:	04/14/2017
Material Name:	#2 fuel oil (on-site consumption)

F71
WSW
< 1/8
0.091 mi.
482 ft.

PERSONAL CAR AUDIO
450 EAST TREMONT AVENUE
BRONX, NY 10457

Site 18 of 19 in cluster F

EDR Hist Auto **1020200103**
N/A

Relative:
Lower

Actual:
42 ft.

EDR Hist Auto

Year:	Name:	Type:
1974	TREMONT SERVICE STATION INC	Gasoline Service Stations
1975	TREMONT SERVICE STATION INC	Gasoline Service Stations
1976	TREMONT SERVICE STATION INC	Gasoline Service Stations
1977	TREMONT SERVICE STATION INC	Gasoline Service Stations
1978	G P SERVICE STATION INC	Gasoline Service Stations
1979	G P SERVICE STATION INC	Gasoline Service Stations
1980	G P SERVICE STATION INC	Gasoline Service Stations
1982	G P SERVICE STATION INC	Gasoline Service Stations
1983	G P SERVICE STATION INC	Gasoline Service Stations
1985	G P SERVICE STATION INC	Gasoline Service Stations
1988	PERSONAL CAR AUDIO	Automotive Repair Shops, NEC
1989	R & D AUTO REPAIR	General Automotive Repair Shops
1991	R & D AUTO REPAIR	General Automotive Repair Shops

J72
South
< 1/8
0.093 mi.
491 ft.

WILFRID EAST & WEST
1880 BATHGATE AVE
BRONX, NY 10457

Site 1 of 10 in cluster J

RCRA NonGen / NLR **1023968689**
NYR000233437

Relative:
Lower

Actual:
49 ft.

RCRA NonGen / NLR:

Date form received by agency:	08/16/2018
Facility name:	WILFRID EAST & WEST
Facility address:	1880 BATHGATE AVE BRONX, NY 10457
EPA ID:	NYR000233437
Mailing address:	25TH AVE SUITE 400 ASTORIA, NY 11103
Contact:	EMANUEL KOKINAKIS
Contact address:	25TH AVE SUITE 400 ASTORIA, NY 11103
Contact country:	US
Contact telephone:	718-932-6342
Contact email:	EKOKINAKIS@MEGAGROUP.NYC
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	MEGA DEVELOPMENT LLC
Owner/operator address:	CENTER CT ROSLYN HEIGHTS, NY 11577
Owner/operator country:	US
Owner/operator telephone:	516-870-4704
Owner/operator email:	EKOKINAKIS@MEGAGROUP.NYC
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	06/26/2017

WILFRID EAST & WEST (Continued) **1023968689**

Owner/Op end date: Not reported

Owner/operator name: WILFRED REALTLY CORP
Owner/operator address: CENTER CT
ROSLYN HEIGHTS, NY 11577
Owner/operator country: US
Owner/operator telephone: 516-870-4704
Owner/operator email: EKOKINAKIS@MEGAGROUP.NYC
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 08/17/1982
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

. Waste code: D008
. Waste name: LEAD

Historical Generators:
Date form received by agency: 10/04/2017
Site name: WILFRID EAST & WEST
Classification: Large Quantity Generator

. Waste code: D008
. Waste name: LEAD

Violation Status: No violations found

K73 **MANHOLE 23927** **NY Spills** **S105056492**
WSW **EAST TREEMONT / E PARK AV** **N/A**
< 1/8 **BRONX, NY**
0.095 mi.
499 ft. **Site 1 of 5 in cluster K**

Relative: **Lower**
Actual: **38 ft.**

SPILLS:
Spill Number/Closed Date: 0100443 / 2003-06-12
Facility ID: 0100443
Facility Type: ER
DER Facility ID: 173508
Site ID: 209232
DEC Region: 2

MANHOLE 23927 (Continued) **S105056492**

Spill Cause:	Equipment Failure
Spill Class:	C4
SWIS:	0301
Spill Date:	2001-04-11
Investigator:	JHOCONNE
Referred To:	Not reported
Reported to Dept:	2001-04-12
CID:	216
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Responsible Party
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	False
Remediation Phase:	0
Date Entered In Computer:	2001-04-12
Spill Record Last Update:	2003-06-26
Spiller Name:	Not reported
Spiller Company:	UNKNOWN
Spiller Address:	Not reported
Spiller Company:	999
Contact Name:	PETE MCGUIRE
DEC Memo:	"Prior to Sept, 2004 data translation this spill Lead_DEC Field was O'CONNELL "
Remarks:	"SPILL IN THEMANHOLE THEY DID TEST IT IT CAME BACK POSITIVE 552 PPM THEY WILL CLEAN UP THE SPILL CON EDISON REF 136397 "

All Materials:

Site ID:	209232
Operable Unit ID:	837367
Operable Unit:	01
Material ID:	536151
Material Code:	0541A
Material Name:	dielectric fluid
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	1.00
Units:	G
Recovered:	1.00
Oxygenate:	Not reported

G74 **NYCDEP** **NY MANIFEST** **S108059728**
NW **E 178TH & PARK AVE** **N/A**
< 1/8 **BRONX, NY**
0.095 mi.
499 ft. **Site 5 of 10 in cluster G**

Relative: **Lower**

Actual: **40 ft.**

NY MANIFEST:

Country:	USA
EPA ID:	NYP003662849
Facility Status:	Not reported
Location Address 1:	E 178TH & PARK AVE
Code:	BP
Location Address 2:	Not reported
Total Tanks:	Not reported

NYCDEP (Continued) **S108059728**

Location City: BRONX
Location State: NY
Location Zip: Not reported
Location Zip 4: Not reported

NY MANIFEST:
EPAID: NYP003662849
Mailing Name: NYCDEP
Mailing Contact: N/S
Mailing Address 1: 96-05 HORACE HARDING EXP 1ST F
Mailing Address 2: Not reported
Mailing City: CORONA
Mailing State: NY
Mailing Zip: 11368
Mailing Zip 4: Not reported
Mailing Country: USA
Mailing Phone: 9176823156

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

F75 **4196 PARK AVENUE** **NY AST** **A100178033**
WSW **4196 PARK AVENUE** **N/A**
< 1/8 **BRONX, NY 10457**
0.095 mi.
502 ft. **Site 19 of 19 in cluster F**

Relative:
Lower

Actual:
41 ft.

AST:
Region: STATE
DEC Region: 2
Site Status: Active
Facility Id: 2-605750
Program Type: PBS
UTM X: 592814.09426
UTM Y: 4522388.94782
Expiration Date: 02/17/2018
Site Type: Apartment Building/Office Building

Affiliation Records:
Site Id: 27617
Affiliation Type: Mail Contact
Company Name: 1991 BATHGATE AVE HDFC
Contact Type: Not reported
Contact Name: ERIC VAZQUEZ
Address1: 2881 MIDDLETOWN RD
Address2: Not reported
City: BRONX
State: NY
Zip Code: 10461
Country Code: 001
Phone: (718) 828-0155
EMail: EVASQUEZ@DOUGERT.COM
Fax Number: Not reported
Modified By: MSBAPTIS
Date Last Modified: 2013-03-25

Site Id: 27617
Affiliation Type: Facility Operator

4196 PARK AVENUE (Continued) **A100178033**

Company Name:	4196 PARK AVENUE
Contact Type:	Not reported
Contact Name:	JULIO MATIAS
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	3477) 458-648
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MSBAPTIS
Date Last Modified:	2013-03-25

Site Id:	27617
Affiliation Type:	Emergency Contact
Company Name:	1991 BATHGATE AVE HDFC
Contact Type:	Not reported
Contact Name:	ERIC VAZQUEZ
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(718) 828-8532
EMail:	Not reported
Fax Number:	Not reported
Modified By:	KXTANG
Date Last Modified:	2006-06-13

Site Id:	27617
Affiliation Type:	Facility Owner
Company Name:	1991 BATHGATE AVE HDFC
Contact Type:	MGR
Contact Name:	ERIC VAZQUEZ
Address1:	2811 ZULETTE AVE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10461
Country Code:	001
Phone:	(718) 828-0155
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MSBAPTIS
Date Last Modified:	2013-03-25

Tank Info:

Tank Number:	001
Tank Id:	60420
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

4196 PARK AVENUE (Continued) **A100178033**

Equipment Records:

C03 - Pipe Location - Aboveground/Underground Combination
J02 - Dispenser - Suction Dispenser
B00 - Tank External Protection - None
F00 - Pipe External Protection - None
G03 - Tank Secondary Containment - Vault (w/o access)
H00 - Tank Leak Detection - None
I00 - Overfill - None
L09 - Piping Leak Detection - Exempt Suction Piping
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron

Tank Location:	Aboveground - on saddles, legs, racks, etc.... Tank bottom is elevated above grade or tank pad, allowing visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	01/01/1980
Capacity Gallons:	2000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	MSBAPTIS
Last Modified:	04/14/2017
Material Name:	#2 fuel oil (on-site consumption)

J76 **1888 BATHGATE AVENUE REDEVELOPMENT SITE** **NY AST** **A100467842**
South **4181 THIRD AVENUE** **N/A**
< 1/8 **BRONX, NY 10457**
0.095 mi.
503 ft. **Site 2 of 10 in cluster J**

Relative: **Lower**
Actual: **49 ft.**

AST:

Region:	STATE
DEC Region:	2
Site Status:	Unregulated/Closed
Facility Id:	2-612938
Program Type:	PBS
UTM X:	Not reported
UTM Y:	Not reported
Expiration Date:	N/A
Site Type:	Other

Affiliation Records:

Site Id:	577458
Affiliation Type:	Facility Owner
Company Name:	WILFRED REALTY CORP.
Contact Type:	VP
Contact Name:	ISRAEL SCHWARTZ
Address1:	54 CENTER CT.
Address2:	Not reported
City:	ROSLYN
State:	NY
Zip Code:	11577
Country Code:	001
Phone:	(516) 870-4704
EMail:	Not reported

1888 BATHGATE AVENUE REDEVELOPMENT SITE (Continued) **A100467842**

Fax Number:	Not reported
Modified By:	ACDANIEL
Date Last Modified:	2018-09-24
Site Id:	577458
Affiliation Type:	Mail Contact
Company Name:	MEGA DEVELOPMENT LLC
Contact Type:	Not reported
Contact Name:	EMANUEL KOKINAKIS
Address1:	48-02 25TH AVENUE
Address2:	SUITE 400
City:	ASTORIA
State:	NY
Zip Code:	11103
Country Code:	001
Phone:	(718) 932-6342
EMail:	EKOKINAKIS@MEGAGROUP.NYC
Fax Number:	Not reported
Modified By:	ACDANIEL
Date Last Modified:	2018-09-24
Site Id:	577458
Affiliation Type:	Facility Operator
Company Name:	1888 BATHGATE AVENUE REDEVELOPMENT SITE
Contact Type:	Not reported
Contact Name:	MEGA DEVELOPMENT LLC
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 932-6342
EMail:	Not reported
Fax Number:	Not reported
Modified By:	ACDANIEL
Date Last Modified:	2018-09-24
Site Id:	577458
Affiliation Type:	Emergency Contact
Company Name:	WILFRED REALTY CORP.
Contact Type:	Not reported
Contact Name:	EMANUEL KOKINAKIS
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 932-6342
EMail:	Not reported
Fax Number:	Not reported
Modified By:	ACDANIEL
Date Last Modified:	2018-09-24

Tank Info:

1888 BATHGATE AVENUE REDEVELOPMENT SITE (Continued) **A100467842**

Tank Number:	002
Tank Id:	277971

Equipment Records:

D00 - Pipe Type - No Piping
L00 - Piping Leak Detection - None
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
J00 - Dispenser - None
G00 - Tank Secondary Containment - None
E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None
I00 - Overfill - None
A00 - Tank Internal Protection - None
K00 - Spill Prevention - None

Tank Location:	Aboveground - contact with soil.... Tank bottom rests on soil, allowing no visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	Closed - Removed
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	275
Tightness Test Method:	-
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	01/25/2018
Register:	True
Modified By:	JSMACRI
Last Modified:	09/25/2018
Material Name:	#2 fuel oil (on-site consumption)

J77 **1888 BATHGATE AVENUE REDEVELOPMENT SITE** **NY UST** **U004289874**
South **4181 THIRD AVENUE** **N/A**
< 1/8 **BRONX, NY 10457**
0.095 mi.
503 ft. **Site 3 of 10 in cluster J**

Relative:
Lower

Actual:
49 ft.

UST:

Id/Status:	2-612938 / Unregulated/Closed
Program Type:	PBS
Region:	STATE
DEC Region:	2
Expiration Date:	N/A
UTM X:	Not reported
UTM Y:	Not reported
Site Type:	Other

Affiliation Records:

Site Id:	577458
Affiliation Type:	Facility Owner
Company Name:	WILFRED REALTY CORP.
Contact Type:	VP
Contact Name:	ISRAEL SCHWARTZ
Address1:	54 CENTER CT.
Address2:	Not reported
City:	ROSLYN
State:	NY
Zip Code:	11577

1888 BATHGATE AVENUE REDEVELOPMENT SITE (Continued) **U004289874**

Country Code:	001
Phone:	(516) 870-4704
EMail:	Not reported
Fax Number:	Not reported
Modified By:	ACDANIEL
Date Last Modified:	2018-09-24

Site Id:	577458
Affiliation Type:	Mail Contact
Company Name:	MEGA DEVELOPMENT LLC
Contact Type:	Not reported
Contact Name:	EMANUEL KOKINAKIS
Address1:	48-02 25TH AVENUE
Address2:	SUITE 400
City:	ASTORIA
State:	NY
Zip Code:	11103
Country Code:	001
Phone:	(718) 932-6342
EMail:	EKOKINAKIS@MEGAGROUP.NYC
Fax Number:	Not reported
Modified By:	ACDANIEL
Date Last Modified:	2018-09-24

Site Id:	577458
Affiliation Type:	Facility Operator
Company Name:	1888 BATHGATE AVENUE REDEVELOPMENT SITE
Contact Type:	Not reported
Contact Name:	MEGA DEVELOPMENT LLC
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 932-6342
EMail:	Not reported
Fax Number:	Not reported
Modified By:	ACDANIEL
Date Last Modified:	2018-09-24

Site Id:	577458
Affiliation Type:	Emergency Contact
Company Name:	WILFRED REALTY CORP.
Contact Type:	Not reported
Contact Name:	EMANUEL KOKINAKIS
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 932-6342
EMail:	Not reported
Fax Number:	Not reported
Modified By:	ACDANIEL
Date Last Modified:	2018-09-24

1888 BATHGATE AVENUE REDEVELOPMENT SITE (Continued) **U004289874**

Tank Info:

Tank Number:	001
Tank ID:	277970
Tank Status:	Closed - Removed
Material Name:	Closed - Removed
Capacity Gallons:	1000
Install Date:	Not reported
Date Tank Closed:	11/13/2017
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Tightness Test Method:	-
Date Test:	Not reported
Next Test Date:	Not reported
Pipe Model:	Not reported
Modified By:	JSMACRI
Last Modified:	09/25/2018

Equipment Records:

A00 - Tank Internal Protection - None
K00 - Spill Prevention - None
D00 - Pipe Type - No Piping
L00 - Piping Leak Detection - None
E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None
I00 - Overfill - None
J00 - Dispenser - None
G00 - Tank Secondary Containment - None
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None

Tank Number:	003
Tank ID:	277972
Tank Status:	Closed - Removed
Material Name:	Closed - Removed
Capacity Gallons:	1000
Install Date:	Not reported
Date Tank Closed:	01/25/2018
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Tightness Test Method:	-
Date Test:	Not reported
Next Test Date:	Not reported
Pipe Model:	Not reported
Modified By:	JSMACRI
Last Modified:	09/25/2018

Equipment Records:

D00 - Pipe Type - No Piping
L00 - Piping Leak Detection - None
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
J00 - Dispenser - None

1888 BATHGATE AVENUE REDEVELOPMENT SITE (Continued) **U004289874**

A00 - Tank Internal Protection - None
K00 - Spill Prevention - None
E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None
I00 - Overfill - None
G00 - Tank Secondary Containment - None

J78 **CON EDISON MANHOLE: 13685** **RCRA NonGen / NLR** **1016968233**
South **4181 3RD AVE** **NY MANIFEST** **NYP004418430**
< 1/8 **BRONX, NY 10465**
0.095 mi.
503 ft. **Site 4 of 10 in cluster J**

Relative:
Lower

Actual:
49 ft.

RCRA NonGen / NLR:

Date form received by agency:	02/14/2014
Facility name:	CON EDISON MANHOLE: 13685
Facility address:	4181 3RD AVE BRONX, NY 10465
EPA ID:	NYP004418430
Mailing address:	IRVING PL, 15TH FL NE NEW YORK, NY 10003
Contact:	THOMAS TEELING
Contact address:	Not reported Not reported
Contact country:	Not reported
Contact telephone:	212-460-3770
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Historical Generators:

Date form received by agency:	01/14/2014
Site name:	CON EDISON MANHOLE: 13685
Classification:	Conditionally Exempt Small Quantity Generator
Violation Status:	No violations found

NY MANIFEST:

Country:	USA

CON EDISON MANHOLE: 13685 (Continued) **1016968233**

EPA ID:	NYP004418430
Facility Status:	Not reported
Location Address 1:	4181 3RD AVENUE
Code:	BP
Location Address 2:	Not reported
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	10465
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYP004418430
Mailing Name:	CON EDISON
Mailing Contact:	CON EDISON
Mailing Address 1:	4 IRVING PLACE
Mailing Address 2:	15TH FL
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	10003
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	Not reported

NY MANIFEST:

Document ID:	Not reported
Manifest Status:	Not reported
seq:	Not reported
Year:	2014
Trans1 State ID:	NJD003812047
Trans2 State ID:	Not reported
Generator Ship Date:	01/14/2014
Trans1 Recv Date:	01/14/2014
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	01/15/2014
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004418430
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD991291105
TSDF ID 2:	Not reported
Manifest Tracking Number:	002085517GBF
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H110
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported

CON EDISON MANHOLE: 13685 (Continued) **1016968233**

Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	400
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	1
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Country:	USA
EPA ID:	NYR000233510
Facility Status:	Not reported
Location Address 1:	4181 THIRD AVENUE
Code:	BP
Location Address 2:	Not reported
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	10457
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYR000233510
Mailing Name:	WILFRID REALTY CORP/1888 BATHGATE AVENUE REDEVELOPMENT SITE
Mailing Contact:	WILFRID REALTY CORP
Mailing Address 1:	54 CENTER CT
Mailing Address 2:	Not reported
Mailing City:	ROSLYN HEIGHTS
Mailing State:	NY
Mailing Zip:	11577
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	Not reported

NY MANIFEST:

Document ID:	Not reported
Manifest Status:	Not reported
seq:	Not reported
Year:	2017
Trans1 State ID:	NJR000029967
Trans2 State ID:	Not reported
Generator Ship Date:	11/17/2017
Trans1 Recv Date:	11/17/2017
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	11/17/2017
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000233510
Trans1 EPA ID:	Not reported

CON EDISON MANHOLE: 13685 (Continued) **1016968233**

Trans2 EPA ID:	Not reported
TSDF ID 1:	PAD085690592
TSDF ID 2:	Not reported
Manifest Tracking Number:	017657483JJK
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H110
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	20
Units:	T - Tons
Number of Containers:	1
Container Type:	DT - Dump trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
2 additional NY MANIFEST: record(s) in the EDR Site Report.

J79 **WILFRID REALTY CORP** **PA MANIFEST** **S123093949**
South **4181 THIRD AVE** **N/A**
< 1/8 **BRONX, NY 10457**
0.095 mi.
503 ft. **Site 5 of 10 in cluster J**

Relative: **Lower**

Actual: **49 ft.**

Manifest Details:

Year:	2017
Manifest Number:	017657484JJK
Manifest Type:	TSD Copy
Generator EPA Id:	NYR000233510
Generator Date:	11/17/2017
Mailing Address:	Not reported
Mailing City,St,Zip:	Not reported
Contact Name:	Not reported
Contact Phone:	Not reported
TSD EPA Id:	Not reported
TSD Date:	Not reported
TSD Facility Name:	Republic Environmental Systems (Pennsylvania) LLC
TSD Facility Address:	2869 Sandstone Dr

WILFRID REALTY CORP (Continued) **S123093949**

TSD Facility City:	Hatfield
TSD Facility State:	PA
Facility Telephone:	Not reported
Page Number:	1
Line Number:	1
Waste Number:	D008
Container Number:	1
Container Type:	Dump truck
Waste Quantity:	20
Unit:	Tons (2000 Pounds)
Handling Code:	Not reported
TSP EPA Id:	PAD085690592
Date TSP Sig:	Not reported
Year:	2017
Manifest Number:	017657485JJK
Manifest Type:	TSD Copy
Generator EPA Id:	NYR000233510
Generator Date:	11/17/2017
Mailing Address:	Not reported
Mailing City,St,Zip:	Not reported
Contact Name:	Not reported
Contact Phone:	Not reported
TSD EPA Id:	Not reported
TSD Date:	Not reported
TSD Facility Name:	Republic Environmental Systems (Pennsylvania) LLC
TSD Facility Address:	2869 Sandstone Dr
TSD Facility City:	Hatfield
TSD Facility State:	PA
Facility Telephone:	Not reported
Page Number:	1
Line Number:	1
Waste Number:	D008
Container Number:	1
Container Type:	Dump truck
Waste Quantity:	20
Unit:	Tons (2000 Pounds)
Handling Code:	Not reported
TSP EPA Id:	PAD085690592
Date TSP Sig:	Not reported
Year:	2017
Manifest Number:	017657483JJK
Manifest Type:	TSD Copy
Generator EPA Id:	NYR000233510
Generator Date:	11/17/2017
Mailing Address:	Not reported
Mailing City,St,Zip:	Not reported
Contact Name:	Not reported
Contact Phone:	Not reported
TSD EPA Id:	Not reported
TSD Date:	Not reported
TSD Facility Name:	Republic Environmental Systems (Pennsylvania) LLC
TSD Facility Address:	2869 Sandstone Dr
TSD Facility City:	Hatfield
TSD Facility State:	PA
Facility Telephone:	Not reported

WILFRID REALTY CORP (Continued) **S123093949**

Page Number:	1
Line Number:	1
Waste Number:	D008
Container Number:	1
Container Type:	Dump truck
Waste Quantity:	20
Unit:	Tons (2000 Pounds)
Handling Code:	Not reported
TSP EPA Id:	PAD085690592
Date TSP Sig:	Not reported

J80 **1888 BATHGATE AVENUE REDEVELOPMENT SITE** **NY BROWNFIELDS** **S120706197**
South **4181 3RD AVENUE** **N/A**
< 1/8 **BRONX, NY 10457**
0.095 mi.
503 ft. **Site 6 of 10 in cluster J**

Relative: **Lower**
Actual: **49 ft.**

BROWNFIELDS:

Program:	BCP
Site Code:	537695
Acres:	0.82
HW Code:	C203088
SWIS:	0301
Town:	New York City
Record Added Date:	12/21/2016
Record Updated Date:	07/09/2018
Update By:	JHOCONNE
Site Description:	Location- The 1888 Bathgate Avenue Site is an approximately 36,000 square foot (0.826 acres) parcel located in an urban area in the East Tremont neighborhood of the Bronx. Site Features- The site formerly consisted of five vacant, interconnected single-story warehouses and was most recently occupied by a steel door manufacturer. Current Zoning and Land Use- The current zoning designation of the site is M1-4/R7A/R7X (residential and manufacturing). The site is located in special mixed-use Third Avenue/Tremont Avenue MX-14 district, allowing for mixed residential and industrial uses in close proximity. Past Use of the Site- Historic records indicated that the site was developed with private residences and stores as early as 1896, with industrial and manufacturing uses including a lumber yard, various warehouses, Decorative Plastics Co., a glass and glazing facility, a bed spring company, various clothing and accessory manufacturers, a woodworking facility, and a rebar manufacturing facility. ABCO Steel Door (ABCO), a steel door manufacturing facility, occupied the site between approximately 1980 and 1993. Since approximately 1993, no manufacturing operations occurred at the site; however, the site buildings were used for storage of equipment and supplies by ABCO. Site Geology and Hydrogeology- Based on site-specific groundwater measurements, groundwater beneath the site ranges from approximately 11.7 to 15.9 feet below grade in the southwestern and northeastern portions of the Site, respectively. Shallow groundwater flows in a southerly direction beneath the site.
Env Problem:	Nature and Extent of Contamination Prior to Completion of Remediation Soil and groundwater were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, polychlorinated biphenyls (PCBs), and pesticides. Based upon investigations conducted to date, the primary contaminants of concern include lead, mercury, tetrachloroethene (PCE) and trichloroethene (TCE). Soil - Lead and mercury were found at the 5 to 8 foot depth

1888 BATHGATE AVENUE REDEVELOPMENT SITE (Continued) **S120706197**

interval. Lead concentrations range from 567 parts per million (ppm) to 1,060 ppm as compared to the restricted residential soil cleanup objective (RRSCO) of 400 ppm. Mercury concentrations range from 2.51 to 6.23 ppm compared to the RRSCO of 0.81 ppm. PCE was detected soil samples at concentrations ranging from 0.0106 ppm to 0.0188 ppm, below its Unrestricted Use Soil Cleanup Objective (UUSCO) of 1.3 ppm and its RRSCO of 19 ppm. TCE was found in site soils at concentrations below both the UUSCO and the RRSCO. Pesticides, total PCBs and SVOCs were all detected above UUSCOs and RRSCOs in soil samples. Data does not indicate any off-site impacts in soil related to this site. Groundwater - PCE and TCE were found in groundwater at concentrations exceeding groundwater standards. The maximum TCE concentration was 5.6 parts per billion (ppb) compared to the groundwater standard of 5 ppb. The PCE concentration ranged from 25.2 to 210 ppb compared to the standard of 5 ppb. Lead was found in groundwater at a concentration of 42 parts per billion (ppb) exceeding the groundwater standard of 25 ppb. Mercury was not found in the groundwater. No pesticides, PCBs or SVOCs were detected above their respective AQWSs. Data does not indicate any off-site impacts in groundwater related to this site. Soil Vapor - TCE was detected in soil vapor at 56 micrograms per cubic meter ug/m3. PCE concentrations range from 37 to 300 ug/m3. Data does not indicate any off-site impacts in soil vapor related to this site.

Health Problem: The site is covered with buildings; however, people may come into contact with contaminated soil or groundwater if they dig below the surface. People are not drinking the contaminated groundwater because the area is served by a public water supply that is not affected by this contamination. Volatile organic compounds in the groundwater or soil may move into the soil vapor (air spaces within the soil), which in turn may move into overlying buildings and affect the indoor air quality. This process, which is similar to the movement of radon gas from the subsurface into the indoor air of buildings, is referred to as soil vapor intrusion. The potential exists for people to inhale site contaminants in indoor air due to soil vapor intrusion in the event the site is re-occupied. People are not breathing the contaminated indoor air via soil vapor intrusion since the site is vacant. Environmental sampling indicates soil vapor intrusion is not a concern for off-site buildings as a result of this site.

Dump: False
Structure: False
Lagoon: False
Landfill: False
Pond: False
Disp Start: Not reported
Disp Term: Not reported
Lat/Long: Not reported
Dell: Not reported
Record Add: 2017-03-07 13:20:00
Record Upd: 2017-09-19 16:53:00
Updated By: JHOCONNE
Own Op: Applicant/Requestor
Sub Type: P02
Owner Name: Emanuel Kokinakis
Owner Company: Wilfrid East Properties LLC
Owner Address: 48-02 25th Avenue, Suite 400
Owner Addr2: Not reported
Owner City,St,Zip: Astoria, NY 11103

1888 BATHGATE AVENUE REDEVELOPMENT SITE (Continued) **S120706197**

Owner Country:	United States of America
Own Op:	Owner
Sub Type:	NNN
Owner Name:	Israel Schwartz
Owner Company:	Wilfred Realty Corp.
Owner Address:	54 Center Ct.
Owner Addr2:	Not reported
Owner City,St,Zip:	Roslyn Heights, NY 11577
Owner Country:	United States of America
Own Op:	Document Repository
Sub Type:	NNN
Owner Name:	Attn: Wilson Francis
Owner Company:	New York Public Library - Tremont Branch
Owner Address:	1866 Washington Avenue
Owner Addr2:	Not reported
Owner City,St,Zip:	Bronx, NY 10457
Owner Country:	United States of America
Own Op:	On-Site Operator
Sub Type:	NNN
Owner Name:	Israel Schwartz
Owner Company:	Wilfred Realty Corp.
Owner Address:	54 Center Ct.
Owner Addr2:	Not reported
Owner City,St,Zip:	Roslyn Heights, NY 11577
Owner Country:	United States of America
Own Op:	Document Repository
Sub Type:	NNN
Owner Name:	Attn: John Sanchez
Owner Company:	Bronx Community Board #6
Owner Address:	1932 Arthur Avenue, Room 709
Owner Addr2:	Not reported
Owner City,St,Zip:	Bronx, NY 10457
Owner Country:	United States of America
Own Op:	Applicant/Requestor
Sub Type:	P02
Owner Name:	Emanual Kokinakis
Owner Company:	Wilfrid East LIHTC LLC
Owner Address:	48-02 25th Avenue, Suite 400
Owner Addr2:	Not reported
Owner City,St,Zip:	Astoria, NY 11103
Owner Country:	United States of America
Own Op:	Applicant/Requestor
Sub Type:	P02
Owner Name:	Emanuel Kokinakis
Owner Company:	Wilfrid West Properties LLC
Owner Address:	48-02 25th Avenue, Suite 400
Owner Addr2:	Not reported
Owner City,St,Zip:	Astoria, NY 11103
Owner Country:	United States of America
Own Op:	Applicant/Requestor
Sub Type:	P02
Owner Name:	Emanuel Kokinakis
Owner Company:	Wilfrid Properties LLC
Owner Address:	48-02 25th Avenue, Suite 400
Owner Addr2:	Not reported
Owner City,St,Zip:	Astoria, NY 11103
Owner Country:	United States of America

1888 BATHGATE AVENUE REDEVELOPMENT SITE (Continued) **S120706197**

Own Op:	Applicant/Requestor
Sub Type:	P02
Owner Name:	Emanuel Kokinakis
Owner Company:	Wilfrid LIHTC LLC
Owner Address:	48-02 25th Avenue, Suite 400
Owner Addr2:	Not reported
Owner City,St,Zip:	Astoria, NY 11103
Owner Country:	United States of America
Own Op:	Applicant/Requestor
Sub Type:	P02
Owner Name:	Daniel K. Johansson
Owner Company:	ACMH Wilfrid Housing Development Fund Corporation
Owner Address:	254 W. 31st Street, 9th Floor,
Owner Addr2:	Not reported
Owner City,St,Zip:	New York,, NY 10001
Owner Country:	United States of America
HW Code:	C203088
Waste Type:	tetrachloroethene (PCE)
Waste Quantity:	UNKNOWN
Waste Code:	Not reported
HW Code:	C203088
Waste Type:	mercury
Waste Quantity:	UNKNOWN
Waste Code:	Not reported
HW Code:	C203088
Waste Type:	lead
Waste Quantity:	UNKNOWN
Waste Code:	Not reported
HW Code:	C203088
Waste Type:	trichloroethene (TCE)
Waste Quantity:	UNKNOWN
Waste Code:	Not reported
Crossref ID:	Not reported
Cross Ref Type Code:	Not reported
Cross Ref Type:	Not reported
Record Added Date:	Not reported
Record Updated:	Not reported
Updated By:	Not reported

J81 **1888 BATHGATE AVENUE REDEVELOPMENT SITE** **RCRA-LQG** **1023968697**
South **4181 3RD AVE** **NYR000233510**
< 1/8 **BRONX, NY 10457**
0.095 mi.
503 ft. **Site 7 of 10 in cluster J**

Relative: RCRA-LQG:
Lower

Date form received by agency:	03/01/2018
Facility name:	1888 BATHGATE AVENUE REDEVELOPMENT SITE
Facility address:	4181 3RD AVE BRONX, NY 10457
EPA ID:	NYR000233510
Mailing address:	25TH AVE SUITE 400 ASTORIA, NY 11103
Contact:	EMANUEL KOKINAKIS
Contact address:	25TH AVE SUITE 400 ASTORIA, NY 11103
Contact country:	US

Actual:
49 ft.

1888 BATHGATE AVENUE REDEVELOPMENT SITE (Continued) **1023968697**

Contact telephone: 718-932-6342
Contact email: EKOKINAKIS@MEGAGROUP.NYC
EPA Region: 02
Classification: Large Quantity Generator
Description: Handler: generates 1,000 kg or more of hazardous waste during any calendar month; or generates more than 1 kg of acutely hazardous waste during any calendar month; or generates more than 100 kg of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month; or generates 1 kg or less of acutely hazardous waste during any calendar month, and accumulates more than 1 kg of acutely hazardous waste at any time; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates more than 100 kg of that material at any time

Owner/Operator Summary:

Owner/operator name: WILFRID PROPERTIES LLC
Owner/operator address: 25TH AVE SUITE 400
ASTORIA, NY 11103
Owner/operator country: US
Owner/operator telephone: 718-932-6342
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 06/26/2017
Owner/Op end date: Not reported

Owner/operator name: WILFRED REALTY CORP
Owner/operator address: CENTER CT
ROSLYN HEIGHTS, NY 11577
Owner/operator country: US
Owner/operator telephone: 516-870-4704
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 08/17/1982
Owner/Op end date: Not reported

Owner/operator name: WINFRED REALTY CORP
Owner/operator address: CENTER CT
ROSLYN HEIGHTS, NY 11577
Owner/operator country: US
Owner/operator telephone: 516-870-4704
Owner/operator email: EKOKINAKIS@MEGAGROUP.NYC
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 08/17/1982
Owner/Op end date: Not reported

1888 BATHGATE AVENUE REDEVELOPMENT SITE (Continued) **1023968697**

Owner/operator name: MEGA DEVELOPMENT LLC
Owner/operator address: 25TH AVE, SUITE 400
ASTORIA, NY 11103
Owner/operator country: US
Owner/operator telephone: 718-932-6342
Owner/operator email: EKOKINAKIS@MEGAGROUP.NYC
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 06/26/2017
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

. Waste code: D008
. Waste name: LEAD

Historical Generators:
Date form received by agency: 10/06/2017
Site name: 1888 BATHGATE AVENUE REDEVELOPMENT SITE
Classification: Large Quantity Generator

. Waste code: D008
. Waste name: LEAD

Violation Status: No violations found

K82 **MANHOLE 23926 /AT PARK N.** **NY Spills** **S106006288**
WSW **444 EAST TREMONT AV** **N/A**
< 1/8 **BRONX, NY**
0.097 mi.
511 ft. **Site 2 of 5 in cluster K**

Relative:
Lower

Actual:
39 ft.

SPILLS:
Spill Number/Closed Date: 0204734 / 2002-10-28
Facility ID: 0204734
Facility Type: ER
DER Facility ID: 245111
Site ID: 303349
DEC Region: 2
Spill Cause: Unknown
Spill Class: C4

MANHOLE 23926 /AT PARK N. (Continued) **S106006288**

SWIS:	0301
Spill Date:	2002-08-03
Investigator:	KMFOLEY
Referred To:	Not reported
Reported to Dept:	2002-08-04
CID:	199
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Responsible Party
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	False
Remediation Phase:	0
Date Entered In Computer:	2002-08-04
Spill Record Last Update:	2004-03-30
Spiller Name:	Not reported
Spiller Company:	Not reported
Spiller Address:	Not reported
Spiller Company:	001
Contact Name:	MARK SCHLAGEL
DEC Memo:	"Prior to Sept, 2004 data translation this spill Lead_DEC Field was FOLEY Con Ed e2mis #144356: 03-August-2002 23:37 Hrs Flush Mechanic Mike Derasmo, #86558, reports while supporting cable crew pulling cable into manhole 23926 in front of 443 East Tremont Avenue at East Park Avenue North, in the Bronx, finding 1 pint of unknown on concrete and dirt, and contained in the manhole. No fire or smoke is/was involved. No sewers, waterways, or pivate property affected. Sample taken, cleanup pending results, spill being tracked as 24 Hr UG DeMinimus spill. Environmental Tag 28675 applied. Chain of Custody No. AA26065. Parking - free access, manhole is in centerline of street. 8/04/2002 Lab Sequence Number: 02-07256-001 TOTAL PCB 2 ppm 06-Aug-2002 04:30hrs. Environmental Flush Mechanic A reports removed oil with speedy dry and simpple green. Double washed manhole with the Flush truck, generated 15 Lbs. of non hazardous waste which has been transported to the non hazardous temporary waste bin at Van Nest service center. Removed Environmental yellow tag # 28657. Cleanup complete, time of cleanup 24:30 - 04:30."
Remarks:	"lab results show 2 ppm for pcb - clean up pending arrival of a crew - con ed spill #144356 "

All Materials:

Site ID:	303349
Operable Unit ID:	856039
Operable Unit:	01
Material ID:	518969
Material Code:	0065A
Material Name:	unknown non-petro/non-haz material
Case No.:	Not reported
Material FA:	Other
Quantity:	1.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

L83 **NEW LOOK COLLISON, LLC** **NY AST** **A100433684**
NE **4309 3RD AVENUE** **N/A**
< 1/8 **BRONX, NY 10457**
0.098 mi.
517 ft. **Site 1 of 11 in cluster L**

Relative:
Higher

Actual:
81 ft.

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-612705
Program Type:	PBS
UTM X:	Not reported
UTM Y:	Not reported
Expiration Date:	05/17/2022
Site Type:	Auto Service/Repair (No Gasoline Sales)

Affiliation Records:

Site Id:	548597
Affiliation Type:	Facility Owner
Company Name:	JAMES L. CARROLL
Contact Type:	PRESIDENT
Contact Name:	JAMES L. CARROLL
Address1:	205 S. GILLETTE AVE.
Address2:	Not reported
City:	BAY PORT
State:	NY
Zip Code:	11705
Country Code:	001
Phone:	(917) 681-3204
EMail:	Not reported
Fax Number:	Not reported
Modified By:	DAFRANCI
Date Last Modified:	2017-05-17

Site Id:	548597
Affiliation Type:	Mail Contact
Company Name:	UNITED AUTO MERCHANTS ASSOCIATION
Contact Type:	Not reported
Contact Name:	PEDRO J. ESTEVEZ
Address1:	1332 COMMERCE AVE. - SUITE C
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10461
Country Code:	001
Phone:	(631) 380-8262
EMail:	UAMA07@GMAIL.COM
Fax Number:	Not reported
Modified By:	DAFRANCI
Date Last Modified:	2017-05-17

Site Id:	548597
Affiliation Type:	Facility Operator
Company Name:	NEW LOOK COLLISON, LLC
Contact Type:	Not reported
Contact Name:	KERVIN L. NOVEL
Address1:	Not reported
Address2:	Not reported
City:	Not reported

NEW LOOK COLLISON, LLC (Continued) **A100433684**

State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(917) 681-3204
EMail:	Not reported
Fax Number:	Not reported
Modified By:	DAFRANCI
Date Last Modified:	2017-05-17

Site Id:	548597
Affiliation Type:	Emergency Contact
Company Name:	JAMES L. CARROLL
Contact Type:	Not reported
Contact Name:	JAMES L. CARROLL
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(917) 681-3204
EMail:	Not reported
Fax Number:	Not reported
Modified By:	DAFRANCI
Date Last Modified:	2017-05-17

Tank Info:

Tank Number:	1
Tank Id:	268338

Equipment Records:

G00 - Tank Secondary Containment - None
J00 - Dispenser - None
E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None
D00 - Pipe Type - No Piping
L00 - Piping Leak Detection - None
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
A00 - Tank Internal Protection - None
I01 - Overfill - Float Vent Valve
K00 - Spill Prevention - None

Tank Location:	Aboveground - on saddles, legs, racks, etc.... Tank bottom is elevated above grade or tank pad, allowing visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	01/15/2017
Capacity Gallons:	275
Tightness Test Method:	-
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	DAFRANCI

NEW LOOK COLLISON, LLC (Continued) **A100433684**

Last Modified: 05/17/2017
Material Name: waste oil/used oil

H84 **MONTEREY HOUSING DEVELOPMENT FUND CORPORATION** **NY AST** **U003392091**
SE **2005 MONTEREY AVENUE** **N/A**
< 1/8 **BRONX, NY 10457**
0.100 mi.
527 ft. **Site 5 of 12 in cluster H**

Relative: Higher
Actual: 75 ft.

AST:
Region: STATE
DEC Region: 2
Site Status: Active
Facility Id: 2-152560
Program Type: PBS
UTM X: 593171.71967
UTM Y: 4522456.99948
Expiration Date: 06/27/2024
Site Type: Apartment Building/Office Building

Affiliation Records:
Site Id: 4780
Affiliation Type: Mail Contact
Company Name: MONTEREY HOUSING DEVELOPMENT FUND CORPORATION
Contact Type: Not reported
Contact Name: MICHAEL NOWLIN
Address1: 955 EAST 163RD STREET
Address2: Not reported
City: BRONX
State: NY
Zip Code: 10459
Country Code: 001
Phone: (718) 328-6099
EMail: MICHAELN@PRCNY.COM
Fax Number: Not reported
Modified By: ACDANIEL
Date Last Modified: 2018-12-20

Site Id: 4780
Affiliation Type: Facility Operator
Company Name: MONTEREY HOUSING DEVELOPMENT FUND CORPORATION
Contact Type: Not reported
Contact Name: JESUS SANTIAGO
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 001
Phone: (646) 586-7552
EMail: Not reported
Fax Number: Not reported
Modified By: ACDANIEL
Date Last Modified: 2018-12-20

Site Id: 4780
Affiliation Type: Emergency Contact
Company Name: MONTEREY HOUSING DEVELOPMENT FUND CORPORATION

MONTEREY HOUSING DEVELOPMENT FUND CORPORATION (Continued) **U003392091**

Contact Type:	Not reported
Contact Name:	MICHAEL NOWLIN
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(718) 328-6099
EMail:	Not reported
Fax Number:	Not reported
Modified By:	ACDANIEL
Date Last Modified:	2018-12-20

Site Id:	4780
Affiliation Type:	Facility Owner
Company Name:	MONTEREY HOUSING DEVELOPMENT FUND CORPORATION
Contact Type:	VICE PRESIDENT
Contact Name:	MICHAEL NOWLIN
Address1:	10 BANK STREET, SUITE 550
Address2:	Not reported
City:	WHITE PLAINS
State:	NY
Zip Code:	10606
Country Code:	001
Phone:	(914) 729-9815
EMail:	Not reported
Fax Number:	Not reported
Modified By:	ACDANIEL
Date Last Modified:	2018-12-20

Tank Info:

Tank Number:	001
Tank Id:	23348
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

Equipment Records:

J00 - Dispenser - None
D00 - Pipe Type - No Piping
L00 - Piping Leak Detection - None
E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None
I00 - Overfill - None
G00 - Tank Secondary Containment - None
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
A00 - Tank Internal Protection - None
K00 - Spill Prevention - None

Tank Location:	Aboveground - contact with soil.... Tank bottom rests on soil, allowing no visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported

MONTEREY HOUSING DEVELOPMENT FUND CORPORATION (Continued) **U003392091**

Install Date:	05/03/1987
Capacity Gallons:	5000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	ACDANIEL
Last Modified:	12/20/2018
Material Name:	#2 fuel oil (on-site consumption)

L85 **WASHINGTON PLUMBING SPEC CO** **RCRA NonGen / NLR** **1000790761**
ENE **4290-92 THIRD AVE** **NY MANIFEST** **NYD987022472**
< 1/8 **BRONX, NY 10457**
0.100 mi.
530 ft. **Site 2 of 11 in cluster L**

Relative:
Higher

Actual:
78 ft.

RCRA NonGen / NLR:

Date form received by agency:	01/01/2007
Facility name:	WASHINGTON PLUMBING SPEC CO
Facility address:	4290-92 THIRD AVE BRONX, NY 10457-4504
EPA ID:	NYD987022472
Mailing address:	PO BOX 241 BRONX, NY 10457
Contact:	Not reported
Contact address:	PO BOX 241 BRONX, NY 10457
Contact country:	US
Contact telephone:	Not reported
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	WASHINGTON PLUMBING SPEC CO
Owner/operator address:	PO BOX 241 BRONX, NY 10457
Owner/operator country:	US
Owner/operator telephone:	212-583-4400
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	WASHINGTON PLUMBING SPEC CO
Owner/operator address:	PO BOX 241 BRONX, NY 10457
Owner/operator country:	US
Owner/operator telephone:	212-583-4400
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported

WASHINGTON PLUMBING SPEC CO (Continued) **1000790761**

Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 01/01/2006
Site name: WASHINGTON PLUMBING SPEC CO
Classification: Not a generator, verified

Date form received by agency: 07/08/1999
Site name: WASHINGTON PLUMBING SPEC CO
Classification: Not a generator, verified

Date form received by agency: 11/25/1992
Site name: WASHINGTON PLUMBING SPEC CO
Classification: Small Quantity Generator

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: F001
. Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS USED IN DEGREASING: TETRACHLOROETHYLENE, TRICHLORETHYLENE, METHYLENE CHLORIDE, 1,1,1-TRICHLOROETHANE, CARBON TETRACHLORIDE AND CHLORINATED FLUOROCARBONS; ALL SPENT SOLVENT MIXTURES/BLENDS USED IN DEGREASING CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Violation Status: No violations found

NY MANIFEST:
Country: USA
EPA ID: NYD987022472
Facility Status: Not reported
Location Address 1: 4290-92 3RD AVE
Code: BP
Location Address 2: Not reported

WASHINGTON PLUMBING SPEC CO (Continued) **1000790761**

Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	10457
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYD987022472
Mailing Name:	WASHINGTON PLUMBING
Mailing Contact:	SAUL SCHNEIDMAN
Mailing Address 1:	4290-92 3RD AVE
Mailing Address 2:	Not reported
Mailing City:	BRONX
Mailing State:	NY
Mailing Zip:	10457
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	2125834400

NY MANIFEST:

Document ID:	NJA2085347
Manifest Status:	C
seq:	Not reported
Year:	1995
Trans1 State ID:	08690
Trans2 State ID:	0602
Generator Ship Date:	11/01/1995
Trans1 Recv Date:	11/01/1995
Trans2 Recv Date:	11/07/1995
TSD Site Recv Date:	11/07/1995
Part A Recv Date:	11/08/1995
Part B Recv Date:	11/22/1995
Generator EPA ID:	NYD987022472
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	NYD980769947
TSDF ID 1:	NJD002182897
TSDF ID 2:	Not reported
Manifest Tracking Number:	Not reported
Import Indicator:	Not reported
Export Indicator:	Not reported
Discr Quantity Indicator:	Not reported
Discr Type Indicator:	Not reported
Discr Residue Indicator:	Not reported
Discr Partial Reject Indicator:	Not reported
Discr Full Reject Indicator:	Not reported
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	Not reported
Waste Code:	F001 - UNKNOWN
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	00636
Units:	P - Pounds

WASHINGTON PLUMBING SPEC CO (Continued) **1000790761**

Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

M86 **EAST 178TH/MONTEREY AV** **NY Spills** **S105140459**
East **EAST 178TH ST/MONTEREY AV** **N/A**
< 1/8 **BRONX, NY**
0.102 mi.
540 ft. **Site 1 of 7 in cluster M**

Relative:
Higher

Actual:
81 ft.

SPILLS:

Spill Number/Closed Date:	0105523 / 2006-02-03
Facility ID:	0105523
Facility Type:	ER
DER Facility ID:	147300
Site ID:	175201
DEC Region:	2
Spill Cause:	Other
Spill Class:	B3
SWIS:	0301
Spill Date:	2001-07-19
Investigator:	JTPECK
Referred To:	Not reported
Reported to Dept:	2001-08-22
CID:	205
Water Affected:	Not reported
Spill Source:	Unknown
Spill Notifier:	Responsible Party
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	False
Remediation Phase:	0
Date Entered In Computer:	2001-08-22
Spill Record Last Update:	2006-02-03
Spiller Name:	CALLER
Spiller Company:	EAST 178TH ST/MONTEREY AV
Spiller Address:	EAST 178TH ST/MONTEREY AV
Spiller Company:	001
Contact Name:	CALLER
DEC Memo:	"Prior to Sept, 2004 data translation this spill Lead_DEC Field was KRIMGOLD 01/26/04 TRANSFERRED FROM ROMMEL TO AUSTIN 02/17/04: Reassigned from AUSTIN to KRIMGOLD. On 6/29/05, J Peck tried to contact Paul Ciminello at Eco-Systems. Eco-Systems has different telephone No. 845 452 1658. Paul Ciminello's home telephone No. in Poughkeepsie is 845 452 1190. On 7/1/05, Paul returned call from telephone No. 914 475 4208. On 9/7/05, J Peck called last mentioned telephone No. and left message that the NYSDEC needed the address of the spill location and documentation of clean up status. Paul Ciminello has not responded. On 1/10/06, J Peck while working on another project with ecosystems made the connection that the parties were the same as for this spill. J Peck emailed ecoosystems

EAST 178TH/MONTEREY AV (Continued) **S105140459**

reiterating previous request for spill closeout information. On 1/25/06, ecosystems forwarded a Letter Report with sampling information that indicated BTEX constituent concentrations were within exceptable range of recent BTEX guidelines. (copy enclosed) "
Remarks: "caller doing site work found contamination."

All Materials:
Site ID: 175201
Operable Unit ID: 843886
Operable Unit: 01
Material ID: 533988
Material Code: 0001A
Material Name: #2 fuel oil
Case No.: Not reported
Material FA: Petroleum
Quantity: .00
Units: G
Recovered: .00
Oxygenate: Not reported

G87 **CON EDISON** **NY MANIFEST** **S117060862**
WNW **4237 PARK AVE FRONT OF** **N/A**
< 1/8 **BRONX, NY 10458**
0.104 mi.
547 ft. **Site 6 of 10 in cluster G**

Relative:
Lower

Actual:
40 ft.

NY MANIFEST:
Country: USA
EPA ID: NYP004531125
Facility Status: Not reported
Location Address 1: 4237 PARK AV
Code: BP
Location Address 2: SB21035
Total Tanks: Not reported
Location City: BRONX
Location State: NY
Location Zip: 10461
Location Zip 4: Not reported

NY MANIFEST:
EPAID: NYP004531125
Mailing Name: CON EDISON
Mailing Contact: CON EDISON
Mailing Address 1: 4 IRVING PL
Mailing Address 2: 15TH FL
Mailing City: NEW YORK
Mailing State: NY
Mailing Zip: 10003
Mailing Zip 4: Not reported
Mailing Country: USA
Mailing Phone: Not reported

NY MANIFEST:
Document ID: Not reported
Manifest Status: Not reported
seq: Not reported
Year: 2014

CON EDISON (Continued) **S117060862**

Trans1 State ID:	NJD003812047
Trans2 State ID:	Not reported
Generator Ship Date:	05/14/2014
Trans1 Recv Date:	05/14/2014
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	05/16/2014
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004531125
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD991291105
TSDF ID 2:	Not reported
Manifest Tracking Number:	002418521GBF
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H110
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	950
Units:	P - Pounds
Number of Containers:	1
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

G88 **CON EDISON SERVICE BOX: 21035** **RCRA NonGen / NLR** **1017775284**
WNW **4237 PARK AVE FRONT OF** **FINDS** **NYP004531125**
< 1/8 **BRONX, NY 10458**
0.104 mi.
547 ft. **Site 7 of 10 in cluster G**

Relative:
Lower

Actual:
40 ft.

RCRA NonGen / NLR:

Date form received by agency:	06/14/2014
Facility name:	CON EDISON SERVICE BOX: 21035
Facility address:	4237 PARK AVE FRONT OF BRONX, NY 10458
EPA ID:	NYP004531125
Mailing address:	IRVING PL, 15TH FL NE NEW YORK, NY 10003
Contact:	THOMAS TEELING
Contact address:	Not reported Not reported
Contact country:	Not reported
Contact telephone:	212-460-3770
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Historical Generators:

Date form received by agency:	05/14/2014
Site name:	CON EDISON
Classification:	Large Quantity Generator

Date form received by agency:	05/14/2014
Site name:	CON EDISON
Classification:	Not a generator, verified

Violation Status: No violations found

FINDS:

Registry ID: 110063767972

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of

CON EDISON SERVICE BOX: 21035 (Continued) **1017775284**

events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

H89 **CON EDISON SERVICE BOX: 20322** **RCRA NonGen / NLR** **1017774141**
ESE **1932 MONTEREY AVE FRONT OF** **FINDS** **NYP004519450**
< 1/8 **BRONX, NY 10457**
0.104 mi.
550 ft. **Site 6 of 12 in cluster H**

Relative:
Higher

Actual:
75 ft.

RCRA NonGen / NLR:

Date form received by agency:	06/02/2014
Facility name:	CON EDISON SERVICE BOX: 20322
Facility address:	1932 MONTEREY AVE FRONT OF BRONX, NY 10457
EPA ID:	NYP004519450
Mailing address:	IRVING PL, 15TH FL NE NEW YORK, NY 10003
Contact:	THOMAS TEELING
Contact address:	Not reported Not reported
Contact country:	Not reported
Contact telephone:	212-460-3770
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Historical Generators:

Date form received by agency:	05/02/2014
Site name:	CON EDISON
Classification:	Large Quantity Generator

Date form received by agency:	05/02/2014
Site name:	CON EDISON

CON EDISON SERVICE BOX: 20322 (Continued) **1017774141**

Classification: Not a generator, verified

Violation Status: No violations found

FINDS:

Registry ID: 110063761647

Environmental Interest/Information System

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

H90 **CON EDISON** **NY MANIFEST** **S117059758**
ESE **1932 MONTEREY AVE FRONT OF** **N/A**
< 1/8 **BRONX, NY 10457**
0.104 mi.
550 ft. **Site 7 of 12 in cluster H**

Relative:
Higher

Actual:
75 ft.

NY MANIFEST:

Country:	USA
EPA ID:	NYP004519450
Facility Status:	Not reported
Location Address 1:	1932 MONTEREY AV
Code:	BP
Location Address 2:	SB20322
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	10461
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYP004519450
Mailing Name:	CON EDISON
Mailing Contact:	CON EDISON
Mailing Address 1:	4 IRVING PL
Mailing Address 2:	15TH ST
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	10003
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	Not reported

NY MANIFEST:

Document ID:	Not reported
Manifest Status:	Not reported
seq:	Not reported
Year:	2014
Trans1 State ID:	NJD003812047

CON EDISON (Continued) **S117059758**

Trans2 State ID:	Not reported
Generator Ship Date:	05/02/2014
Trans1 Recv Date:	05/02/2014
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	05/05/2014
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004519450
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD991291105
TSDF ID 2:	Not reported
Manifest Tracking Number:	002418458GBF
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H110
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	80
Units:	P - Pounds
Number of Containers:	1
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

H91 **CON EDISON SERVICE BOX: 20323** **RCRA NonGen / NLR** **1017774142**
ESE **1938 MONTEREY AVE FRONT OF** **NYP004519468**
< 1/8 **BRONX, NY 10457**
0.104 mi.
550 ft. **Site 8 of 12 in cluster H**

Relative: RCRA NonGen / NLR:
Higher
Date form received by agency: 06/02/2014
Actual: Facility name: CON EDISON SERVICE BOX: 20323
76 ft. Facility address: 1938 MONTEREY AVE FRONT OF
BRONX, NY 10457

CON EDISON SERVICE BOX: 20323 (Continued) **1017774142**

EPA ID: NYP004519468
Mailing address: IRVING PL, 15TH FL NE
NEW YORK, NY 10003
Contact: THOMAS TEELING
Contact address: Not reported
Not reported
Contact country: Not reported
Contact telephone: 212-460-3770
Contact email: Not reported
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 05/02/2014
Site name: CON EDISON
Classification: Large Quantity Generator

Date form received by agency: 05/02/2014
Site name: CON EDISON
Classification: Not a generator, verified

Violation Status: No violations found

H92 **CON EDISON** **NY MANIFEST** **S117059759**
ESE **1938 MONTEREY AVE FRONT OF** **N/A**
< 1/8 **BRONX, NY 10457**
0.104 mi.
550 ft. **Site 9 of 12 in cluster H**

Relative: **Higher**
Actual: **76 ft.**

NY MANIFEST:
Country: USA
EPA ID: NYP004519468
Facility Status: Not reported
Location Address 1: 1938 MONTEREY AV
Code: BP
Location Address 2: SB20323
Total Tanks: Not reported
Location City: BRONX
Location State: NY
Location Zip: 10461

CON EDISON (Continued) **S117059759**

Location Zip 4: Not reported

NY MANIFEST:
EPAID: NYP004519468
Mailing Name: CON EDISON
Mailing Contact: CON EDISON
Mailing Address 1: 4 IRVING PL
Mailing Address 2: 15TH ST
Mailing City: NEW YORK
Mailing State: NY
Mailing Zip: 10003
Mailing Zip 4: Not reported
Mailing Country: USA
Mailing Phone: Not reported

NY MANIFEST:
Document ID: Not reported
Manifest Status: Not reported
seq: Not reported
Year: 2014
Trans1 State ID: NJD003812047
Trans2 State ID: Not reported
Generator Ship Date: 05/02/2014
Trans1 Recv Date: 05/02/2014
Trans2 Recv Date: Not reported
TSD Site Recv Date: 05/05/2014
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: NYP004519468
Trans1 EPA ID: Not reported
Trans2 EPA ID: Not reported
TSDF ID 1: NJD991291105
TSDF ID 2: Not reported
Manifest Tracking Number: 002418459GBF
Import Indicator: N
Export Indicator: N
Discr Quantity Indicator: N
Discr Type Indicator: N
Discr Residue Indicator: N
Discr Partial Reject Indicator: N
Discr Full Reject Indicator: N
Manifest Ref Number: Not reported
Alt Facility RCRA ID: Not reported
Alt Facility Sign Date: Not reported
MGMT Method Type Code: H110
Waste Code: Not reported
Waste Code: Not reported
Waste Code: Not reported
Waste Code: Not reported
Waste Code: Not reported
Waste Code: Not reported
Quantity: 75
Units: P - Pounds
Number of Containers: 1
Container Type: TT - Cargo tank, tank trucks
Handling Method: T Chemical, physical, or biological treatment.
Specific Gravity: 1

CON EDISON (Continued) **S117059759**

Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

G93 **SOIL** **NY Spills** **S112809094**
NW **4259-4281 PARK AVE** **N/A**
< 1/8 **BRONX, NY**
0.105 mi.
553 ft. **Site 8 of 10 in cluster G**

Relative: **Lower**
Actual: **40 ft.**

SPILLS:

Spill Number/Closed Date:	1214265 / 2013-11-12
Facility ID:	1214265
Facility Type:	ER
DER Facility ID:	432799
Site ID:	477497
DEC Region:	2
Spill Cause:	Unknown
Spill Class:	C4
SWIS:	0301
Spill Date:	2013-01-03
Investigator:	SXMAHAT
Referred To:	Not reported
Reported to Dept:	2013-01-03
CID:	Not reported
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Other
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	False
Remediation Phase:	0
Date Entered In Computer:	2013-01-03
Spill Record Last Update:	2013-11-12
Spiller Name:	Not reported
Spiller Company:	PROPERTY OWNER
Spiller Address:	Not reported
Spiller Company:	999
Contact Name:	DEBRA THOMPSON
DEC Memo:	"10/29/13 : Mahat Case is transferred from DEC Demeo to DEC Mahat as per DEC Demeo and DEC Vought. A complete case review is completed under supervision of DEC Vought. Background of the Property: -1.3 Acre property -Former Lamp manufacture site. -A tank (UST) was found on the site. Delineation was performed on vicinity of the tank and results were negative for the potential contamination. -Soil is mainly brown medium sandy loam and historic fill Future Plan for redevelopment: -Current structure is waiting for demolition. -Multi-stories mixed used structure is planned. 7 stories, 34 appt per floor and 240 total including 40,000 square foot retail space. -

SOIL (Continued) **S112809094**

Excavation of the soil for the foundation is not expected to be below ground water level which is 14 feet in average. 1/3/2013: Spill was reported by DT consultant. During the process of sampling the soil for the redevelopment, DT discovered petroleum contamination in Soil Boring 13. 3/5/2013: Proposed and executed the work plan to delineate and remediate the contamination from the site. Gary Frederic LLC (Property owner) hired Taylord Environmental to execute Phase II Environmental Site Assessment. 3/26/2013: Taylord Environmental submitted Site Specification Investigation (SSI) complete report. Report includes following criteria: METHODOLOGY: Soil Analysis: -VOCs were below regulatory standard -Samples were taken from 4 feet intervals -27 soil samples were collected -Detection of Tretrachloroethene- 7ppm on SB 9. (Below standard)(Soil Vapor Analysis: -8 sample locations and they were 2 feet above the ground water level. -Under NYSDOH final guidance on soil vapor intrusion, October 2006. Following items were above regulatory standard: Dimromocloroenthane- 140ppm Butadience- 51ppm Chloroform- 220ppm Ground Water Analysis: -9 GW samples were collected. -Flow of GW is from East to West. -12 dissolved metals were detected in ground water sample (unfiltered GW) -VOCs and SVOCs were below regulatory standard. Conclusion and Recommendation: The detection of compound as encountered during this investigation appears to be concentrated mainly in surface soil sample across the site. However, DTC did documents petroleum based hydrocarbon that required remediation action plan. 8/29/2013: Mahat Mr. Taylord submitted a supplement report to support the original report. He performed few sample analysis down gradient (East-West). The supplement results were very supportive to the original report. Hence, Mr. Taylord requested DEC to close the spill case. This piece of documents argue why the spill should be closed and the reason for no futher remediation plan. This document is uploaded in edocs. 10/31/2013: Mahat A briefing conducted to DEC Vought after the complete review of the case. Vought suggested to have a discussion with Hazardwaste Engineer for a consultation. 11/1/2013: Mahat A consultation session was held with DEC Vought and DEC Jane Oconnell (Hazard Waste Remediation Engineer). As per Jane: Ground water, soil and soil vapor are below standard to be considered as a hazard site. The contamination on site is historic and no further remediation action plan is required. 11/4/2013: Mahat A voice message was left to Mr. Talyor with a call back number stating few queations about the case. A call was received from Mr. Taylord inquiring about the site status. As we discuss about the site he informed DEC that no future redevelopment plan is proposed. Not having any future plan for the site may change the ball game since all the analytical report was performed under restricted soil clean up act. A cross reference with OER (Shaminder Chawla: shaminder@dep.nyc.gov) was attempted. A voice message was left to Mr. Chawla providing all the information about the site. 11/7/2013: Mahat An email was sent to Mr Chawla for more information about the site with DEP perspective. Later in the evening, a phone call was received from Mr. Chawla mentioning that DEP is not involved with the case at this moment. 11/12/2013: Mahat Partner with Mr. Chawala again with NYC VCP Site Number: 13EH-N278X. He mentioned that nothing alerting activity is going on their file. Mr. Chawala has no objection on DEC closing the spill. Further guidance for the property owner would be taking extra precautions and approach for vapor barrier. All the remediation actions and analytical report has been thoroughly reviewed. DEC made a decision to close the spill. Spill

SOIL (Continued) **S112809094**

will be open upon violation of criteria discussed in SCL. As of 11/12/2013 no further investigation is required. Spill closed. DEC Requires: 1).The depth of excavation of the soil for the foundation of the proposed building. 2).Prevention or vapor barrier upeon redevelopment."

Remarks: "Caller advised collected samples of ground at residence that smells like an unknown petroleum product possibly gasoline. Clean up is pending."

All Materials:

Site ID:	477497
Operable Unit ID:	1227300
Operable Unit:	01
Material ID:	2224564
Material Code:	0066A
Material Name:	unknown petroleum
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	Not reported
Units:	Not reported
Recovered:	Not reported
Oxygenate:	Not reported

M94 **MONTEREY HOUSING DEVELOPMENT FUND CORPORATION** **NY AST** **U003392079**
ENE **2015 MONTEREY AVENUE** **N/A**
< 1/8 **BRONX, NY 10457**
0.105 mi.
555 ft. **Site 2 of 7 in cluster M**

Relative: **Higher**

Actual: **84 ft.**

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-150614
Program Type:	PBS
UTM X:	593188.20300
UTM Y:	4522491.80945
Expiration Date:	06/24/2024
Site Type:	Apartment Building/Office Building

Affiliation Records:

Site Id:	4611
Affiliation Type:	Mail Contact
Company Name:	MONTEREY HOUSING DEVELOPMENT FUND CORPORATION
Contact Type:	Not reported
Contact Name:	MICHAEL NOWLIN
Address1:	955 EAST 163RD STREET
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10459
Country Code:	001
Phone:	(718) 328-6099
EMail:	MICHAELN@PRCNY.COM
Fax Number:	Not reported
Modified By:	ACDANIEL
Date Last Modified:	2018-12-20

MONTEREY HOUSING DEVELOPMENT FUND CORPORATION (Continued) **U003392079**

Site Id:	4611
Affiliation Type:	Facility Operator
Company Name:	MONTEREY HOUSING DEVELOPMENT FUND CORPORATION
Contact Type:	Not reported
Contact Name:	JESUS SANTIAGO
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(646) 586-7552
EMail:	Not reported
Fax Number:	Not reported
Modified By:	ACDANIEL
Date Last Modified:	2018-12-20

Site Id:	4611
Affiliation Type:	Emergency Contact
Company Name:	MONTEREY HOUSING DEVELOPMENT FUND CORPORATION
Contact Type:	Not reported
Contact Name:	MICHAEL NOWLIN
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(718) 328-6099
EMail:	Not reported
Fax Number:	Not reported
Modified By:	ACDANIEL
Date Last Modified:	2018-12-20

Site Id:	4611
Affiliation Type:	Facility Owner
Company Name:	MONTEREY HOUSING DEVELOPMENT FUND CORPORATION
Contact Type:	VICE PRESIDENT
Contact Name:	MICHAEL NOWLIN
Address1:	10 BANK STREET, SUITE 550
Address2:	Not reported
City:	WHITE PLAINS
State:	NY
Zip Code:	10606
Country Code:	001
Phone:	(914) 729-9815
EMail:	Not reported
Fax Number:	Not reported
Modified By:	ACDANIEL
Date Last Modified:	2018-12-20

Tank Info:

Tank Number:	001
Tank Id:	23311
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

MONTEREY HOUSING DEVELOPMENT FUND CORPORATION (Continued) **U003392079**

Equipment Records:

K00 - Spill Prevention - None
A00 - Tank Internal Protection - None
G03 - Tank Secondary Containment - Vault (w/o access)
H00 - Tank Leak Detection - None
I00 - Overfill - None
E00 - Piping Secondary Containment - None
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
J00 - Dispenser - None
L00 - Piping Leak Detection - None
D00 - Pipe Type - No Piping

Tank Location:	Aboveground - contact with soil.... Tank bottom rests on soil, allowing no visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	05/03/1987
Capacity Gallons:	5000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	ACDANIEL
Last Modified:	12/20/2018
Material Name:	#2 fuel oil (on-site consumption)

M95 **2015 MONTERAY AVE** **NY Spills** **S103570537**
ENE **2015 MONTERAY AVE** **N/A**
< 1/8 **BRONX, NY**
0.105 mi.
555 ft. **Site 3 of 7 in cluster M**

Relative:
Higher

Actual:
84 ft.

SPILLS:

Spill Number/Closed Date:	9700664 / 1997-04-15
Facility ID:	9700664
Facility Type:	ER
DER Facility ID:	170567
Site ID:	205418
DEC Region:	2
Spill Cause:	Other
Spill Class:	C4
SWIS:	0301
Spill Date:	1997-04-15
Investigator:	LUCE
Referred To:	Not reported
Reported to Dept:	1997-04-15
CID:	369
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Responsible Party
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	False

2015 MONTERAY AVE (Continued) **S103570537**

UST Trust:	False
Remediation Phase:	0
Date Entered In Computer:	1997-04-15
Spill Record Last Update:	1997-04-16
Spiller Name:	Not reported
Spiller Company:	MYSTIC TRANSPORTATION
Spiller Address:	1901 STEINWAY ST
Spiller Company:	001
Contact Name:	DENNIS FARLEY
DEC Memo:	""
Remarks:	"DRIVER SPILLED AFTER AN ALTERCATION WITH PIT BULL SPEEDY DRY USED TO CONTAIN SPILL CLEANUP IN PROGRESS "

All Materials:

Site ID:	205418
Operable Unit ID:	1043366
Operable Unit:	01
Material ID:	337256
Material Code:	0002A
Material Name:	#4 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	10.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

H96 **NYNEX** **NY MANIFEST** **1009234193**
SE **MONTEREY AVE AND E TREMONT AVE** **N/A**
< 1/8 **BRONX, NY**
0.105 mi.
556 ft. **Site 10 of 12 in cluster H**

Relative: **Higher**
Actual: **76 ft.**

NY MANIFEST:

Country:	USA
EPA ID:	NYP000926642
Facility Status:	Not reported
Location Address 1:	MONTEREY AVE AND E TREMONT AVE
Code:	BP
Location Address 2:	Not reported
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	Not reported
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYP000926642
Mailing Name:	NYNEX
Mailing Contact:	S BISWAS
Mailing Address 1:	221 EAST 37TH STREET
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	10016
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	2123387126

NYNEX (Continued) **1009234193**

NY MANIFEST:

Document ID:	MIA4089606
Manifest Status:	K
seq:	Not reported
Year:	1996
Trans1 State ID:	Not reported
Trans2 State ID:	Not reported
Generator Ship Date:	07/27/1996
Trans1 Recv Date:	07/27/1996
Trans2 Recv Date:	/ /
TSD Site Recv Date:	09/16/1996
Part A Recv Date:	/ /
Part B Recv Date:	10/09/1996
Generator EPA ID:	NYP000926642
Trans1 EPA ID:	NYD010951986
Trans2 EPA ID:	NYD046765574
TSDF ID 1:	MID096963194
TSDF ID 2:	Not reported
Manifest Tracking Number:	Not reported
Import Indicator:	Not reported
Export Indicator:	Not reported
Discr Quantity Indicator:	Not reported
Discr Type Indicator:	Not reported
Discr Residue Indicator:	Not reported
Discr Partial Reject Indicator:	Not reported
Discr Full Reject Indicator:	Not reported
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	Not reported
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	01200
Units:	P - Pounds
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	L Landfill.
Specific Gravity:	100

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-1 additional NY MANIFEST: record(s) in the EDR Site Report.

G97 **FIVE STAR REALTY, LLC.** **NY AST** **A100168985**
NW **422 EAST 178TH STREET** **N/A**
< 1/8 **BRONX, NY 10457**
0.106 mi.
558 ft. **Site 9 of 10 in cluster G**

Relative: AST:
Lower

Region:	STATE
DEC Region:	2
Site Status:	Active

Actual:
40 ft.

FIVE STAR REALTY, LLC. (Continued) **A100168985**

Facility Id: 2-601291
Program Type: PBS
UTM X: 592826.12834
UTM Y: 4522586.17233
Expiration Date: 08/26/2019
Site Type: Apartment Building/Office Building

Affiliation Records:

Site Id: 23258
Affiliation Type: Mail Contact
Company Name: FIVE STAR REALTY MGMT, LLC
Contact Type: Not reported
Contact Name: Not reported
Address1: 199 LEE AVE SUITE 215
Address2: Not reported
City: BROOKLYN
State: NY
Zip Code: 11211
Country Code: 001
Phone: (718) 599-0066
EMail: SHARON@PARADISEMANAGEMENTNY.COM
Fax Number: Not reported
Modified By: MSBAPTIS
Date Last Modified: 2014-07-21

Site Id: 23258
Affiliation Type: Facility Operator
Company Name: FIVE STAR REALTY, LLC.
Contact Type: Not reported
Contact Name: RICHARD LIRIANO
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 001
Phone: (347) 243-9835
EMail: Not reported
Fax Number: Not reported
Modified By: KAKYER
Date Last Modified: 2013-01-22

Site Id: 23258
Affiliation Type: Emergency Contact
Company Name: FIVE STAR REALTY MGMT, LLC.
Contact Type: Not reported
Contact Name: RICHARD LIRIANO
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 999
Phone: (347) 248-9835
EMail: Not reported
Fax Number: Not reported
Modified By: KAKYER
Date Last Modified: 2013-01-22

FIVE STAR REALTY, LLC. (Continued) **A100168985**

Site Id:	23258
Affiliation Type:	Facility Owner
Company Name:	FIVE STAR REALTY MGMT, LLC.
Contact Type:	OWNER
Contact Name:	PARTNEL DAVID SOMERLAV
Address1:	199 LEE AVE SUITE 215
Address2:	Not reported
City:	BROOKLYN
State:	NY
Zip Code:	11211
Country Code:	001
Phone:	(718) 599-0066
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MSBAPTIS
Date Last Modified:	2014-07-21

Tank Info:

Tank Number:	001
Tank Id:	45208
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

Equipment Records:

	I04 - Overfill - Product Level Gauge (A/G)
	B00 - Tank External Protection - None
	C00 - Pipe Location - No Piping
	F00 - Pipe External Protection - None
	G00 - Tank Secondary Containment - None
	J02 - Dispenser - Suction Dispenser
	A00 - Tank Internal Protection - None
	D01 - Pipe Type - Steel/Carbon Steel/Iron
	H00 - Tank Leak Detection - None
	L09 - Piping Leak Detection - Exempt Suction Piping
Tank Location:	Aboveground - contact with soil.... Tank bottom rests on soil, allowing no visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	03/02/1998
Capacity Gallons:	2500
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	MSBAPTIS
Last Modified:	04/14/2017
Material Name:	#2 fuel oil (on-site consumption)

G98 **BOILER ROOM** **NY Spills** **S107782829**
NW **422 EAST 178TH STREET** **N/A**
< 1/8 **BRONX, NY**
0.106 mi.
558 ft. **Site 10 of 10 in cluster G**

Relative: **Lower**

Actual: **40 ft.**

SPILLS:

Spill Number/Closed Date:	1206416 / 2012-10-15
Facility ID:	1206416
Facility Type:	ER
DER Facility ID:	423719
Site ID:	469415
DEC Region:	2
Spill Cause:	Equipment Failure
Spill Class:	C4
SWIS:	0301
Spill Date:	2012-09-28
Investigator:	SMSANGES
Referred To:	Not reported
Reported to Dept:	2012-09-28
CID:	Not reported
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Other
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	Not reported
UST Trust:	False
Remediation Phase:	0
Date Entered In Computer:	2012-09-28
Spill Record Last Update:	2012-10-15
Spiller Name:	VALERIE GILMORE
Spiller Company:	UNKNOWN
Spiller Address:	422 EAST 178TH STREET
Spiller Company:	999
Contact Name:	VALERIE GILMORE
DEC Memo:	"Sangesland spoke to rep with Millenium Tank (917-600-3268) He said there was a leak from a joint on the return line in the basement. Approx 3-4 gal spilled to the boiler room floor (cleanup completed) Joint was repaired and everything is OK. Owner: Michael 917-270-7917"
Remarks:	"Clean up is not done"

All Materials:

Site ID:	469415
Operable Unit ID:	1219308
Operable Unit:	01
Material ID:	2217807
Material Code:	0066A
Material Name:	unknown petroleum
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	Not reported
Units:	Not reported
Recovered:	Not reported
Oxygenate:	Not reported

I99 **WASHINGTON AVE AND** **NY Spills** **S103483889**
NNE **E 179TH ST** **N/A**
< 1/8 **BRONX, NY**
0.107 mi.
563 ft. **Site 3 of 3 in cluster I**

Relative:
Higher

Actual:
75 ft.

SPILLS:

Spill Number/Closed Date:	9806226 / 1998-09-02
Facility ID:	9806226
Facility Type:	ER
DER Facility ID:	72820
Site ID:	78228
DEC Region:	2
Spill Cause:	Abandoned Drums
Spill Class:	E5
SWIS:	0301
Spill Date:	1998-08-19
Investigator:	MCTIBBE
Referred To:	Not reported
Reported to Dept:	1998-08-19
CID:	257
Water Affected:	Not reported
Spill Source:	Unknown
Spill Notifier:	Local Agency
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	False
Remediation Phase:	0
Date Entered In Computer:	1998-08-19
Spill Record Last Update:	2002-05-14
Spiller Name:	Not reported
Spiller Company:	UNKNOWN
Spiller Address:	Not reported
Spiller Company:	999
Contact Name:	WAI WONG
DEC Memo:	"Prior to Sept, 2004 data translation this spill Lead_DEC Field was TIBBE DRUM NOT LEAKING - FAXED TO DEP DRUM OF WASTE OIL AND WATER. REMOVED."
Remarks:	"55 gal drum was found "

All Materials:

Site ID:	78228
Operable Unit ID:	1067416
Operable Unit:	01
Material ID:	317399
Material Code:	0022
Material Name:	waste oil/used oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	55.00
Units:	G
Recovered:	55.00
Oxygenate:	Not reported

N100 **OUR LADY OF GOOD COUNCIL** **NY Spills** **S102239058**
West **4221 PARK AVE** **N/A**
< 1/8 **BRONX, NY**
0.109 mi.
574 ft. **Site 1 of 3 in cluster N**

Relative: **Lower**

Actual: **40 ft.**

SPILLS:

Spill Number/Closed Date:	9514379 / 1997-12-31
Facility ID:	9514379
Facility Type:	ER
DER Facility ID:	249895
Site ID:	309546
DEC Region:	2
Spill Cause:	Unknown
Spill Class:	C3
SWIS:	0301
Spill Date:	1996-02-10
Investigator:	MMMULQUE
Referred To:	Not reported
Reported to Dept:	1996-02-10
CID:	312
Water Affected:	Not reported
Spill Source:	Institutional, Educational, Gov., Other
Spill Notifier:	Other
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	False
Remediation Phase:	0
Date Entered In Computer:	1996-02-10
Spill Record Last Update:	1998-01-05
Spiller Name:	RITA
Spiller Company:	OUR LADY OF GOOD COUNCIL
Spiller Address:	4221 PARK AVE
Spiller Company:	001
Contact Name:	RITA
DEC Memo:	"Prior to Sept, 2004 data translation this spill Lead_DEC Field was MULQUEEN "
Remarks:	"unk info on spill"

All Materials:

Site ID:	309546
Operable Unit ID:	1025362
Operable Unit:	01
Material ID:	564053
Material Code:	0001A
Material Name:	#2 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	10.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

K101 **LOT 8,TAXBLOCK 2909** **NY E DESIGNATION** **S110670431**
WSW **4184 PARK AVENUE** **N/A**
< 1/8 **BRONX, NY**
0.109 mi.
575 ft. **Site 3 of 5 in cluster K**

Relative:
Lower

Actual:
36 ft.

E DESIGNATION:

Tax Lot(s):	8
Tax Block:	2909
Borough Code:	Not reported
E-No:	E-255
Effective Date:	10/13/2010
Satisfaction Date:	Not reported
Ceqr Number:	10DCP043X
Ulurp Number:	100407ZMX
Zoning Map No:	3c, 3d
Description:	Air Quality - #2 Fuel Oil or #4 Fuel Oil or Natural Gas for HVAC systems
Lot Remediation Date:	Not reported
Description:	Exhaust stack location limitations
Lot Remediation Date:	Not reported
Description:	Hazardous Materials* Phase I and Phase II Testing Protocol
Lot Remediation Date:	Not reported

O102 **4275 PARK AVENUE** **NY UST** **U004240735**
NW **4275 PARK AVENUE** **N/A**
< 1/8 **BRONX, NY 10457**
0.110 mi.
583 ft. **Site 1 of 12 in cluster O**

Relative:
Lower

Actual:
40 ft.

UST:

Id/Status:	2-612433 / Unregulated/Closed
Program Type:	PBS
Region:	STATE
DEC Region:	2
Expiration Date:	N/A
UTM X:	592835.35953
UTM Y:	4522614.95057
Site Type:	Apartment Building/Office Building

Affiliation Records:

Site Id:	508981
Affiliation Type:	Facility Owner
Company Name:	WEBSTER AVENUE HOUSING DEVELOPMENT FUND CORP.
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	505 EIGHTH AVENUE
Address2:	Not reported
City:	NEW YORK
State:	NY
Zip Code:	10018
Country Code:	001
Phone:	(212) 389-9327
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2015-09-21

4275 PARK AVENUE (Continued) **U004240735**

Site Id:	508981
Affiliation Type:	Mail Contact
Company Name:	WEBSTER AVENUE HOUSING DEVELOPMENT FUND CORP.
Contact Type:	Not reported
Contact Name:	DAVID BEER
Address1:	505 EIGHTH AVENUE, 5TH FLOOR
Address2:	Not reported
City:	NEW YORK
State:	NY
Zip Code:	10018
Country Code:	001
Phone:	(212) 389-9327
EMail:	DBEER@COMMONGROUND.ORG
Fax Number:	Not reported
Modified By:	HDDUPIGN
Date Last Modified:	2015-09-23

Site Id:	508981
Affiliation Type:	Facility Operator
Company Name:	4275 PARK AVENUE
Contact Type:	Not reported
Contact Name:	N/A
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	N/A
EMail:	Not reported
Fax Number:	Not reported
Modified By:	HDDUPIGN
Date Last Modified:	2015-09-23

Site Id:	508981
Affiliation Type:	Emergency Contact
Company Name:	WEBSTER AVENUE HOUSING DEVELOPMENT FUND CORP.
Contact Type:	Not reported
Contact Name:	N/A
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	N/A
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NTFREEMA
Date Last Modified:	2015-07-22

Tank Info:

Tank Number:	02
Tank ID:	257800
Tank Status:	Closed - Removed
Material Name:	Closed - Removed

4275 PARK AVENUE (Continued) **U004240735**

Capacity Gallons:	550
Install Date:	07/16/2015
Date Tank Closed:	Not reported
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Pipe Model:	Not reported
Modified By:	HDDUPIGN
Last Modified:	04/14/2017

Equipment Records:

J00 - Dispenser - None
K00 - Spill Prevention - None
A00 - Tank Internal Protection - None
G00 - Tank Secondary Containment - None
L00 - Piping Leak Detection - None
D00 - Pipe Type - No Piping
F00 - Pipe External Protection - None
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None
I00 - Overfill - None

Tank Number:	03
Tank ID:	257801
Tank Status:	Closed - Removed
Material Name:	Closed - Removed
Capacity Gallons:	550
Install Date:	07/16/2015
Date Tank Closed:	Not reported
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Pipe Model:	Not reported
Modified By:	HDDUPIGN
Last Modified:	04/14/2017

Equipment Records:

J00 - Dispenser - None
K00 - Spill Prevention - None
A00 - Tank Internal Protection - None
G00 - Tank Secondary Containment - None
L00 - Piping Leak Detection - None
D00 - Pipe Type - No Piping
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
B00 - Tank External Protection - None
I00 - Overfill - None
E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None

O103 **4275 PARK AVENUE** **NY AST** **A100410483**
NW **4275 PARK AVENUE** **N/A**
< 1/8 **BRONX, NY 10457**
0.110 mi.
583 ft. **Site 2 of 12 in cluster O**

Relative:
Lower

Actual:
40 ft.

AST:

Region:	STATE
DEC Region:	2
Site Status:	Unregulated/Closed
Facility Id:	2-612433
Program Type:	PBS
UTM X:	592835.35953
UTM Y:	4522614.95057
Expiration Date:	N/A
Site Type:	Apartment Building/Office Building

Affiliation Records:

Site Id:	508981
Affiliation Type:	Facility Owner
Company Name:	WEBSTER AVENUE HOUSING DEVELOPMENT FUND CORP.
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	505 EIGHTH AVENUE
Address2:	Not reported
City:	NEW YORK
State:	NY
Zip Code:	10018
Country Code:	001
Phone:	(212) 389-9327
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2015-09-21

Site Id:	508981
Affiliation Type:	Mail Contact
Company Name:	WEBSTER AVENUE HOUSING DEVELOPMENT FUND CORP.
Contact Type:	Not reported
Contact Name:	DAVID BEER
Address1:	505 EIGHTH AVENUE, 5TH FLOOR
Address2:	Not reported
City:	NEW YORK
State:	NY
Zip Code:	10018
Country Code:	001
Phone:	(212) 389-9327
EMail:	DBEER@COMMONGROUND.ORG
Fax Number:	Not reported
Modified By:	HDDUPIGN
Date Last Modified:	2015-09-23

Site Id:	508981
Affiliation Type:	Facility Operator
Company Name:	4275 PARK AVENUE
Contact Type:	Not reported
Contact Name:	N/A
Address1:	Not reported
Address2:	Not reported
City:	Not reported

4275 PARK AVENUE (Continued) **A100410483**

State: NN
Zip Code: Not reported
Country Code: 001
Phone: N/A
EMail: Not reported
Fax Number: Not reported
Modified By: HDDUPIGN
Date Last Modified: 2015-09-23

Site Id: 508981
Affiliation Type: Emergency Contact
Company Name: WEBSTER AVENUE HOUSING DEVELOPMENT FUND CORP.
Contact Type: Not reported
Contact Name: N/A
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 999
Phone: N/A
EMail: Not reported
Fax Number: Not reported
Modified By: NTFREEMA
Date Last Modified: 2015-07-22

Tank Info:

Tank Number: 01
Tank Id: 255744

Equipment Records:

J00 - Dispenser - None
D00 - Pipe Type - No Piping
L00 - Piping Leak Detection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
G02 - Tank Secondary Containment - Vault (w/access)
E00 - Piping Secondary Containment - None
A00 - Tank Internal Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
H01 - Tank Leak Detection - Interstitial - Electronic Monitoring
I01 - Overfill - Float Vent Valve
K00 - Spill Prevention - None

Tank Location: Aboveground in subterranean vault with access for inspections.....
Tank in subterranean vault but accessible for inspection.
Tank Type: Steel/Carbon Steel/Iron
Tank Status: Closed - Removed
Pipe Model: Not reported
Install Date: Not reported
Capacity Gallons: 2000
Tightness Test Method: NN
Date Test: Not reported
Next Test Date: Not reported
Date Tank Closed: 05/27/2015
Register: True
Modified By: NTFREEMA

4275 PARK AVENUE (Continued) **A100410483**

Last Modified: 04/14/2017
Material Name: #2 fuel oil (on-site consumption)

O104 **4275 PARK AVENUE** **NY VCP** **S118943382**
NW **4275 PARK AVENUE** **N/A**
< 1/8 **NEW YORK CITY, NY**
0.110 mi.
583 ft. **Site 3 of 12 in cluster O**

Relative: **Lower**
Actual: **40 ft.**

VCP NYC:
Project ID: 14CVCP249X
Project Name: 4275 PARK AVENUE
Project Address: 4275 PARK AVENUE
Borough: BRONX

VCP NYC:
Project ID: 14CVCP249X
File Name: 2013-12-12.RIR
URL: http://www.nyc.gov/downloads/pdf/repository/NYCBCP_Bronx/14CVCP249X/2013-12-12.14CVCP194X_&_14CVCP249X.RIR.ERM.pdf

Project ID: 14CVCP249X
File Name: 2014-06-18.RAWP_Draft
URL: http://www.nyc.gov/html/oer/downloads/pdf/repository/NYCBCP_Bronx/14CVCP249X/2013-06-18.14CVCP249X.report.RAWP.draft.pdf

Project ID: 14CVCP249X
File Name: 2014-06-18.Factsheet-1
URL: http://www.nyc.gov/html/oer/downloads/pdf/repository/NYCBCP_Bronx/14CVCP249X/2014-06-18.14CVCP249X.doc.FactSheet-1.pdf

Project ID: 14CVCP249X
File Name: 2014-06-18.Translated_Factsheet-1
URL: http://www.nyc.gov/html/oer/downloads/pdf/repository/NYCBCP_Bronx/14CVCP249X/2014-06-03.14CVCP249X.doc.Translated_Fact_Sheet.pdf

Project ID: 14CVCP249X
File Name: 2014-06-18.Translated_CPS
URL: http://www.nyc.gov/html/oer/downloads/pdf/repository/NYCBCP_Bronx/14CVCP249X/2014-06-03.14CVCP249X.doc.Translated_Community_Protection_Statement.pdf

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O105 **CONSTRUCTION SITE** **NY Spills** **S117975539**
NW **4275 PARK AVE** **N/A**
< 1/8 **BRONX, NY**
0.110 mi.
583 ft. **Site 4 of 12 in cluster O**

Relative: **Lower**
Actual: **40 ft.**

SPILLS:
Spill Number/Closed Date: 1504063 / 2016-12-06
Facility ID: 1504063
Facility Type: ER
DER Facility ID: 464966
Site ID: 510392
DEC Region: 2
Spill Cause: Equipment Failure

CONSTRUCTION SITE (Continued) **S117975539**

Spill Class:	C3
SWIS:	0301
Spill Date:	2015-07-16
Investigator:	JCGRATHW
Referred To:	Not reported
Reported to Dept:	2015-07-16
CID:	Not reported
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Other
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	False
Remediation Phase:	0
Date Entered In Computer:	2015-07-16
Spill Record Last Update:	2016-12-06
Spiller Name:	EDYTA KORCZYNSKA
Spiller Company:	UNKNOWN
Spiller Address:	4275 PARK AVE
Spiller Company:	999
Contact Name:	EDYTA KORCZYNSKA
DEC Memo:	"7/16/15: J.Kann - spoke with Edyta Korczynska. She informed me that the site is a Brownfield site and the project manager from DEC Albany, John Grathwol was on site today to observe the tank removal and endpoint sampling. Emailed John Grathwol notifying him that the spill was placed in his name. 7/29/15: Two 550-gallon tanks were removed along with the associated petroleum contaminated soil. Post-excavation samples were also taken on July 16, 2015. (J. Grathwol) 12/6/15: Post-excavation samples illustrate that spill is remediated. Final Engineering Report documents spill cleanup and will be approved this month. Spill closed. (J. Grathwol)"
Remarks:	"tank removal c/u pending"

All Materials:

Site ID:	510392
Operable Unit ID:	1259658
Operable Unit:	01
Material ID:	2262991
Material Code:	0009
Material Name:	gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	Not reported
Units:	Not reported
Recovered:	Not reported
Oxygenate:	Not reported

O106 **GARY FREDERIC LTD** **NY AST** **U004076247**
NW **4269 PARK AVENUE** **N/A**
< 1/8 **BRONX, NY 10457**
0.110 mi.
583 ft. **Site 5 of 12 in cluster O**

Relative:
Lower

Actual:
40 ft.

AST:

Region:	STATE
DEC Region:	2
Site Status:	Unregulated/Closed
Facility Id:	2-093971
Program Type:	PBS
UTM X:	592860.73366
UTM Y:	4522603.41514
Expiration Date:	N/A
Site Type:	Manufacturing (Other than Chemical)/Processing

Affiliation Records:

Site Id:	2520
Affiliation Type:	Facility Owner
Company Name:	GARY FREDERIC LTD.
Contact Type:	PRES.
Contact Name:	HERBERT LAGIN
Address1:	4269 PARK AVE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10457
Country Code:	001
Phone:	(212) 295-5450
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2007-02-13

Site Id:	2520
Affiliation Type:	Mail Contact
Company Name:	GARY FREDERIC LTD.
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	4269 PARK AVENUE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10457
Country Code:	001
Phone:	(212) 295-5450
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2007-02-13

Site Id:	2520
Affiliation Type:	Facility Operator
Company Name:	GARY FREDERIC LTD
Contact Type:	Not reported
Contact Name:	GARY FREDERIC LTD
Address1:	Not reported
Address2:	Not reported
City:	Not reported

GARY FREDERIC LTD (Continued) **U004076247**

State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(212) 295-5450
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Site Id:	2520
Affiliation Type:	Emergency Contact
Company Name:	GARY FREDERIC LTD.
Contact Type:	Not reported
Contact Name:	HERBERT LAGIN
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(516) 482-8135
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Tank Info:

Tank Number:	001
Tank Id:	4392
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

Equipment Records:

J02 - Dispenser - Suction Dispenser
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
G03 - Tank Secondary Containment - Vault (w/o access)
H00 - Tank Leak Detection - None
I00 - Overfill - None
L09 - Piping Leak Detection - Exempt Suction Piping

Tank Location:	Aboveground in subterranean vault with access for inspections.....
	Tank in subterranean vault but accessible for inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	Closed - In Place
Pipe Model:	Not reported
Install Date:	01/01/1970
Capacity Gallons:	1500
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	01/06/2006
Register:	True

GARY FREDERIC LTD (Continued) **U004076247**

Modified By: NRLOMBAR
Last Modified: 04/14/2017
Material Name: #2 fuel oil (on-site consumption)

O107 **LOT 48,TAXBLOCK 3028** **NY E DESIGNATION** **S110670356**
NW **4269 PARK AVENUE** **N/A**
< 1/8 **BRONX, NY**
0.110 mi.
583 ft. **Site 6 of 12 in cluster O**

Relative: **Lower**
Actual: **40 ft.**

E DESIGNATION:
Tax Lot(s): 48
Tax Block: 3028
Borough Code: Not reported
E-No: E-255
Effective Date: 10/13/2010
Satisfaction Date: Not reported
Ceqr Number: 10DCP043X
Ulurp Number: 100407ZMX
Zoning Map No: 3c, 3d

Description: Hazardous Materials* Phase I and Phase II Testing Protocol
Lot Remediation Date: Not reported

Description: Window Wall Attenuation & Alternate Ventilation
Lot Remediation Date: Not reported

K108 **CON EDISON** **RCRA NonGen / NLR** **1019905495**
West **E TREMONT AVE & PARK AVE** **FINDS** **NYP004810319**
< 1/8 **BRONX, NY 10457** **ECHO**
0.111 mi.
584 ft. **Site 4 of 5 in cluster K**

Relative: **Lower**
Actual: **39 ft.**

RCRA NonGen / NLR:
Date form received by agency: 07/21/2015
Facility name: CON EDISON
Facility address: E TREMONT AVE & PARK AVE
BRONX, NY 10457
EPA ID: NYP004810319
Mailing address: IRVING PL 15TH FL NE
NEW YORK, NY 10003
Contact: THOMAS TEELING
Contact address: Not reported
Not reported
Contact country: Not reported
Contact telephone: 212-460-3770
Contact email: Not reported
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No

CON EDISON (Continued) **1019905495**

Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Historical Generators:
Date form received by agency: 07/21/2015
Site name: CON EDISON
Classification: Large Quantity Generator

Violation Status: No violations found

FINDS:

Registry ID: 110069682631

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1019905495
Registry ID: 110069682631
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110069682631

H109 **I/F/O 1910 MONTEREY AVE** **NY Spills** **S107782616**
SE **555 EAST TREMONT AVENUE** **N/A**
< 1/8 **BRONX, NY 10457**
0.112 mi.
593 ft. **Site 11 of 12 in cluster H**

Relative:
Higher

Actual:
76 ft.

SPILLS:

Spill Number/Closed Date:	0813263 / 2009-03-13
Facility ID:	0813263
Facility Type:	ER
DER Facility ID:	360178
Site ID:	410943
DEC Region:	2
Spill Cause:	Human Error
Spill Class:	C3
SWIS:	0301
Spill Date:	2009-03-10

I/F/O 1910 MONTEREY AVE (Continued) **S107782616**

Investigator:	SFRAHMAN
Referred To:	Not reported
Reported to Dept:	2009-03-10
CID:	Not reported
Water Affected:	Not reported
Spill Source:	Tank Truck
Spill Notifier:	Fire Department
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	False
Remediation Phase:	0
Date Entered In Computer:	2009-03-10
Spill Record Last Update:	2009-03-13
Spiller Name:	Not reported
Spiller Company:	UNKNOWN
Spiller Address:	Not reported
Spiller Company:	999
Contact Name:	DISPATCHER 144
DEC Memo:	"Sharif Rahman responded to the site. 03/11/09 Spill on the sidewalk and along the curb,surrounding the fill port.There was oil odor in the air.A car was impacted by the oil spill,oil did spray inside the car while the driver coming out of the car.Driver's name is Rivera Eduvige.Oil company:Rapid Petroleum, carrier: Enterprise Transportation Inc., 142 2nd Street, Brooklyn, NY 11231.Ph:(718)596-0389. I spoke with Enterprise Transportation(Rovert Cavantola) on 03/10/09 afternoon and he told me that he was going to send clean up crews immediately to clean the spill with speedy dry.Spill was on sidewalk and on the street.No reported impact inside the building.No soil was impacted.I called NYCHRA personnel Ms. Mellaney and asked her to call us if the clean up is not good.She said she would ask her custodian to check the cleanup and call DEC if there is any problem.(sr) 03/13/09 Building owner sent pictures of the cleaned sidewalk,new fill box and tank room.Case closed. Building owners information- Mark Brandariz Director of Operations Laramie Dawson Corp. 126 E. 56th Street New York, NY 10022 212-644-8200 Office 917-939-5462 Cell (sr) "
Remarks:	"CALLER STATES THAT TWO SUBJECT WERE TRANSFERING DIESEL FROM A TRUCK TO A TANK WHICH RESULTED IN A SPILL OF 30 GALLONS. CLEAN UP WAS DONE." Not reported

All Materials:

Site ID:	410943
Operable Unit ID:	1167408
Operable Unit:	01
Material ID:	2158960
Material Code:	0008
Material Name:	diesel
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	30.00
Units:	G
Recovered:	Not reported
Oxygenate:	Not reported

H110 **421 TREMONT LLC** **NY AST** **A100173480**
SE **555 EAST TREMONT AVENUE** **N/A**
< 1/8 **BRONX, NY 10457**
0.112 mi.
593 ft. **Site 12 of 12 in cluster H**

Relative:
Higher

Actual:
76 ft.

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-510467
Program Type:	PBS
UTM X:	593142.62437
UTM Y:	4522302.43916
Expiration Date:	02/05/2021
Site Type:	Apartment Building/Office Building

Affiliation Records:

Site Id:	21860
Affiliation Type:	Facility Owner
Company Name:	421 TREMONT LLC
Contact Type:	CFO
Contact Name:	RICHARD DANNENBAUM
Address1:	C/O 126 E. 56TH STREET
Address2:	Not reported
City:	NEW YORK
State:	NY
Zip Code:	10022
Country Code:	001
Phone:	(212) 644-8200
EMail:	Not reported
Fax Number:	Not reported
Modified By:	LSZINOMA
Date Last Modified:	2016-02-24

Site Id:	21860
Affiliation Type:	Mail Contact
Company Name:	421 TREMONT LLC
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	C/O PAT MANAGEMENT LLC
Address2:	126 E. 56TH STREET, 32ND FL.
City:	NEW YORK
State:	NY
Zip Code:	10022
Country Code:	001
Phone:	(212) 697-6670
EMail:	Not reported
Fax Number:	Not reported
Modified By:	KXTANG
Date Last Modified:	2006-01-25

Site Id:	21860
Affiliation Type:	Facility Operator
Company Name:	421 TREMONT LLC
Contact Type:	Not reported
Contact Name:	NYC HUMAN RESOURCES ADMIN
Address1:	Not reported
Address2:	Not reported
City:	Not reported

421 TREMONT LLC (Continued) **A100173480**

State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 901-0243
EMail:	Not reported
Fax Number:	Not reported
Modified By:	KXTANG
Date Last Modified:	2006-01-25

Site Id:	21860
Affiliation Type:	Emergency Contact
Company Name:	421 TREMONT LLC % PAT MANAGEMENT LLC
Contact Type:	Not reported
Contact Name:	MARK BRANDARIZ
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(212) 697-6670
EMail:	Not reported
Fax Number:	Not reported
Modified By:	KXTANG
Date Last Modified:	2006-01-25

Tank Info:

Tank Number:	001
Tank Id:	39735
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

Equipment Records:

G03 - Tank Secondary Containment - Vault (w/o access)
H00 - Tank Leak Detection - None
L09 - Piping Leak Detection - Exempt Suction Piping
I04 - Overfill - Product Level Gauge (A/G)
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
J02 - Dispenser - Suction Dispenser
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron

Tank Location:	Aboveground - contact with soil.... Tank bottom rests on soil, allowing no visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	10/16/1960
Capacity Gallons:	5000
Tightness Test Method:	21
Date Test:	01/05/1999
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True

421 TREMONT LLC (Continued) **A100173480**

Modified By: LSZINOMA
Last Modified: 04/14/2017
Material Name: #2 fuel oil (on-site consumption)

P111 **2023 MONTEREY AVE** **NY AST** **U003392090**
ENE **2023 MONTEREY AVENUE** **N/A**
< 1/8 **BRONX, NY 10457**
0.116 mi.
611 ft. **Site 1 of 6 in cluster P**

Relative:
Higher

Actual:
87 ft.

AST:
Region: STATE
DEC Region: 2
Site Status: Active
Facility Id: 2-152552
Program Type: PBS
UTM X: 593244.09982
UTM Y: 4522546.03691
Expiration Date: 08/25/2019
Site Type: Apartment Building/Office Building

Affiliation Records:
Site Id: 4779
Affiliation Type: Facility Owner
Company Name: MONTEREY ASSOCIATES
Contact Type: GENERAL MANAGER
Contact Name: MICHAEL NOWLIN
Address1: 955 E 163RD STREET
Address2: Not reported
City: BRONX
State: NY
Zip Code: 10459
Country Code: 001
Phone: (718) 328-6099
EMail: Not reported
Fax Number: Not reported
Modified By: MSBAPTIS
Date Last Modified: 2014-07-15

Site Id: 4779
Affiliation Type: Mail Contact
Company Name: PRC MANAGEMENT CO.
Contact Type: Not reported
Contact Name: MICHAEL NOWLIN
Address1: 955 E 163RD STREET
Address2: Not reported
City: BRONX
State: NY
Zip Code: 10459
Country Code: 001
Phone: (718) 328-6099
EMail: MICHAELN2PRCNY.COM
Fax Number: Not reported
Modified By: MSBAPTIS
Date Last Modified: 2014-07-15

Site Id: 4779
Affiliation Type: Facility Operator

2023 MONTEREY AVE (Continued) **U003392090**

Company Name:	2023 MONTEREY AVE
Contact Type:	Not reported
Contact Name:	FELIX MOLINA
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 928-6099
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MSBAPTIS
Date Last Modified:	2010-07-16

Site Id:	4779
Affiliation Type:	Emergency Contact
Company Name:	PRC MANAGEMENT CO.
Contact Type:	Not reported
Contact Name:	FELIX MOLINA
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(718) 928-6099
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MSBAPTIS
Date Last Modified:	2010-07-16

Tank Info:

Tank Number:	001
Tank Id:	23347
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

Equipment Records:

G00 - Tank Secondary Containment - None
J02 - Dispenser - Suction Dispenser
H00 - Tank Leak Detection - None
L09 - Piping Leak Detection - Exempt Suction Piping
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
I04 - Overfill - Product Level Gauge (A/G)

Tank Location:	Aboveground - contact with soil.... Tank bottom rests on soil, allowing no visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	02/01/2005

2023 MONTEREY AVE (Continued) **U003392090**

Capacity Gallons:	5000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	MSBAPTIS
Last Modified:	04/14/2017
Material Name:	#2 fuel oil (on-site consumption)

L112 **EAST 179TH ST SUB STATION** **NY Spills** **S103572952**
NE **E.179TH ST/3RD AVE** **N/A**
< 1/8 **BRONX, NY**
0.116 mi.
612 ft. **Site 3 of 11 in cluster L**

Relative: **Higher**
Actual: **78 ft.**

SPILLS:

Spill Number/Closed Date:	9808761 / 2002-05-29
Facility ID:	9808761
Facility Type:	ER
DER Facility ID:	81727
Site ID:	89481
DEC Region:	2
Spill Cause:	Equipment Failure
Spill Class:	C4
SWIS:	0301
Spill Date:	1998-10-14
Investigator:	CAENGELH
Referred To:	Not reported
Reported to Dept:	1998-10-14
CID:	281
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Responsible Party
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	False
Remediation Phase:	0
Date Entered In Computer:	1998-10-14
Spill Record Last Update:	2002-05-29
Spiller Name:	ERNIE ROWLAND
Spiller Company:	CON EDISON
Spiller Address:	4 IRVING PLACE
Spiller Company:	001
Contact Name:	ERNIE ROWLAND
DEC Memo:	"Prior to Sept, 2004 data translation this spill Lead_DEC Field was ENGELHARDT Con Ed e2mis #120515: 10/14/98 L Nieves SSO reports leak from reservoir of generator #1. Approx <1gal on steel floor of compartment. Spill is contained with pads. Diesel fuel was cleaned using absorbants to remove residual fluids. Washed impervious surface with simple green. DEC Inspector Notes: 5/28/02 Foley inspected with EH&S Tom Whipple and Joe Susco. Spill was cleaned up. A valve was found dripping onto steel floor but was considered deminimus."
Remarks:	"LEAKING RESERVOIR AT ABOVE LOCATION. MATERIAL HAS BEEN CONTAINED WITH PADS. CLEAN UP TO BE DONE 10/15/98 - AM. NO CALL BACK REQUESTED."
	Not reported

EAST 179TH ST SUB STATION (Continued) **S103572952**

All Materials:

Site ID:	89481
Operable Unit ID:	1069950
Operable Unit:	01
Material ID:	569330
Material Code:	0541A
Material Name:	dielectric fluid
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	1.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

L113 **MH 26025** **NY Spills** **S105057161**
NE **179TH AND 3RD AV** **N/A**
< 1/8 **BRONX, NY**
0.116 mi.
612 ft. **Site 4 of 11 in cluster L**

Relative: **Higher**
Actual: **78 ft.**

SPILLS:

Spill Number/Closed Date:	0101390 / 2001-06-19
Facility ID:	0101390
Facility Type:	ER
DER Facility ID:	99564
Site ID:	114124
DEC Region:	2
Spill Cause:	Unknown
Spill Class:	C4
SWIS:	0301
Spill Date:	2001-05-05
Investigator:	JHOCONNE
Referred To:	Not reported
Reported to Dept:	2001-05-05
CID:	270
Water Affected:	Not reported
Spill Source:	Unknown
Spill Notifier:	Affected Persons
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	False
Remediation Phase:	0
Date Entered In Computer:	2001-05-05
Spill Record Last Update:	2001-06-20
Spiller Name:	Not reported
Spiller Company:	UNKNOWN
Spiller Address:	Not reported
Spiller Company:	001
Contact Name:	CALLER
DEC Memo:	"Prior to Sept, 2004 data translation this spill Lead_DEC Field was O'CONNELL "
Remarks:	"NO SEWER OR WATER. 136863"

All Materials:

Site ID:	114124

MH 26025 (Continued) **S105057161**

Operable Unit ID:	838271
Operable Unit:	01
Material ID:	537089
Material Code:	0066A
Material Name:	unknown petroleum
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	1.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

L114 **EAST 179TH ST SUB STA** **NY Spills** **S107407368**
NE **3RD AVE/179TH ST** **N/A**
< 1/8 **BRONX, NY**
0.116 mi.
612 ft. **Site 5 of 11 in cluster L**

Relative: **Higher**

Actual: **78 ft.**

SPILLS:

Spill Number/Closed Date:	9609008 / 2002-05-29
Facility ID:	9609008
Facility Type:	ER
DER Facility ID:	156052
Site ID:	186711
DEC Region:	2
Spill Cause:	Equipment Failure
Spill Class:	C3
SWIS:	0301
Spill Date:	1996-10-19
Investigator:	CAENGELH
Referred To:	Not reported
Reported to Dept:	1996-10-20
CID:	297
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Responsible Party
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	False
Remediation Phase:	0
Date Entered In Computer:	1996-10-20
Spill Record Last Update:	2002-05-29
Spiller Name:	TIM SOILCH
Spiller Company:	CON EDISON
Spiller Address:	4 IRVING PLACE
Spiller Company:	001
Contact Name:	STEVE ROMERO
DEC Memo:	"Prior to Sept, 2004 data translation this spill Lead_DEC Field was ENGELHARDT Con Ed detailed report: 10/21/96 While entering the pumphouse to reset crossover 4 after 38X01 tripped auto, I noticed water on the floor of pumphouse. The water had an oil sheen to it. I called S.M. Peate to notify him of situation and prodeeded to place booms at waters outer edges and lay absorbant pads on top of oil water mixture. Water entered pumphouse because of torrential wind driven rains. Water entered from roof and large metal doors on south

EAST 179TH ST SUB STA (Continued) **S107407368**

end of pumphouse. Area at main entrance to building was dry. DEC Inspector Notes: 5/28/02 Foley inspected pumphouse with SSO EH&S Tom Whipple and Joe Susco. Valves all have containment pans and absorbant pads hanging underneath to catch any drips. According to Whipple, this is not a priority to fix, but will be fixed eventually. Pumphouse concrete floor appears to be clean. Tank not leaking."

Remarks: "RESIDUE OIL FOUND IN THE PUMP HOUSE - UNKNOWN WHERE IT CAME FROM - SPILL HAS NOT BEEN CLEANED UP YET - THE OIL IS FLOATING ON 4 GALLONS OF WATER ON A CEMENT FLOOR - THE WATER IS FROM HE ROOF LEAKING IN THE PUMP HOUSE - CLEAN UP WILL BE DONE BY 1600 HOURS"

All Materials:

Site ID:	186711
Operable Unit ID:	1040205
Operable Unit:	01
Material ID:	553559
Material Code:	0541A
Material Name:	dielectric fluid
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	1.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

L115 **MH464** **NY Spills** **S105235934**
NE **179ST / 3RD AV** **N/A**
< 1/8 **BRONX, NY**
0.116 mi.
612 ft. **Site 6 of 11 in cluster L**

Relative: **Higher**

Actual: **78 ft.**

SPILLS:

Spill Number/Closed Date:	0108035 / 2002-02-08
Facility ID:	0108035
Facility Type:	ER
DER Facility ID:	187561
Site ID:	227231
DEC Region:	2
Spill Cause:	Unknown
Spill Class:	C4
SWIS:	0301
Spill Date:	2001-11-07
Investigator:	KMFOLEY
Referred To:	Not reported
Reported to Dept:	2001-11-07
CID:	270
Water Affected:	Not reported
Spill Source:	Unknown
Spill Notifier:	Affected Persons
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	False
Remediation Phase:	0
Date Entered In Computer:	2001-11-07
Spill Record Last Update:	2002-02-08

MH464 (Continued) **S105235934**

Spiller Name:	Not reported
Spiller Company:	UNKNOWN
Spiller Address:	Not reported
Spiller Company:	001
Contact Name:	CALLER
DEC Memo:	"Prior to Sept, 2004 data translation this spill Lead_DEC Field was FOLEY "
Remarks:	"ON 3500 GALS WATER CONTAINS OIL FILLED FEEDER 140149"

All Materials:

Site ID:	227231
Operable Unit ID:	846068
Operable Unit:	01
Material ID:	552696
Material Code:	0066A
Material Name:	unknown petroleum
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	1.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

L116 **179TH ST AND 3RD AVE** **NY Spills** **S110487629**
NE **179TH ST AND 3RD AVE** **N/A**
< 1/8 **BRONX, NY**
0.116 mi.
612 ft. **Site 7 of 11 in cluster L**

Relative: **Higher**

Actual: **78 ft.**

SPILLS:

Spill Number/Closed Date:	1003804 / 2010-07-07
Facility ID:	1003804
Facility Type:	ER
DER Facility ID:	391999
Site ID:	437049
DEC Region:	2
Spill Cause:	Equipment Failure
Spill Class:	Not reported
SWIS:	0301
Spill Date:	2010-07-06
Investigator:	hrpatel
Referred To:	Not reported
Reported to Dept:	2010-07-06
CID:	Not reported
Water Affected:	Not reported
Spill Source:	Commercial Vehicle
Spill Notifier:	Other
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	False
Remediation Phase:	0
Date Entered In Computer:	2010-07-06
Spill Record Last Update:	2010-07-07
Spiller Name:	JENNIFER WUOTINEN
Spiller Company:	NYC TRANSIT

179TH ST AND 3RD AVE (Continued) **S110487629**

Spiller Address:	179TH ST AND 3RD AVE
Spiller Company:	999
Contact Name:	JENNIFER WUOTINEN
DEC Memo:	"07/07/10-Hiralkumar Patel. 8:55 AM:- spoke with Jennifer. bus leaked fluid on asphalt street. some got into sewer. all cleaned up. case closed."
Remarks:	"Caller reporting a spill of 4 gallons of transmission fluid, of which 2 went to sewer. Clean up is complete."

All Materials:

Site ID:	437049
Operable Unit ID:	1187733
Operable Unit:	01
Material ID:	2182623
Material Code:	0021
Material Name:	transmission fluid
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	4.00
Units:	G
Recovered:	Not reported
Oxygenate:	Not reported

L117 **CON EDISON - SUB-STATION** **NY Spills** **S102149661**
NE **E. 179TH ST / 3RD AVE** **N/A**
< 1/8 **BRONX, NY**
0.116 mi.
612 ft. **Site 8 of 11 in cluster L**

Relative: **Higher**

Actual: **78 ft.**

SPILLS:

Spill Number/Closed Date:	9415459 / 2003-02-10
Facility ID:	9415459
Facility Type:	ER
DER Facility ID:	166987
Site ID:	200672
DEC Region:	2
Spill Cause:	Equipment Failure
Spill Class:	C3
SWIS:	0301
Spill Date:	1995-02-25
Investigator:	TOMASELLO
Referred To:	Not reported
Reported to Dept:	1995-02-25
CID:	Not reported
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Responsible Party
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	False
Remediation Phase:	0
Date Entered In Computer:	1995-04-25
Spill Record Last Update:	2003-02-10
Spiller Name:	Not reported
Spiller Company:	SAME

CON EDISON - SUB-STATION (Continued) **S102149661**

Spiller Address: Not reported
Spiller Company: 999
Contact Name: Not reported
DEC Memo: ""
Remarks: "LEAKED FROM REACTOR"

All Materials:
Site ID: 200672
Operable Unit ID: 1012766
Operable Unit: 01
Material ID: 370641
Material Code: 0020A
Material Name: transformer oil
Case No.: Not reported
Material FA: Petroleum
Quantity: .00
Units: L
Recovered: .00
Oxygenate: Not reported

Site ID: 200672
Operable Unit ID: 1012766
Operable Unit: 01
Material ID: 370642
Material Code: 0066A
Material Name: unknown petroleum
Case No.: Not reported
Material FA: Petroleum
Quantity: 30.00
Units: G
Recovered: .00
Oxygenate: Not reported

L118 **MANHOLE #26564** **NY Spills** **S104952013**
NE **E 179TH ST & 3RD AVE** **N/A**
< 1/8 **BRONX, NY**
0.116 mi.
614 ft. **Site 9 of 11 in cluster L**

Relative: **Higher**
Actual: **78 ft.**

SPILLS:
Spill Number/Closed Date: 0011015 / 2001-01-09
Facility ID: 0011015
Facility Type: ER
DER Facility ID: 116402
Site ID: 135563
DEC Region: 2
Spill Cause: Unknown
Spill Class: C4
SWIS: 0301
Spill Date: 2001-01-08
Investigator: JHOCONNE
Referred To: Not reported
Reported to Dept: 2001-01-08
CID: 252
Water Affected: Not reported
Spill Source: Commercial/Industrial
Spill Notifier: Responsible Party

MANHOLE #26564 (Continued) **S104952013**

Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	False
Remediation Phase:	0
Date Entered In Computer:	2001-01-08
Spill Record Last Update:	2001-01-09
Spiller Name:	PETER MCGUIRE
Spiller Company:	MANHOLE #26564
Spiller Address:	E 179TH ST & 3RD AVE
Spiller Company:	001
Contact Name:	PETER MCGUIRE
DEC Memo:	"Prior to Sept, 2004 data translation this spill Lead_DEC Field was O'CONNELL e2mis notes: Found 1/2 pt insulatum on 60 gals water in station MH 26564. 1/9/01, 0600 hrs - Supervisor reports that upon his arrival he found carbon and not insulatum in manhole. Report changed to NON-SPILL. Job closed."
Remarks:	"1/2 pint of insulatum on manhole-no water ways affected. "

All Materials:

Site ID:	135563
Operable Unit ID:	832951
Operable Unit:	01
Material ID:	541346
Material Code:	0541A
Material Name:	dielectric fluid
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

L119 **CONSOLIDATED EDISON** **NY MANIFEST** **1009241775**
NE **E 179 ST & 3 AVE MH16565** **N/A**
< 1/8 **BRONX, NY**
0.116 mi.
614 ft. **Site 10 of 11 in cluster L**

Relative:
Higher

Actual:
78 ft.

NY MANIFEST:

Country:	USA
EPA ID:	NYP004102950
Facility Status:	Not reported
Location Address 1:	E 179 ST & 3 AVE MH16565
Code:	BP
Location Address 2:	Not reported
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	Not reported
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYP004102950
Mailing Name:	CONSOLIDATED EDISON
Mailing Contact:	FRANKLIN MURRAY
Mailing Address 1:	4 IRVING PLACE RM 828

CONSOLIDATED EDISON (Continued) **1009241775**

Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	10003
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	2124602808

NY MANIFEST:

Document ID:	NYE0629496
Manifest Status:	Not reported
seq:	01
Year:	2002
Trans1 State ID:	Not reported
Trans2 State ID:	74791AV
Generator Ship Date:	09/24/2002
Trans1 Recv Date:	09/24/2002
Trans2 Recv Date:	09/24/2002
TSD Site Recv Date:	09/24/2002
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004102950
Trans1 EPA ID:	NYD006982359
Trans2 EPA ID:	NYD006982359
TSDF ID 1:	NYD077444263
TSDF ID 2:	Not reported
Manifest Tracking Number:	Not reported
Import Indicator:	Not reported
Export Indicator:	Not reported
Discr Quantity Indicator:	Not reported
Discr Type Indicator:	Not reported
Discr Residue Indicator:	Not reported
Discr Partial Reject Indicator:	Not reported
Discr Full Reject Indicator:	Not reported
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	Not reported
Waste Code:	B007 - OTHER MISCELLANEOUS PCB WASTES
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	00084
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	L Landfill.
Specific Gravity:	01.00

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

L120
NE
< 1/8
0.116 mi.
614 ft.

CON ED
179 ST & 3 AVE EXCAV
BRONX, NY

Site 11 of 11 in cluster L

NY MANIFEST **1009241918**
N/A

Relative:
Higher

Actual:
78 ft.

NY MANIFEST:

Country:	USA
EPA ID:	NYP004104659
Facility Status:	Not reported
Location Address 1:	179 ST & 3 AVE EXCAV
Code:	BP
Location Address 2:	Not reported
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	Not reported
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYP004104659
Mailing Name:	CON ED
Mailing Contact:	FRANKLIN MURRAY
Mailing Address 1:	4 IRVING PLACE RM 828
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	10003
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	2124602808

NY MANIFEST:

Document ID:	NYE0254924
Manifest Status:	Not reported
seq:	01
Year:	2002
Trans1 State ID:	96590JE
Trans2 State ID:	Not reported
Generator Ship Date:	11/15/2002
Trans1 Recv Date:	11/15/2002
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	11/18/2002
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004104659
Trans1 EPA ID:	NYD006982359
Trans2 EPA ID:	Not reported
TSDF ID 1:	NYD980593636
TSDF ID 2:	Not reported
Manifest Tracking Number:	Not reported
Import Indicator:	Not reported
Export Indicator:	Not reported
Discr Quantity Indicator:	Not reported
Discr Type Indicator:	Not reported
Discr Residue Indicator:	Not reported
Discr Partial Reject Indicator:	Not reported
Discr Full Reject Indicator:	Not reported
Manifest Ref Number:	Not reported

CON ED (Continued) **1009241918**

Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	Not reported
Waste Code:	B007 - OTHER MISCELLANEOUS PCB WASTES
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	00050
Units:	K - Kilograms (2.2 pounds)
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	L Landfill.
Specific Gravity:	01.00

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

Q121 **TREMONT LIBRARY** **NY AST** **A100383095**
SSW **1866 WASHINGTON AVE** **N/A**
< 1/8 **BRONX, NY 10456**
0.117 mi.
618 ft. **Site 1 of 7 in cluster Q**

Relative: **Lower**
Actual: **47 ft.**

AST:

Region:	STATE
DEC Region:	2
Site Status:	Unregulated/Closed
Facility Id:	2-612113
Program Type:	PBS
UTM X:	592854.04959
UTM Y:	4522259.34538
Expiration Date:	N/A
Site Type:	Apartment Building/Office Building

Affiliation Records:

Site Id:	488286
Affiliation Type:	Facility Owner
Company Name:	NY PUBLIC LIBRARY
Contact Type:	MGR
Contact Name:	JOHN TYLER
Address1:	1866 WASHINGTON AVE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10456
Country Code:	001
Phone:	(718) 579-4254
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MSBAPTIS
Date Last Modified:	2013-10-24

Site Id:	488286
Affiliation Type:	Mail Contact
Company Name:	NY PUBLIC LIBRARY

TREMONT LIBRARY (Continued) **A100383095**

Contact Type:	Not reported
Contact Name:	JOHN TYLER
Address1:	310 EAST KINGSBRIDGE RD
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10457
Country Code:	001
Phone:	(718) 579-4254
EMail:	JOHNTYLER@NYPL.ORG
Fax Number:	Not reported
Modified By:	MSBAPTIS
Date Last Modified:	2013-10-24

Site Id:	488286
Affiliation Type:	Facility Operator
Company Name:	TREMONT LIBRARY
Contact Type:	Not reported
Contact Name:	JOHN TYLER
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 579-4254
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MSBAPTIS
Date Last Modified:	2013-10-24

Site Id:	488286
Affiliation Type:	Emergency Contact
Company Name:	NY PUBLIC LIBRARY
Contact Type:	Not reported
Contact Name:	JOHN TYLER
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 579-4254
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MSBAPTIS
Date Last Modified:	2013-10-24

Tank Info:

Tank Number:	001
Tank Id:	250029

Equipment Records:

F00 - Pipe External Protection - None
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping

TREMONT LIBRARY (Continued) **A100383095**

E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None
J02 - Dispenser - Suction Dispenser
G00 - Tank Secondary Containment - None
L00 - Piping Leak Detection - None
D00 - Pipe Type - No Piping
I05 - Overfill - Vent Whistle
K00 - Spill Prevention - None
A00 - Tank Internal Protection - None

Tank Location:	Aboveground - contact with soil.... Tank bottom rests on soil, allowing no visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	Closed - Removed
Pipe Model:	Not reported
Install Date:	01/01/1986
Capacity Gallons:	2500
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	09/24/2013
Register:	True
Modified By:	CGFREEDM
Last Modified:	04/14/2017
Material Name:	#2 fuel oil (on-site consumption)

K122 **FRIEND FOREVER AUTO REPAIR CORP** **NY AST** **A100318926**
WSW **4178 PARK AVENUE** **N/A**
< 1/8 **BRONX, NY 10457**
0.121 mi.
637 ft. **Site 5 of 5 in cluster K**

Relative: **Lower**

Actual: **33 ft.**

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-610761
Program Type:	PBS
UTM X:	592759.24908
UTM Y:	4522310.62959
Expiration Date:	02/01/2013
Site Type:	Other

Affiliation Records:

Site Id:	393049
Affiliation Type:	Facility Owner
Company Name:	ALEJANDRO A. SORIANO
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	946 SHERMAN AVE.
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10456
Country Code:	001
Phone:	(718) 901-2067
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR

FRIEND FOREVER AUTO REPAIR CORP (Continued) **A100318926**

Date Last Modified: 2008-02-01

Site Id: 393049
Affiliation Type: Mail Contact
Company Name: FRIEND FOREVER AUTO REPAIR CORP
Contact Type: Not reported
Contact Name: ALEJANDRO A. SORIANO
Address1: 4178 PARK AVENUE
Address2: Not reported
City: BRONX
State: NY
Zip Code: 10457
Country Code: 001
Phone: (718) 901-2067
EMail: Not reported
Fax Number: Not reported
Modified By: NRLOMBAR
Date Last Modified: 2008-02-01

Site Id: 393049
Affiliation Type: Facility Operator
Company Name: FRIEND FOREVER AUTO REPAIR CORP
Contact Type: Not reported
Contact Name: ALEJANDRO A. SORIANO
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 001
Phone: (718) 901-2067
EMail: Not reported
Fax Number: Not reported
Modified By: NRLOMBAR
Date Last Modified: 2008-02-01

Site Id: 393049
Affiliation Type: Emergency Contact
Company Name: ALEJANDRO A. SORIANO
Contact Type: Not reported
Contact Name: ALEJANDRO A. SORIANO
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 001
Phone: (718) 901-2067
EMail: Not reported
Fax Number: Not reported
Modified By: NRLOMBAR
Date Last Modified: 2008-02-01

Tank Info:

Tank Number: 001
Tank Id: 221485

FRIEND FOREVER AUTO REPAIR CORP (Continued) **A100318926**

Material Code:	0022
Common Name of Substance:	Waste Oil/Used Oil

Equipment Records:

D00 - Pipe Type - No Piping
G01 - Tank Secondary Containment - Diking (Aboveground)
L00 - Piping Leak Detection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
J02 - Dispenser - Suction Dispenser
A00 - Tank Internal Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
K00 - Spill Prevention - None
E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None
I00 - Overfill - None

Tank Location:	Aboveground - contact with impervious barrier... Tank bottom rests on impervious barrier, allowing visual indication of leaks.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	250
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	NRLOMBAR
Last Modified:	04/14/2017
Material Name:	waste oil/used oil

J123 **LOT 42,TAXBLOCK 2924** **NY RES DECL** **S116687923**
South **507 EAST 176 STREET** **N/A**
< 1/8 **BRONX, NY 10457**
0.121 mi.
637 ft. **Site 8 of 10 in cluster J**

Relative: ENV RES DECL:
Lower

Actual: Borough:	BX
49 ft. Tax Block:	2924
Tax Lot:	42
Reference Number:	R-88
Date Recorded:	11/1/2006
Satisfaction Date:	Not reported
CEQR Number:	06BSA095X
Application Number:	112-06-BZ
Recording Reference Number:	2006000609763
Type:	Hazmat
Lot Remediation Date:	Not reported

J124 **507 EAST 176 STREET** **NY UST** **U004182956**
South **507 EAST 176 STREET** **N/A**
< 1/8 **BRONX, NY 10457**
0.121 mi.
637 ft. **Site 9 of 10 in cluster J**

Relative:
Lower

Actual:
49 ft.

UST:

Id/Status:	2-611675 / Unregulated/Closed
Program Type:	PBS
Region:	STATE
DEC Region:	2
Expiration Date:	N/A
UTM X:	592940.95473
UTM Y:	4522205.53667
Site Type:	Apartment Building/Office Building

Affiliation Records:

Site Id:	455132
Affiliation Type:	Facility Owner
Company Name:	AMBER HOUSING DEVELOPMENT FUND CORP
Contact Type:	SECRETARY
Contact Name:	RAFAL MARKWAT
Address1:	690 EIGHTH AVE 5TH FLOOR
Address2:	Not reported
City:	NEW YORK
State:	NY
Zip Code:	10036
Country Code:	001
Phone:	(212) 292-8400
EMail:	Not reported
Fax Number:	Not reported
Modified By:	BVCAMPBE
Date Last Modified:	2011-09-13

Site Id:	455132
Affiliation Type:	Mail Contact
Company Name:	AMBER HOUSING DEVELOPMENT FUND CORP
Contact Type:	Not reported
Contact Name:	RAFAL MARKWAT
Address1:	42 WEST 39TH STREET 14TH FLOOR
Address2:	Not reported
City:	NEW YORK
State:	NY
Zip Code:	10018
Country Code:	001
Phone:	(212) 292-8400 107
EMail:	Not reported
Fax Number:	Not reported
Modified By:	BVCAMPBE
Date Last Modified:	2011-09-13

Site Id:	455132
Affiliation Type:	Facility Operator
Company Name:	507 EAST 176 STREET
Contact Type:	Not reported
Contact Name:	RAFAL MARKWAT
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN

507 EAST 176 STREET (Continued) **U004182956**

Zip Code:	Not reported
Country Code:	001
Phone:	Not reported
EMail:	Not reported
Fax Number:	Not reported
Modified By:	BVCAMPBE
Date Last Modified:	2011-09-13

Site Id:	455132
Affiliation Type:	Emergency Contact
Company Name:	AMBER HOUSING DEVELOPMENT FUND CORP
Contact Type:	Not reported
Contact Name:	RAFAL MARKWAT
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	Not reported
EMail:	Not reported
Fax Number:	Not reported
Modified By:	BVCAMPBE
Date Last Modified:	2011-09-13

Tank Info:

Tank Number:	001
Tank ID:	240833
Tank Status:	Closed - Removed
Material Name:	Closed - Removed
Capacity Gallons:	3000
Install Date:	01/01/1976
Date Tank Closed:	10/17/2007
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Material Code:	0003
Common Name of Substance:	#6 Fuel Oil (On-Site Consumption)

Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Pipe Model:	Not reported
Modified By:	BVCAMPBE
Last Modified:	04/14/2017

Equipment Records:

D00 - Pipe Type - No Piping
L00 - Piping Leak Detection - None
G00 - Tank Secondary Containment - None
J00 - Dispenser - None
E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None
I00 - Overfill - None
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping

507 EAST 176 STREET (Continued) **U004182956**

F00 - Pipe External Protection - None
A00 - Tank Internal Protection - None
K00 - Spill Prevention - None

J125 **VACANT LOT** **NY Spills** **S108296399**
South **507-513 E. 176TH ST.** **N/A**
< 1/8 **BRONX, NY**
0.121 mi.
637 ft. **Site 10 of 10 in cluster J**

Relative:
Lower

Actual:
49 ft.

SPILLS:

Spill Number/Closed Date:	0609916 / 2008-09-18
Facility ID:	0609916
Facility Type:	ER
DER Facility ID:	323964
Site ID:	374269
DEC Region:	2
Spill Cause:	Abandoned Drums
Spill Class:	C4
SWIS:	0301
Spill Date:	2006-07-15
Investigator:	rmpiper
Referred To:	Not reported
Reported to Dept:	2006-11-30
CID:	406
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Local Agency
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	Not reported
Remediation Phase:	0
Date Entered In Computer:	2006-11-30
Spill Record Last Update:	2008-09-18
Spiller Name:	UNKNOWN NAME
Spiller Company:	UNKNOWN
Spiller Address:	Not reported
Spiller Company:	999
Contact Name:	HARDIK PAREKH
DEC Memo:	"Sangesland called and left a voice message with Mr. Parekh asking for more details. Is the drum on private property? Is it on the sidewalk? Why were soil & groundwater tests done around the tank? Was the tank ever removed? What is the current status on the site? Lantern Group (non for profit housing development company) Development will be funded by the HPD. Mr. Parekh said they will remove th drum and deal with the contamination on site (some PAH's) once the city approves the costs. Source is a 55 gal drum. Investigation revealed PAHs and no groundwater cont. Based on spill info. this spill closed."
Remarks:	"Found a 55gal. drum above ground with staining around it. Did Phase 2 environmental subsurface investigation around the drum. Groundwater was not affected. (Investiagtion was done on June 16,2006 and the results came back on July 15,2006)"

All Materials:

Site ID:	374269

VACANT LOT (Continued) **S108296399**

Operable Unit ID:	1131947
Operable Unit:	01
Material ID:	2121661
Material Code:	0066A
Material Name:	unknown petroleum
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	Not reported
Units:	G
Recovered:	.00
Oxygenate:	Not reported

M126 **MONTEREY REALTY PARTNERS, LLC** **NY AST** **U003393948**
ENE **2018-2020-2022 MONTEREY AVENUE** **N/A**
< 1/8 **BRONX, NY 10457**
0.122 mi.
643 ft. **Site 4 of 7 in cluster M**

Relative: **Higher**

Actual: **87 ft.**

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-347930
Program Type:	PBS
UTM X:	593249.15719
UTM Y:	4522558.99227
Expiration Date:	07/10/2022
Site Type:	Apartment Building/Office Building

Affiliation Records:

Site Id:	17070
Affiliation Type:	Mail Contact
Company Name:	KINGSTON MANAGEMENT
Contact Type:	Not reported
Contact Name:	BRIAN LEFKOWITZ
Address1:	1577 56 STREET
Address2:	Not reported
City:	BROOKLYN
State:	NY
Zip Code:	11219
Country Code:	001
Phone:	(347) 766-4493
EMail:	BRIAN@KINGSTONMGMT.COM
Fax Number:	Not reported
Modified By:	MFLEONAR
Date Last Modified:	2017-10-16

Site Id:	17070
Affiliation Type:	Facility Operator
Company Name:	MONTEREY REALTY PARTNERS, LLC
Contact Type:	Not reported
Contact Name:	CORNELL PACE INC.
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported

MONTEREY REALTY PARTNERS, LLC (Continued) **U003393948**

Country Code:	001
Phone:	(914) 380-8220
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MFLEONAR
Date Last Modified:	2017-10-16

Site Id:	17070
Affiliation Type:	Emergency Contact
Company Name:	LSG MONTEREY LLC
Contact Type:	Not reported
Contact Name:	CORNELL PACE, INC.
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(914) 380-8220
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MFLEONAR
Date Last Modified:	2017-10-16

Site Id:	17070
Affiliation Type:	Facility Owner
Company Name:	LSG MONTEREY LLC
Contact Type:	MANAGING PARTNER
Contact Name:	BRIAN LEFKOWITZ
Address1:	5014 16 AVE. #394
Address2:	Not reported
City:	BROOKLYN
State:	NY
Zip Code:	11204
Country Code:	001
Phone:	(347) 766-4493
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MFLEONAR
Date Last Modified:	2017-10-16

Tank Info:

Tank Number:	001
Tank Id:	33219
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

Equipment Records:

I04 - Overfill - Product Level Gauge (A/G)
E00 - Piping Secondary Containment - None
G03 - Tank Secondary Containment - Vault (w/o access)
H00 - Tank Leak Detection - None
L09 - Piping Leak Detection - Exempt Suction Piping
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping

MONTEREY REALTY PARTNERS, LLC (Continued) **U003393948**

F00 - Pipe External Protection - None
J02 - Dispenser - Suction Dispenser
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
K00 - Spill Prevention - None

Tank Location:	Aboveground - contact with soil.... Tank bottom rests on soil, allowing no visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	01/30/1960
Capacity Gallons:	4000
Tightness Test Method:	-
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	MFLEONAR
Last Modified:	10/16/2017
Material Name:	#2 fuel oil (on-site consumption)

R127 **F.D.N.Y.-RESCUE CO #3** **NY AST** **U003395675**
SW **451 EAST 176TH STREET** **N/A**
< 1/8 **BRONX, NY 10457**
0.122 mi.
645 ft. **Site 1 of 4 in cluster R**

Relative:
Lower

Actual:
40 ft.

AST:

Region:	STATE
DEC Region:	2
Site Status:	Unregulated/Closed
Facility Id:	2-600563
Program Type:	PBS
UTM X:	592800.33380
UTM Y:	4522285.91630
Expiration Date:	N/A
Site Type:	Other

Affiliation Records:

Site Id:	22544
Affiliation Type:	Facility Owner
Company Name:	F.D.N.Y.
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	250 LIVINGSTON STREET
Address2:	Not reported
City:	BROOKLYN
State:	NY
Zip Code:	11201
Country Code:	001
Phone:	(718) 403-1580
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Site Id:	22544
Affiliation Type:	Mail Contact

F.D.N.Y.-RESCUE CO #3 (Continued) **U003395675**

Company Name:	F.D.N.Y.
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	250 LIVINGSTON STREET
Address2:	Not reported
City:	BROOKLYN
State:	NY
Zip Code:	11201
Country Code:	001
Phone:	(718) 403-1580
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Site Id:	22544
Affiliation Type:	Facility Operator
Company Name:	F.D.N.Y.-RESCUE CO #3
Contact Type:	Not reported
Contact Name:	COMPANY OFFICER
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(212) 402-0359
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Site Id:	22544
Affiliation Type:	Emergency Contact
Company Name:	F.D.N.Y.
Contact Type:	Not reported
Contact Name:	F.D.N.Y.
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 403-1580
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Tank Info:

Tank Number:	001
Tank Id:	42993
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

F.D.N.Y.-RESCUE CO #3 (Continued) **U003395675**

Equipment Records:

G00 - Tank Secondary Containment - None
J02 - Dispenser - Suction Dispenser
H00 - Tank Leak Detection - None
F00 - Pipe External Protection - None
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
D00 - Pipe Type - No Piping
I05 - Overfill - Vent Whistle
A00 - Tank Internal Protection - None

Tank Location:	Aboveground - contact with soil.... Tank bottom rests on soil, allowing no visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	Closed - Removed
Pipe Model:	Not reported
Install Date:	04/01/1974
Capacity Gallons:	2000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	07/01/1996
Register:	True
Modified By:	TRANSLAT
Last Modified:	04/14/2017
Material Name:	#2 fuel oil (on-site consumption)
Tank Number:	002
Tank Id:	64690
Material Code:	0008
Common Name of Substance:	Diesel

Equipment Records:

J02 - Dispenser - Suction Dispenser
I02 - Overfill - High Level Alarm
G01 - Tank Secondary Containment - Diking (Aboveground)
C01 - Pipe Location - Aboveground
I03 - Overfill - Automatic Shut-Off
A00 - Tank Internal Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
D01 - Pipe Type - Steel/Carbon Steel/Iron
F01 - Pipe External Protection - Painted/Asphalt Coating
H05 - Tank Leak Detection - In-Tank System (ATG)

Tank Location:	Aboveground - on saddles, legs, racks, etc.... Tank bottom is elevated above grade or tank pad, allowing visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	550
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	TRANSLAT

F.D.N.Y.-RESCUE CO #3 (Continued) **U003395675**

Last Modified: 04/14/2017
Material Name: diesel

M128 **MONTEREY GARDENS ASSOCIATES** **NY UST** **U004222817**
East **555 EAST 178TH STREET** **N/A**
< 1/8 **BRONX, NY 10457**
0.124 mi.
657 ft. **Site 5 of 7 in cluster M**

Relative:
Higher

Actual:
79 ft.

UST:
Id/Status: 2-150622 / Active
Program Type: PBS
Region: STATE
DEC Region: 2
Expiration Date: 06/18/2022
UTM X: 593212.03437
UTM Y: 4522418.85905
Site Type: Apartment Building/Office Building

Affiliation Records:
Site Id: 4612
Affiliation Type: Facility Owner
Company Name: PRC MANAGEMENT
Contact Type: VICE PRESIDENT
Contact Name: MICHAEL NOWLIN
Address1: 955 EAST 163RD STREET
Address2: Not reported
City: BRONX
State: NY
Zip Code: 10459
Country Code: 001
Phone: (718) 328-6099
EMail: Not reported
Fax Number: Not reported
Modified By: MFLEONAR
Date Last Modified: 2017-07-26

Site Id: 4612
Affiliation Type: Mail Contact
Company Name: PRC MANAGEMENT CO. LLC
Contact Type: Not reported
Contact Name: MICHAEL NOWLIN
Address1: 955 EAST 163RD STREET
Address2: Not reported
City: BRONX
State: NY
Zip Code: 10459
Country Code: 001
Phone: (718) 328-6099
EMail: MICHAELN@PRCNY.COM
Fax Number: Not reported
Modified By: MFLEONAR
Date Last Modified: 2017-10-03

Site Id: 4612
Affiliation Type: Facility Operator
Company Name: MONTEREY GARDENS ASSOCIATES
Contact Type: Not reported

MONTEREY GARDENS ASSOCIATES (Continued) **U004222817**

Contact Name:	JESUS SANTIAGO
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 299-3861
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MFLEONAR
Date Last Modified:	2017-07-26

Site Id:	4612
Affiliation Type:	Emergency Contact
Company Name:	PRC MANAGEMENT
Contact Type:	Not reported
Contact Name:	FRED SINGER
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(718) 928-2135
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MFLEONAR
Date Last Modified:	2017-07-26

Tank Info:

Tank Number:	001
Tank ID:	8741
Tank Status:	In Service
Material Name:	In Service
Capacity Gallons:	5000
Install Date:	05/01/1982
Date Tank Closed:	Not reported
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

Tightness Test Method:	21
Date Test:	07/17/2017
Next Test Date:	07/17/2018
Pipe Model:	Not reported
Modified By:	TLYE
Last Modified:	07/26/2017

Equipment Records:

J02 - Dispenser - Suction Dispenser
G00 - Tank Secondary Containment - None
H00 - Tank Leak Detection - None
L09 - Piping Leak Detection - Exempt Suction Piping

MONTEREY GARDENS ASSOCIATES (Continued) **U004222817**

K00 - Spill Prevention - None
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
I05 - Overfill - Vent Whistle
B05 - Tank External Protection - Jacketed
F00 - Pipe External Protection - None
I04 - Overfill - Product Level Gauge (A/G)
C01 - Pipe Location - Aboveground

O129 **BRONX APARTMENTS, LLC.** **NY AST** **A100168960**
NNW **4289 PARK AVENUE** **N/A**
< 1/8 **BRONX, NY 10457**
0.125 mi.
658 ft. **Site 7 of 12 in cluster O**

Relative:
Lower

Actual:
40 ft.

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-468827
Program Type:	PBS
UTM X:	592880.17318
UTM Y:	4522649.80537
Expiration Date:	08/26/2019
Site Type:	Apartment Building/Office Building

Affiliation Records:

Site Id:	20456
Affiliation Type:	Mail Contact
Company Name:	BRONX APARTMENTS, LLC.
Contact Type:	Not reported
Contact Name:	JACOB SCHWARTZ
Address1:	329 HEWES ST 2ND FL
Address2:	Not reported
City:	BROOKLYN
State:	NY
Zip Code:	11211
Country Code:	001
Phone:	(718) 599-0066
EMail:	MICHAEL@PARADISEMANAGEMTNNY.COM
Fax Number:	Not reported
Modified By:	KAKYER
Date Last Modified:	2013-06-12

Site Id:	20456
Affiliation Type:	Facility Operator
Company Name:	BRONX APARTMENTS, LLC.
Contact Type:	Not reported
Contact Name:	JACOB SCHWARTZ
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(347) 243-9998
EMail:	Not reported
Fax Number:	Not reported

BRONX APARTMENTS, LLC. (Continued) **A100168960**

Modified By:	KAKYER
Date Last Modified:	2013-06-12

Site Id:	20456
Affiliation Type:	Emergency Contact
Company Name:	BRONX APARTMENTS, LLC.
Contact Type:	Not reported
Contact Name:	JACOB SCHWARTZ
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(347) 243-9998
EMail:	Not reported
Fax Number:	Not reported
Modified By:	KAKYER
Date Last Modified:	2013-06-12

Site Id:	20456
Affiliation Type:	Facility Owner
Company Name:	BRONX APARTMENTS, LLC.
Contact Type:	OWNER
Contact Name:	ISAAC HERSHOVITZ
Address1:	329 HEWES ST 2ND FL
Address2:	Not reported
City:	BROOKLYN
State:	NY
Zip Code:	11211
Country Code:	001
Phone:	(718) 599-0066
EMail:	Not reported
Fax Number:	Not reported
Modified By:	KAKYER
Date Last Modified:	2013-06-12

Tank Info:

Tank Number:	001
Tank Id:	37156
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

Equipment Records:

I04 - Overfill - Product Level Gauge (A/G)
E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None
L09 - Piping Leak Detection - Exempt Suction Piping
G00 - Tank Secondary Containment - None
J02 - Dispenser - Suction Dispenser
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron

BRONX APARTMENTS, LLC. (Continued) **A100168960**

	K00 - Spill Prevention - None
Tank Location:	Aboveground - contact with soil.... Tank bottom rests on soil, allowing no visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	03/15/1988
Capacity Gallons:	2000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	KAKYER
Last Modified:	04/14/2017
Material Name:	#2 fuel oil (on-site consumption)

Q130 **CON EDISON MANHOLE 10122** **RCRA NonGen / NLR** **1014919104**
SSW **E WASHINGTON AVE & E 176TH ST** **NJ MANIFEST** **NYP004232583**
1/8-1/4 **BRONX, NY 10457** **NY MANIFEST**
0.129 mi.
683 ft. **Site 2 of 7 in cluster Q**

Relative: **Lower**

Actual: **46 ft.**

RCRA NonGen / NLR:

Date form received by agency:	04/25/2011
Facility name:	CON EDISON MANHOLE 10122
Facility address:	E WASHINGTON AVE & E 176TH ST BRONX, NY 10457
EPA ID:	NYP004232583
Mailing address:	IRVING PLAZA RM 828 NEW YORK, NY 10003
Contact:	GINO FRABASILE
Contact address:	Not reported Not reported
Contact country:	Not reported
Contact telephone:	914-925-6219
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

CON EDISON MANHOLE 10122 (Continued) **1014919104**

Historical Generators:
Date form received by agency: 03/26/2011
Site name: CON EDISON MANHOLE 10122
Classification: Conditionally Exempt Small Quantity Generator

Violation Status: No violations found

NJ MANIFEST:

EPA Id:	NYP004232583
Mail Address:	IRVING PLAZA RM 828
Mail City/State/Zip:	NEW YORK, NY 10003
Facility Phone:	Not reported
Emergency Phone:	Not reported
Contact:	GINO FRABASILE
Comments:	Not reported
SIC Code:	Not reported
County:	NY005
Municipal:	Not reported
Previous EPA Id:	Not reported
Gen Flag:	Not reported
Trans Flag:	Not reported
TSDF Flag:	Not reported
Name Change:	Not reported
Date Change:	Not reported

Manifest:

Manifest Number:	007658287JJK
EPA ID:	NYP004232583
Date Shipped:	3/26/2011
TSDF EPA ID:	NJD002200046
Transporter EPA ID:	NYD006982359
Transporter 2 EPA ID:	Not reported
Transporter 3 EPA ID:	Not reported
Transporter 4 EPA ID:	Not reported
Transporter 5 EPA ID:	Not reported
Transporter 6 EPA ID:	Not reported
Transporter 7 EPA ID:	Not reported
Transporter 8 EPA ID:	Not reported
Transporter 9 EPA ID:	Not reported
Transporter 10 EPA ID:	Not reported
Date Trans1 Transported Waste:	Not reported
Date Trans2 Transported Waste:	Not reported
Date Trans3 Transported Waste:	Not reported
Date Trans4 Transported Waste:	Not reported
Date Trans5 Transported Waste:	Not reported
Date Trans6 Transported Waste:	Not reported
Date Trans7 Transported Waste:	Not reported
Date Trans8 Transported Waste:	Not reported
Date Trans9 Transported Waste:	Not reported
Date Trans10 Transported Waste:	Not reported
Date TSDF Received Waste:	Not reported
TSDF EPA Facility Name:	Not reported
QTY Units:	Not reported
Transporter SEQ ID:	Not reported
Transporter-1 Date:	Not reported
Waste SEQ ID:	Not reported
Waste Type Code 2:	Not reported
Waste Type Code 3:	Not reported

CON EDISON MANHOLE 10122 (Continued) **1014919104**

Waste Type Code 4:	Not reported
Waste Type Code 5:	Not reported
Waste Type Code 6:	Not reported
Date Accepted:	Not reported
Manifest Discrepancy Type:	Not reported
Data Entry Number:	Not reported
Was Load Rejected:	NEW YORK, NY 10003
Reason Load Was Rejected:	Not reported

Waste:

Manifest Year:	Not reported
Waste Code:	D008
Hand Code:	H111
Quantity:	100.00 Pounds

NY MANIFEST:

Country:	USA
EPA ID:	NYP004232583
Facility Status:	Not reported
Location Address 1:	E WASHINGTON & N/E N 176TH ST
Code:	BP
Location Address 2:	Not reported
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	10451
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYP004232583
Mailing Name:	CONSOLIDATED EDISON
Mailing Contact:	TOM TEELING
Mailing Address 1:	4 IRVING PLACE RM 828
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	10003
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	2124603770

NY MANIFEST:

Document ID:	Not reported
Manifest Status:	Not reported
seq:	Not reported
Year:	2011
Trans1 State ID:	NYD006982359
Trans2 State ID:	Not reported
Generator Ship Date:	03/26/2011
Trans1 Recv Date:	03/26/2011
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	03/28/2011
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported

CON EDISON MANHOLE 10122 (Continued) **1014919104**

Generator EPA ID:	NYP004232583
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD002200046
TSDF ID 2:	Not reported
Manifest Tracking Number:	007658287JJK
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	Y
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H111
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	100.0
Units:	P - Pounds
Number of Containers:	1.0
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1.0
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

Q131 **NYC BD OF ED - PUBLIC SCHOOL 58 BRONX** **RCRA-SQG** **1001028706**
SSW **459 E 176TH ST & WASHINGTON AVE** **NY MANIFEST** **NYR000009381**
1/8-1/4 **BRONX, NY 10457**
0.129 mi.
683 ft. **Site 3 of 7 in cluster Q**

Relative: RCRA-SQG:
Lower

Date form received by agency:	10/21/2014
Facility name:	NYC BD OF ED - PUBLIC SCHOOL 58 BRONX
Facility address:	459 E 176TH ST & WASHINGTON AVE BRONX, NY 10457
EPA ID:	NYR000009381
Mailing address:	THOMSON AVE LONG ISLAND CITY, NY 11101
Contact:	ALEXANDER LEMPERT
Contact address:	THOMSON AVE LONG ISLAND CITY, NY 11101
Contact country:	US

Actual:
46 ft.

NYC BD OF ED - PUBLIC SCHOOL 58 BRONX (Continued) **1001028706**

Contact telephone: 718-472-8501
Contact email: ALEMPERT@NYCSCA.ORG
EPA Region: 02
Classification: Small Small Quantity Generator
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:

Owner/operator name: NYC BOARD OF EDUCATION
Owner/operator address: THOMSON AVE
LONG ISLAND CITY, NY 11101
Owner/operator country: US
Owner/operator telephone: 718-472-8501
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Municipal
Owner/Operator Type: Owner
Owner/Op start date: 01/04/1890
Owner/Op end date: Not reported

Owner/operator name: NYC BOARD OF EDUCATION
Owner/operator address: 28-11 QUEENS PLZ N
LONG ISLAND CITY, NY 11101
Owner/operator country: US
Owner/operator telephone: 718-349-5600
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Municipal
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: NYC BOARD OF EDUCATION
Owner/operator address: 28-11 QUEENS PLZ N
LONG ISLAND CITY, NY 11101
Owner/operator country: US
Owner/operator telephone: 718-349-5600
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Municipal
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: NYC BOARD OF EDUCATION
Owner/operator address: THOMSON AVE
LONG ISLAND CITY, NY 11101
Owner/operator country: US
Owner/operator telephone: 718-472-8501
Owner/operator email: Not reported
Owner/operator fax: Not reported

NYC BD OF ED - PUBLIC SCHOOL 58 BRONX (Continued) **1001028706**

Owner/operator extension: Not reported
Legal status: Municipal
Owner/Operator Type: Operator
Owner/Op start date: 01/04/1890
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

. Waste code: B004
. Waste name: PCB articles containing 50 ppm or greater of PCBs, but less than 500 ppm PCBs, excluding small capacitors. This includes oil-filled electrical equipment whose PCB concentration is unknown, except for circuit breakers, reclosers and cable.

. Waste code: B007
. Waste name: Other PCB wastes, including contaminated soil, solids, sludges, clothing, rags and dredge material.

Historical Generators:
Date form received by agency: 01/01/2007
Site name: NYC BD OF ED - PUBLIC SCHOOL 58 BRONX
Classification: Not a generator, verified

Date form received by agency: 01/01/2006
Site name: NYC BD OF ED - PUBLIC SCHOOL 58 BRONX
Classification: Not a generator, verified

Date form received by agency: 07/27/1995
Site name: NYC BD OF ED - PUBLIC SCHOOL 58 BRONX
Classification: Small Quantity Generator

. Waste code: D000
. Waste name: Not Defined

. Waste code: D008
. Waste name: LEAD

Violation Status: No violations found

NY MANIFEST:
Country: USA
EPA ID: NYR000009381

NYC BD OF ED - PUBLIC SCHOOL 58 BRONX (Continued) **1001028706**

Facility Status:	Not reported
Location Address 1:	E 176TH STREET
Code:	BP
Location Address 2:	Not reported
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	10457
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYR000009381
Mailing Name:	NYC BOARD OF EDUCATION - PS 58
Mailing Contact:	NYC BOARD OF EDUCATION - PS 58
Mailing Address 1:	28-11 QUEENS PLAZA NORTH
Mailing Address 2:	Not reported
Mailing City:	LONG ISLAND CITY
Mailing State:	NY
Mailing Zip:	11101
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	7183616094

NY MANIFEST:

Document ID:	NJA2777026
Manifest Status:	K
seq:	Not reported
Year:	1997
Trans1 State ID:	S50015
Trans2 State ID:	Not reported
Generator Ship Date:	08/15/1997
Trans1 Recv Date:	08/15/1997
Trans2 Recv Date:	/ /
TSD Site Recv Date:	08/15/1997
Part A Recv Date:	/ /
Part B Recv Date:	09/11/1997
Generator EPA ID:	NYR000009381
Trans1 EPA ID:	NJD986588630
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD002200046
TSDF ID 2:	Not reported
Manifest Tracking Number:	Not reported
Import Indicator:	Not reported
Export Indicator:	Not reported
Discr Quantity Indicator:	Not reported
Discr Type Indicator:	Not reported
Discr Residue Indicator:	Not reported
Discr Partial Reject Indicator:	Not reported
Discr Full Reject Indicator:	Not reported
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	Not reported
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported

NYC BD OF ED - PUBLIC SCHOOL 58 BRONX (Continued) **1001028706**

Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	00075
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	L Landfill.
Specific Gravity:	100

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

O132 **BRONX APARTMENTS, LLC.** **NY AST** **A100168944**
NNW **4293 PARK AVE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.130 mi.
685 ft. **Site 8 of 12 in cluster O**

Relative: **Lower**

Actual: **41 ft.**

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-363170
Program Type:	PBS
UTM X:	592884.06108
UTM Y:	4522659.08341
Expiration Date:	08/26/2019
Site Type:	Apartment Building/Office Building

Affiliation Records:

Site Id:	18399
Affiliation Type:	Mail Contact
Company Name:	BRONX APARTMENTS, LLC.
Contact Type:	Not reported
Contact Name:	JACOB
Address1:	329 HEWES ST 2ND FL
Address2:	Not reported
City:	BROOKLYN
State:	NY
Zip Code:	11211
Country Code:	001
Phone:	(718) 599-0066
EMail:	MICHAEL@PARADISEMANAGEMENTNY.COM
Fax Number:	Not reported
Modified By:	KAKYER
Date Last Modified:	2013-06-12

Site Id:	18399
Affiliation Type:	Facility Operator
Company Name:	BRONX APARTMENTS, LLC.
Contact Type:	Not reported
Contact Name:	JACOB SCHWARTZ
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported

BRONX APARTMENTS, LLC. (Continued) **A100168944**

Country Code:	001
Phone:	(347) 243-9998
EMail:	Not reported
Fax Number:	Not reported
Modified By:	KAKYER
Date Last Modified:	2013-06-12

Site Id:	18399
Affiliation Type:	Emergency Contact
Company Name:	BRONX APARTMENTS, LLC.
Contact Type:	Not reported
Contact Name:	JACOB SCHWARTZ
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(347) 243-9998
EMail:	Not reported
Fax Number:	Not reported
Modified By:	KAKYER
Date Last Modified:	2013-06-12

Site Id:	18399
Affiliation Type:	Facility Owner
Company Name:	BRONX APARTMENTS, LLC.
Contact Type:	OWNER
Contact Name:	ISAAC HERSHKOVITZ
Address1:	329 HEWES ST 2ND FL
Address2:	Not reported
City:	BROOKLYN
State:	NY
Zip Code:	11211
Country Code:	001
Phone:	(718) 599-0066
EMail:	Not reported
Fax Number:	Not reported
Modified By:	KAKYER
Date Last Modified:	2013-06-12

Tank Info:

Tank Number:	001
Tank Id:	25938
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

Equipment Records:

B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
G00 - Tank Secondary Containment - None
H00 - Tank Leak Detection - None
I00 - Overfill - None
E00 - Piping Secondary Containment - None

BRONX APARTMENTS, LLC. (Continued) **A100168944**

L00 - Piping Leak Detection - None
D00 - Pipe Type - No Piping
J00 - Dispenser - None
K00 - Spill Prevention - None
A00 - Tank Internal Protection - None

Tank Location:	Aboveground - contact with soil.... Tank bottom rests on soil, allowing no visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	03/20/1988
Capacity Gallons:	4000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	KAKYER
Last Modified:	04/14/2017
Material Name:	#2 fuel oil (on-site consumption)

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133 **2028 WASHINGTON AVENUE** **NY AST** **A100178001**
NNE **2028 WASHINGTON AVENUE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.131 mi.
694 ft.

Relative:
Higher

Actual:
83 ft.

AST:

Region:	STATE
DEC Region:	2
Site Status:	Unregulated/Closed
Facility Id:	2-605700
Program Type:	PBS
UTM X:	593053.04153
UTM Y:	4522703.27082
Expiration Date:	N/A
Site Type:	Apartment Building/Office Building

Affiliation Records:

Site Id:	27567
Affiliation Type:	Mail Contact
Company Name:	ADVANTAGE PROPERTY MANAGEMENT SERVICES LLC
Contact Type:	Not reported
Contact Name:	VITO DEFAZIO
Address1:	2844 8TH AVE
Address2:	GROUND FLOOR
City:	NEW YORK
State:	NY
Zip Code:	10039
Country Code:	001
Phone:	(646) 979-2500
EMail:	VDEFAZIO@ADVANTAGERENY.COM
Fax Number:	Not reported
Modified By:	MRBARROW
Date Last Modified:	2018-06-14

Site Id:	27567
Affiliation Type:	Facility Operator

2028 WASHINGTON AVENUE (Continued) **A100178001**

Company Name:	2028 WASHINGTON AVENUE
Contact Type:	Not reported
Contact Name:	TEDDY PINERO
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(917) 547-1516
EMail:	Not reported
Fax Number:	Not reported
Modified By:	KXTANG
Date Last Modified:	2006-04-21

Site Id:	27567
Affiliation Type:	Emergency Contact
Company Name:	EAST TREMONT HDFC
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	Not reported
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MRBARROW
Date Last Modified:	2018-06-14

Site Id:	27567
Affiliation Type:	Facility Owner
Company Name:	EAST TREMONT HDFC
Contact Type:	MANAGING AGENT
Contact Name:	LAKESHA BAKER
Address1:	477 MADISON AVE-6TH FL
Address2:	Not reported
City:	NEW YORK
State:	NY
Zip Code:	10022
Country Code:	001
Phone:	(646) 979-2500
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MRBARROW
Date Last Modified:	2018-06-14

Tank Info:

Tank Number:	001
Tank Id:	60255
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

2028 WASHINGTON AVENUE (Continued) **A100178001**

Equipment Records:

C03 - Pipe Location - Aboveground/Underground Combination
J02 - Dispenser - Suction Dispenser
B00 - Tank External Protection - None
F00 - Pipe External Protection - None
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
G03 - Tank Secondary Containment - Vault (w/o access)
H00 - Tank Leak Detection - None
I00 - Overfill - None
L09 - Piping Leak Detection - Exempt Suction Piping

Tank Location:	Aboveground - on saddles, legs, racks, etc.... Tank bottom is elevated above grade or tank pad, allowing visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	Closed - Removed
Pipe Model:	Not reported
Install Date:	01/01/1995
Capacity Gallons:	3000
Tightness Test Method:	-
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	07/29/2013
Register:	True
Modified By:	MRBARROW
Last Modified:	06/14/2018
Material Name:	#2 fuel oil (on-site consumption)

R134 **PUBLIC SCHOOL 58 - BRONX (X058)** **NY AST** **A100166655**
SW **459 EAST 176TH STREET** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.134 mi.
710 ft. **Site 2 of 4 in cluster R**

Relative: **Lower**
Actual: **40 ft.**

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-604510
Program Type:	PBS
UTM X:	592813.06237
UTM Y:	4522279.41468
Expiration Date:	05/12/2020
Site Type:	School

Affiliation Records:

Site Id:	26382
Affiliation Type:	Facility Owner
Company Name:	NYC DEPT. OF EDUCATION
Contact Type:	MANAGER, FUEL DIVISION
Contact Name:	MUNENDRA SHARMA
Address1:	44-36 VERNON BOULEVARD
Address2:	Not reported
City:	LONG ISLAND CITY
State:	NY
Zip Code:	11101
Country Code:	001
Phone:	(718) 349-5751
EMail:	Not reported

PUBLIC SCHOOL 58 - BRONX (X058) (Continued) **A100166655**

Fax Number:	Not reported
Modified By:	JAAVERSA
Date Last Modified:	2015-10-30
Site Id:	26382
Affiliation Type:	Mail Contact
Company Name:	NYC DEPT. OF EDUCATION
Contact Type:	Not reported
Contact Name:	MUNENDRA SHARMA
Address1:	FIELD OPERATIONS-FUEL DIVISION
Address2:	44-36 VERNON BOULEVARD
City:	LONG ISLAND CITY
State:	NY
Zip Code:	11101
Country Code:	001
Phone:	(718) 349-5752
EMail:	MSHARMA@SCHOOLS.NYC.GOV
Fax Number:	Not reported
Modified By:	DAFRANCI
Date Last Modified:	2017-02-03
Site Id:	26382
Affiliation Type:	Facility Operator
Company Name:	PUBLIC SCHOOL 58 - BRONX (X058)
Contact Type:	Not reported
Contact Name:	ZDRAVKO BEGONJA
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 583-0378
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NTFREEMA
Date Last Modified:	2015-05-26
Site Id:	26382
Affiliation Type:	Emergency Contact
Company Name:	NYC DEPT. OF EDUCATION
Contact Type:	Not reported
Contact Name:	KEN MAHADEO
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(646) 210-7918
EMail:	Not reported
Fax Number:	Not reported
Modified By:	DAFRANCI
Date Last Modified:	2017-01-27

Tank Info:

PUBLIC SCHOOL 58 - BRONX (X058) (Continued) **A100166655**

Tank Number: 001
Tank Id: 58039
Material Code: 0001
Common Name of Substance: #2 Fuel Oil (On-Site Consumption)

Equipment Records:
H06 - Tank Leak Detection - Impervious Barrier/Concrete Pad (A/G)
L00 - Piping Leak Detection - None
I04 - Overfill - Product Level Gauge (A/G)
E00 - Piping Secondary Containment - None
I02 - Overfill - High Level Alarm
K01 - Spill Prevention - Catch Basin
C03 - Pipe Location - Aboveground/Underground Combination
J02 - Dispenser - Suction Dispenser
A00 - Tank Internal Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
D01 - Pipe Type - Steel/Carbon Steel/Iron
F01 - Pipe External Protection - Painted/Asphalt Coating
H01 - Tank Leak Detection - Interstitial - Electronic Monitoring
G02 - Tank Secondary Containment - Vault (w/access)

Tank Location: Aboveground - on saddles, legs, racks, etc.... Tank bottom is elevated above grade or tank pad, allowing visual inspection.
Tank Type: Steel/Carbon Steel/Iron
Tank Status: In Service
Pipe Model: Not reported
Install Date: 06/01/1999
Capacity Gallons: 7500
Tightness Test Method: NN
Date Test: Not reported
Next Test Date: Not reported
Date Tank Closed: Not reported
Register: True
Modified By: NTFREEMA
Last Modified: 04/14/2017
Material Name: #2 fuel oil (on-site consumption)

Tank Number: 002
Tank Id: 58040
Material Code: 0001
Common Name of Substance: #2 Fuel Oil (On-Site Consumption)

Equipment Records:
H06 - Tank Leak Detection - Impervious Barrier/Concrete Pad (A/G)
L00 - Piping Leak Detection - None
I04 - Overfill - Product Level Gauge (A/G)
C03 - Pipe Location - Aboveground/Underground Combination
J02 - Dispenser - Suction Dispenser
A00 - Tank Internal Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
D01 - Pipe Type - Steel/Carbon Steel/Iron
F01 - Pipe External Protection - Painted/Asphalt Coating
H01 - Tank Leak Detection - Interstitial - Electronic Monitoring
E00 - Piping Secondary Containment - None
I02 - Overfill - High Level Alarm
K01 - Spill Prevention - Catch Basin

PUBLIC SCHOOL 58 - BRONX (X058) (Continued) **A100166655**

	G02 - Tank Secondary Containment - Vault (w/access)
Tank Location:	Aboveground - on saddles, legs, racks, etc.... Tank bottom is elevated above grade or tank pad, allowing visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	06/01/1999
Capacity Gallons:	7500
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	NTFREEMA
Last Modified:	04/14/2017
Material Name:	#2 fuel oil (on-site consumption)

M135 **1975-77 LA FONTAINE REALTY CORPORATION** **NY AST** **A100075666**
ESE **1975-77 LAFONTAINE AVENUE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.137 mi.
722 ft. **Site 6 of 7 in cluster M**

Relative:
Higher

Actual:
80 ft.

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-269700
Program Type:	PBS
UTM X:	593201.20897
UTM Y:	4522355.02794
Expiration Date:	05/19/2021
Site Type:	Apartment Building/Office Building

Affiliation Records:

Site Id:	11298
Affiliation Type:	Mail Contact
Company Name:	LAFONTAINE ESTATES, LLC
Contact Type:	Not reported
Contact Name:	SHIMON GREISMAN
Address1:	PO BOX 191024
Address2:	Not reported
City:	BROOKLYN
State:	NY
Zip Code:	11219
Country Code:	001
Phone:	(718) 972-5010
EMail:	OFFICE@SKYCMANAGMENT.COM
Fax Number:	Not reported
Modified By:	JAAVERSA
Date Last Modified:	2016-09-12

Site Id:	11298
Affiliation Type:	Facility Operator
Company Name:	1975-77 LA FONTAINE REALTY CORPORATION
Contact Type:	Not reported
Contact Name:	SHIMON GREISMAN
Address1:	Not reported

1975-77 LA FONTAINE REALTY CORPORATION (Continued) **A100075666**

Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 972-5010
EMail:	Not reported
Fax Number:	Not reported
Modified By:	JAAVERSA
Date Last Modified:	2016-09-12

Site Id:	11298
Affiliation Type:	Emergency Contact
Company Name:	LAFONTAINE ESTATES
Contact Type:	Not reported
Contact Name:	SHIMON GREISMAN
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(718) 972-5010
EMail:	Not reported
Fax Number:	Not reported
Modified By:	JAAVERSA
Date Last Modified:	2016-09-12

Site Id:	11298
Affiliation Type:	Facility Owner
Company Name:	LAFONTAINE ESTATES LLC
Contact Type:	MANAGING MEMBER
Contact Name:	SHIMON GEISMAN
Address1:	PO BOX 191024
Address2:	Not reported
City:	BROOKLYN
State:	NY
Zip Code:	11219
Country Code:	001
Phone:	(718) 972-5010
EMail:	Not reported
Fax Number:	Not reported
Modified By:	JAAVERSA
Date Last Modified:	2016-09-12

Tank Info:

Tank Number:	001
Tank Id:	13707
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

Equipment Records:

B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
D02 - Pipe Type - Galvanized Steel

1975-77 LA FONTAINE REALTY CORPORATION (Continued) **A100075666**

F00 - Pipe External Protection - None
I04 - Overfill - Product Level Gauge (A/G)
A00 - Tank Internal Protection - None
H00 - Tank Leak Detection - None
G00 - Tank Secondary Containment - None

Tank Location:	Aboveground - contact with soil.... Tank bottom rests on soil, allowing no visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	Closed - Removed
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	4000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	03/14/2006
Register:	True
Modified By:	NRLOMBAR
Last Modified:	04/14/2017
Material Name:	#2 fuel oil (on-site consumption)

Tank Number:	002
Tank Id:	216255
Material Code:	0002
Common Name of Substance:	#4 Fuel Oil (On-Site Consumption)

Equipment Records:

L00 - Piping Leak Detection - None
C00 - Pipe Location - No Piping
D02 - Pipe Type - Galvanized Steel
I04 - Overfill - Product Level Gauge (A/G)
F01 - Pipe External Protection - Painted/Asphalt Coating
A00 - Tank Internal Protection - None
K00 - Spill Prevention - None
B01 - Tank External Protection - Painted/Asphalt Coating
E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None
G02 - Tank Secondary Containment - Vault (w/access)
J02 - Dispenser - Suction Dispenser

Tank Location:	Aboveground - on saddles, legs, racks, etc.... Tank bottom is elevated above grade or tank pad, allowing visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	09/20/2006
Capacity Gallons:	3000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	JAAVERSA
Last Modified:	04/14/2017
Material Name:	#4 fuel oil (on-site consumption)

O136 **WEBSTER AVENUE RESIDENCES** **NY INST CONTROL** **S120706253**
NW **411 EAST 178TH STREET (A/K/A 1973 WEBSTER AVENUE)** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.137 mi.
725 ft. **Site 9 of 12 in cluster O**

Relative:
Lower

Actual:
42 ft.

INST CONTROL:

Site Code:	499347
Control Name:	Site Management Plan
HW Code:	C203075
Control Code:	32
Control Type:	INST
Dt record added:	11/30/2016
Dt rec updated:	05/29/2018
Updated By:	JCGRATHW
Site Code:	499347
Site Description:	Location: The 1.4 acre site is located in an urban area at 4275 Park Avenue and 411 East 178th Street (a/k/a 1973 Webster Avenue) in the Tremont section in Bronx. The site is bounded by a warehouse to the north, commercial and residential properties to the south and to the west, and MTA Metro North railway lines to the east. Site Features: The site is currently improved with two unoccupied steel framed masonry block structures. There are currently two tax lots (lots 3 and 55) that comprise the site. Current Zoning and Land Use: The site is being developed and is zoned C4-5X (Residential/ Commercial). Past Use of the Site: From 1901 through 1915, a number of residences, retail stores, patent office, paint shop, wagon house and stable were located on-site. The site was the location of a service station and parts department, Studebaker Corporation of America, Park Avenue Auto Body Company Inc. and G Auto Bodies from at least 1927 to at least 1940. Lots 6, 7, 8 and 75 were improved with two-story structures until 1981, when they were demolished. Site Geology and Hydrogeology: Subsurface soil at the site consists of historic fill, which is primarily comprised of brick, concrete, wood and other debris in a brown silty-sand matrix. The historic fill layer extends to a depth of 5 to 8 feet below grade. Native soil consisting of brown sand is present below the historic fill layer. Bedrock is reportedly 50 - 55 feet below grade. Groundwater exists at a depth of approximately 15 to 19 feet below grade and flows in a southeast direction. Surface topography in the general area of the site possesses moderate relief with general slope to the south-southeast.
Env Problem:	Remediation at the site is complete. Prior to remediation, the primary contaminants of concern were benzo(a)anthracene, benzo(a)pyrene and lead in soil. Groundwater contamination is not an issue at the site. Remedial actions have successfully achieved soil cleanup objectives specified in the Decision Document and a soil cover system exists throughout the site. Residual contamination in the soil is being managed under a Site Management Plan.
Health Problem:	Remedial actions are complete and measures are in place to control the potential for coming in contact with residual contamination remaining at the site.
Dump:	False
Structure:	False
Lagoon:	False
Landfill:	False
Pond:	False
Disp Start:	Not reported
Disp Term:	Not reported
Lat/Long:	Not reported

WEBSTER AVENUE RESIDENCES (Continued) **S120706253**

Dell: Not reported
Record Add: 2014-09-02 16:01:00
Record Upd: 2015-04-30 14:22:00
Updated By: JCGRATHW
Own Op: Applicant/Requestor
Sub Type: P03
Owner Name: David Beer
Owner Company: Webster Avenue Housing Development Fund Corporation
Owner Address: 505 Eighth Avenue, 5th Floor
Owner Addr2: c/o Breaking Ground
Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America
Own Op: Owner
Sub Type: P03
Owner Name: David Beer
Owner Company: Webster Avenue Housing Development Fund Corporation
Owner Address: 505 Eighth Avenue, 5th Floor
Owner Addr2: Not reported
Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America
Own Op: Document Repository
Sub Type: NNN
Owner Name: Sandra C. Pugh
Owner Company: Tremont Branch - New York Public Library
Owner Address: 1866 Washington Avenue
Owner Addr2: Not reported
Owner City,St,Zip: Bronx, NY 10457
Owner Country: United States of America
Own Op: Applicant/Requestor
Sub Type: P03
Owner Name: David Beer
Owner Company: Webster Avenue Supportive LLC
Owner Address: 505 Eighth Avenue, 5th Floor
Owner Addr2: c/o Breaking Ground
Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America
Own Op: Owner
Sub Type: P03
Owner Name: David Beer
Owner Company: Webster Avenue Supportive Housing Development Fund Corporati
Owner Address: 505 Eighth Avenue, 5th Floor
Owner Addr2: Not reported
Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America
Own Op: Owner
Sub Type: P03
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Owner Address: 505 Eighth Avenue, 5th Floor
Owner Addr2: Not reported
Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America
Own Op: Applicant/Requestor
Sub Type: P03
Owner Name: David Beer
Owner Company: Webster Avenue Affordable LLC
Owner Address: 505 Eighth Avenue, 5th Floor

WEBSTER AVENUE RESIDENCES (Continued) **S120706253**

Owner Addr2: c/o Breaking Ground
Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America
Own Op: Owner
Sub Type: P03
Owner Name: David Beer
Owner Company: Webster Avenue Affordable LLC
Owner Address: 505 Eighth Avenue, 5th Floor
Owner Addr2: Not reported
Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America
Own Op: Applicant/Requestor
Sub Type: P03
Owner Name: David Beer
Owner Company: Webster Avenue Supportive Housing Development Fund Corp.
Owner Address: 505 Eighth Avenue. 5th Floor
Owner Addr2: Not reported
Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America
HW Code: C203075
Waste Type: tetrachloroethene (PCE)
Waste Quantity: UNKNOWN
Waste Code: Not reported
HW Code: C203075
Waste Type: BENZO(A)PYRENE
Waste Quantity: UNKNOWN
Waste Code: Not reported
HW Code: C203075
Waste Type: 1,1,1-TRICHLOROETHANE
Waste Quantity: UNKNOWN
Waste Code: Not reported
HW Code: C203075
Waste Type: CHROMIUM
Waste Quantity: UNKNOWN
Waste Code: Not reported
HW Code: C203075
Waste Type: TRICHLOROETHENE (TCE)
Waste Quantity: UNKNOWN
Waste Code: Not reported
HW Code: C203075
Waste Type: BENZO(A)ANTHRACENE
Waste Quantity: UNKNOWN
Waste Code: Not reported
HW Code: C203075
Waste Type: LEAD
Waste Quantity: UNKNOWN
Waste Code: Not reported
HW Code: C203075
Waste Type: TETRACHLOROETHYLENE (PCE)
Waste Quantity: UNKNOWN
Waste Code: Not reported
Crossref ID: 1504063
Cross Ref Type Code: 01
Cross Ref Type: Spill No.
Record Added Date: 2015-07-29 15:22:00
Record Updated: 2015-07-29 15:22:00
Updated By: JCGRATHW

WEBSTER AVENUE RESIDENCES (Continued) **S120706253**

Crossref ID: 2-612433
Cross Ref Type Code: 18
Cross Ref Type: PBS No.
Record Added Date: 2015-07-17 09:29:00
Record Updated: 2015-07-17 09:29:00
Updated By: JAAVERSA
Crossref ID: C203075-01-15
Cross Ref Type Code: 23
Cross Ref Type: Agreement/Consent Order Number
Record Added Date: 2016-03-25 15:31:00
Record Updated: 2016-03-25 15:31:00
Updated By: JCGRATHW
Crossref ID: 2016000386141
Cross Ref Type Code: 25
Cross Ref Type: County Recording Identifier
Record Added Date: 2016-11-08 11:43:00
Record Updated: 2016-11-08 11:43:00
Updated By: JCGRATHW
Crossref ID: 2016000386140
Cross Ref Type Code: 25
Cross Ref Type: County Recording Identifier
Record Added Date: 2016-11-02 11:14:00
Record Updated: 2016-11-02 11:14:00
Updated By: JCGRATHW
Crossref ID: 01/27/2015
Cross Ref Type Code: 26
Cross Ref Type: Agreement/Consent Order Date
Record Added Date: 2016-03-25 15:32:00
Record Updated: 2016-03-25 15:32:00
Updated By: JCGRATHW

Site Code: 499347
Control Name: IC/EC Plan
HW Code: C203075
Control Code: 34
Control Type: INST
Dt record added: 11/30/2016
Dt rec updated: 05/29/2018
Updated By: JCGRATHW
Site Code: 499347
Site Description: Location: The 1.4 acre site is located in an urban area at 4275 Park Avenue and 411 East 178th Street (a/k/a 1973 Webster Avenue) in the Tremont section in Bronx. The site is bounded by a warehouse to the north, commercial and residential properties to the south and to the west, and MTA Metro North railway lines to the east. Site Features: The site is currently improved with two unoccupied steel framed masonry block structures. There are currently two tax lots (lots 3 and 55) that comprise the site. Current Zoning and Land Use: The site is being developed and is zoned C4-5X (Residential/ Commercial). Past Use of the Site: From 1901 through 1915, a number of residences, retail stores, patent office, paint shop, wagon house and stable were located on-site. The site was the location of a service station and parts department, Studebaker Corporation of America, Park Avenue Auto Body Company Inc. and G Auto Bodies from at least 1927 to at least 1940. Lots 6, 7, 8 and 75 were improved with two-story structures until 1981, when they were demolished. Site Geology and Hydrogeology: Subsurface soil at the site consists of historic fill, which is

WEBSTER AVENUE RESIDENCES (Continued) **S120706253**

primarily comprised of brick, concrete, wood and other debris in a brown silty-sand matrix. The historic fill layer extends to a depth of 5 to 8 feet below grade. Native soil consisting of brown sand is present below the historic fill layer. Bedrock is reportedly 50 - 55 feet below grade. Groundwater exists at a depth of approximately 15 to 19 feet below grade and flows in a southeast direction. Surface topography in the general area of the site possesses moderate relief with general slope to the south-southeast.

Env Problem: Remediation at the site is complete. Prior to remediation, the primary contaminants of concern were benzo(a)anthracene, benzo(a)pyrene and lead in soil. Groundwater contamination is not an issue at the site. Remedial actions have successfully achieved soil cleanup objectives specified in the Decision Document and a soil cover system exists throughout the site. Residual contamination in the soil is being managed under a Site Management Plan.

Health Problem: Remedial actions are complete and measures are in place to control the potential for coming in contact with residual contamination remaining at the site.

Dump: False
Structure: False
Lagoon: False
Landfill: False
Pond: False
Disp Start: Not reported
Disp Term: Not reported
Lat/Long: Not reported
Dell: Not reported
Record Add: 2014-09-02 16:01:00
Record Upd: 2015-04-30 14:22:00
Updated By: JCGRATHW
Own Op: Applicant/Requestor
Sub Type: P03
Owner Name: David Beer
Owner Company: Webster Avenue Housing Development Fund Corporation
Owner Address: 505 Eighth Avenue, 5th Floor
Owner Addr2: c/o Breaking Ground
Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America
Own Op: Owner
Sub Type: P03
Owner Name: David Beer
Owner Company: Webster Avenue Housing Development Fund Corporation
Owner Address: 505 Eighth Avenue, 5th Floor
Owner Addr2: Not reported
Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America
Own Op: Document Repository
Sub Type: NNN
Owner Name: Sandra C. Pugh
Owner Company: Tremont Branch - New York Public Library
Owner Address: 1866 Washington Avenue
Owner Addr2: Not reported
Owner City,St,Zip: Bronx, NY 10457
Owner Country: United States of America
Own Op: Applicant/Requestor
Sub Type: P03
Owner Name: David Beer

WEBSTER AVENUE RESIDENCES (Continued) **S120706253**

Owner Company: Webster Avenue Supportive LLC
Owner Address: 505 Eighth Avenue, 5th Floor
Owner Addr2: c/o Breaking Ground
Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America
Own Op: Owner
Sub Type: P03
Owner Name: David Beer
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Owner Country: United States of America
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Owner Country: United States of America
Own Op: Applicant/Requestor
Sub Type: P03
Owner Name: David Beer
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Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America
Own Op: Owner
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Owner Country: United States of America
Own Op: Applicant/Requestor
Sub Type: P03
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Owner Company: Webster Avenue Supportive Housing Development Fund Corp.
Owner Address: 505 Eighth Avenue. 5th Floor
Owner Addr2: Not reported
Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America
HW Code: C203075
Waste Type: tetrachloroethene (PCE)
Waste Quantity: UNKNOWN
Waste Code: Not reported
HW Code: C203075
Waste Type: BENZO(A)PYRENE
Waste Quantity: UNKNOWN
Waste Code: Not reported
HW Code: C203075
Waste Type: 1,1,1-TRICHLOROETHANE
Waste Quantity: UNKNOWN
Waste Code: Not reported

WEBSTER AVENUE RESIDENCES (Continued) **S120706253**

HW Code: C203075
Waste Type: CHROMIUM
Waste Quantity: UNKNOWN
Waste Code: Not reported
HW Code: C203075
Waste Type: TRICHLOROETHENE (TCE)
Waste Quantity: UNKNOWN
Waste Code: Not reported
HW Code: C203075
Waste Type: BENZO(A)ANTHRACENE
Waste Quantity: UNKNOWN
Waste Code: Not reported
HW Code: C203075
Waste Type: LEAD
Waste Quantity: UNKNOWN
Waste Code: Not reported
HW Code: C203075
Waste Type: TETRACHLOROETHYLENE (PCE)
Waste Quantity: UNKNOWN
Waste Code: Not reported
Crossref ID: 1504063
Cross Ref Type Code: 01
Cross Ref Type: Spill No.
Record Added Date: 2015-07-29 15:22:00
Record Updated: 2015-07-29 15:22:00
Updated By: JCGRATHW
Crossref ID: 2-612433
Cross Ref Type Code: 18
Cross Ref Type: PBS No.
Record Added Date: 2015-07-17 09:29:00
Record Updated: 2015-07-17 09:29:00
Updated By: JAAVERSA
Crossref ID: C203075-01-15
Cross Ref Type Code: 23
Cross Ref Type: Agreement/Consent Order Number
Record Added Date: 2016-03-25 15:31:00
Record Updated: 2016-03-25 15:31:00
Updated By: JCGRATHW
Crossref ID: 2016000386141
Cross Ref Type Code: 25
Cross Ref Type: County Recording Identifier
Record Added Date: 2016-11-08 11:43:00
Record Updated: 2016-11-08 11:43:00
Updated By: JCGRATHW
Crossref ID: 2016000386140
Cross Ref Type Code: 25
Cross Ref Type: County Recording Identifier
Record Added Date: 2016-11-02 11:14:00
Record Updated: 2016-11-02 11:14:00
Updated By: JCGRATHW
Crossref ID: 01/27/2015
Cross Ref Type Code: 26
Cross Ref Type: Agreement/Consent Order Date
Record Added Date: 2016-03-25 15:32:00
Record Updated: 2016-03-25 15:32:00
Updated By: JCGRATHW

WEBSTER AVENUE RESIDENCES (Continued) **S120706253**

Site Code:	499347
Control Name:	Environmental Easement
HW Code:	C203075
Control Code:	J
Control Type:	INST
Dt record added:	11/30/2016
Dt rec updated:	05/29/2018
Updated By:	JCGRATHW
Site Code:	499347
Site Description:	Location: The 1.4 acre site is located in an urban area at 4275 Park Avenue and 411 East 178th Street (a/k/a 1973 Webster Avenue) in the Tremont section in Bronx. The site is bounded by a warehouse to the north, commercial and residential properties to the south and to the west, and MTA Metro North railway lines to the east. Site Features: The site is currently improved with two unoccupied steel framed masonry block structures. There are currently two tax lots (lots 3 and 55) that comprise the site. Current Zoning and Land Use: The site is being developed and is zoned C4-5X (Residential/ Commercial). Past Use of the Site: From 1901 through 1915, a number of residences, retail stores, patent office, paint shop, wagon house and stable were located on-site. The site was the location of a service station and parts department, Studebaker Corporation of America, Park Avenue Auto Body Company Inc. and G Auto Bodies from at least 1927 to at least 1940. Lots 6, 7, 8 and 75 were improved with two-story structures until 1981, when they were demolished. Site Geology and Hydrogeology: Subsurface soil at the site consists of historic fill, which is primarily comprised of brick, concrete, wood and other debris in a brown silty-sand matrix. The historic fill layer extends to a depth of 5 to 8 feet below grade. Native soil consisting of brown sand is present below the historic fill layer. Bedrock is reportedly 50 - 55 feet below grade. Groundwater exists at a depth of approximately 15 to 19 feet below grade and flows in a southeast direction. Surface topography in the general area of the site possesses moderate relief with general slope to the south-southeast.
Env Problem:	Remediation at the site is complete. Prior to remediation, the primary contaminants of concern were benzo(a)anthracene, benzo(a)pyrene and lead in soil. Groundwater contamination is not an issue at the site. Remedial actions have successfully achieved soil cleanup objectives specified in the Decision Document and a soil cover system exists throughout the site. Residual contamination in the soil is being managed under a Site Management Plan.
Health Problem:	Remedial actions are complete and measures are in place to control the potential for coming in contact with residual contamination remaining at the site.
Dump:	False
Structure:	False
Lagoon:	False
Landfill:	False
Pond:	False
Disp Start:	Not reported
Disp Term:	Not reported
Lat/Long:	Not reported
Dell:	Not reported
Record Add:	2014-09-02 16:01:00
Record Upd:	2015-04-30 14:22:00
Updated By:	JCGRATHW
Own Op:	Applicant/Requestor

WEBSTER AVENUE RESIDENCES (Continued) **S120706253**

Sub Type: P03
Owner Name: David Beer
Owner Company: Webster Avenue Housing Development Fund Corporation
Owner Address: 505 Eighth Avenue, 5th Floor
Owner Addr2: c/o Breaking Ground
Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America
Own Op: Owner
Sub Type: P03
Owner Name: David Beer
Owner Company: Webster Avenue Housing Development Fund Corporation
Owner Address: 505 Eighth Avenue, 5th Floor
Owner Addr2: Not reported
Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America
Own Op: Document Repository
Sub Type: NNN
Owner Name: Sandra C. Pugh
Owner Company: Tremont Branch - New York Public Library
Owner Address: 1866 Washington Avenue
Owner Addr2: Not reported
Owner City,St,Zip: Bronx, NY 10457
Owner Country: United States of America
Own Op: Applicant/Requestor
Sub Type: P03
Owner Name: David Beer
Owner Company: Webster Avenue Supportive LLC
Owner Address: 505 Eighth Avenue, 5th Floor
Owner Addr2: c/o Breaking Ground
Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America
Own Op: Owner
Sub Type: P03
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Owner Country: United States of America
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Sub Type: P03
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Owner Addr2: Not reported
Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America
Own Op: Applicant/Requestor
Sub Type: P03
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Owner Address: 505 Eighth Avenue, 5th Floor
Owner Addr2: c/o Breaking Ground
Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America
Own Op: Owner
Sub Type: P03

WEBSTER AVENUE RESIDENCES (Continued) **S120706253**

Owner Name: David Beer
Owner Company: Webster Avenue Affordable LLC
Owner Address: 505 Eighth Avenue, 5th Floor
Owner Addr2: Not reported
Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America
Own Op: Applicant/Requestor
Sub Type: P03
Owner Name: David Beer
Owner Company: Webster Avenue Supportive Housing Development Fund Corp.
Owner Address: 505 Eighth Avenue. 5th Floor
Owner Addr2: Not reported
Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America
HW Code: C203075
Waste Type: tetrachloroethene (PCE)
Waste Quantity: UNKNOWN
Waste Code: Not reported
HW Code: C203075
Waste Type: BENZO(A)PYRENE
Waste Quantity: UNKNOWN
Waste Code: Not reported
HW Code: C203075
Waste Type: 1,1,1-TRICHLOROETHANE
Waste Quantity: UNKNOWN
Waste Code: Not reported
HW Code: C203075
Waste Type: CHROMIUM
Waste Quantity: UNKNOWN
Waste Code: Not reported
HW Code: C203075
Waste Type: TRICHLOROETHENE (TCE)
Waste Quantity: UNKNOWN
Waste Code: Not reported
HW Code: C203075
Waste Type: BENZO(A)ANTHRACENE
Waste Quantity: UNKNOWN
Waste Code: Not reported
HW Code: C203075
Waste Type: LEAD
Waste Quantity: UNKNOWN
Waste Code: Not reported
HW Code: C203075
Waste Type: TETRACHLOROETHYLENE (PCE)
Waste Quantity: UNKNOWN
Waste Code: Not reported
Crossref ID: 1504063
Cross Ref Type Code: 01
Cross Ref Type: Spill No.
Record Added Date: 2015-07-29 15:22:00
Record Updated: 2015-07-29 15:22:00
Updated By: JCGRATHW
Crossref ID: 2-612433
Cross Ref Type Code: 18
Cross Ref Type: PBS No.
Record Added Date: 2015-07-17 09:29:00
Record Updated: 2015-07-17 09:29:00

WEBSTER AVENUE RESIDENCES (Continued) **S120706253**

Updated By: JAAVERSA
Crossref ID: C203075-01-15
Cross Ref Type Code: 23
Cross Ref Type: Agreement/Consent Order Number
Record Added Date: 2016-03-25 15:31:00
Record Updated: 2016-03-25 15:31:00
Updated By: JCGRATHW
Crossref ID: 2016000386141
Cross Ref Type Code: 25
Cross Ref Type: County Recording Identifier
Record Added Date: 2016-11-08 11:43:00
Record Updated: 2016-11-08 11:43:00
Updated By: JCGRATHW
Crossref ID: 2016000386140
Cross Ref Type Code: 25
Cross Ref Type: County Recording Identifier
Record Added Date: 2016-11-02 11:14:00
Record Updated: 2016-11-02 11:14:00
Updated By: JCGRATHW
Crossref ID: 01/27/2015
Cross Ref Type Code: 26
Cross Ref Type: Agreement/Consent Order Date
Record Added Date: 2016-03-25 15:32:00
Record Updated: 2016-03-25 15:32:00
Updated By: JCGRATHW

Site Code: 499347
Control Name: Soil Management Plan
HW Code: C203075
Control Code: 14
Control Type: INST
Dt record added: 11/30/2016
Dt rec updated: 05/29/2018
Updated By: JCGRATHW
Site Code: 499347
Site Description: Location: The 1.4 acre site is located in an urban area at 4275 Park Avenue and 411 East 178th Street (a/k/a 1973 Webster Avenue) in the Tremont section in Bronx. The site is bounded by a warehouse to the north, commercial and residential properties to the south and to the west, and MTA Metro North railway lines to the east. Site Features: The site is currently improved with two unoccupied steel framed masonry block structures. There are currently two tax lots (lots 3 and 55) that comprise the site. Current Zoning and Land Use: The site is being developed and is zoned C4-5X (Residential/ Commercial). Past Use of the Site: From 1901 through 1915, a number of residences, retail stores, patent office, paint shop, wagon house and stable were located on-site. The site was the location of a service station and parts department, Studebaker Corporation of America, Park Avenue Auto Body Company Inc. and G Auto Bodies from at least 1927 to at least 1940. Lots 6, 7, 8 and 75 were improved with two-story structures until 1981, when they were demolished. Site Geology and Hydrogeology: Subsurface soil at the site consists of historic fill, which is primarily comprised of brick, concrete, wood and other debris in a brown silty-sand matrix. The historic fill layer extends to a depth of 5 to 8 feet below grade. Native soil consisting of brown sand is present below the historic fill layer. Bedrock is reportedly 50 - 55 feet below grade. Groundwater exists at a depth of approximately 15

WEBSTER AVENUE RESIDENCES (Continued) **S120706253**

to 19 feet below grade and flows in a southeast direction. Surface topography in the general area of the site possesses moderate relief with general slope to the south-southeast.

Env Problem: Remediation at the site is complete. Prior to remediation, the primary contaminants of concern were benzo(a)anthracene, benzo(a)pyrene and lead in soil. Groundwater contamination is not an issue at the site. Remedial actions have successfully achieved soil cleanup objectives specified in the Decision Document and a soil cover system exists throughout the site. Residual contamination in the soil is being managed under a Site Management Plan.

Health Problem: Remedial actions are complete and measures are in place to control the potential for coming in contact with residual contamination remaining at the site.

Dump: False
Structure: False
Lagoon: False
Landfill: False
Pond: False
Disp Start: Not reported
Disp Term: Not reported
Lat/Long: Not reported
Dell: Not reported
Record Add: 2014-09-02 16:01:00
Record Upd: 2015-04-30 14:22:00
Updated By: JCGRATHW
Own Op: Applicant/Requestor
Sub Type: P03
Owner Name: David Beer
Owner Company: Webster Avenue Housing Development Fund Corporation
Owner Address: 505 Eighth Avenue, 5th Floor
Owner Addr2: c/o Breaking Ground
Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America
Own Op: Owner
Sub Type: P03
Owner Name: David Beer
Owner Company: Webster Avenue Housing Development Fund Corporation
Owner Address: 505 Eighth Avenue, 5th Floor
Owner Addr2: Not reported
Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America
Own Op: Document Repository
Sub Type: NNN
Owner Name: Sandra C. Pugh
Owner Company: Tremont Branch - New York Public Library
Owner Address: 1866 Washington Avenue
Owner Addr2: Not reported
Owner City,St,Zip: Bronx, NY 10457
Owner Country: United States of America
Own Op: Applicant/Requestor
Sub Type: P03
Owner Name: David Beer
Owner Company: Webster Avenue Supportive LLC
Owner Address: 505 Eighth Avenue, 5th Floor
Owner Addr2: c/o Breaking Ground
Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America

WEBSTER AVENUE RESIDENCES (Continued) **S120706253**

Own Op: Owner
Sub Type: P03
Owner Name: David Beer
Owner Company: Webster Avenue Supportive Housing Development Fund Corporati
Owner Address: 505 Eighth Avenue, 5th Floor
Owner Addr2: Not reported
Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America
Own Op: Owner
Sub Type: P03
Owner Name: David Beer
Owner Company: Webster Avenue Supportive LLC
Owner Address: 505 Eighth Avenue, 5th Floor
Owner Addr2: Not reported
Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America
Own Op: Applicant/Requestor
Sub Type: P03
Owner Name: David Beer
Owner Company: Webster Avenue Affordable LLC
Owner Address: 505 Eighth Avenue, 5th Floor
Owner Addr2: c/o Breaking Ground
Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America
Own Op: Owner
Sub Type: P03
Owner Name: David Beer
Owner Company: Webster Avenue Affordable LLC
Owner Address: 505 Eighth Avenue, 5th Floor
Owner Addr2: Not reported
Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America
Own Op: Applicant/Requestor
Sub Type: P03
Owner Name: David Beer
Owner Company: Webster Avenue Supportive Housing Development Fund Corp.
Owner Address: 505 Eighth Avenue. 5th Floor
Owner Addr2: Not reported
Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America
HW Code: C203075
Waste Type: tetrachloroethene (PCE)
Waste Quantity: UNKNOWN
Waste Code: Not reported
HW Code: C203075
Waste Type: BENZO(A)PYRENE
Waste Quantity: UNKNOWN
Waste Code: Not reported
HW Code: C203075
Waste Type: 1,1,1-TRICHLOROETHANE
Waste Quantity: UNKNOWN
Waste Code: Not reported
HW Code: C203075
Waste Type: CHROMIUM
Waste Quantity: UNKNOWN
Waste Code: Not reported
HW Code: C203075

WEBSTER AVENUE RESIDENCES (Continued) **S120706253**

Waste Type: TRICHLOROETHENE (TCE)
Waste Quantity: UNKNOWN
Waste Code: Not reported
HW Code: C203075
Waste Type: BENZO(A)ANTHRACENE
Waste Quantity: UNKNOWN
Waste Code: Not reported
HW Code: C203075
Waste Type: LEAD
Waste Quantity: UNKNOWN
Waste Code: Not reported
HW Code: C203075
Waste Type: TETRACHLOROETHYLENE (PCE)
Waste Quantity: UNKNOWN
Waste Code: Not reported
Crossref ID: 1504063
Cross Ref Type Code: 01
Cross Ref Type: Spill No.
Record Added Date: 2015-07-29 15:22:00
Record Updated: 2015-07-29 15:22:00
Updated By: JCGRATHW
Crossref ID: 2-612433
Cross Ref Type Code: 18
Cross Ref Type: PBS No.
Record Added Date: 2015-07-17 09:29:00
Record Updated: 2015-07-17 09:29:00
Updated By: JAAVERSA
Crossref ID: C203075-01-15
Cross Ref Type Code: 23
Cross Ref Type: Agreement/Consent Order Number
Record Added Date: 2016-03-25 15:31:00
Record Updated: 2016-03-25 15:31:00
Updated By: JCGRATHW
Crossref ID: 2016000386141
Cross Ref Type Code: 25
Cross Ref Type: County Recording Identifier
Record Added Date: 2016-11-08 11:43:00
Record Updated: 2016-11-08 11:43:00
Updated By: JCGRATHW
Crossref ID: 2016000386140
Cross Ref Type Code: 25
Cross Ref Type: County Recording Identifier
Record Added Date: 2016-11-02 11:14:00
Record Updated: 2016-11-02 11:14:00
Updated By: JCGRATHW
Crossref ID: 01/27/2015
Cross Ref Type Code: 26
Cross Ref Type: Agreement/Consent Order Date
Record Added Date: 2016-03-25 15:32:00
Record Updated: 2016-03-25 15:32:00
Updated By: JCGRATHW

Site Code: 499347
Control Name: O&M Plan
HW Code: C203075
Control Code: 33
Control Type: INST

WEBSTER AVENUE RESIDENCES (Continued) **S120706253**

Dt record added: 11/30/2016
Dt rec updated: 05/29/2018
Updated By: JCGRATHW
Site Code: 499347
Site Description: Location: The 1.4 acre site is located in an urban area at 4275 Park Avenue and 411 East 178th Street (a/k/a 1973 Webster Avenue) in the Tremont section in Bronx. The site is bounded by a warehouse to the north, commercial and residential properties to the south and to the west, and MTA Metro North railway lines to the east. Site Features: The site is currently improved with two unoccupied steel framed masonry block structures. There are currently two tax lots (lots 3 and 55) that comprise the site. Current Zoning and Land Use: The site is being developed and is zoned C4-5X (Residential/ Commercial). Past Use of the Site: From 1901 through 1915, a number of residences, retail stores, patent office, paint shop, wagon house and stable were located on-site. The site was the location of a service station and parts department, Studebaker Corporation of America, Park Avenue Auto Body Company Inc. and G Auto Bodies from at least 1927 to at least 1940. Lots 6, 7, 8 and 75 were improved with two-story structures until 1981, when they were demolished. Site Geology and Hydrogeology: Subsurface soil at the site consists of historic fill, which is primarily comprised of brick, concrete, wood and other debris in a brown silty-sand matrix. The historic fill layer extends to a depth of 5 to 8 feet below grade. Native soil consisting of brown sand is present below the historic fill layer. Bedrock is reportedly 50 - 55 feet below grade. Groundwater exists at a depth of approximately 15 to 19 feet below grade and flows in a southeast direction. Surface topography in the general area of the site possesses moderate relief with general slope to the south-southeast.
Env Problem: Remediation at the site is complete. Prior to remediation, the primary contaminants of concern were benzo(a)anthracene, benzo(a)pyrene and lead in soil. Groundwater contamination is not an issue at the site. Remedial actions have successfully achieved soil cleanup objectives specified in the Decision Document and a soil cover system exists throughout the site. Residual contamination in the soil is being managed under a Site Management Plan.
Health Problem: Remedial actions are complete and measures are in place to control the potential for coming in contact with residual contamination remaining at the site.
Dump: False
Structure: False
Lagoon: False
Landfill: False
Pond: False
Disp Start: Not reported
Disp Term: Not reported
Lat/Long: Not reported
Dell: Not reported
Record Add: 2014-09-02 16:01:00
Record Upd: 2015-04-30 14:22:00
Updated By: JCGRATHW
Own Op: Applicant/Requestor
Sub Type: P03
Owner Name: David Beer
Owner Company: Webster Avenue Housing Development Fund Corporation
Owner Address: 505 Eighth Avenue, 5th Floor
Owner Addr2: c/o Breaking Ground

WEBSTER AVENUE RESIDENCES (Continued) **S120706253**

Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America
Own Op: Owner
Sub Type: P03
Owner Name: David Beer
Owner Company: Webster Avenue Housing Development Fund Corporation
Owner Address: 505 Eighth Avenue, 5th Floor
Owner Addr2: Not reported
Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America
Own Op: Document Repository
Sub Type: NNN
Owner Name: Sandra C. Pugh
Owner Company: Tremont Branch - New York Public Library
Owner Address: 1866 Washington Avenue
Owner Addr2: Not reported
Owner City,St,Zip: Bronx, NY 10457
Owner Country: United States of America
Own Op: Applicant/Requestor
Sub Type: P03
Owner Name: David Beer
Owner Company: Webster Avenue Supportive LLC
Owner Address: 505 Eighth Avenue, 5th Floor
Owner Addr2: c/o Breaking Ground
Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America
Own Op: Owner
Sub Type: P03
Owner Name: David Beer
Owner Company: Webster Avenue Supportive Housing Development Fund Corporati
Owner Address: 505 Eighth Avenue, 5th Floor
Owner Addr2: Not reported
Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America
Own Op: Owner
Sub Type: P03
Owner Name: David Beer
Owner Company: Webster Avenue Supportive LLC
Owner Address: 505 Eighth Avenue, 5th Floor
Owner Addr2: Not reported
Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America
Own Op: Applicant/Requestor
Sub Type: P03
Owner Name: David Beer
Owner Company: Webster Avenue Affordable LLC
Owner Address: 505 Eighth Avenue, 5th Floor
Owner Addr2: c/o Breaking Ground
Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America
Own Op: Owner
Sub Type: P03
Owner Name: David Beer
Owner Company: Webster Avenue Affordable LLC
Owner Address: 505 Eighth Avenue, 5th Floor
Owner Addr2: Not reported
Owner City,St,Zip: New York, NY 10018

WEBSTER AVENUE RESIDENCES (Continued) **S120706253**

Owner Country: United States of America
Own Op: Applicant/Requestor
Sub Type: P03
Owner Name: David Beer
Owner Company: Webster Avenue Supportive Housing Development Fund Corp.
Owner Address: 505 Eighth Avenue. 5th Floor
Owner Addr2: Not reported
Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America
HW Code: C203075
Waste Type: tetrachloroethene (PCE)
Waste Quantity: UNKNOWN
Waste Code: Not reported
HW Code: C203075
Waste Type: BENZO(A)PYRENE
Waste Quantity: UNKNOWN
Waste Code: Not reported
HW Code: C203075
Waste Type: 1,1,1-TRICHLOROETHANE
Waste Quantity: UNKNOWN
Waste Code: Not reported
HW Code: C203075
Waste Type: CHROMIUM
Waste Quantity: UNKNOWN
Waste Code: Not reported
HW Code: C203075
Waste Type: TRICHLOROETHENE (TCE)
Waste Quantity: UNKNOWN
Waste Code: Not reported
HW Code: C203075
Waste Type: BENZO(A)ANTHRACENE
Waste Quantity: UNKNOWN
Waste Code: Not reported
HW Code: C203075
Waste Type: LEAD
Waste Quantity: UNKNOWN
Waste Code: Not reported
HW Code: C203075
Waste Type: TETRACHLOROETHYLENE (PCE)
Waste Quantity: UNKNOWN
Waste Code: Not reported
Crossref ID: 1504063
Cross Ref Type Code: 01
Cross Ref Type: Spill No.
Record Added Date: 2015-07-29 15:22:00
Record Updated: 2015-07-29 15:22:00
Updated By: JCGRATHW
Crossref ID: 2-612433
Cross Ref Type Code: 18
Cross Ref Type: PBS No.
Record Added Date: 2015-07-17 09:29:00
Record Updated: 2015-07-17 09:29:00
Updated By: JAAVERSA
Crossref ID: C203075-01-15
Cross Ref Type Code: 23
Cross Ref Type: Agreement/Consent Order Number
Record Added Date: 2016-03-25 15:31:00

WEBSTER AVENUE RESIDENCES (Continued) **S120706253**

Record Updated: 2016-03-25 15:31:00
Updated By: JCGRATHW
Crossref ID: 2016000386141
Cross Ref Type Code: 25
Cross Ref Type: County Recording Identifier
Record Added Date: 2016-11-08 11:43:00
Record Updated: 2016-11-08 11:43:00
Updated By: JCGRATHW
Crossref ID: 2016000386140
Cross Ref Type Code: 25
Cross Ref Type: County Recording Identifier
Record Added Date: 2016-11-02 11:14:00
Record Updated: 2016-11-02 11:14:00
Updated By: JCGRATHW
Crossref ID: 01/27/2015
Cross Ref Type Code: 26
Cross Ref Type: Agreement/Consent Order Date
Record Added Date: 2016-03-25 15:32:00
Record Updated: 2016-03-25 15:32:00
Updated By: JCGRATHW

Site Code: 499347
Control Name: Ground Water Use Restriction
HW Code: C203075
Control Code: 08
Control Type: INST
Dt record added: 11/30/2016
Dt rec updated: 05/29/2018
Updated By: JCGRATHW
Site Code: 499347
Site Description: Location: The 1.4 acre site is located in an urban area at 4275 Park Avenue and 411 East 178th Street (a/k/a 1973 Webster Avenue) in the Tremont section in Bronx. The site is bounded by a warehouse to the north, commercial and residential properties to the south and to the west, and MTA Metro North railway lines to the east. Site Features: The site is currently improved with two unoccupied steel framed masonry block structures. There are currently two tax lots (lots 3 and 55) that comprise the site. Current Zoning and Land Use: The site is being developed and is zoned C4-5X (Residential/ Commercial). Past Use of the Site: From 1901 through 1915, a number of residences, retail stores, patent office, paint shop, wagon house and stable were located on-site. The site was the location of a service station and parts department, Studebaker Corporation of America, Park Avenue Auto Body Company Inc. and G Auto Bodies from at least 1927 to at least 1940. Lots 6, 7, 8 and 75 were improved with two-story structures until 1981, when they were demolished. Site Geology and Hydrogeology: Subsurface soil at the site consists of historic fill, which is primarily comprised of brick, concrete, wood and other debris in a brown silty-sand matrix. The historic fill layer extends to a depth of 5 to 8 feet below grade. Native soil consisting of brown sand is present below the historic fill layer. Bedrock is reportedly 50 - 55 feet below grade. Groundwater exists at a depth of approximately 15 to 19 feet below grade and flows in a southeast direction. Surface topography in the general area of the site possesses moderate relief with general slope to the south-southeast.
Env Problem: Remediation at the site is complete. Prior to remediation, the primary contaminants of concern were benzo(a)anthracene,

WEBSTER AVENUE RESIDENCES (Continued) **S120706253**

benzo(a)pyrene and lead in soil. Groundwater contamination is not an issue at the site. Remedial actions have successfully achieved soil cleanup objectives specified in the Decision Document and a soil cover system exists throughout the site. Residual contamination in the soil is being managed under a Site Management Plan.
Health Problem: Remedial actions are complete and measures are in place to control the potential for coming in contact with residual contamination remaining at the site.
Dump: False
Structure: False
Lagoon: False
Landfill: False
Pond: False
Disp Start: Not reported
Disp Term: Not reported
Lat/Long: Not reported
Dell: Not reported
Record Add: 2014-09-02 16:01:00
Record Upd: 2015-04-30 14:22:00
Updated By: JCGRATHW
Own Op: Applicant/Requestor
Sub Type: P03
Owner Name: David Beer
Owner Company: Webster Avenue Housing Development Fund Corporation
Owner Address: 505 Eighth Avenue, 5th Floor
Owner Addr2: c/o Breaking Ground
Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America
Own Op: Owner
Sub Type: P03
Owner Name: David Beer
Owner Company: Webster Avenue Housing Development Fund Corporation
Owner Address: 505 Eighth Avenue, 5th Floor
Owner Addr2: Not reported
Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America
Own Op: Document Repository
Sub Type: NNN
Owner Name: Sandra C. Pugh
Owner Company: Tremont Branch - New York Public Library
Owner Address: 1866 Washington Avenue
Owner Addr2: Not reported
Owner City,St,Zip: Bronx, NY 10457
Owner Country: United States of America
Own Op: Applicant/Requestor
Sub Type: P03
Owner Name: David Beer
Owner Company: Webster Avenue Supportive LLC
Owner Address: 505 Eighth Avenue, 5th Floor
Owner Addr2: c/o Breaking Ground
Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America
Own Op: Owner
Sub Type: P03
Owner Name: David Beer
Owner Company: Webster Avenue Supportive Housing Development Fund Corporati
Owner Address: 505 Eighth Avenue, 5th Floor

WEBSTER AVENUE RESIDENCES (Continued) **S120706253**

Owner Addr2: Not reported
Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America
Own Op: Owner
Sub Type: P03
Owner Name: David Beer
Owner Company: Webster Avenue Supportive LLC
Owner Address: 505 Eighth Avenue, 5th Floor
Owner Addr2: Not reported
Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America
Own Op: Applicant/Requestor
Sub Type: P03
Owner Name: David Beer
Owner Company: Webster Avenue Affordable LLC
Owner Address: 505 Eighth Avenue, 5th Floor
Owner Addr2: c/o Breaking Ground
Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America
Own Op: Owner
Sub Type: P03
Owner Name: David Beer
Owner Company: Webster Avenue Affordable LLC
Owner Address: 505 Eighth Avenue, 5th Floor
Owner Addr2: Not reported
Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America
Own Op: Applicant/Requestor
Sub Type: P03
Owner Name: David Beer
Owner Company: Webster Avenue Supportive Housing Development Fund Corp.
Owner Address: 505 Eighth Avenue. 5th Floor
Owner Addr2: Not reported
Owner City,St,Zip: New York, NY 10018
Owner Country: United States of America
HW Code: C203075
Waste Type: tetrachloroethene (PCE)
Waste Quantity: UNKNOWN
Waste Code: Not reported
HW Code: C203075
Waste Type: BENZO(A)PYRENE
Waste Quantity: UNKNOWN
Waste Code: Not reported
HW Code: C203075
Waste Type: 1,1,1-TRICHLOROETHANE
Waste Quantity: UNKNOWN
Waste Code: Not reported
HW Code: C203075
Waste Type: CHROMIUM
Waste Quantity: UNKNOWN
Waste Code: Not reported
HW Code: C203075
Waste Type: TRICHLOROETHENE (TCE)
Waste Quantity: UNKNOWN
Waste Code: Not reported
HW Code: C203075
Waste Type: BENZO(A)ANTHRACENE

WEBSTER AVENUE RESIDENCES (Continued) **S120706253**

Waste Quantity: UNKNOWN
Waste Code: Not reported
HW Code: C203075
Waste Type: LEAD
Waste Quantity: UNKNOWN
Waste Code: Not reported
HW Code: C203075
Waste Type: TETRACHLOROETHYLENE (PCE)
Waste Quantity: UNKNOWN
Waste Code: Not reported
Crossref ID: 1504063
Cross Ref Type Code: 01
Cross Ref Type: Spill No.
Record Added Date: 2015-07-29 15:22:00
Record Updated: 2015-07-29 15:22:00
Updated By: JCGRATHW
Crossref ID: 2-612433
Cross Ref Type Code: 18
Cross Ref Type: PBS No.
Record Added Date: 2015-07-17 09:29:00
Record Updated: 2015-07-17 09:29:00
Updated By: JAAVERSA
Crossref ID: C203075-01-15
Cross Ref Type Code: 23
Cross Ref Type: Agreement/Consent Order Number
Record Added Date: 2016-03-25 15:31:00
Record Updated: 2016-03-25 15:31:00
Updated By: JCGRATHW
Crossref ID: 2016000386141
Cross Ref Type Code: 25
Cross Ref Type: County Recording Identifier
Record Added Date: 2016-11-08 11:43:00
Record Updated: 2016-11-08 11:43:00
Updated By: JCGRATHW
Crossref ID: 2016000386140
Cross Ref Type Code: 25
Cross Ref Type: County Recording Identifier
Record Added Date: 2016-11-02 11:14:00
Record Updated: 2016-11-02 11:14:00
Updated By: JCGRATHW
Crossref ID: 01/27/2015
Cross Ref Type Code: 26
Cross Ref Type: Agreement/Consent Order Date
Record Added Date: 2016-03-25 15:32:00
Record Updated: 2016-03-25 15:32:00
Updated By: JCGRATHW

O137 **411 EAST 178TH STREET** **NY VCP** **S118943333**
NW **411 EAST 178TH STREET** **N/A**
1/8-1/4 **NEW YORK CITY, NY**
0.137 mi.
725 ft. **Site 10 of 12 in cluster O**

Relative: VCP NYC:
Lower
Project ID: 14CVCP194X
Actual: Project Name: 411 EAST 178TH STREET
42 ft. Project Address: 411 EAST 178TH STREET
Borough: BRONX

411 EAST 178TH STREET (Continued) **S118943333**

VCP NYC:
Project ID: 14CVCP194X
File Name: 2013-12-12.RIR
URL: http://www.nyc.gov/html/oer/downloads/pdf/repository/NYCBCP_Bronx/14CVCP194X/2013-12-12.14CVCP194X_and_14CVCP249X.RIR.ERM.pdf

Project ID: 14CVCP194X
File Name: 2014-06-18.RAWP_Draft
URL: http://www.nyc.gov/html/oer/downloads/pdf/repository/NYCBCP_Bronx/14CVCP194X/2014-06-18.14CVCP194X.report.RAWP.ERM.pdf

Project ID: 14CVCP194X
File Name: 2014-06-18.Factsheet-1
URL: http://www.nyc.gov/html/oer/downloads/pdf/repository/NYCBCP_Bronx/14CVCP194X/2014-06-18.14CVCP194X.doc.FactSheet-1.pdf

Project ID: 14CVCP194X
File Name: 2014-06-18.Translated_Factsheet-1
URL: http://www.nyc.gov/html/oer/downloads/pdf/repository/NYCBCP_Bronx/14CVCP194X/2014-06-18.14CVCP194X.doc.Translated_Fact_Sheet.pdf

Project ID: 14CVCP194X
File Name: 2014-06-18.Translated_CPS
URL: http://www.nyc.gov/html/oer/downloads/pdf/repository/NYCBCP_Bronx/14CVCP194X/2014-06-18.14CVCP194X.doc.Translated_Community_Protection_Satement.pdf

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O138 **WEBSTER AVENUE RESIDENCES** **NY ENG CONTROLS** **S120706224**
NW **411 EAST 178TH STREET (A/K/A 1973 WEBSTER AVENUE)** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.137 mi.
725 ft. **Site 11 of 12 in cluster O**

Relative:
Lower

Actual:
42 ft.

ENG CONTROLS:
Site Code: 499347
HW Code: C203075
Control Code: 15
Control Type: ENG
Date Record Added: 11/30/2016
Date Rec Updated: 05/29/2018
Updated By: JCGRATHW
Site Description: Location: The 1.4 acre site is located in an urban area at 4275 Park Avenue and 411 East 178th Street (a/k/a 1973 Webster Avenue) in the Tremont section in Bronx. The site is bounded by a warehouse to the north, commercial and residential properties to the south and to the west, and MTA Metro North railway lines to the east. Site Features: The site is currently improved with two unoccupied steel framed masonry block structures. There are currently two tax lots (lots 3 and 55) that comprise the site. Current Zoning and Land Use: The site is being developed and is zoned C4-5X (Residential/ Commercial). Past Use of the Site: From 1901 through 1915, a number of residences, retail stores, patent office, paint shop, wagon house and stable were located on-site. The site was the location of a service station and parts department, Studebaker Corporation of America, Park Avenue Auto Body Company Inc. and G Auto Bodies from at least 1927 to at least 1940. Lots 6, 7, 8 and 75 were improved with two-story structures

WEBSTER AVENUE RESIDENCES (Continued) **S120706224**

	until 1981, when they were demolished. Site Geology and Hydrogeology: Subsurface soil at the site consists of historic fill, which is primarily comprised of brick, concrete, wood and other debris in a brown silty-sand matrix. The historic fill layer extends to a depth of 5 to 8 feet below grade. Native soil consisting of brown sand is present below the historic fill layer. Bedrock is reportedly 50 - 55 feet below grade. Groundwater exists at a depth of approximately 15 to 19 feet below grade and flows in a southeast direction. Surface topography in the general area of the site possesses moderate relief with general slope to the south-southeast.
Env Problem:	Remediation at the site is complete. Prior to remediation, the primary contaminants of concern were benzo(a)anthracene, benzo(a)pyrene and lead in soil. Groundwater contamination is not an issue at the site. Remedial actions have successfully achieved soil cleanup objectives specified in the Decision Document and a soil cover system exists throughout the site. Residual contamination in the soil is being managed under a Site Management Plan.
Health Problem:	Remedial actions are complete and measures are in place to control the potential for coming in contact with residual contamination remaining at the site.
Dump:	False
Structure:	False
Lagoon:	False
Landfill:	False
Pond:	False
Disp Start:	Not reported
Disp Term:	Not reported
Lat/Long:	Not reported
Dell:	Not reported
Record Add:	2014-09-02 16:01:00
Record Upd:	2015-04-30 14:22:00
Updated By:	JCGRATHW
Own Op:	Applicant/Requestor
Sub Type:	P03
Owner Name:	David Beer
Owner Company:	Webster Avenue Housing Development Fund Corporation
Owner Address:	505 Eighth Avenue, 5th Floor
Owner Addr2:	c/o Breaking Ground
Owner City,St,Zip:	New York, NY 10018
Owner Country:	United States of America
Own Op:	Owner
Sub Type:	P03
Owner Name:	David Beer
Owner Company:	Webster Avenue Housing Development Fund Corporation
Owner Address:	505 Eighth Avenue, 5th Floor
Owner Addr2:	Not reported
Owner City,St,Zip:	New York, NY 10018
Owner Country:	United States of America
Own Op:	Document Repository
Sub Type:	NNN
Owner Name:	Sandra C. Pugh
Owner Company:	Tremont Branch - New York Public Library
Owner Address:	1866 Washington Avenue
Owner Addr2:	Not reported
Owner City,St,Zip:	Bronx, NY 10457
Owner Country:	United States of America
Own Op:	Applicant/Requestor

WEBSTER AVENUE RESIDENCES (Continued) **S120706224**

Sub Type:	P03
Owner Name:	David Beer
Owner Company:	Webster Avenue Supportive LLC
Owner Address:	505 Eighth Avenue, 5th Floor
Owner Addr2:	c/o Breaking Ground
Owner City,St,Zip:	New York, NY 10018
Owner Country:	United States of America
Own Op:	Owner
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Owner City,St,Zip:	New York, NY 10018
Owner Country:	United States of America
Own Op:	Applicant/Requestor
Sub Type:	P03
Owner Name:	David Beer
Owner Company:	Webster Avenue Affordable LLC
Owner Address:	505 Eighth Avenue, 5th Floor
Owner Addr2:	c/o Breaking Ground
Owner City,St,Zip:	New York, NY 10018
Owner Country:	United States of America
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Owner Company:	Webster Avenue Supportive Housing Development Fund Corp.
Owner Address:	505 Eighth Avenue. 5th Floor
Owner Addr2:	Not reported
Owner City,St,Zip:	New York, NY 10018
Owner Country:	United States of America
HW Code:	C203075
Waste Type:	tetrachloroethene (PCE)
Waste Quantity:	UNKNOWN
Waste Code:	Not reported
HW Code:	C203075
Waste Type:	BENZO(A)PYRENE
Waste Quantity:	UNKNOWN
Waste Code:	Not reported
HW Code:	C203075
Waste Type:	1,1,1-TRICHLOROETHANE

WEBSTER AVENUE RESIDENCES (Continued) **S120706224**

Waste Quantity:	UNKNOWN
Waste Code:	Not reported
HW Code:	C203075
Waste Type:	CHROMIUM
Waste Quantity:	UNKNOWN
Waste Code:	Not reported
HW Code:	C203075
Waste Type:	TRICHLOROETHENE (TCE)
Waste Quantity:	UNKNOWN
Waste Code:	Not reported
HW Code:	C203075
Waste Type:	BENZO(A)ANTHRACENE
Waste Quantity:	UNKNOWN
Waste Code:	Not reported
HW Code:	C203075
Waste Type:	LEAD
Waste Quantity:	UNKNOWN
Waste Code:	Not reported
HW Code:	C203075
Waste Type:	TETRACHLOROETHYLENE (PCE)
Waste Quantity:	UNKNOWN
Waste Code:	Not reported
Crossref ID:	1504063
Cross Ref Type Code:	01
Cross Ref Type:	Spill No.
Record Added Date:	2015-07-29 15:22:00
Record Updated:	2015-07-29 15:22:00
Updated By:	JCGRATHW
Crossref ID:	2-612433
Cross Ref Type Code:	18
Cross Ref Type:	PBS No.
Record Added Date:	2015-07-17 09:29:00
Record Updated:	2015-07-17 09:29:00
Updated By:	JAAVERSA
Crossref ID:	C203075-01-15
Cross Ref Type Code:	23
Cross Ref Type:	Agreement/Consent Order Number
Record Added Date:	2016-03-25 15:31:00
Record Updated:	2016-03-25 15:31:00
Updated By:	JCGRATHW
Crossref ID:	2016000386141
Cross Ref Type Code:	25
Cross Ref Type:	County Recording Identifier
Record Added Date:	2016-11-08 11:43:00
Record Updated:	2016-11-08 11:43:00
Updated By:	JCGRATHW
Crossref ID:	2016000386140
Cross Ref Type Code:	25
Cross Ref Type:	County Recording Identifier
Record Added Date:	2016-11-02 11:14:00
Record Updated:	2016-11-02 11:14:00
Updated By:	JCGRATHW
Crossref ID:	01/27/2015
Cross Ref Type Code:	26
Cross Ref Type:	Agreement/Consent Order Date
Record Added Date:	2016-03-25 15:32:00
Record Updated:	2016-03-25 15:32:00

WEBSTER AVENUE RESIDENCES (Continued) **S120706224**

Updated By:	JCGRATHW
Site Code:	499347
HW Code:	C203075
Control Code:	13
Control Type:	ENG
Date Record Added:	11/30/2016
Date Rec Updated:	05/29/2018
Updated By:	JCGRATHW
Site Description:	Location: The 1.4 acre site is located in an urban area at 4275 Park Avenue and 411 East 178th Street (a/k/a 1973 Webster Avenue) in the Tremont section in Bronx. The site is bounded by a warehouse to the north, commercial and residential properties to the south and to the west, and MTA Metro North railway lines to the east. Site Features: The site is currently improved with two unoccupied steel framed masonry block structures. There are currently two tax lots (lots 3 and 55) that comprise the site. Current Zoning and Land Use: The site is being developed and is zoned C4-5X (Residential/ Commercial). Past Use of the Site: From 1901 through 1915, a number of residences, retail stores, patent office, paint shop, wagon house and stable were located on-site. The site was the location of a service station and parts department, Studebaker Corporation of America, Park Avenue Auto Body Company Inc. and G Auto Bodies from at least 1927 to at least 1940. Lots 6, 7, 8 and 75 were improved with two-story structures until 1981, when they were demolished. Site Geology and Hydrogeology: Subsurface soil at the site consists of historic fill, which is primarily comprised of brick, concrete, wood and other debris in a brown silty-sand matrix. The historic fill layer extends to a depth of 5 to 8 feet below grade. Native soil consisting of brown sand is present below the historic fill layer. Bedrock is reportedly 50 - 55 feet below grade. Groundwater exists at a depth of approximately 15 to 19 feet below grade and flows in a southeast direction. Surface topography in the general area of the site possesses moderate relief with general slope to the south-southeast.
Env Problem:	Remediation at the site is complete. Prior to remediation, the primary contaminants of concern were benzo(a)anthracene, benzo(a)pyrene and lead in soil. Groundwater contamination is not an issue at the site. Remedial actions have successfully achieved soil cleanup objectives specified in the Decision Document and a soil cover system exists throughout the site. Residual contamination in the soil is being managed under a Site Management Plan.
Health Problem:	Remedial actions are complete and measures are in place to control the potential for coming in contact with residual contamination remaining at the site.
Dump:	False
Structure:	False
Lagoon:	False
Landfill:	False
Pond:	False
Disp Start:	Not reported
Disp Term:	Not reported
Lat/Long:	Not reported
Dell:	Not reported
Record Add:	2014-09-02 16:01:00
Record Upd:	2015-04-30 14:22:00
Updated By:	JCGRATHW
Own Op:	Applicant/Requestor

WEBSTER AVENUE RESIDENCES (Continued) **S120706224**

Sub Type:	P03
Owner Name:	David Beer
Owner Company:	Webster Avenue Housing Development Fund Corporation
Owner Address:	505 Eighth Avenue, 5th Floor
Owner Addr2:	c/o Breaking Ground
Owner City,St,Zip:	New York, NY 10018
Owner Country:	United States of America
Own Op:	Owner
Sub Type:	P03
Owner Name:	David Beer
Owner Company:	Webster Avenue Housing Development Fund Corporation
Owner Address:	505 Eighth Avenue, 5th Floor
Owner Addr2:	Not reported
Owner City,St,Zip:	New York, NY 10018
Owner Country:	United States of America
Own Op:	Document Repository
Sub Type:	NNN
Owner Name:	Sandra C. Pugh
Owner Company:	Tremont Branch - New York Public Library
Owner Address:	1866 Washington Avenue
Owner Addr2:	Not reported
Owner City,St,Zip:	Bronx, NY 10457
Owner Country:	United States of America
Own Op:	Applicant/Requestor
Sub Type:	P03
Owner Name:	David Beer
Owner Company:	Webster Avenue Supportive LLC
Owner Address:	505 Eighth Avenue, 5th Floor
Owner Addr2:	c/o Breaking Ground
Owner City,St,Zip:	New York, NY 10018
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Own Op:	Owner
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Own Op:	Applicant/Requestor
Sub Type:	P03
Owner Name:	David Beer
Owner Company:	Webster Avenue Affordable LLC
Owner Address:	505 Eighth Avenue, 5th Floor
Owner Addr2:	c/o Breaking Ground
Owner City,St,Zip:	New York, NY 10018
Owner Country:	United States of America
Own Op:	Owner
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WEBSTER AVENUE RESIDENCES (Continued) **S120706224**

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Owner Address:	505 Eighth Avenue. 5th Floor
Owner Addr2:	Not reported
Owner City,St,Zip:	New York, NY 10018
Owner Country:	United States of America
HW Code:	C203075
Waste Type:	tetrachloroethene (PCE)
Waste Quantity:	UNKNOWN
Waste Code:	Not reported
HW Code:	C203075
Waste Type:	BENZO(A)PYRENE
Waste Quantity:	UNKNOWN
Waste Code:	Not reported
HW Code:	C203075
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Waste Code:	Not reported
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Waste Quantity:	UNKNOWN
Waste Code:	Not reported
HW Code:	C203075
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Waste Code:	Not reported
HW Code:	C203075
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Waste Quantity:	UNKNOWN
Waste Code:	Not reported
HW Code:	C203075
Waste Type:	TETRACHLOROETHYLENE (PCE)
Waste Quantity:	UNKNOWN
Waste Code:	Not reported
Crossref ID:	1504063
Cross Ref Type Code:	01
Cross Ref Type:	Spill No.
Record Added Date:	2015-07-29 15:22:00
Record Updated:	2015-07-29 15:22:00
Updated By:	JCGRATHW
Crossref ID:	2-612433
Cross Ref Type Code:	18
Cross Ref Type:	PBS No.
Record Added Date:	2015-07-17 09:29:00
Record Updated:	2015-07-17 09:29:00

WEBSTER AVENUE RESIDENCES (Continued) **S120706224**

Updated By:	JAAVERSA
Crossref ID:	C203075-01-15
Cross Ref Type Code:	23
Cross Ref Type:	Agreement/Consent Order Number
Record Added Date:	2016-03-25 15:31:00
Record Updated:	2016-03-25 15:31:00
Updated By:	JCGRATHW
Crossref ID:	2016000386141
Cross Ref Type Code:	25
Cross Ref Type:	County Recording Identifier
Record Added Date:	2016-11-08 11:43:00
Record Updated:	2016-11-08 11:43:00
Updated By:	JCGRATHW
Crossref ID:	2016000386140
Cross Ref Type Code:	25
Cross Ref Type:	County Recording Identifier
Record Added Date:	2016-11-02 11:14:00
Record Updated:	2016-11-02 11:14:00
Updated By:	JCGRATHW
Crossref ID:	01/27/2015
Cross Ref Type Code:	26
Cross Ref Type:	Agreement/Consent Order Date
Record Added Date:	2016-03-25 15:32:00
Record Updated:	2016-03-25 15:32:00
Updated By:	JCGRATHW

O139 **WEBSTER AVENUE RESIDENCES** **NY BROWNFIELDS** **S120706174**
NW **411 EAST 178TH STREET (A/K/A 1973 WEBSTER AVENUE)** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.137 mi.
725 ft. **Site 12 of 12 in cluster O**

Relative: **Lower**

Actual: **42 ft.**

BROWNFIELDS:

Program:	BCP
Site Code:	499347
Acres:	1.4
HW Code:	C203075
SWIS:	0301
Town:	New York City
Record Added Date:	09/02/2014
Record Updated Date:	01/16/2018
Update By:	JXGRECO
Site Description:	Location: The 1.4 acre site is located in an urban area at 4275 Park Avenue and 411 East 178th Street (a/k/a 1973 Webster Avenue) in the Tremont section in Bronx. The site is bounded by a warehouse to the north, commercial and residential properties to the south and to the west, and MTA Metro North railway lines to the east. Site Features: The site is currently improved with two unoccupied steel framed masonry block structures. There are currently two tax lots (lots 3 and 55) that comprise the site. Current Zoning and Land Use: The site is being developed and is zoned C4-5X (Residential/ Commercial). Past Use of the Site: From 1901 through 1915, a number of residences, retail stores, patent office, paint shop, wagon house and stable were located on-site. The site was the location of a service station and parts department, Studebaker Corporation of America, Park Avenue Auto Body Company Inc. and G Auto Bodies from at least 1927 to at least 1940. Lots 6, 7, 8 and 75 were improved with two-story structures until 1981, when they were demolished. Site Geology and Hydrogeology:

WEBSTER AVENUE RESIDENCES (Continued) **S120706174**

	Subsurface soil at the site consists of historic fill, which is primarily comprised of brick, concrete, wood and other debris in a brown silty-sand matrix. The historic fill layer extends to a depth of 5 to 8 feet below grade. Native soil consisting of brown sand is present below the historic fill layer. Bedrock is reportedly 50 - 55 feet below grade. Groundwater exists at a depth of approximately 15 to 19 feet below grade and flows in a southeast direction. Surface topography in the general area of the site possesses moderate relief with general slope to the south-southeast.
Env Problem:	Remediation at the site is complete. Prior to remediation, the primary contaminants of concern were benzo(a)anthracene, benzo(a)pyrene and lead in soil. Groundwater contamination is not an issue at the site. Remedial actions have successfully achieved soil cleanup objectives specified in the Decision Document and a soil cover system exists throughout the site. Residual contamination in the soil is being managed under a Site Management Plan.
Health Problem:	Remedial actions are complete and measures are in place to control the potential for coming in contact with residual contamination remaining at the site.
Dump:	False
Structure:	False
Lagoon:	False
Landfill:	False
Pond:	False
Disp Start:	Not reported
Disp Term:	Not reported
Lat/Long:	Not reported
Dell:	Not reported
Record Add:	2014-09-02 16:01:00
Record Upd:	2015-04-30 14:22:00
Updated By:	JCGRATHW
Own Op:	Applicant/Requestor
Sub Type:	P03
Owner Name:	David Beer
Owner Company:	Webster Avenue Housing Development Fund Corporation
Owner Address:	505 Eighth Avenue, 5th Floor
Owner Addr2:	c/o Breaking Ground
Owner City,St,Zip:	New York, NY 10018
Owner Country:	United States of America
Own Op:	Owner
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Owner Country:	United States of America
Own Op:	Document Repository
Sub Type:	NNN
Owner Name:	Sandra C. Pugh
Owner Company:	Tremont Branch - New York Public Library
Owner Address:	1866 Washington Avenue
Owner Addr2:	Not reported
Owner City,St,Zip:	Bronx, NY 10457
Owner Country:	United States of America
Own Op:	Applicant/Requestor
Sub Type:	P03

WEBSTER AVENUE RESIDENCES (Continued) **S120706174**

Owner Name:	David Beer
Owner Company:	Webster Avenue Supportive LLC
Owner Address:	505 Eighth Avenue, 5th Floor
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Own Op:	Owner
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Waste Type:	tetrachloroethene (PCE)
Waste Quantity:	UNKNOWN
Waste Code:	Not reported
HW Code:	C203075
Waste Type:	BENZO(A)PYRENE
Waste Quantity:	UNKNOWN
Waste Code:	Not reported
HW Code:	C203075
Waste Type:	1,1,1-TRICHLOROETHANE
Waste Quantity:	UNKNOWN

WEBSTER AVENUE RESIDENCES (Continued) **S120706174**

Waste Code:	Not reported
HW Code:	C203075
Waste Type:	CHROMIUM
Waste Quantity:	UNKNOWN
Waste Code:	Not reported
HW Code:	C203075
Waste Type:	TRICHLOROETHENE (TCE)
Waste Quantity:	UNKNOWN
Waste Code:	Not reported
HW Code:	C203075
Waste Type:	BENZO(A)ANTHRACENE
Waste Quantity:	UNKNOWN
Waste Code:	Not reported
HW Code:	C203075
Waste Type:	LEAD
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Waste Quantity:	UNKNOWN
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Cross Ref Type Code:	01
Cross Ref Type:	Spill No.
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Cross Ref Type:	PBS No.
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Crossref ID:	C203075-01-15
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Cross Ref Type Code:	26
Cross Ref Type:	Agreement/Consent Order Date
Record Added Date:	2016-03-25 15:32:00
Record Updated:	2016-03-25 15:32:00
Updated By:	JCGRATHW

S140 **CON EDISON - MH 83** **RCRA NonGen / NLR** **1008195578**
NNW **E179TH STREET AND PARK AVE** **NY MANIFEST** **NYP004109112**
1/8-1/4 **BRONX, NY 10457**
0.138 mi.
728 ft. **Site 1 of 4 in cluster S**

Relative:
Lower

Actual:
38 ft.

RCRA NonGen / NLR:

Date form received by agency:	02/27/2004
Facility name:	CON EDISON - MH 83
Facility address:	E179TH STREET AND PARK AVE BRONX, NY 10457
EPA ID:	NYP004109112
Mailing address:	4 IRVING PLACE NEW YORK, NY 10003
Contact:	ANTHONY DRUMMINGS
Contact address:	4 IRVING PLACE NEW YORK, NY 10003
Contact country:	US
Contact telephone:	212-460-3770
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	CONSOLIDATED EDISON COMPANY OF NY, INC.
Owner/operator address:	4 IRVING PLACE NEW YORK, NY 10003
Owner/operator country:	US
Owner/operator telephone:	Not reported
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	03/28/2003
Owner/Op end date:	Not reported

Owner/operator name:	CONSOLIDATED EDISON COMPANY OF NY, INC.
Owner/operator address:	4 IRVING PLACE NEW YORK, NY 10003
Owner/operator country:	US
Owner/operator telephone:	Not reported
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	03/28/2003
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No

CON EDISON - MH 83 (Continued) **1008195578**

On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 02/26/2004
Site name: CON EDISON - MH 83
Classification: Not a generator, verified

Date form received by agency: 02/25/2004
Site name: CON EDISON - MH 83
Classification: Large Quantity Generator

. Waste code: D008
. Waste name: LEAD

. Waste code: D018
. Waste name: BENZENE

Violation Status: No violations found

NY MANIFEST:
Country: USA
EPA ID: NYP004109112
Facility Status: Not reported
Location Address 1: PARK AVE & 179TH ST MH83
Code: BP
Location Address 2: Not reported
Total Tanks: Not reported
Location City: BRONX
Location State: NY
Location Zip: Not reported
Location Zip 4: Not reported

NY MANIFEST:
EPAID: NYP004109112
Mailing Name: CONSOLIDATED EDISON
Mailing Contact: FRANKLIN MURRAY
Mailing Address 1: 4 IRVING PLACE RM 828
Mailing Address 2: Not reported
Mailing City: NEW YORK
Mailing State: NY
Mailing Zip: 10003
Mailing Zip 4: Not reported
Mailing Country: USA
Mailing Phone: 2124602808

NY MANIFEST:
Document ID: MAQ0260497
Manifest Status: Not reported
seq: 01

CON EDISON - MH 83 (Continued) **1008195578**

Year:	2003
Trans1 State ID:	55444MA
Trans2 State ID:	Not reported
Generator Ship Date:	04/04/2003
Trans1 Recv Date:	04/04/2003
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	04/04/2003
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004109112
Trans1 EPA ID:	MAD039322250
Trans2 EPA ID:	Not reported
TSDF ID 1:	MAD053452637
TSDF ID 2:	Not reported
Manifest Tracking Number:	Not reported
Import Indicator:	Not reported
Export Indicator:	Not reported
Discr Quantity Indicator:	Not reported
Discr Type Indicator:	Not reported
Discr Residue Indicator:	Not reported
Discr Partial Reject Indicator:	Not reported
Discr Full Reject Indicator:	Not reported
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	Not reported
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	00002
Units:	Y - Cubic yards* (.85 tons)
Number of Containers:	001
Container Type:	DT - Dump trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

M141 **CON EDISON** **NY MANIFEST** **S117316298**
ESE **1977 LAFONTAINE AVE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.140 mi.
740 ft. **Site 7 of 7 in cluster M**

Relative: NY MANIFEST:
Higher

Actual: Country:	USA
80 ft. EPA ID:	NYP004635462
Facility Status:	Not reported
Location Address 1:	1977 LAFONTAINE AVE
Code:	BP
Location Address 2:	SB 17400
Total Tanks:	Not reported
Location City:	BRONX

CON EDISON (Continued) **S117316298**

Location State:	NY
Location Zip:	10457
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYP004635462
Mailing Name:	CON EDISON
Mailing Contact:	TOM TEELING
Mailing Address 1:	4 IRVING PLACE 15TH FLOOR
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	10003
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	Not reported

NY MANIFEST:

Document ID:	Not reported
Manifest Status:	Not reported
seq:	Not reported
Year:	2014
Trans1 State ID:	NJD003812047
Trans2 State ID:	Not reported
Generator Ship Date:	08/21/2014
Trans1 Recv Date:	08/21/2014
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	08/25/2014
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004635462
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD991291105
TSDF ID 2:	Not reported
Manifest Tracking Number:	002608523GBF
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H110
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	500
Units:	P - Pounds
Number of Containers:	1
Container Type:	TT - Cargo tank, tank trucks

CON EDISON (Continued) **S117316298**

Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

P142 **CON EDISON - EAST 179TH ST SUBSTATION** **RCRA NonGen / NLR** **1001079811**
ENE **541 E 179TH ST** **FINDS** **NYR000015180**
1/8-1/4 **BRONX, NY 10457** **ECHO**
0.141 mi.
743 ft. **Site 2 of 6 in cluster P**

Relative:
Higher

Actual:
88 ft.

RCRA NonGen / NLR:

Date form received by agency:	01/01/2007
Facility name:	CON EDISON - EAST 179TH ST SUBSTATION
Facility address:	541 E 179TH ST BRONX, NY 10457-3328
EPA ID:	NYR000015180
Mailing address:	IRVING PL ROOM 300 NEW YORK, NY 10003
Contact:	Not reported
Contact address:	IRVING PL ROOM 300 NEW YORK, NY 10003
Contact country:	US
Contact telephone:	Not reported
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	CON EDISON CO OF NEW YORK
Owner/operator address:	4 IRVING PL NEW YORK, NY 10003
Owner/operator country:	US
Owner/operator telephone:	212-460-4833
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	CON EDISON CO OF NEW YORK
Owner/operator address:	4 IRVING PL NEW YORK, NY 10003
Owner/operator country:	US
Owner/operator telephone:	212-460-4833
Owner/operator email:	Not reported

CON EDISON - EAST 179TH ST SUBSTATION (Continued) **1001079811**

Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 01/01/2006
Site name: CON EDISON - EAST 179TH ST SUBSTATION
Classification: Not a generator, verified

Date form received by agency: 07/08/1999
Site name: CON EDISON - EAST 179TH ST SUBSTATION
Classification: Not a generator, verified

Date form received by agency: 10/20/1995
Site name: CON EDISON - EAST 179TH ST SUBSTATION
Classification: Small Quantity Generator

. Waste code: X002
. Waste name: POLYCHLORINATED BIPHENOLS (PCBs)

Violation Status: No violations found

FINDS:

Registry ID: 110004519575

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

CON EDISON - EAST 179TH ST SUBSTATION (Continued) **1001079811**

ECHO:
Envid: 1001079811
Registry ID: 110004519575
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110004519575

T143 **CON EDISON MANHOLE 13681** **RCRA NonGen / NLR** **1014918434**
South **3RD AVE & E 176TH ST** **NJ MANIFEST** **NYP004220489**
1/8-1/4 **BRONX, NY 10456** **NY MANIFEST**
0.142 mi.
749 ft. **Site 1 of 2 in cluster T**

Relative:
Lower

Actual:
53 ft.

RCRA NonGen / NLR:
Date form received by agency: 12/20/2010
Facility name: CON EDISON MANHOLE 13681
Facility address: 3RD AVE & E 176TH ST
BRONX, NY 10456
EPA ID: NYP004220489
Mailing address: IRVING PL RM 828
NEW YORK, NY 10003
Contact: DENNIS ROHRER
Contact address: Not reported
Not reported
Contact country: Not reported
Contact telephone: 914-925-6219
Contact email: Not reported
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 11/20/2010
Site name: CON EDISON MANHOLE 13681
Classification: Conditionally Exempt Small Quantity Generator

Violation Status: No violations found

NJ MANIFEST:
EPA Id: NYP004220489
Mail Address: IRVING PL RM 828
Mail City/State/Zip: NEW YORK, NY 10003

CON EDISON MANHOLE 13681 (Continued) **1014918434**

Facility Phone:	Not reported
Emergency Phone:	Not reported
Contact:	DENNIS ROHRER
Comments:	Not reported
SIC Code:	Not reported
County:	NY005
Municipal:	Not reported
Previous EPA Id:	Not reported
Gen Flag:	Not reported
Trans Flag:	Not reported
TSDF Flag:	Not reported
Name Change:	Not reported
Date Change:	Not reported

Manifest:

Manifest Number:	006874909JJK
EPA ID:	NYP004220489
Date Shipped:	11/20/2010
TSDF EPA ID:	NJD002200046
Transporter EPA ID:	NYD006982359
Transporter 2 EPA ID:	Not reported
Transporter 3 EPA ID:	Not reported
Transporter 4 EPA ID:	Not reported
Transporter 5 EPA ID:	Not reported
Transporter 6 EPA ID:	Not reported
Transporter 7 EPA ID:	Not reported
Transporter 8 EPA ID:	Not reported
Transporter 9 EPA ID:	Not reported
Transporter 10 EPA ID:	Not reported
Date Trans1 Transported Waste:	11/20/2010
Date Trans2 Transported Waste:	Not reported
Date Trans3 Transported Waste:	Not reported
Date Trans4 Transported Waste:	Not reported
Date Trans5 Transported Waste:	Not reported
Date Trans6 Transported Waste:	Not reported
Date Trans7 Transported Waste:	Not reported
Date Trans8 Transported Waste:	Not reported
Date Trans9 Transported Waste:	Not reported
Date Trans10 Transported Waste:	Not reported
Date TSDF Received Waste:	11/22/2010
TSDF EPA Facility Name:	Not reported
QTY Units:	Not reported
Transporter SEQ ID:	Not reported
Transporter-1 Date:	Not reported
Waste SEQ ID:	Not reported
Waste Type Code 2:	Not reported
Waste Type Code 3:	Not reported
Waste Type Code 4:	Not reported
Waste Type Code 5:	Not reported
Waste Type Code 6:	Not reported
Date Accepted:	Not reported
Manifest Discrepancy Type:	Not reported
Data Entry Number:	Not reported
Was Load Rejected:	NEW YORK, NY 10003
Reason Load Was Rejected:	Not reported

Waste:

Manifest Year:	Not reported

CON EDISON MANHOLE 13681 (Continued) **1014918434**

Waste Code:	D008
Hand Code:	H111
Quantity:	20 P

NY MANIFEST:

Country:	USA
EPA ID:	NYP004220489
Facility Status:	Not reported
Location Address 1:	MH13681
Code:	BP
Location Address 2:	Not reported
Total Tanks:	Not reported
Location City:	W 3RD AVE NEC 176TH ST
Location State:	NY
Location Zip:	Not reported
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYP004220489
Mailing Name:	CONSOLIDATED EDISON
Mailing Contact:	THOMAS TEELING
Mailing Address 1:	4 IRVING PL RM 828
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	10003
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	2124603770

NY MANIFEST:

Document ID:	Not reported
Manifest Status:	Not reported
seq:	Not reported
Year:	2010
Trans1 State ID:	NYD006982359
Trans2 State ID:	Not reported
Generator Ship Date:	11/20/2010
Trans1 Recv Date:	11/20/2010
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	11/22/2010
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004220489
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD002200046
TSDF ID 2:	Not reported
Manifest Tracking Number:	006874909JJK
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	Y
Discr Residue Indicator:	N

CON EDISON MANHOLE 13681 (Continued) **1014918434**

Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H111
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	20.0
Units:	P - Pounds
Number of Containers:	1.0
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1.0
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

Q144 **CON EDISON** **NJ MANIFEST** **S120675862**
SSW **1852 WASHINGTON AVE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.144 mi.
762 ft. **Site 4 of 7 in cluster Q**

Relative: **Lower**
Actual: **46 ft.**

NJ MANIFEST:

EPA Id:	NYP004829341
Mail Address:	IRVING PL 15TH FL NE
Mail City/State/Zip:	NEW YORK, NY 10003
Facility Phone:	Not reported
Emergency Phone:	Not reported
Contact:	THOMAS TEELING
Comments:	Not reported
SIC Code:	Not reported
County:	NY005
Municipal:	Not reported
Previous EPA Id:	Not reported
Gen Flag:	Not reported
Trans Flag:	Not reported
TSDF Flag:	Not reported
Name Change:	Not reported
Date Change:	Not reported

Manifest:

Manifest Number:	002661341GBF
EPA ID:	NYP004829341
Date Shipped:	8/25/2015
TSDF EPA ID:	NJD991291105

CON EDISON (Continued) **S120675862**

Transporter EPA ID:	NJD003812047
Transporter 2 EPA ID:	Not reported
Transporter 3 EPA ID:	Not reported
Transporter 4 EPA ID:	Not reported
Transporter 5 EPA ID:	Not reported
Transporter 6 EPA ID:	Not reported
Transporter 7 EPA ID:	Not reported
Transporter 8 EPA ID:	Not reported
Transporter 9 EPA ID:	Not reported
Transporter 10 EPA ID:	Not reported
Date Trans1 Transported Waste:	Not reported
Date Trans2 Transported Waste:	Not reported
Date Trans3 Transported Waste:	Not reported
Date Trans4 Transported Waste:	Not reported
Date Trans5 Transported Waste:	Not reported
Date Trans6 Transported Waste:	Not reported
Date Trans7 Transported Waste:	Not reported
Date Trans8 Transported Waste:	Not reported
Date Trans9 Transported Waste:	Not reported
Date Trans10 Transported Waste:	Not reported
Date TSDF Received Waste:	Not reported
TSDF EPA Facility Name:	Not reported
QTY Units:	Not reported
Transporter SEQ ID:	Not reported
Transporter-1 Date:	Not reported
Waste SEQ ID:	Not reported
Waste Type Code 2:	Not reported
Waste Type Code 3:	Not reported
Waste Type Code 4:	Not reported
Waste Type Code 5:	Not reported
Waste Type Code 6:	Not reported
Date Accepted:	Not reported
Manifest Discrepancy Type:	Not reported
Data Entry Number:	Not reported
Was Load Rejected:	NEW YORK, NY 10003
Reason Load Was Rejected:	Not reported

Q145 **CON EDISON** **RCRA NonGen / NLR** **1019907031**
SSW **1852 WASHINGTON AVE** **NYP004829341**
1/8-1/4 **BRONX, NY 10457**
0.144 mi.
762 ft. **Site 5 of 7 in cluster Q**

Relative: **Lower**

Actual: **46 ft.**

RCRA NonGen / NLR:

Date form received by agency:	08/25/2015
Facility name:	CON EDISON
Facility address:	1852 WASHINGTON AVE BRONX, NY 10457
EPA ID:	NYP004829341
Mailing address:	IRVING PL 15TH FL NE NEW YORK, NY 10003
Contact:	THOMAS TEELING
Contact address:	Not reported Not reported
Contact country:	Not reported
Contact telephone:	212-460-3770

CON EDISON (Continued) **1019907031**

Contact email: Not reported
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 08/25/2015
Site name: CON EDISON
Classification: Large Quantity Generator

Violation Status: No violations found

Q146 **R. AMPARO SALVAGE CORP** **NY SWF/LF** **S108146076**
SW **1851 WASHINGTON AVE** **NY SPDES** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.145 mi.
765 ft. **Site 6 of 7 in cluster Q**

Relative: **Lower**
Actual: **44 ft.**

SWF/LF:
Flag: ACTIVE
Region Code: 2
Phone Number: 7185831418
Owner Name: Ramon Amparo
Owner Type: Private
Owner Address: 1851 Washington Avenue
Owner Addr2: Not reported
Owner City,St,Zip: Bronx, NY 10457
Owner Email: Not reported
Owner Phone: 7185831418
Contact Name: Not reported
Contact Address: Not reported
Contact Addr2: Not reported
Contact City,St,Zip: Not reported
Contact Email: Not reported
Contact Phone: Not reported
Activity Desc: z Retired - Vehicle Dismantling Facility
Activity Number: [7096247]
Active: Yes
East Coordinate: 592849
North Coordinate: 4522230
Accuracy Code: Not reported

R. AMPARO SALVAGE CORP (Continued) **S108146076**

Regulatory Status: Not reported
Waste Type: Not reported
Authorization #: Not reported
Authorization Date: Not reported
Expiration Date: Not reported
Operator Name: Not reported
Operator Type: Not reported
Laste Date: Not reported

SPDES:

Permit Number: NYR00E129
State-Region: 02
Expiration Date: 09/30/2017
Current Major Minor Status: Minor
Primary Facility SIC Code: 5015
State Water Body Name: EAST RIVER
Limit Set Status Flag: Active
Total Actual Average Flow(MGD): Not reported
Total App Design Flow(MGD): Not reported
UDF1: Not reported
Lat/Long: +40.845 / -73.898
DMR Cognizant Official: Not reported
UDF2: Not reported
UDF3: Not reported
FIPS County Code: NY005

Non-Gov Permit Affiliation Type Desc: DMR Mailing Address
Non-Gov Permit Org Formal Name: TABS CONSULTING GROUP INC
Non-Gov Permit Street Address: R AMPARO SALVAGE CORP
Non-Gov Permit Supplemental Location: 2 52ND ST, BOX B11
Non-Gov Permit City: BROOKLYN
Non-Gov Permit State Code: NY
Non-Gov Permit Zip Code: 11232
Non-Gov Facility Affiliation Type Desc: Owner
Non-Gov Facility Org Formal Name: R AMPARO SALVAGE CORP
Non-Gov Facility Street Address: R AMPARO SALVAGE CORP
Non-Gov Facility Supplemental Location: 1851 WASHINGTON AVE
Non-Gov Facility City: BRONX
Non-Gov Facility State Code: NY
Non-Gov Facility Zip Code: 10457
State Water Body: Not reported

UDF2: Not reported
UDF3: Not reported
FIPS County Code: NY005

Non-Gov Permit Affiliation Type Desc: Permittee
Non-Gov Permit Org Formal Name: R AMPARO SALVAGE CORP
Non-Gov Permit Street Address: 1851 WASHINGTON AVE
Non-Gov Permit Supplemental Location: Not reported
Non-Gov Permit City: BRONX
Non-Gov Permit State Code: NY
Non-Gov Permit Zip Code: 10457
Non-Gov Facility Affiliation Type Desc: Owner
Non-Gov Facility Org Formal Name: R AMPARO SALVAGE CORP
Non-Gov Facility Street Address: R AMPARO SALVAGE CORP

R. AMPARO SALVAGE CORP (Continued) **S108146076**

Non-Gov Facility Supplemental Location:	1851 WASHINGTON AVE
Non-Gov Facility City:	BRONX
Non-Gov Facility State Code:	NY
Non-Gov Facility Zip Code:	10457
State Water Body:	Not reported
UDF2:	Not reported
UDF3:	Not reported
FIPS County Code:	NY005
Non-Gov Permit Affiliation Type Desc:	Not reported
Non-Gov Permit Org Formal Name:	Not reported
Non-Gov Permit Street Address:	Not reported
Non-Gov Permit Supplemental Location:	Not reported
Non-Gov Permit City:	Not reported
Non-Gov Permit State Code:	Not reported
Non-Gov Permit Zip Code:	Not reported
Non-Gov Facility Affiliation Type Desc:	Owner
Non-Gov Facility Org Formal Name:	R AMPARO SALVAGE CORP
Non-Gov Facility Street Address:	R AMPARO SALVAGE CORP
Non-Gov Facility Supplemental Location:	1851 WASHINGTON AVE
Non-Gov Facility City:	BRONX
Non-Gov Facility State Code:	NY
Non-Gov Facility Zip Code:	10457
State Water Body:	Not reported

Q147 **R. AMPARO SALVAGE CORP.** **NY AST** **A100295722**
SW **1851 WASHINGTON AVENUE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.145 mi.
765 ft. **Site 7 of 7 in cluster Q**

Relative: **Lower**

Actual: **44 ft.**

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-609845
Program Type:	PBS
UTM X:	592823.29635
UTM Y:	4522216.47986
Expiration Date:	02/15/2020
Site Type:	Other

Affiliation Records:

Site Id:	337586
Affiliation Type:	Facility Owner
Company Name:	RAMON AMPARO
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	700 W 178TH ST, #2
Address2:	Not reported
City:	NEW YORK
State:	NY
Zip Code:	10033
Country Code:	001
Phone:	(917) 560-5888
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR

R. AMPARO SALVAGE CORP. (Continued) **A100295722**

Date Last Modified: 2015-02-12

Site Id: 337586
Affiliation Type: Mail Contact
Company Name: R. AMPARO SALVAGE CORP.
Contact Type: Not reported
Contact Name: RAMON AMPARO
Address1: 1851 WASHINGTON AVENUE
Address2: Not reported
City: BRONX
State: NY
Zip Code: 10457
Country Code: 001
Phone: (718) 583-1418
EMail: RAMONAMPARO1@MSN.COM
Fax Number: Not reported
Modified By: NRLOMBAR
Date Last Modified: 2015-02-12

Site Id: 337586
Affiliation Type: Facility Operator
Company Name: R. AMPARO SALVAGE CORP.
Contact Type: Not reported
Contact Name: RAMON AMPARO
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 001
Phone: (718) 583-1418
EMail: Not reported
Fax Number: Not reported
Modified By: NRLOMBAR
Date Last Modified: 2005-02-15

Site Id: 337586
Affiliation Type: Emergency Contact
Company Name: RAMON AMPARO
Contact Type: Not reported
Contact Name: RAMON AMPARO
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 999
Phone: (917) 560-5888
EMail: Not reported
Fax Number: Not reported
Modified By: NRLOMBAR
Date Last Modified: 2005-02-15

Tank Info:

Tank Number: 001
Tank Id: 182016

R. AMPARO SALVAGE CORP. (Continued) **A100295722**

Material Code:	0022
Common Name of Substance:	Waste Oil/Used Oil

Equipment Records:

C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
E00 - Piping Secondary Containment - None
I00 - Overfill - None
A00 - Tank Internal Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
G10 - Tank Secondary Containment - Impervious Underlayment
K00 - Spill Prevention - None
D00 - Pipe Type - No Piping
H06 - Tank Leak Detection - Impervious Barrier/Concrete Pad (A/G)
J03 - Dispenser - Gravity
L00 - Piping Leak Detection - None

Tank Location:	Aboveground - on saddles, legs, racks, etc.... Tank bottom is elevated above grade or tank pad, allowing visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	01/01/2004
Capacity Gallons:	250
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	NRLOMBAR
Last Modified:	04/14/2017
Material Name:	waste oil/used oil

S148 **CONSOLIDATED EDISON** **NY MANIFEST** **S109584365**
NNW **PARK AVENUE & EAST 179 STREET** **N/A**
1/8-1/4 **BRONX, NY 10452**
0.146 mi.
773 ft. **Site 2 of 4 in cluster S**

Relative:
Lower

Actual:
40 ft.

NY MANIFEST:

Country:	USA
EPA ID:	NYP004155727
Facility Status:	Not reported
Location Address 1:	PARK AVENUE & EAST 179 STREET
Code:	BP
Location Address 2:	Not reported
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	10452
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYP004155727
Mailing Name:	CONSOLIDATED EDISON
Mailing Contact:	FRANKLIN MURRAY
Mailing Address 1:	4 IRVING PLACE RM 828
Mailing Address 2:	Not reported
Mailing City:	NEW YORK

CONSOLIDATED EDISON (Continued) **S109584365**

Mailing State:	NY
Mailing Zip:	10003
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	2124602808

NY MANIFEST:

Document ID:	Not reported
Manifest Status:	Not reported
seq:	Not reported
Year:	2008
Trans1 State ID:	NJD003812047
Trans2 State ID:	NJD003812047
Generator Ship Date:	01/11/2008
Trans1 Recv Date:	01/11/2008
Trans2 Recv Date:	01/14/2008
TSD Site Recv Date:	01/14/2008
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004155727
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD991291105
TSDF ID 2:	Not reported
Manifest Tracking Number:	000183773GBF
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H141
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	350.0
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	1.0
Container Type:	CM - Metal boxes, cases, roll-offs
Handling Method:	L Landfill.
Specific Gravity:	1.0
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

CONSOLIDATED EDISON (Continued) **S109584365**

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

S149 **BRONX APARTMENTS, LLC.** **NY AST** **A100168943**
NNW **4305 PARK AVENUE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.148 mi.
779 ft. **Site 3 of 4 in cluster S**

Relative:
Lower

Actual:
41 ft.

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-363162
Program Type:	PBS
UTM X:	592895.72480
UTM Y:	4522686.91755
Expiration Date:	08/26/2019
Site Type:	Apartment Building/Office Building

Affiliation Records:

Site Id:	18398
Affiliation Type:	Mail Contact
Company Name:	BRONX APARTMENTS, LLC.
Contact Type:	Not reported
Contact Name:	JACOB
Address1:	329 HEWES ST 2ND FL
Address2:	Not reported
City:	BROOKLYN
State:	NY
Zip Code:	11211
Country Code:	001
Phone:	(718) 599-0066
EMail:	MICHAEL@PARADISEMANAGEMENTNY.COM
Fax Number:	Not reported
Modified By:	KAKYER
Date Last Modified:	2013-06-12

Site Id:	18398
Affiliation Type:	Facility Operator
Company Name:	BRONX APARTMENTS, LLC.
Contact Type:	Not reported
Contact Name:	JACOB SCHWARTZ
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(347) 243-9998
EMail:	Not reported
Fax Number:	Not reported
Modified By:	KAKYER
Date Last Modified:	2013-06-12

Site Id:	18398
Affiliation Type:	Emergency Contact
Company Name:	BRONX APARTMENTS, LLC

BRONX APARTMENTS, LLC. (Continued) **A100168943**

Contact Type:	Not reported
Contact Name:	JACOB SCHWARTZ
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	3472) 439-998
EMail:	Not reported
Fax Number:	Not reported
Modified By:	KAKYER
Date Last Modified:	2013-06-12

Site Id:	18398
Affiliation Type:	Facility Owner
Company Name:	BRONX APARTMENTS, LLC
Contact Type:	OWNER
Contact Name:	ISAAC HERSHKOVITZ
Address1:	329 HEWES ST 2ND FL
Address2:	Not reported
City:	BROOKLYN
State:	NY
Zip Code:	11211
Country Code:	001
Phone:	(718) 599-0066
EMail:	Not reported
Fax Number:	Not reported
Modified By:	KAKYER
Date Last Modified:	2013-06-12

Tank Info:

Tank Number:	001
Tank Id:	25937
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

Equipment Records:

I04 - Overfill - Product Level Gauge (A/G)
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
E00 - Piping Secondary Containment - None
G03 - Tank Secondary Containment - Vault (w/o access)
H00 - Tank Leak Detection - None
J02 - Dispenser - Suction Dispenser
L09 - Piping Leak Detection - Exempt Suction Piping
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
K00 - Spill Prevention - None

Tank Location:	Aboveground - contact with soil.... Tank bottom rests on soil, allowing no visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported

BRONX APARTMENTS, LLC. (Continued) **A100168943**

Install Date:	03/15/1988
Capacity Gallons:	4000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	KAKYER
Last Modified:	04/14/2017
Material Name:	#2 fuel oil (on-site consumption)

U150 **1940 WEBSTER AVENUE REALTY, INC.** **NY UST** **U001832518**
WNW **1940 WEBSTER AVE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.149 mi.
786 ft. **Site 1 of 6 in cluster U**

Relative:
Lower

Actual:
44 ft.

UST:

Id/Status:	2-099066 / Unregulated/Closed
Program Type:	PBS
Region:	STATE
DEC Region:	2
Expiration Date:	N/A
UTM X:	592711.28908
UTM Y:	4522545.29486
Site Type:	Trucking/Transportation/Fleet Operation

Affiliation Records:

Site Id:	2925
Affiliation Type:	Facility Owner
Company Name:	1940 WEBSTER AVENUE REALTY, INC.
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	554 EAST 191ST STREET
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10458
Country Code:	001
Phone:	(718) 584-8611
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Site Id:	2925
Affiliation Type:	Mail Contact
Company Name:	1940 WEBSTER AVENUE REALTY, INC.
Contact Type:	Not reported
Contact Name:	MICHAEL GIACINTI, PRES.
Address1:	554 EAST 191ST STREET
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10458
Country Code:	001
Phone:	(718) 584-8611
EMail:	Not reported

1940 WEBSTER AVENUE REALTY, INC. (Continued) **U001832518**

Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Site Id:	2925
Affiliation Type:	Facility Operator
Company Name:	1940 WEBSTER AVENUE REALTY, INC.
Contact Type:	Not reported
Contact Name:	MICHAEL GIACINTI
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 584-8611
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Site Id:	2925
Affiliation Type:	Emergency Contact
Company Name:	1940 WEBSTER AVENUE REALTY, INC.
Contact Type:	Not reported
Contact Name:	MICHAEL GIACINTI
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 584-8611
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Tank Info:

Tank Number:	001
Tank ID:	4683
Tank Status:	Closed - In Place
Material Name:	Closed - In Place
Capacity Gallons:	4000
Install Date:	12/01/1983
Date Tank Closed:	01/01/1997
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Material Code:	0008
Common Name of Substance:	Diesel

Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Pipe Model:	Not reported

1940 WEBSTER AVENUE REALTY, INC. (Continued) **U001832518**

Modified By: TRANSLAT
Last Modified: 04/14/2017

Equipment Records:

C02 - Pipe Location - Underground/On-ground
J01 - Dispenser - Pressurized Dispenser
D02 - Pipe Type - Galvanized Steel
A01 - Tank Internal Protection - Epoxy Liner
I04 - Overfill - Product Level Gauge (A/G)
H03 - Tank Leak Detection - Vapor Well
B01 - Tank External Protection - Painted/Asphalt Coating
F01 - Pipe External Protection - Painted/Asphalt Coating
G04 - Tank Secondary Containment - Double-Walled (Underground)

N151 **CON EDISON SERVICE BOX: 10457** **RCRA NonGen / NLR** **1016960451**
WNW **1938 WEBSTER AVE FRONT OF** **NY MANIFEST** **NYP004324208**
1/8-1/4 **BRONX, NY 10461**
0.149 mi.
788 ft. **Site 2 of 3 in cluster N**

Relative:
Lower

Actual:
44 ft.

RCRA NonGen / NLR:
Date form received by agency: 08/02/2013
Facility name: CON EDISON SERVICE BOX: 10457
Facility address: 1938 WEBSTER AVE FRONT OF
BRONX, NY 10461
EPA ID: NYP004324208
Mailing address: IRVING PL, RM 828
NEW YORK, NY 10003
Contact: CHRISTOPHER BLAICH
Contact address: Not reported
Not reported
Contact country: Not reported
Contact telephone: 914-925-6219
Contact email: Not reported
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 07/02/2013

CON EDISON SERVICE BOX: 10457 (Continued) **1016960451**

Site name: CON EDISON SERVICE BOX: 10457
Classification: Conditionally Exempt Small Quantity Generator

Violation Status: No violations found

NY MANIFEST:
Country: USA
EPA ID: NYP004324208
Facility Status: Not reported
Location Address 1: OPO #1938 WEBSTER AVE
Code: BP
Location Address 2: SB #10457
Total Tanks: Not reported
Location City: BRONX
Location State: NY
Location Zip: 10457
Location Zip 4: Not reported

NY MANIFEST:
EPAID: NYP004324208
Mailing Name: CON EDISON
Mailing Contact: CON EDISON
Mailing Address 1: 4 IRVING PLACE 15TH FLOOR
Mailing Address 2: Not reported
Mailing City: NEW YORK
Mailing State: NY
Mailing Zip: 10003
Mailing Zip 4: Not reported
Mailing Country: USA
Mailing Phone: 2124603770

NY MANIFEST:
Document ID: Not reported
Manifest Status: Not reported
seq: Not reported
Year: 2013
Trans1 State ID: NJD003812047
Trans2 State ID: Not reported
Generator Ship Date: 07/01/2013
Trans1 Recv Date: 07/01/2013
Trans2 Recv Date: Not reported
TSD Site Recv Date: 07/08/2013
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: NYP004324208
Trans1 EPA ID: Not reported
Trans2 EPA ID: Not reported
TSDF ID 1: NJD991291105
TSDF ID 2: Not reported
Manifest Tracking Number: 002016824GBF
Import Indicator: N
Export Indicator: N
Discr Quantity Indicator: N
Discr Type Indicator: N
Discr Residue Indicator: N
Discr Partial Reject Indicator: N
Discr Full Reject Indicator: N
Manifest Ref Number: Not reported

CON EDISON SERVICE BOX: 10457 (Continued) **1016960451**

Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H110
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	100
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	1
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

N152 **1934 WEBSTER AVE.** **NY AST** **A100177974**
WNW **1934 WEBSTER AVE.** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.149 mi.
789 ft. **Site 3 of 3 in cluster N**

Relative: **Lower**
Actual: **44 ft.**

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-605672
Program Type:	PBS
UTM X:	592699.57496
UTM Y:	4522521.41571
Expiration Date:	04/16/2021
Site Type:	Apartment Building/Office Building

Affiliation Records:

Site Id:	27539
Affiliation Type:	Facility Owner
Company Name:	PARK OVERLOOK INC.
Contact Type:	MANAGER
Contact Name:	MOSHE ABRAMSON
Address1:	1934 WEBSTER AVENUE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10457
Country Code:	001
Phone:	(718) 294-8930
EMail:	Not reported
Fax Number:	Not reported

1934 WEBSTER AVE. (Continued) **A100177974**

Modified By:	KXTANG
Date Last Modified:	2006-02-01
Site Id:	27539
Affiliation Type:	Mail Contact
Company Name:	TRATT
Contact Type:	Not reported
Contact Name:	MOSHE ABRAMSON
Address1:	1930 WEBSTER AVE.
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10457
Country Code:	001
Phone:	(917) 763-9049
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04
Site Id:	27539
Affiliation Type:	Facility Operator
Company Name:	1934 WEBSTER AVE.
Contact Type:	Not reported
Contact Name:	NOEL CIATRON
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 466-2200
EMail:	Not reported
Fax Number:	Not reported
Modified By:	KXTANG
Date Last Modified:	2006-02-01
Site Id:	27539
Affiliation Type:	Emergency Contact
Company Name:	PARK OVERLOOK INC.
Contact Type:	Not reported
Contact Name:	ANDRE ROMAN
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(718) 294-8930
EMail:	Not reported
Fax Number:	Not reported
Modified By:	KXTANG
Date Last Modified:	2006-02-01

Tank Info:

Tank Number:	01

1934 WEBSTER AVE. (Continued) **A100177974**

Tank Id:	60223
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

Equipment Records:

G03 - Tank Secondary Containment - Vault (w/o access)
H00 - Tank Leak Detection - None
L09 - Piping Leak Detection - Exempt Suction Piping
C03 - Pipe Location - Aboveground/Underground Combination
J02 - Dispenser - Suction Dispenser
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
I04 - Overfill - Product Level Gauge (A/G)
B00 - Tank External Protection - None
F00 - Pipe External Protection - None
I05 - Overfill - Vent Whistle

Tank Location:	Aboveground - contact with soil.... Tank bottom rests on soil, allowing no visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	07/15/1974
Capacity Gallons:	4000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	MSBAPTIS
Last Modified:	04/14/2017
Material Name:	#2 fuel oil (on-site consumption)

T153 **EAGLE ACADEMY FOR YOUNG MEM** **NY UST** **U004125674**
South **4143 THIRD AVENUE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.150 mi.
793 ft. **Site 2 of 2 in cluster T**

Relative: **Lower**
Actual: **49 ft.**

UST:

Id/Status:	2-610939 / Unregulated/Closed
Program Type:	PBS
Region:	STATE
DEC Region:	2
Expiration Date:	N/A
UTM X:	592975.36193
UTM Y:	4522140.18400
Site Type:	Apartment Building/Office Building

Affiliation Records:

Site Id:	404313
Affiliation Type:	Facility Owner
Company Name:	NEW YORK CITY DEPARTMENT OF EDUCATION
Contact Type:	DIR OF OPERATIONS
Contact Name:	MICHAEL LI
Address1:	4143 THIRD AVE.
Address2:	Not reported
City:	BRONX
State:	NY

EAGLE ACADEMY FOR YOUNG MEM (Continued) **U004125674**

Zip Code:	10457
Country Code:	001
Phone:	(718) 349-5738
EMail:	Not reported
Fax Number:	Not reported
Modified By:	dxliving
Date Last Modified:	2008-09-22

Site Id:	404313
Affiliation Type:	Mail Contact
Company Name:	EAI, INC.
Contact Type:	Not reported
Contact Name:	MICHAEL LI
Address1:	50 PRESCOTT ST.
Address2:	Not reported
City:	JERSEY CITY
State:	NJ
Zip Code:	07304
Country Code:	001
Phone:	(201) 395-0010
EMail:	MIKEL@EAIENVIRO.COM
Fax Number:	Not reported
Modified By:	dxliving
Date Last Modified:	2008-09-22

Site Id:	404313
Affiliation Type:	Facility Operator
Company Name:	EAGLE ACADEMY FOR YOUNG MEM
Contact Type:	Not reported
Contact Name:	NYC DEPT OF EDUCATION
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 349-5738
EMail:	Not reported
Fax Number:	Not reported
Modified By:	dxliving
Date Last Modified:	2008-09-22

Site Id:	404313
Affiliation Type:	Emergency Contact
Company Name:	NEW YORK CITY DEPARTMENT OF EDUCATION
Contact Type:	Not reported
Contact Name:	JAMES MERLO
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 349-5738
EMail:	Not reported
Fax Number:	Not reported
Modified By:	dxliving

EAGLE ACADEMY FOR YOUNG MEM (Continued) **U004125674**

Date Last Modified: 2008-09-22

Tank Info:

Tank Number:	1
Tank ID:	225255
Tank Status:	Closed - Removed
Material Name:	Closed - Removed
Capacity Gallons:	2875
Install Date:	Not reported
Date Tank Closed:	08/21/2008
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Material Code:	0003
Common Name of Substance:	#6 Fuel Oil (On-Site Consumption)
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Pipe Model:	Not reported
Modified By:	dxliving
Last Modified:	04/14/2017

Equipment Records:

E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None
I00 - Overfill - None
A00 - Tank Internal Protection - None
K00 - Spill Prevention - None
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
G00 - Tank Secondary Containment - None
J00 - Dispenser - None
D00 - Pipe Type - No Piping
L00 - Piping Leak Detection - None

P154 **NYC DEPT OF EDUCATION - PS 211X** **RCRA-SQG 1018159241**
ENE **560 E 179TH ST** **FINDS NYR000223461**
1/8-1/4 **BRONX, NY 10457** **ECHO**
0.155 mi.
817 ft. **Site 3 of 6 in cluster P**

Relative:
Higher

Actual:
92 ft.

RCRA-SQG:

Date form received by agency:	10/20/2015
Facility name:	NYC DEPT OF EDUCATION - PS 211X
Facility address:	560 E 179TH ST BRONX, NY 10457
EPA ID:	NYR000223461
Mailing address:	THOMSON AVE LONG ISLAND CITY, NY 11101
Contact:	ALEXANDER LEMPERT
Contact address:	THOMSON AVE LONG ISLAND CITY, NY 11101
Contact country:	US
Contact telephone:	718-472-8501
Contact email:	ALEMPERT@NYCSCA.ORG

NYC DEPT OF EDUCATION - PS 211X (Continued) **1018159241**

EPA Region: 02
Classification: Small Small Quantity Generator
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:
Owner/operator name: NYC DEPT OF EDUCATION
Owner/operator address: THOMSON AVE
LONG ISLAND CITY, NY 11101
Owner/operator country: US
Owner/operator telephone: 718-472-8501
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Municipal
Owner/Operator Type: Owner
Owner/Op start date: 10/31/1969
Owner/Op end date: Not reported

Owner/operator name: NYC DEPT OF SCHOOL FACILITIES
Owner/operator address: Not reported
Not reported
Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Municipal
Owner/Operator Type: Operator
Owner/Op start date: 10/31/1969
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

. Waste code: B004
. Waste name: PCB articles containing 50 ppm or greater of PCBs, but less than 500 ppm PCBs, excluding small capacitors. This includes oil-filled electrical equipment whose PCB concentration is unknown, except for

NYC DEPT OF EDUCATION - PS 211X (Continued) **1018159241**

circuit breakers, reclosers and cable.

. Waste code: B007
. Waste name: Other PCB wastes, including contaminated soil, solids, sludges, clothing, rags and dredge material.

Violation Status: No violations found

FINDS:

Registry ID: 110066948478

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1018159241
Registry ID: 110066948478
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110066948478

P155 **PUBLIC SCHOOL 211/257 ANNEX - BRONX** **NY AST** **U001839788**
ENE **560 EAST 179TH STREET** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.155 mi.
817 ft. **Site 4 of 6 in cluster P**

Relative:
Higher

Actual:
92 ft.

AST:
Region: STATE
DEC Region: 2
Site Status: Active
Facility Id: 2-352306
Program Type: PBS
UTM X: 593290.90024
UTM Y: 4522574.29242
Expiration Date: 06/28/2023
Site Type: School

Affiliation Records:
Site Id: 17430
Affiliation Type: Facility Owner
Company Name: NEW YORK CITY DEPARTMENT OF EDUCATION
Contact Type: MANAGER, FUEL DIVISION
Contact Name: MUNENDRA SHARMA
Address1: 44-36 VERNON BOULEVARD
Address2: Not reported
City: LONG ISLAND CITY
State: NY
Zip Code: 11101
Country Code: 001

PUBLIC SCHOOL 211/257 ANNEX - BRONX (Continued) **U001839788**

Phone:	(718) 349-5752
EMail:	Not reported
Fax Number:	Not reported
Modified By:	ACDANIEL
Date Last Modified:	2018-07-17

Site Id:	17430
Affiliation Type:	Mail Contact
Company Name:	NYC DEPARTMENT OF EDUCATION
Contact Type:	Not reported
Contact Name:	MUNENDRA SHARMA
Address1:	FIELD OPERATIONS - FUEL DIVISION
Address2:	44-36 VERNON BOULEVARD
City:	LONG ISLAND CITY
State:	NY
Zip Code:	11101
Country Code:	001
Phone:	(718) 349-5752
EMail:	MSHARMA@SCHOOLS.NYC.GOV
Fax Number:	Not reported
Modified By:	ACDANIEL
Date Last Modified:	2018-07-17

Site Id:	17430
Affiliation Type:	Facility Operator
Company Name:	PUBLIC SCHOOL 211/257 ANNEX - BRONX
Contact Type:	Not reported
Contact Name:	JULIO CUADRAS
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 466-1581
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2014-06-05

Site Id:	17430
Affiliation Type:	Emergency Contact
Company Name:	NEW YORK CITY DEPARTMENT OF EDUCATION
Contact Type:	Not reported
Contact Name:	KEN MAHADEO
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(646) 210-7918
EMail:	Not reported
Fax Number:	Not reported
Modified By:	JSMACRI
Date Last Modified:	2018-12-06

PUBLIC SCHOOL 211/257 ANNEX - BRONX (Continued) **U001839788**

Tank Info:

Tank Number:	001
Tank Id:	34153
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

Equipment Records:

	E00 - Piping Secondary Containment - None
	H06 - Tank Leak Detection - Impervious Barrier/Concrete Pad (A/G)
	L00 - Piping Leak Detection - None
	J02 - Dispenser - Suction Dispenser
	C03 - Pipe Location - Aboveground/Underground Combination
	I04 - Overfill - Product Level Gauge (A/G)
	G02 - Tank Secondary Containment - Vault (w/access)
	K00 - Spill Prevention - None
	B01 - Tank External Protection - Painted/Asphalt Coating
	D01 - Pipe Type - Steel/Carbon Steel/Iron
	F01 - Pipe External Protection - Painted/Asphalt Coating
	A00 - Tank Internal Protection - None
Tank Location:	Aboveground - on saddles, legs, racks, etc.... Tank bottom is elevated above grade or tank pad, allowing visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	02/17/1979
Capacity Gallons:	5000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	DMPOKRZY
Last Modified:	04/13/2018
Material Name:	#2 fuel oil (on-site consumption)

P156 **NYC DEPT OF EDUCATION - PS 211X** **NY MANIFEST** **S118708579**
ENE **560 E 179TH ST** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.155 mi.
817 ft. **Site 5 of 6 in cluster P**

Relative:
Higher

Actual:
92 ft.

NY MANIFEST:

Country:	USA
EPA ID:	NYR000223461
Facility Status:	Not reported
Location Address 1:	560 E 179TH ST
Code:	BP
Location Address 2:	Not reported
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	10457
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYR000223461

NYC DEPT OF EDUCATION - PS 211X (Continued) **S118708579**

Mailing Name:	NYC DEPT OF EDUCATION - PS 211X
Mailing Contact:	NYC DEPT OF EDUCATION
Mailing Address 1:	44-36 VERNON BLVD
Mailing Address 2:	Not reported
Mailing City:	LONG ISLAND CITY
Mailing State:	NY
Mailing Zip:	11101
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	7183495649

NY MANIFEST:

Document ID:	Not reported
Manifest Status:	Not reported
seq:	Not reported
Year:	2016
Trans1 State ID:	MAC300016672
Trans2 State ID:	Not reported
Generator Ship Date:	04/18/2016
Trans1 Recv Date:	04/18/2016
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	04/20/2016
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000223461
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NYD077444263
TSDF ID 2:	Not reported
Manifest Tracking Number:	009437888FLE
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H141
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	182
Units:	K - Kilograms (2.2 pounds)
Number of Containers:	10
Container Type:	BA - Burlap, plastic, paper bags
Handling Method:	L Landfill.
Specific Gravity:	1
Waste Code:	B007
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported

NYC DEPT OF EDUCATION - PS 211X (Continued) **S118708579**

Waste Code 1_5: Not reported
Waste Code 1_6: Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

P157 **TRI-BEL, LP** **NY AST** **U003396053**
East **2029 LA FONTAINE AVE.** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.156 mi.
825 ft. **Site 6 of 6 in cluster P**

Relative:
Higher

Actual:
90 ft.

AST:
Region: STATE
DEC Region: 2
Site Status: Unregulated/Closed
Facility Id: 2-601178
Program Type: PBS
UTM X: 593314.59513
UTM Y: 4522506.12498
Expiration Date: N/A
Site Type: Apartment Building/Office Building

Affiliation Records:
Site Id: 23148
Affiliation Type: Mail Contact
Company Name: TRI-BEL L.P.
Contact Type: PRESIDENT
Contact Name: CONSOLATO CICCIU
Address1: 660 E 183RD ST.
Address2: Not reported
City: BRONX
State: NY
Zip Code: 10458
Country Code: 001
Phone: (718) 295-2882
EMail: Not reported
Fax Number: Not reported
Modified By: LSZINOMA
Date Last Modified: 2016-03-25

Site Id: 23148
Affiliation Type: Facility Operator
Company Name: TRI-BEL, LP
Contact Type: Not reported
Contact Name: NA
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 001
Phone: (212) 716-0223
EMail: Not reported
Fax Number: Not reported
Modified By: LSZINOMA
Date Last Modified: 2016-03-25

TRI-BEL, LP (Continued) **U003396053**

Site Id:	23148
Affiliation Type:	Emergency Contact
Company Name:	TRI-BEL L.P.
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	Not reported
EMail:	Not reported
Fax Number:	Not reported
Modified By:	LSZINOMA
Date Last Modified:	2016-03-25

Site Id:	23148
Affiliation Type:	Facility Owner
Company Name:	TRI-BEL L.P.
Contact Type:	PRESIDENT
Contact Name:	CONSOLATO CICCIU
Address1:	660 E 183RD ST.
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10458
Country Code:	001
Phone:	(718) 295-2882
EMail:	Not reported
Fax Number:	Not reported
Modified By:	LSZINOMA
Date Last Modified:	2016-03-25

Tank Info:

Tank Number:	1
Tank Id:	44876
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

Equipment Records:

C03 - Pipe Location - Aboveground/Underground Combination
J02 - Dispenser - Suction Dispenser
I05 - Overfill - Vent Whistle
G03 - Tank Secondary Containment - Vault (w/o access)
H00 - Tank Leak Detection - None
L09 - Piping Leak Detection - Exempt Suction Piping
A00 - Tank Internal Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
D01 - Pipe Type - Steel/Carbon Steel/Iron
F01 - Pipe External Protection - Painted/Asphalt Coating

Tank Location:	Aboveground - contact with soil.... Tank bottom rests on soil, allowing no visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	Closed - Removed

TRI-BEL, LP (Continued) **U003396053**

Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	2000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	09/30/1999
Register:	True
Modified By:	LSZINOMA
Last Modified:	04/14/2017
Material Name:	#2 fuel oil (on-site consumption)

V158 **TREMONT RENAISSANCE** **NY UST** **U004257544**
West **1910-1916 WEBSTER AVE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.157 mi.
827 ft. **Site 1 of 4 in cluster V**

Relative:
Lower

Actual:
43 ft.

UST:

Id/Status:	2-612654 / Unregulated/Closed
Program Type:	PBS
Region:	STATE
DEC Region:	2
Expiration Date:	N/A
UTM X:	592669.59028
UTM Y:	4522494.50239
Site Type:	Apartment Building/Office Building

Affiliation Records:

Site Id:	537760
Affiliation Type:	Facility Owner
Company Name:	TREMONT RENAISSANCE HDFC, INC.
Contact Type:	PRINCIPAL
Contact Name:	RADAME JOSE PEREZ
Address1:	668 CRESCENT AVENUE, 2ND FLOOR
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10458
Country Code:	001
Phone:	(718) 933-1353
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MFLEONAR
Date Last Modified:	2017-11-13

Site Id:	537760
Affiliation Type:	Mail Contact
Company Name:	BRINKERHOFF ENVIRONMENTAL SERVICES, INC.
Contact Type:	Not reported
Contact Name:	ROBERT HAZARD
Address1:	1805 ATLANTIC AVENUE
Address2:	Not reported
City:	MANASQUAN
State:	NJ
Zip Code:	08736
Country Code:	001
Phone:	(732) 223-2225

TREMONT RENAISSANCE (Continued) **U004257544**

EMail: RHAZARD@BRINKENV.COM
Fax Number: Not reported
Modified By: MFLEONAR
Date Last Modified: 2017-11-13

Site Id: 537760
Affiliation Type: Facility Operator
Company Name: TREMONT RENAISSANCE
Contact Type: Not reported
Contact Name: JOY CONSTRUCTION CORP.
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 001
Phone: (718) 933-1353
EMail: Not reported
Fax Number: Not reported
Modified By: MFLEONAR
Date Last Modified: 2017-11-13

Site Id: 537760
Affiliation Type: Emergency Contact
Company Name: TREMONT RENAISSANCE HDFC, INC.
Contact Type: Not reported
Contact Name: ROBERT HAZARD
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 999
Phone: (718) 933-1353
EMail: Not reported
Fax Number: Not reported
Modified By: MFLEONAR
Date Last Modified: 2017-11-13

Tank Info:

Tank Number: UST-1
Tank ID: 266312
Tank Status: Closed - Removed
Material Name: Closed - Removed
Capacity Gallons: 2000
Install Date: Not reported
Date Tank Closed: 02/04/2016
Registered: True
Tank Location: Underground
Tank Type: Steel/carbon steel
Tightness Test Method: -
Date Test: Not reported
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: MFLEONAR
Last Modified: 11/13/2017

TREMONT RENAISSANCE (Continued) **U004257544**

Equipment Records:

G00 - Tank Secondary Containment - None
C02 - Pipe Location - Underground/On-ground
H00 - Tank Leak Detection - None
I00 - Overfill - None
E00 - Piping Secondary Containment - None
J00 - Dispenser - None
B00 - Tank External Protection - None
F00 - Pipe External Protection - None
K00 - Spill Prevention - None
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
L00 - Piping Leak Detection - None

Tank Number:	UST-2
Tank ID:	266313
Tank Status:	Closed - Removed
Material Name:	Closed - Removed
Capacity Gallons:	550
Install Date:	Not reported
Date Tank Closed:	06/10/2016
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Tightness Test Method:	-
Date Test:	Not reported
Next Test Date:	Not reported
Pipe Model:	Not reported
Modified By:	MFLEONAR
Last Modified:	11/13/2017

Equipment Records:

B00 - Tank External Protection - None
C02 - Pipe Location - Underground/On-ground
G00 - Tank Secondary Containment - None
E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None
I00 - Overfill - None
J00 - Dispenser - None
F00 - Pipe External Protection - None
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
K00 - Spill Prevention - None
L00 - Piping Leak Detection - None

V159 **CON EDISON SERVICE BOX: 13986** **RCRA NonGen / NLR** **1016974090**
West **405 E TREMONT AVE** **NY MANIFEST** **NYP004479002**
1/8-1/4 **BRONX, NY 10457**
0.157 mi.
828 ft. **Site 2 of 4 in cluster V**

Relative: **Lower**

Actual: **41 ft.**

RCRA NonGen / NLR:

Date form received by agency:	04/26/2014
Facility name:	CON EDISON SERVICE BOX: 13986
Facility address:	405 E TREMONT AVE BRONX, NY 10457
EPA ID:	NYP004479002

CON EDISON SERVICE BOX: 13986 (Continued) **1016974090**

Mailing address: IRVING PL, 15TH FL NE
NEW YORK, NY 10003
Contact: THOMAS TEELING
Contact address: Not reported
Not reported
Contact country: Not reported
Contact telephone: 212-460-3770
Contact email: Not reported
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 03/26/2014
Site name: CON EDISON SERVICE BOX: 13986
Classification: Conditionally Exempt Small Quantity Generator

Violation Status: No violations found

NY MANIFEST:
Country: USA
EPA ID: NYP004479002
Facility Status: Not reported
Location Address 1: OPP 405 EAST TREMONT AVE
Code: BP
Location Address 2: SB 13986
Total Tanks: Not reported
Location City: BRONX
Location State: NY
Location Zip: 10457
Location Zip 4: Not reported

NY MANIFEST:
EPAID: NYP004479002
Mailing Name: CON EDISON
Mailing Contact: TOM TEELING
Mailing Address 1: 4 IRVING PLACE - 15TH FLOOR
Mailing Address 2: Not reported
Mailing City: NEW YORK
Mailing State: NY

CON EDISON SERVICE BOX: 13986 (Continued) **1016974090**

Mailing Zip:	10003
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	2124603770

NY MANIFEST:

Document ID:	Not reported
Manifest Status:	Not reported
seq:	Not reported
Year:	2014
Trans1 State ID:	NJD003812047
Trans2 State ID:	Not reported
Generator Ship Date:	03/26/2014
Trans1 Recv Date:	03/26/2014
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	03/27/2014
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004479002
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD991291105
TSDF ID 2:	Not reported
Manifest Tracking Number:	002359755GBF
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H110
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	75
Units:	P - Pounds
Number of Containers:	1
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

CON EDISON SERVICE BOX: 13986 (Continued) **1016974090**

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

R160 **442 EAST 176TH STREET** **NY AST** **A100178034**
SW **442 EAST 176TH STREET** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.157 mi.
831 ft. **Site 3 of 4 in cluster R**

Relative: **Lower**

Actual: **40 ft.**

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-605751
Program Type:	PBS
UTM X:	592790.63585
UTM Y:	4522290.86991
Expiration Date:	02/17/2018
Site Type:	Apartment Building/Office Building

Affiliation Records:

Site Id:	27618
Affiliation Type:	Mail Contact
Company Name:	1991 BATHGATE AVE HDFC
Contact Type:	Not reported
Contact Name:	ERIC VAZQUEZ
Address1:	2811 KMIDDLETOWN RD
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10461
Country Code:	001
Phone:	(718) 828-0155
EMail:	EVAZQUEZ@DUIGERT.COM
Fax Number:	Not reported
Modified By:	MSBAPTIS
Date Last Modified:	2013-03-25

Site Id:	27618
Affiliation Type:	Facility Operator
Company Name:	442 EAST 176TH STREET
Contact Type:	Not reported
Contact Name:	TEDDYT PINERO
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(917) 547-1082
EMail:	Not reported
Fax Number:	Not reported
Modified By:	kakyer
Date Last Modified:	2008-03-05

Site Id:	27618
Affiliation Type:	Emergency Contact
Company Name:	1991 BATHGATE AVE HDFC

442 EAST 176TH STREET (Continued) **A100178034**

Contact Type:	Not reported
Contact Name:	ERIC VAZQUEZ
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(718) 828-0155
EMail:	Not reported
Fax Number:	Not reported
Modified By:	KXTANG
Date Last Modified:	2006-06-14

Site Id:	27618
Affiliation Type:	Facility Owner
Company Name:	1991 BATHGATE AVE HDFC
Contact Type:	MGR
Contact Name:	ERIC VAZQUEZ
Address1:	2811 ZULETTE AVENUE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10461
Country Code:	001
Phone:	(718) 828-0155
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MSBAPTIS
Date Last Modified:	2013-03-25

Tank Info:

Tank Number:	001
Tank Id:	60421
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

Equipment Records:

	C03 - Pipe Location - Aboveground/Underground Combination
	J02 - Dispenser - Suction Dispenser
	B00 - Tank External Protection - None
	F00 - Pipe External Protection - None
	A00 - Tank Internal Protection - None
	D01 - Pipe Type - Steel/Carbon Steel/Iron
	G03 - Tank Secondary Containment - Vault (w/o access)
	H00 - Tank Leak Detection - None
	I00 - Overfill - None
	L09 - Piping Leak Detection - Exempt Suction Piping
Tank Location:	Aboveground - on saddles, legs, racks, etc.... Tank bottom is elevated above grade or tank pad, allowing visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	01/01/1980
Capacity Gallons:	4000

442 EAST 176TH STREET (Continued) **A100178034**

Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	MSBAPTIS
Last Modified:	04/14/2017
Material Name:	#2 fuel oil (on-site consumption)

U161 **ZEPOL ENTERPRISES INC** **RCRA NonGen / NLR** **1000333371**
WNW **1928Z WEBSTER AVE** **NY MANIFEST** **NYD982743924**
1/8-1/4 **BRONX, NY 10457**
0.158 mi.
836 ft. **Site 2 of 6 in cluster U**

Relative:
Lower

Actual:
45 ft.

RCRA NonGen / NLR:

Date form received by agency:	01/01/2007
Facility name:	ZEPOL ENTERPRISES INC
Facility address:	1928Z WEBSTER AVE BRONX, NY 10457-4249
EPA ID:	NYD982743924
Mailing address:	WEBSTER AVE BRONX, NY 10457
Contact:	Not reported
Contact address:	WEBSTER AVE BRONX, NY 10457
Contact country:	US
Contact telephone:	Not reported
Contact email:	Not reported
EPA Region:	02
Land type:	Facility is not located on Indian land. Additional information is not known.
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	DOMINICK LOPEZ
Owner/operator address:	NOT REQUIRED NOT REQUIRED, WY 99999
Owner/operator country:	US
Owner/operator telephone:	212-555-1212
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	DOMINICK LOPEZ
Owner/operator address:	NOT REQUIRED NOT REQUIRED, WY 99999
Owner/operator country:	US
Owner/operator telephone:	212-555-1212
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private

ZEPOL ENTERPRISES INC (Continued) **1000333371**

Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 01/01/2006
Site name: ZEPOL ENTERPRISES INC
Classification: Not a generator, verified

Date form received by agency: 07/08/1999
Site name: ZEPOL ENTERPRISES INC
Classification: Not a generator, verified

Date form received by agency: 07/06/1989
Site name: ZEPOL ENTERPRISES INC
Classification: Large Quantity Generator

. Waste code: F001
. Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS USED IN DEGREASING: TETRACHLOROETHYLENE, TRICHLORETHYLENE, METHYLENE CHLORIDE, 1,1,1-TRICHLOROETHANE, CARBON TETRACHLORIDE AND CHLORINATED FLUOROCARBONS; ALL SPENT SOLVENT MIXTURES/BLENDS USED IN DEGREASING CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Violation Status: No violations found

Evaluation Action Summary:
Evaluation date: 08/27/1993
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA Contractor/Grantee

NY MANIFEST:
Country: USA
EPA ID: NYD982743924

ZEPOL ENTERPRISES INC (Continued) **1000333371**

Facility Status:	Not reported
Location Address 1:	1928-Z WEBSTER AVENUE
Code:	BP
Location Address 2:	Not reported
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	10457
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYD982743924
Mailing Name:	ZEPOL ENTERPRISES INC
Mailing Contact:	ZEPOL ENTERPRISES INC
Mailing Address 1:	1928-Z WEBSTER AVENUE
Mailing Address 2:	Not reported
Mailing City:	BRONX
Mailing State:	NY
Mailing Zip:	10457
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	2125837400

NY MANIFEST:

Document ID:	NYB4036455
Manifest Status:	C
seq:	Not reported
Year:	1993
Trans1 State ID:	IA7667
Trans2 State ID:	Not reported
Generator Ship Date:	03/04/1993
Trans1 Recv Date:	03/04/1993
Trans2 Recv Date:	/ /
TSD Site Recv Date:	03/08/1993
Part A Recv Date:	/ /
Part B Recv Date:	03/23/1993
Generator EPA ID:	NYD982743924
Trans1 EPA ID:	NYD057722258
Trans2 EPA ID:	Not reported
TSDF ID 1:	NYD057722258
TSDF ID 2:	Not reported
Manifest Tracking Number:	Not reported
Import Indicator:	Not reported
Export Indicator:	Not reported
Discr Quantity Indicator:	Not reported
Discr Type Indicator:	Not reported
Discr Residue Indicator:	Not reported
Discr Partial Reject Indicator:	Not reported
Discr Full Reject Indicator:	Not reported
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	Not reported
Waste Code:	F001 - UNKNOWN
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported

ZEPOL ENTERPRISES INC (Continued) **1000333371**

Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	00032
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	121

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

U162 **CON EDISON SERVICE BOX: 10465** **RCRA NonGen / NLR** **1016960720**
WNW **1928 WEBSTER AVE** **NY MANIFEST** **NYP004328514**
1/8-1/4 **BRONX, NY 10457**
0.159 mi.
838 ft. **Site 3 of 6 in cluster U**

Relative:
Lower

Actual:
45 ft.

RCRA NonGen / NLR:

Date form received by agency:	08/12/2013
Facility name:	CON EDISON SERVICE BOX: 10465
Facility address:	1928 WEBSTER AVE
	BRONX, NY 10457
EPA ID:	NYP004328514
Mailing address:	IRVING PL, RM 828
	NEW YORK, NY 10003
Contact:	DOMINIC BIZZARO
Contact address:	Not reported
	Not reported
Contact country:	Not reported
Contact telephone:	914-925-6219
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Historical Generators:

Date form received by agency:	07/12/2013
Site name:	CON EDISON SERVICE BOX: 10465

CON EDISON SERVICE BOX: 10465 (Continued) **1016960720**

Classification: Conditionally Exempt Small Quantity Generator

Violation Status: No violations found

NY MANIFEST:
Country: USA
EPA ID: NYP004328514
Facility Status: Not reported
Location Address 1: FO 1928 WEBSTER AVE
Code: BP
Location Address 2: SB #10465
Total Tanks: Not reported
Location City: BRONX
Location State: NY
Location Zip: 10457
Location Zip 4: Not reported

NY MANIFEST:
EPAID: NYP004328514
Mailing Name: CON EDISON
Mailing Contact: CON EDISON
Mailing Address 1: 4 IRVING PLACE 15TH FLOOR
Mailing Address 2: Not reported
Mailing City: NEW YORK
Mailing State: NY
Mailing Zip: 10003
Mailing Zip 4: Not reported
Mailing Country: USA
Mailing Phone: 2124603770

NY MANIFEST:
Document ID: Not reported
Manifest Status: Not reported
seq: Not reported
Year: 2013
Trans1 State ID: NJD003812047
Trans2 State ID: Not reported
Generator Ship Date: 07/12/2013
Trans1 Recv Date: 07/12/2013
Trans2 Recv Date: Not reported
TSD Site Recv Date: 07/16/2013
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: NYP004328514
Trans1 EPA ID: Not reported
Trans2 EPA ID: Not reported
TSDF ID 1: NJD991291105
TSDF ID 2: Not reported
Manifest Tracking Number: 002085365GBF
Import Indicator: N
Export Indicator: N
Discr Quantity Indicator: N
Discr Type Indicator: N
Discr Residue Indicator: N
Discr Partial Reject Indicator: N
Discr Full Reject Indicator: N
Manifest Ref Number: Not reported
Alt Facility RCRA ID: Not reported

CON EDISON SERVICE BOX: 10465 (Continued) **1016960720**

Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H110
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	100
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	1
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

W163 **CON EDISON** **NY MANIFEST** **S121968887**
NE **4340 3RD AVE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.160 mi.
843 ft. **Site 1 of 14 in cluster W**

Relative:
Higher

Actual:
79 ft.

NY MANIFEST:

Country:	USA
EPA ID:	NYR000007133
Facility Status:	Not reported
Location Address 1:	4340 3RD AVE
Code:	BP
Location Address 2:	Not reported
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	10457
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYR000007133
Mailing Name:	CON EDISON
Mailing Contact:	CON EDISON
Mailing Address 1:	4 IRVING PLACE
Mailing Address 2:	15TH FL
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	10003
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	Not reported

CON EDISON (Continued) **S121968887**

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

W164 **EAST 179TH ST SUB STATION** **NY LTANKS** **S102239844**
NE **4340 3RD AVE** **N/A**
1/8-1/4 **BRONX, NY**
0.160 mi.
843 ft. **Site 2 of 14 in cluster W**

Relative: LTANKS:
Higher

Actual: Spill Number/Closed Date:	9703734 / 2002-05-29
79 ft. Facility ID:	9703734
Site ID:	160608
Spill Date:	1997-06-26
Spill Cause:	Tank Overfill
Spill Source:	Commercial/Industrial
Spill Class:	C4
Cleanup Ceased:	Not reported
SWIS:	0301
Investigator:	CAENGELH
Referred To:	Not reported
Reported to Dept:	1997-06-26
CID:	366
Water Affected:	Not reported
Spill Notifier:	Responsible Party
Last Inspection:	Not reported
Recommended Penalty:	False
Meets Standard:	False
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	1997-06-26
Spill Record Last Update:	2002-05-29
Spiller Name:	Not reported
Spiller Company:	CON ED
Spiller Address:	4 IRVING PLACE
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	135601
DEC Memo:	"Prior to Sept, 2004 data translation this spill Lead_DEC Field was ENGELHARDT Con Ed e2mis #108697: 6/26/97 0855hrs Substation Operator Sheehan reports oil spill from transformer #1 conservator tank. Oil is leaking out of breather down TRF onto bluestone. 8gal to bluestone. Pads and pigs placed. 7/18/97 1235hrs Job completed by CSD Transformer Group. Oil contaminated bluestone removed and replaced. Oil level lowered in caonservator tank. Con Ed e2mis #108699: Approx 150gal spilled over a period of 4weeks from leaking bleeder valve on top of transformer. Transformer removed from service on a class 1 emergency. Repairs were completed on 6/27/97 at 11:00. Cleanup of bluestone and soil completed on 6/30/97 at 3:30pm by Transformer Group-R. Ammermuller. DEC Inspector Notes: 5/28/02 Foley inspected Transformer #1 with SSO EH&S Tom Whipple and Joe Susco. No active leaks at this time. "
Remarks:	"OVERFILL OF TRANSFORMER OIL INTO TANK. CON ED IS IN PROCESS OF CLEANING."

EAST 179TH ST SUB STATION (Continued) **S102239844**

All Materials:

Site ID:	160608
Operable Unit ID:	1049609
Operable Unit:	01
Material ID:	333017
Material Code:	0020A
Material Name:	transformer oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	8.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

W165 **CON EDISON** **NJ MANIFEST** **S120671834**
NE **4340 3 AVE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.160 mi.
843 ft. **Site 3 of 14 in cluster W**

Relative: **Higher**
Actual: **79 ft.**

NJ MANIFEST:

EPA Id:	NYP004783254
Mail Address:	IRVING PLACE, 15TH FL NE
Mail City/State/Zip:	NEW YORK, NY 10003
Facility Phone:	Not reported
Emergency Phone:	Not reported
Contact:	THERESA BURKARD
Comments:	Not reported
SIC Code:	Not reported
County:	NY005
Municipal:	Not reported
Previous EPA Id:	Not reported
Gen Flag:	Not reported
Trans Flag:	Not reported
TSDF Flag:	Not reported
Name Change:	Not reported
Date Change:	Not reported

Manifest:

Manifest Number:	002661084GBF
EPA ID:	NYP004783254
Date Shipped:	5/15/2015
TSDF EPA ID:	NJD991291105
Transporter EPA ID:	NJD003812047
Transporter 2 EPA ID:	Not reported
Transporter 3 EPA ID:	Not reported
Transporter 4 EPA ID:	Not reported
Transporter 5 EPA ID:	Not reported
Transporter 6 EPA ID:	Not reported
Transporter 7 EPA ID:	Not reported
Transporter 8 EPA ID:	Not reported
Transporter 9 EPA ID:	Not reported
Transporter 10 EPA ID:	Not reported
Date Trans1 Transported Waste:	Not reported
Date Trans2 Transported Waste:	Not reported
Date Trans3 Transported Waste:	Not reported
Date Trans4 Transported Waste:	Not reported

CON EDISON (Continued) **S120671834**

Date Trans5 Transported Waste:	Not reported
Date Trans6 Transported Waste:	Not reported
Date Trans7 Transported Waste:	Not reported
Date Trans8 Transported Waste:	Not reported
Date Trans9 Transported Waste:	Not reported
Date Trans10 Transported Waste:	Not reported
Date TSDF Received Waste:	Not reported
TSDF EPA Facility Name:	Not reported
QTY Units:	Not reported
Transporter SEQ ID:	Not reported
Transporter-1 Date:	Not reported
Waste SEQ ID:	Not reported
Waste Type Code 2:	Not reported
Waste Type Code 3:	Not reported
Waste Type Code 4:	Not reported
Waste Type Code 5:	Not reported
Waste Type Code 6:	Not reported
Date Accepted:	Not reported
Manifest Discrepancy Type:	Not reported
Data Entry Number:	Not reported
Was Load Rejected:	NEW YORK, NY 10003
Reason Load Was Rejected:	Not reported

W166 **CON EDISON** **NY MANIFEST** **S117738180**
NE **4340 3RD AVENUE** **N/A**
1/8-1/4 **BRONX, NY 10452**
0.160 mi.
843 ft. **Site 4 of 14 in cluster W**

Relative:
Higher

Actual:
79 ft.

NY MANIFEST:

Country:	USA
EPA ID:	NYP004710372
Facility Status:	Not reported
Location Address 1:	4340 3RD AVENUE
Code:	BP
Location Address 2:	Not reported
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	10452
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYP004710372
Mailing Name:	CON EDISON
Mailing Contact:	CON EDISON
Mailing Address 1:	4 IRVING PL
Mailing Address 2:	15TH FL
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	10003
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	Not reported

CON EDISON (Continued) **S117738180**

NY MANIFEST:

Document ID:	Not reported
Manifest Status:	Not reported
seq:	Not reported
Year:	2014
Trans1 State ID:	NJD003812047
Trans2 State ID:	NJD003812047
Generator Ship Date:	12/26/2014
Trans1 Recv Date:	12/26/2014
Trans2 Recv Date:	12/29/2014
TSD Site Recv Date:	12/29/2014
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004710372
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD991291105
TSDF ID 2:	Not reported
Manifest Tracking Number:	002564812GBF
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H110
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	3000
Units:	P - Pounds
Number of Containers:	1
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

W167 **CON EDISON - E 179TH ST SUBSTATION** **RCRA-LQG** **1001028481**
NE **4340 3RD AVE** **NY Spills** **NYR000007138**
1/8-1/4 **BRONX, NY 10457** **FINDS**
0.160 mi. **ECHO**
843 ft. **Site 5 of 14 in cluster W** **NY MANIFEST**

Relative:
Higher

Actual:
79 ft.

RCRA-LQG:

Date form received by agency:	02/26/2016
Facility name:	CON EDISON - E 179TH ST SUBSTATION
Facility address:	4340 3RD AVE BRONX, NY 10457
EPA ID:	NYR000007138
Mailing address:	IRVING PL15TH FL NE NEW YORK, NY 10003
Contact:	THERESA BURKARD
Contact address:	IRVING PL15TH FL NE NEW YORK, NY 10003
Contact country:	US
Contact telephone:	212-460-2262
Contact email:	BURKARDT@CONED.COM
EPA Region:	02
Land type:	Private
Classification:	Large Quantity Generator
Description:	Handler: generates 1,000 kg or more of hazardous waste during any calendar month; or generates more than 1 kg of acutely hazardous waste during any calendar month; or generates more than 100 kg of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month; or generates 1 kg or less of acutely hazardous waste during any calendar month, and accumulates more than 1 kg of acutely hazardous waste at any time; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates more than 100 kg of that material at any time

Owner/Operator Summary:

Owner/operator name:	CONSOLIDATED EDISON CO OF NY INC
Owner/operator address:	IRVING PL NEW YORK, NY 10003
Owner/operator country:	US
Owner/operator telephone:	Not reported
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	01/01/2006
Owner/Op end date:	Not reported

Owner/operator name:	CONSOLIDATED EDISON CO OF NY INC
Owner/operator address:	IRVING PL NEW YORK, NY 10003
Owner/operator country:	US
Owner/operator telephone:	Not reported
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private

CON EDISON - E 179TH ST SUBSTATION (Continued) **1001028481**

Owner/Operator Type: Operator
Owner/Op start date: 01/01/2006
Owner/Op end date: Not reported

Owner/operator name: CON EDISON CO OF NY INC
Owner/operator address: 4 IRVING PL
NEW YORK, NY 10003
Owner/operator country: Not reported
Owner/operator telephone: 212-460-4833
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

. Waste code: B004
. Waste name: PCB articles containing 50 ppm or greater of PCBs, but less than 500 ppm PCBs, excluding small capacitors. This includes oil-filled electrical equipment whose PCB concentration is unknown, except for circuit breakers, reclosers and cable.

. Waste code: B005
. Waste name: PCB articles, other than transformers, that contain 500 ppm or greater of PCBs, excluding small capacitors.

. Waste code: B007
. Waste name: Other PCB wastes, including contaminated soil, solids, sludges, clothing, rags and dredge material.

Historical Generators:
Date form received by agency: 01/01/2007
Site name: CON EDISION - E. 179TH ST
Classification: Small Quantity Generator

Date form received by agency: 01/01/2006
Site name: CON EDISION - E. 179TH ST
Classification: Conditionally Exempt Small Quantity Generator

CON EDISON - E 179TH ST SUBSTATION (Continued) **1001028481**

Date form received by agency: 05/31/2002
Site name: CON EDISION - E. 179TH ST
Classification: Large Quantity Generator

Date form received by agency: 07/21/1999
Site name: CON ED - E 179TH ST SUBSTATION
Classification: Large Quantity Generator

Date form received by agency: 06/01/1998
Site name: NYR000007138
Classification: Large Quantity Generator

Date form received by agency: 06/23/1995
Site name: CON ED - E 179TH ST SUBSTATION
Classification: Small Quantity Generator

. Waste code: D002
. Waste name: CORROSIVE WASTE

Violation Status: No violations found

Evaluation Action Summary:
Evaluation date: 11/19/2014
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

SPILLS:
Spill Number/Closed Date: 9801438 / 1998-05-20
Facility ID: 9801438
Facility Type: ER
DER Facility ID: 58529
Site ID: 59853
DEC Region: 2
Spill Cause: Equipment Failure
Spill Class: C4
SWIS: 0301
Spill Date: 1998-05-03
Investigator: CAENGELH
Referred To: Not reported
Reported to Dept: 1998-05-03
CID: 207
Water Affected: Not reported
Spill Source: Commercial/Industrial
Spill Notifier: Responsible Party
Cleanup Ceased: Not reported
Cleanup Meets Std: False
Last Inspection: Not reported
Recommended Penalty: False
UST Trust: False
Remediation Phase: 0
Date Entered In Computer: 1998-05-03
Spill Record Last Update: 2000-06-26
Spiller Name: RICHARD ROACH
Spiller Company: CON EDISON
Spiller Address: 4340 THIRD AV

CON EDISON - E 179TH ST SUBSTATION (Continued) **1001028481**

Spiller Company: 001
Contact Name: RICHARD ROACH
DEC Memo: "Prior to Sept, 2004 data translation this spill Lead_DEC Field was ENGELHARDT Engelhardt responded. Leaking transformer has been taken out of service. 2 55 gal drums partially full of contaminated bluestone. Mario Brindisi and Bob Ferrens on scene from Con Ed. Leak caused by transformer fault. Transformer overheated and oil leaked through weakest point in system, a breather valve (a device to remove moisture to oil). Chem lab took oil sample to check for combustibles (hydrogen, acetylene, methane). Revisited site on 5/5/98 inspected excavation and gave instructions to the station to go ahead and backfill."
Remarks: "transformer overheat and product leaked thru relief valve cleanup in progress "

All Materials:
Site ID: 59853
Operable Unit ID: 1059071
Operable Unit: 01
Material ID: 323377
Material Code: 0020A
Material Name: transformer oil
Case No.: Not reported
Material FA: Petroleum
Quantity: 50.00
Units: G
Recovered: .00
Oxygenate: Not reported

FINDS:

Registry ID: 110069384044

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HAZARDOUS WASTE BIENNIAL REPORTER

Registry ID: 110004514883

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HAZARDOUS WASTE BIENNIAL REPORTER

CON EDISON - E 179TH ST SUBSTATION (Continued) **1001028481**

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1001028481
Registry ID:	110004514883
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110004514883

Envid:	1001028481
Registry ID:	110069384044
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110069384044

NY MANIFEST:

Country:	USA
EPA ID:	NYR000007138
Facility Status:	Not reported
Location Address 1:	4340 3RD AVE.
Code:	BP
Location Address 2:	Not reported
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	10457
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYR000007138
Mailing Name:	CONSOLIDATED EDISON
Mailing Contact:	FRANKLIN MURRAY
Mailing Address 1:	4 IRVING PLACE RM 828
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	10003
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	2124602808

NY MANIFEST:

Document ID:	Not reported
Manifest Status:	Not reported
seq:	Not reported
Year:	2018
Trans1 State ID:	NYD006982359
Trans2 State ID:	Not reported
Generator Ship Date:	08/28/2018
Trans1 Recv Date:	08/28/2018
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	08/28/2018
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000007138
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NYD980593636

CON EDISON - E 179TH ST SUBSTATION (Continued) **1001028481**

TSDF ID 2:	Not reported
Manifest Tracking Number:	008166603FLE
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H141
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	60
Units:	K - Kilograms (2.2 pounds)
Number of Containers:	2
Container Type:	DM - Metal drums, barrels
Handling Method:	L Landfill.
Specific Gravity:	1
Waste Code:	Not reported
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	B007
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
3 additional NY MANIFEST: record(s) in the EDR Site Report.

W168 **CON EDISON** **RCRA NonGen / NLR** **1019324973**
NE **4340 3 AVE** **NYP004783254**
1/8-1/4 **BRONX, NY 10457**
0.160 mi.
843 ft. **Site 6 of 14 in cluster W**

Relative: RCRA NonGen / NLR:
Higher

Actual: Date form received by agency: 02/05/2016
79 ft.

Facility name:	CON EDISON
Site name:	CON EDISON - MANHOLE 33703
Facility address:	4340 3 AVE BRONX, NY 10457
EPA ID:	NYP004783254
Mailing address:	IRVING PLACE, 15TH FL NE NEW YORK, NY 10003
Contact:	THERESA BURKARD
Contact address:	IRVING PLACE, 15TH FL NE NEW YORK, NY 10003
Contact country:	US
Contact telephone:	212-460-2262
Contact email:	BURKARDT@CONED.COM
EPA Region:	02

CON EDISON (Continued) **1019324973**

Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: CONSOLIDATED EDISON COMPANY OF NY, INC.
Owner/operator address: IRVING PLACE
NEW YORK, NY 10003
Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 05/15/2015
Owner/Op end date: Not reported

Owner/operator name: CONSOLIDATED EDISON COMPANY OF NY, INC.
Owner/operator address: IRVING PLACE
NEW YORK, NY 10003
Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 05/15/2015
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

. Waste code: D008
. Waste name: LEAD

Historical Generators:
Date form received by agency: 05/15/2015
Site name: CON EDISON
Classification: Not a generator, verified

Date form received by agency: 05/15/2015

CON EDISON (Continued) **1019324973**

Site name: CON EDISON
Classification: Small Quantity Generator

Biennial Reports:

Last Biennial Reporting Year: 2017

Annual Waste Handled:
Waste code: D008
Waste name: LEAD
Amount (Lbs): 3000

Violation Status: No violations found

W169 **CON EDISON** **NY MANIFEST** **S121967318**
NE **4340 3RD AVE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.160 mi.
843 ft. **Site 7 of 14 in cluster W**

Relative:
Higher

Actual:
79 ft.

NY MANIFEST:
Country: USA
EPA ID: NYP004783254
Facility Status: Not reported
Location Address 1: 4340 3 AVE
Code: BP
Location Address 2: Not reported
Total Tanks: Not reported
Location City: BRONX
Location State: NY
Location Zip: 10457
Location Zip 4: Not reported

NY MANIFEST:
EPAID: NYP004783254
Mailing Name: CON EDISON
Mailing Contact: DENNIS HUACON
Mailing Address 1: 4 IRVING PL 15TH FL
Mailing Address 2: Not reported
Mailing City: NEW YORK
Mailing State: NY
Mailing Zip: 10003
Mailing Zip 4: Not reported
Mailing Country: USA
Mailing Phone: 2124603770

NY MANIFEST:
Document ID: Not reported
Manifest Status: Not reported
seq: Not reported
Year: 2015
Trans1 State ID: NJD003812047
Trans2 State ID: NJD003812047
Generator Ship Date: 05/15/2015
Trans1 Recv Date: 05/15/2015
Trans2 Recv Date: 05/21/2015
TSD Site Recv Date: 05/22/2015
Part A Recv Date: Not reported

CON EDISON (Continued) **S121967318**

Part B Recv Date:	Not reported
Generator EPA ID:	NYP004783254
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD991291105
TSDF ID 2:	Not reported
Manifest Tracking Number:	002661084GBF
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H110
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	3000
Units:	P - Pounds
Number of Containers:	1
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

W170 **EAST 179TH ST. CENTRAL SUBSTA.** **NY UST** **U004198784**
NE **4340 3RD AVENUE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.160 mi.
843 ft. **Site 8 of 14 in cluster W**

Relative: **Higher**
Actual: **79 ft.**

UST:

Id/Status:	2-452696 / Unregulated/Closed
Program Type:	PBS
Region:	STATE
DEC Region:	2
Expiration Date:	N/A
UTM X:	593210.76230
UTM Y:	4522705.37088
Site Type:	Utility (Other than Municipal)

Tank Info:

EAST 179TH ST. CENTRAL SUBSTA. (Continued) **U004198784**

Tank Number:	D01
Tank ID:	35554
Tank Status:	Closed - Removed
Material Name:	Closed - Removed
Capacity Gallons:	1080
Install Date:	12/01/1981
Date Tank Closed:	04/01/1998
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Pipe Model:	Not reported
Modified By:	TRANSLAT
Last Modified:	04/14/2017

W171 **EAST 179TH ST. CENTRAL SUBSTA.** **NY AST** **A100382337**
NE **4340 3RD AVENUE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.160 mi.
843 ft. **Site 9 of 14 in cluster W**

Relative:
Higher

Actual:
79 ft.

AST:

Region:	STATE
DEC Region:	2
Site Status:	Unregulated/Closed
Facility Id:	2-452696
Program Type:	PBS
UTM X:	593210.76230
UTM Y:	4522705.37088
Expiration Date:	N/A
Site Type:	Utility (Other than Municipal)

Tank Info:

Tank Number:	D02
Tank Id:	35555
Tank Location:	Aboveground - on saddles, legs, racks, etc.... Tank bottom is elevated above grade or tank pad, allowing visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	12/01/1981
Capacity Gallons:	50
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	04/14/2017
Material Name:	Not reported

Tank Number:	D03
Tank Id:	54334
Tank Location:	Aboveground - on saddles, legs, racks, etc.... Tank bottom is elevated

EAST 179TH ST. CENTRAL SUBSTA. (Continued) **A100382337**

	above grade or tank pad, allowing visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	03/01/1998
Capacity Gallons:	550
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	04/14/2017
Material Name:	Not reported

U172 **BELL ATLANTIC-NY** **NY MANIFEST** **S109064601**
WNW **WEBSTER AVE & 178TH ST MANHOLE** **N/A**
1/8-1/4 **BRONX, NY**
0.166 mi.
877 ft. **Site 4 of 6 in cluster U**

Relative: **Lower**

Actual: **45 ft.**

NY MANIFEST:

Country:	USA
EPA ID:	NYP000942425
Facility Status:	Not reported
Location Address 1:	WEBSTER AVE & 178TH ST MANHOLE
Code:	BP
Location Address 2:	Not reported
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	Not reported
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYP000942425
Mailing Name:	BELL ATLANTIC-NY
Mailing Contact:	Not reported
Mailing Address 1:	Not reported
Mailing Address 2:	Not reported
Mailing City:	Not reported
Mailing State:	Not reported
Mailing Zip:	Not reported
Mailing Zip 4:	Not reported
Mailing Country:	Not reported
Mailing Phone:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

R173
SW
1/8-1/4
0.169 mi.
893 ft.

CON EDISON SERVICE BOX: 20841
4144 PARK AVE
BRONX, NY 10462

Site 4 of 4 in cluster R

RCRA NonGen / NLR **1016960502**
NY MANIFEST **NYP004324984**

Relative:
Lower

Actual:
40 ft.

RCRA NonGen / NLR:

Date form received by agency:	08/05/2013
Facility name:	CON EDISON SERVICE BOX: 20841
Facility address:	4144 PARK AVE BRONX, NY 10462
EPA ID:	NYP004324984
Mailing address:	IRVING PL, RM 828 NEW YORK, NY 10003
Contact:	GINO FRABASILE
Contact address:	Not reported Not reported
Contact country:	Not reported
Contact telephone:	914-925-6219
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Historical Generators:

Date form received by agency:	07/05/2013
Site name:	CON EDISON SERVICE BOX: 20841
Classification:	Conditionally Exempt Small Quantity Generator
Violation Status:	No violations found

NY MANIFEST:

Country:	USA
EPA ID:	NYP004324984
Facility Status:	Not reported
Location Address 1:	FO 4144 PARK AVE
Code:	BP
Location Address 2:	SB #20841
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	10457

CON EDISON SERVICE BOX: 20841 (Continued) **1016960502**

Location Zip 4: Not reported

NY MANIFEST:
EPAID: NYP004324984
Mailing Name: CON EDISON
Mailing Contact: CON EDISON
Mailing Address 1: 4 IRVING PLACE 15TH FLOOR
Mailing Address 2: Not reported
Mailing City: NEW YORK
Mailing State: NY
Mailing Zip: 10003
Mailing Zip 4: Not reported
Mailing Country: USA
Mailing Phone: 2124603770

NY MANIFEST:
Document ID: Not reported
Manifest Status: Not reported
seq: Not reported
Year: 2013
Trans1 State ID: NJD003812047
Trans2 State ID: Not reported
Generator Ship Date: 07/05/2013
Trans1 Recv Date: 07/05/2013
Trans2 Recv Date: Not reported
TSD Site Recv Date: 07/08/2013
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: NYP004324984
Trans1 EPA ID: Not reported
Trans2 EPA ID: Not reported
TSDF ID 1: NJD991291105
TSDF ID 2: Not reported
Manifest Tracking Number: 002085377GBF
Import Indicator: N
Export Indicator: N
Discr Quantity Indicator: N
Discr Type Indicator: N
Discr Residue Indicator: N
Discr Partial Reject Indicator: N
Discr Full Reject Indicator: N
Manifest Ref Number: Not reported
Alt Facility RCRA ID: Not reported
Alt Facility Sign Date: Not reported
MGMT Method Type Code: H110
Waste Code: Not reported
Waste Code: Not reported
Waste Code: Not reported
Waste Code: Not reported
Waste Code: Not reported
Waste Code: Not reported
Quantity: 50
Units: G - Gallons (liquids only)* (8.3 pounds)
Number of Containers: 1
Container Type: TT - Cargo tank, tank trucks
Handling Method: T Chemical, physical, or biological treatment.
Specific Gravity: 1

CON EDISON SERVICE BOX: 20841 (Continued) **1016960502**

Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

X174 **CON EDISON** **NY MANIFEST** **S117536784**
NW **1969 WEBSTER AV** **N/A**
1/8-1/4 **BRONX, NY 10461**
0.169 mi.
894 ft. **Site 1 of 8 in cluster X**

Relative:
Lower

Actual:
45 ft.

NY MANIFEST:

Country:	USA
EPA ID:	NYP004692794
Facility Status:	Not reported
Location Address 1:	1969 WEBSTER AV
Code:	BP
Location Address 2:	SB10470
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	10461
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYP004692794
Mailing Name:	CON EDISON
Mailing Contact:	CON EDISON
Mailing Address 1:	4 IRVING PL
Mailing Address 2:	15TH FL
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	10003
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	Not reported

NY MANIFEST:

Document ID:	Not reported
Manifest Status:	Not reported
seq:	Not reported
Year:	2014
Trans1 State ID:	NJD003812047
Trans2 State ID:	Not reported
Generator Ship Date:	11/10/2014
Trans1 Recv Date:	11/10/2014
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	11/13/2014
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004692794
Trans1 EPA ID:	Not reported

CON EDISON (Continued) **S117536784**

Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD991291105
TSDF ID 2:	Not reported
Manifest Tracking Number:	002564713GBF
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H110
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	500
Units:	P - Pounds
Number of Containers:	1
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

175
SSW
1/8-1/4
0.171 mi.
903 ft.

G & J TRANSMISSION & MECHANIC **NY AST** **A100320137**
1840 WASHINGTON AVE **N/A**
BRONX, NY 10457

Relative:
Lower

Actual:
47 ft.

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-610873
Program Type:	PBS
UTM X:	592823.94709
UTM Y:	4522186.15152
Expiration Date:	07/01/2013
Site Type:	Other

Affiliation Records:

Site Id:	400594
Affiliation Type:	Facility Owner

G & J TRANSMISSION & MECHANIC (Continued) **A100320137**

Company Name:	DIOGENES G. VARGAS
Contact Type:	PRES
Contact Name:	DIOGENES G. VARGAS
Address1:	656 W 160TH ST #6B
Address2:	Not reported
City:	NEW YORK
State:	NY
Zip Code:	10032
Country Code:	001
Phone:	(917) 645-8984
EMail:	Not reported
Fax Number:	Not reported
Modified By:	msbaptis
Date Last Modified:	2008-07-01

Site Id:	400594
Affiliation Type:	Mail Contact
Company Name:	G & J TRANSMISSION & MECHANIC
Contact Type:	Not reported
Contact Name:	DIOGENES G. VARGAS
Address1:	1840 WASHINGTON AVE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10457
Country Code:	001
Phone:	(718) 294-0797
EMail:	Not reported
Fax Number:	Not reported
Modified By:	msbaptis
Date Last Modified:	2008-07-23

Site Id:	400594
Affiliation Type:	Facility Operator
Company Name:	G & J TRANSMISSION & MECHANIC
Contact Type:	Not reported
Contact Name:	DIOGENES G. VARGAS
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 294-0797
EMail:	Not reported
Fax Number:	Not reported
Modified By:	msbaptis
Date Last Modified:	2008-07-01

Site Id:	400594
Affiliation Type:	Emergency Contact
Company Name:	DIOGENES G. VARGAS
Contact Type:	Not reported
Contact Name:	DIOGENES G. VARGAS
Address1:	Not reported
Address2:	Not reported
City:	Not reported

G & J TRANSMISSION & MECHANIC (Continued) **A100320137**

State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(917) 645-8984
EMail:	Not reported
Fax Number:	Not reported
Modified By:	msbaptis
Date Last Modified:	2008-07-01

Tank Info:

Tank Number:	01
Tank Id:	223935
Material Code:	0022
Common Name of Substance:	Waste Oil/Used Oil

Equipment Records:

J03 - Dispenser - Gravity
L00 - Piping Leak Detection - None
E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None
C01 - Pipe Location - Aboveground
G00 - Tank Secondary Containment - None
A00 - Tank Internal Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
D01 - Pipe Type - Steel/Carbon Steel/Iron
F01 - Pipe External Protection - Painted/Asphalt Coating
I01 - Overfill - Float Vent Valve
K00 - Spill Prevention - None

Tank Location:	Aboveground - on saddles, legs, racks, etc.... Tank bottom is elevated above grade or tank pad, allowing visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	06/01/2008
Capacity Gallons:	275
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	msbaptis
Last Modified:	04/14/2017
Material Name:	waste oil/used oil

S176 **JM AUTO SOLUTION INC.** **NY AST** **A100362301**
NNW **413 EAST 179TH STREET** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.173 mi.
912 ft. **Site 4 of 4 in cluster S**

Relative: AST:
Lower

Actual: Region:	STATE
43 ft. DEC Region:	2
Site Status:	Active
Facility Id:	2-611854
Program Type:	PBS

JM AUTO SOLUTION INC. (Continued) **A100362301**

UTM X: 592835.59607
UTM Y: 4522726.93840
Expiration Date: 08/26/2018
Site Type: Auto Service/Repair (No Gasoline Sales)

Affiliation Records:

Site Id: 466919
Affiliation Type: Mail Contact
Company Name: UNITED AUTO MERCHANTS ASSOCIATION
Contact Type: Not reported
Contact Name: PEDRO J. ESTEVEZ
Address1: 2419 WESTCHESTER AVENUE
Address2: Not reported
City: BRONX
State: NY
Zip Code: 10461
Country Code: 001
Phone: (347) 590-1142
EMail: OFFICE@UAMANY.ORG
Fax Number: Not reported
Modified By: NRLOMBAR
Date Last Modified: 2014-07-29

Site Id: 466919
Affiliation Type: Facility Operator
Company Name: JM AUTO SOLUTION INC.
Contact Type: Not reported
Contact Name: MODESTO ESCORBES
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 001
Phone: (347) 739-1145
EMail: Not reported
Fax Number: Not reported
Modified By: NRLOMBAR
Date Last Modified: 2014-04-24

Site Id: 466919
Affiliation Type: Emergency Contact
Company Name: MODESTO ESCORBES
Contact Type: Not reported
Contact Name: MODESTO ESCORBES
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 999
Phone: (347) 739-1145
EMail: Not reported
Fax Number: Not reported
Modified By: NRLOMBAR
Date Last Modified: 2014-04-24

Site Id: 466919

JM AUTO SOLUTION INC. (Continued) **A100362301**

Affiliation Type:	Facility Owner
Company Name:	MODESTO ESCORBES
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	111 MT. HOPE PL.
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10453
Country Code:	001
Phone:	(347) 739-1145
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2014-04-24

Tank Info:

Tank Number:	52
Tank Id:	244927
Material Code:	0022
Common Name of Substance:	Waste Oil/Used Oil

Equipment Records:

	E00 - Piping Secondary Containment - None
	H00 - Tank Leak Detection - None
	B00 - Tank External Protection - None
	C00 - Pipe Location - No Piping
	F00 - Pipe External Protection - None
	J00 - Dispenser - None
	D00 - Pipe Type - No Piping
	L00 - Piping Leak Detection - None
	G00 - Tank Secondary Containment - None
	A00 - Tank Internal Protection - None
	I01 - Overfill - Float Vent Valve
	K00 - Spill Prevention - None
Tank Location:	Aboveground - on saddles, legs, racks, etc.... Tank bottom is elevated above grade or tank pad, allowing visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	08/05/2013
Capacity Gallons:	275
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	NRLOMBAR
Last Modified:	04/14/2017
Material Name:	waste oil/used oil

X177 **TWIN PARK SOUTHWEST HOUSES,INC.** **NY AST** **U003128234**
NW **1985 WEBSTER AVE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.174 mi.
918 ft. **Site 2 of 8 in cluster X**

Relative:
Lower

Actual:
45 ft.

AST:

Region:	STATE
DEC Region:	2
Site Status:	Unregulated/Closed
Facility Id:	2-601312
Program Type:	PBS
UTM X:	592763.68443
UTM Y:	4522747.10577
Expiration Date:	N/A
Site Type:	Apartment Building/Office Building

Affiliation Records:

Site Id:	23279
Affiliation Type:	Facility Owner
Company Name:	TWIN PARK SOUTHWEST HOUSES,INC.
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	1985 WEBSTER AVE/1880 VALENTINE AVE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10457
Country Code:	001
Phone:	(212) 941-9500
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Site Id:	23279
Affiliation Type:	Mail Contact
Company Name:	B/S/R/ MANAGEMENT CORP
Contact Type:	Not reported
Contact Name:	MR. MICHAEL MANSUETO
Address1:	495 BROADWAY
Address2:	6TH FLOOR
City:	NEW YORK
State:	NY
Zip Code:	10012
Country Code:	001
Phone:	(212) 941-9500
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Site Id:	23279
Affiliation Type:	Facility Operator
Company Name:	TWIN PARK SOUTHWEST HOUSES,INC.
Contact Type:	Not reported
Contact Name:	FELIX SOTO
Address1:	Not reported
Address2:	Not reported
City:	Not reported

TWIN PARK SOUTHWEST HOUSES,INC. (Continued) **U003128234**

State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(212) 365-6548
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Site Id:	23279
Affiliation Type:	Emergency Contact
Company Name:	TWIN PARK SOUTHWEST HOUSES,INC.
Contact Type:	Not reported
Contact Name:	BSR MANAGEMENT
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(212) 941-9500
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Tank Info:

Tank Number:	001
Tank Id:	45409
Material Code:	0000
Common Name of Substance:	Empty

Equipment Records:

	J02 - Dispenser - Suction Dispenser
	I04 - Overfill - Product Level Gauge (A/G)
	G03 - Tank Secondary Containment - Vault (w/o access)
	B00 - Tank External Protection - None
	C00 - Pipe Location - No Piping
	F00 - Pipe External Protection - None
	A00 - Tank Internal Protection - None
	D01 - Pipe Type - Steel/Carbon Steel/Iron
	H99 - Tank Leak Detection - Other
Tank Location:	Aboveground - on saddles, legs, racks, etc.... Tank bottom is elevated above grade or tank pad, allowing visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	Closed - In Place
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	5000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	12/01/1992
Register:	True
Modified By:	TRANSLAT

TWIN PARK SOUTHWEST HOUSES,INC. (Continued) **U003128234**

Last Modified:	04/14/2017
Material Name:	empty
Tank Number:	002
Tank Id:	45410
Material Code:	0000
Common Name of Substance:	Empty

Equipment Records:

I04 - Overfill - Product Level Gauge (A/G)
G03 - Tank Secondary Containment - Vault (w/o access)
J02 - Dispenser - Suction Dispenser
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
H99 - Tank Leak Detection - Other

Tank Location:	Aboveground in subterranean vault with access for inspections..... Tank in subterranean vault but accessible for inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	Closed - In Place
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	5000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	12/01/1992
Register:	True
Modified By:	TRANSLAT
Last Modified:	04/14/2017
Material Name:	empty

V178 **CON EDISON TRANSFORMER MANHOLE 26** **RCRA NonGen / NLR** **1010327060**
West **TREMONT AVE & WEBSTER AVE** **NYP004144424**
1/8-1/4 **BRONX, NY 10453**
0.176 mi.
927 ft. **Site 3 of 4 in cluster V**

Relative: **Lower**
Actual: **43 ft.**

RCRA NonGen / NLR:

Date form received by agency:	01/11/2007
Facility name:	CON EDISON TRANSFORMER MANHOLE 26
Facility address:	TREMONT AVE & WEBSTER AVE BRONX, NY 10453
EPA ID:	NYP004144424
Mailing address:	4 IRVING PL, RM 828 NEW YORK, NY 10003
Contact:	ANDREW FIORE
Contact address:	4 IRVING PL, RM 828 NEW YORK, NY 10003
Contact country:	US
Contact telephone:	212-580-8383
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator

CON EDISON TRANSFORMER MANHOLE 26 (Continued) **1010327060**

Description: Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 01/10/2007
Site name: CON EDISON
Classification: Not a generator, verified

Date form received by agency: 01/09/2007
Site name: CON EDISON
Classification: Unverified

Violation Status: No violations found

Y179 **NYC BD OF ED - MIDDLE SCHOOL 118** **RCRA NonGen / NLR** **1001233147**
ENE **571 E 179TH ST** **NY MANIFEST** **NYR000062646**
1/8-1/4 **BRONX, NY 10457**
0.176 mi.
929 ft. **Site 1 of 2 in cluster Y**

Relative:
Higher

Actual:
91 ft.

RCRA NonGen / NLR:
Date form received by agency: 01/01/2007
Facility name: NYC BD OF ED - MIDDLE SCHOOL 118
Facility address: 571 E 179TH ST
BRONX, NY 10457
EPA ID: NYR000062646
Mailing address: QUEENS PLZ N
LONG ISLAND CITY, NY 11101
Contact: FRANK CARDELLO
Contact address: QUEENS PLZ N
LONG ISLAND CITY, NY 11101
Contact country: US
Contact telephone: 718-391-6832
Contact email: Not reported
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: NYC BOARD OF EDUCATION
Owner/operator address: 28-11 QUEENS PLZ N

NYC BD OF ED - MIDDLE SCHOOL 118 (Continued) **1001233147**

LONG ISLAND CITY, NY 11101
Owner/operator country: US
Owner/operator telephone: 718-391-6832
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Municipal
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: NYC BOARD OF EDUCATION
Owner/operator address: 28-11 QUEENS PLZ N
LONG ISLAND CITY, NY 11101
Owner/operator country: US
Owner/operator telephone: 718-391-6832
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Municipal
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 01/01/2006
Site name: NYC BD OF ED - MIDDLE SCHOOL 118
Classification: Not a generator, verified

Date form received by agency: 10/27/1998
Site name: NYC BD OF ED - MIDDLE SCHOOL 118
Classification: Small Quantity Generator

. Waste code: D000
. Waste name: Not Defined

. Waste code: D001
. Waste name: IGNITABLE WASTE

NYC BD OF ED - MIDDLE SCHOOL 118 (Continued) **1001233147**

. Waste code: D002
. Waste name: CORROSIVE WASTE

. Waste code: D003
. Waste name: REACTIVE WASTE

. Waste code: D008
. Waste name: LEAD

Violation Status: No violations found

NY MANIFEST:
Country: USA
EPA ID: NYR000062646
Facility Status: Not reported
Location Address 1: 571 E 179TH ST
Code: BP
Location Address 2: Not reported
Total Tanks: Not reported
Location City: BRONX
Location State: NY
Location Zip: 10457
Location Zip 4: Not reported

NY MANIFEST:
EPAID: NYR000062646
Mailing Name: MIDDLE SCHOOL 118-X
Mailing Contact: SABRA SALTYZMAN
Mailing Address 1: 571 E 179TH ST
Mailing Address 2: Not reported
Mailing City: BRONX
Mailing State: NY
Mailing Zip: 10457
Mailing Zip 4: Not reported
Mailing Country: USA
Mailing Phone: 7185842326

NY MANIFEST:
Document ID: NYG1056366
Manifest Status: Not reported
seq: 01
Year: 1998
Trans1 State ID: PD1011NY
Trans2 State ID: Not reported
Generator Ship Date: 11/13/1998
Trans1 Recv Date: 11/13/1998
Trans2 Recv Date: Not reported
TSD Site Recv Date: 11/16/1998
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: NYR000062646
Trans1 EPA ID: NYD077444263
Trans2 EPA ID: Not reported
TSDF ID 1: NYD077444263
TSDF ID 2: Not reported
Manifest Tracking Number: Not reported
Import Indicator: Not reported
Export Indicator: Not reported

NYC BD OF ED - MIDDLE SCHOOL 118 (Continued) **1001233147**

Discr Quantity Indicator:	Not reported
Discr Type Indicator:	Not reported
Discr Residue Indicator:	Not reported
Discr Partial Reject Indicator:	Not reported
Discr Full Reject Indicator:	Not reported
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	Not reported
Waste Code:	U123 - FORMIC ACID (C,T)
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	00025
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Waste Code:	D003 - NON-LISTED REACTIVE WASTES
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	00001
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	00010
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Waste Code:	D009 - MERCURY 0.2 MG/L TCLP
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	00002
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	01.00

NYC BD OF ED - MIDDLE SCHOOL 118 (Continued) **1001233147**

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

W180 **P&P GENERAL MECHANICAL INC.** **NY AST** **A100384613**
NE **4343 THIRD AVENUE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.176 mi.
931 ft. **Site 10 of 14 in cluster W**

Relative:
Higher

Actual:
86 ft.

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-612136
Program Type:	PBS
UTM X:	593176.75204
UTM Y:	4522687.08277
Expiration Date:	11/14/2018
Site Type:	Auto Service/Repair (No Gasoline Sales)

Affiliation Records:

Site Id:	489005
Affiliation Type:	Facility Owner
Company Name:	ISIDRO D. POLANCO
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	3085 WISSMAN AVE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10465
Country Code:	001
Phone:	(718) 892-6361
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2013-11-14

Site Id:	489005
Affiliation Type:	Mail Contact
Company Name:	UNITED AUTO MERCHANTS ASSOCIATION
Contact Type:	Not reported
Contact Name:	PEDRO J. ESTEVEZ
Address1:	2419 WESTCHESTER AVENUE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10461
Country Code:	001
Phone:	(347) 590-1142
EMail:	OFFICE@UAMANY.ORG
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2014-07-29

Site Id:	489005
Affiliation Type:	Facility Operator
Company Name:	P&P GENERAL MECHANICAL INC.

P&P GENERAL MECHANICAL INC. (Continued) **A100384613**

Contact Type:	Not reported
Contact Name:	ISIDRO D. POLANCO
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 892-6361
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2013-11-14

Site Id:	489005
Affiliation Type:	Emergency Contact
Company Name:	ISIDRO D. POLANCO
Contact Type:	Not reported
Contact Name:	ISIDRO D. POLANCO
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 892-6361
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2013-11-14

Tank Info:

Tank Number:	54
Tank Id:	250237

Equipment Records:

G00 - Tank Secondary Containment - None
D00 - Pipe Type - No Piping
L00 - Piping Leak Detection - None
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
J00 - Dispenser - None
A00 - Tank Internal Protection - None
I01 - Overfill - Float Vent Valve
K00 - Spill Prevention - None
E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None

Tank Location:	Aboveground - on saddles, legs, racks, etc.... Tank bottom is elevated above grade or tank pad, allowing visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	05/03/2007
Capacity Gallons:	275
Tightness Test Method:	NN

P&P GENERAL MECHANICAL INC. (Continued) **A100384613**

Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	NRLOMBAR
Last Modified:	04/14/2017
Material Name:	waste oil/used oil

V181 **CON EDISON SERVICE BOX: 22463** **RCRA NonGen / NLR** **1016968206**
West **1889 WEBSTER AVE** **NY MANIFEST** **NYP004418166**
1/8-1/4 **BRONX, NY 10456**
0.182 mi.
960 ft. **Site 4 of 4 in cluster V**

Relative:
Lower

Actual:
46 ft.

RCRA NonGen / NLR:

Date form received by agency:	02/14/2014
Facility name:	CON EDISON SERVICE BOX: 22463
Facility address:	1889 WEBSTER AVE BRONX, NY 10456
EPA ID:	NYP004418166
Mailing address:	IRVING PL, 15TH FL NE NEW YORK, NY 10003
Contact:	THOMAS TEELING
Contact address:	Not reported Not reported
Contact country:	Not reported
Contact telephone:	212-460-3770
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Historical Generators:

Date form received by agency:	01/14/2014
Site name:	CON EDISON SERVICE BOX: 22463
Classification:	Conditionally Exempt Small Quantity Generator
Violation Status:	No violations found

NY MANIFEST:

CON EDISON SERVICE BOX: 22463 (Continued) **1016968206**

Country:	USA
EPA ID:	NYP004418166
Facility Status:	Not reported
Location Address 1:	NORTH EAST CORNER E TREAMONT & WEBSTER
Code:	BP
Location Address 2:	SB22463
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	10461
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYP004418166
Mailing Name:	CON EDISON
Mailing Contact:	CON EDISON
Mailing Address 1:	4 IRVING PLACE
Mailing Address 2:	15TH FL
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	10003
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	Not reported

NY MANIFEST:

Document ID:	Not reported
Manifest Status:	Not reported
seq:	Not reported
Year:	2014
Trans1 State ID:	NJD003812047
Trans2 State ID:	Not reported
Generator Ship Date:	01/14/2014
Trans1 Recv Date:	01/14/2014
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	01/17/2014
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004418166
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD991291105
TSDF ID 2:	Not reported
Manifest Tracking Number:	002085516GBF
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H110
Waste Code:	Not reported
Waste Code:	Not reported

CON EDISON SERVICE BOX: 22463 (Continued) **1016968206**

Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	100
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	1
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

Z182 **CON EDISON SERVICE BOX: 25208** **RCRA NonGen / NLR** **1016973647**
NNE **2064 BATHGATE AVE FRONT OF** **NY MANIFEST** **NYP004474516**
1/8-1/4 **BRONX, NY 10457**
0.182 mi.
960 ft. **Site 1 of 3 in cluster Z**

Relative:
Higher

Actual:
90 ft.

RCRA NonGen / NLR:

Date form received by agency:	04/21/2014
Facility name:	CON EDISON SERVICE BOX: 25208
Facility address:	2064 BATHGATE AVE FRONT OF BRONX, NY 10457
EPA ID:	NYP004474516
Mailing address:	IRVING PL, 15TH FL NE NEW YORK, NY 10003
Contact:	THOMAS TEELING
Contact address:	Not reported Not reported
Contact country:	Not reported
Contact telephone:	212-460-3770
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No

CON EDISON SERVICE BOX: 25208 (Continued) **1016973647**

Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 03/21/2014
Site name: CON EDISON SERVICE BOX: 25208
Classification: Conditionally Exempt Small Quantity Generator

Violation Status: No violations found

NY MANIFEST:
Country: USA
EPA ID: NYP004474516
Facility Status: Not reported
Location Address 1: 2064 BATHGATE AV
Code: BP
Location Address 2: SB25208
Total Tanks: Not reported
Location City: BRONX
Location State: NY
Location Zip: 10457
Location Zip 4: Not reported

NY MANIFEST:
EPAID: NYP004474516
Mailing Name: CON EDISON
Mailing Contact: CON EDISON
Mailing Address 1: 4 IRVING ST
Mailing Address 2: 15TH ST
Mailing City: NEW YORK
Mailing State: NY
Mailing Zip: 10003
Mailing Zip 4: Not reported
Mailing Country: USA
Mailing Phone: Not reported

NY MANIFEST:
Document ID: Not reported
Manifest Status: Not reported
seq: Not reported
Year: 2014
Trans1 State ID: NJD003812047
Trans2 State ID: Not reported
Generator Ship Date: 03/21/2014
Trans1 Recv Date: 03/21/2014
Trans2 Recv Date: Not reported
TSD Site Recv Date: 03/21/2014
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: NYP004474516
Trans1 EPA ID: Not reported
Trans2 EPA ID: Not reported
TSDF ID 1: NJD991291105
TSDF ID 2: Not reported
Manifest Tracking Number: 002359792GBF

CON EDISON SERVICE BOX: 25208 (Continued) **1016973647**

Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H110
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	200
Units:	P - Pounds
Number of Containers:	1
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

U183 **CONSOLIDATED EDISON** **NY MANIFEST** **1009243864**
WNW **1880 VALENTINE AVE MH11975** **N/A**
1/8-1/4 **BRONX, NY**
0.182 mi.
962 ft. **Site 5 of 6 in cluster U**

Relative:
Lower

Actual:
46 ft.

NY MANIFEST:

Country:	USA
EPA ID:	NYP004134664
Facility Status:	Not reported
Location Address 1:	1880 VALENTINE AVE MH11975
Code:	BP
Location Address 2:	Not reported
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	Not reported
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYP004134664
Mailing Name:	CONSOLIDATED EDISON
Mailing Contact:	FRANKLIN MURRAY
Mailing Address 1:	4 IRVING PLACE RM 828

CONSOLIDATED EDISON (Continued) **1009243864**

Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	10003
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	2124602808

NY MANIFEST:

Document ID:	NYE1306314
Manifest Status:	Not reported
seq:	Not reported
Year:	2005
Trans1 State ID:	NYD006982359
Trans2 State ID:	Not reported
Generator Ship Date:	08/19/2005
Trans1 Recv Date:	08/19/2005
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	08/22/2005
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004134664
Trans1 EPA ID:	12446JT
Trans2 EPA ID:	Not reported
TSDF ID 1:	NYD077444263
TSDF ID 2:	Not reported
Manifest Tracking Number:	Not reported
Import Indicator:	Not reported
Export Indicator:	Not reported
Discr Quantity Indicator:	Not reported
Discr Type Indicator:	Not reported
Discr Residue Indicator:	Not reported
Discr Partial Reject Indicator:	Not reported
Discr Full Reject Indicator:	Not reported
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	Not reported
Waste Code:	B007 - OTHER MISCELLANEOUS PCB WASTES
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	00210
Units:	K - Kilograms (2.2 pounds)
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	L Landfill.
Specific Gravity:	01.00

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

U184 **MANHOLE #11975** **NY AST** **U003644517**
WNW **1880 VALENTINE AVE** **NY Spills** **N/A**
1/8-1/4 **BRONX, NY**
0.182 mi.
962 ft. **Site 6 of 6 in cluster U**

Relative:
Lower

Actual:
46 ft.

AST:

Region:	STATE
DEC Region:	2
Site Status:	Unregulated/Closed
Facility Id:	2-245038
Program Type:	PBS
UTM X:	592670.87286
UTM Y:	4522595.72110
Expiration Date:	N/A
Site Type:	Retail Gasoline Sales

Affiliation Records:

Site Id:	9513
Affiliation Type:	Facility Owner
Company Name:	TWIN PARKS SW BSR
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	2100 TIEBOUT AVE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10457
Country Code:	001
Phone:	(212) 584-6320
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Site Id:	9513
Affiliation Type:	Mail Contact
Company Name:	B/S/R MANAGEMENT CORPORATION
Contact Type:	Not reported
Contact Name:	MICHAEL MANSUETO
Address1:	495 BROADWAY, 6TH AVENUE
Address2:	Not reported
City:	NEW YORK
State:	NY
Zip Code:	10012
Country Code:	001
Phone:	(212) 941-9500
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Site Id:	9513
Affiliation Type:	Facility Operator
Company Name:	TWIN PARKS SOUTHWEST
Contact Type:	Not reported
Contact Name:	STANLEY PATRICK
Address1:	Not reported
Address2:	Not reported
City:	Not reported

MANHOLE #11975 (Continued) **U003644517**

State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(212) 584-6320
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Site Id:	9513
Affiliation Type:	Emergency Contact
Company Name:	TWIN PARKS SW BSR
Contact Type:	Not reported
Contact Name:	B S R MANAGEMENT
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(212) 941-9500
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Tank Info:

Tank Number:	001
Tank Id:	45405
Material Code:	0000
Common Name of Substance:	Empty

Equipment Records:

	B00 - Tank External Protection - None
	C00 - Pipe Location - No Piping
	F00 - Pipe External Protection - None
	J02 - Dispenser - Suction Dispenser
	I04 - Overfill - Product Level Gauge (A/G)
	G03 - Tank Secondary Containment - Vault (w/o access)
	A00 - Tank Internal Protection - None
	D01 - Pipe Type - Steel/Carbon Steel/Iron
	H99 - Tank Leak Detection - Other
Tank Location:	Aboveground - on saddles, legs, racks, etc.... Tank bottom is elevated above grade or tank pad, allowing visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	Closed - In Place
Pipe Model:	Not reported
Install Date:	12/01/1992
Capacity Gallons:	5000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	12/01/1992
Register:	True
Modified By:	TRANSLAT

MANHOLE #11975 (Continued) **U003644517**

Last Modified: 04/14/2017
Material Name: empty

Tank Number: 001
Tank Id: 10530
Material Code: 0001
Common Name of Substance: #2 Fuel Oil (On-Site Consumption)

Equipment Records:
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
J02 - Dispenser - Suction Dispenser
G03 - Tank Secondary Containment - Vault (w/o access)
I04 - Overfill - Product Level Gauge (A/G)
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
H99 - Tank Leak Detection - Other

Tank Location: Aboveground in subterranean vault with access for inspections.....
Tank in subterranean vault but accessible for inspection.
Tank Type: Steel/Carbon Steel/Iron
Tank Status: Closed - Removed
Pipe Model: Not reported
Install Date: 01/01/1974
Capacity Gallons: 5000
Tightness Test Method: NN
Date Test: Not reported
Next Test Date: Not reported
Date Tank Closed: 06/01/1995
Register: True
Modified By: TRANSLAT
Last Modified: 04/14/2017
Material Name: #2 fuel oil (on-site consumption)

Tank Number: 002
Tank Id: 45406
Material Code: 0000
Common Name of Substance: Empty

Equipment Records:
I04 - Overfill - Product Level Gauge (A/G)
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
G03 - Tank Secondary Containment - Vault (w/o access)
J02 - Dispenser - Suction Dispenser
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
H99 - Tank Leak Detection - Other

Tank Location: Aboveground in subterranean vault with access for inspections.....
Tank in subterranean vault but accessible for inspection.
Tank Type: Steel/Carbon Steel/Iron
Tank Status: Closed - In Place
Pipe Model: Not reported

MANHOLE #11975 (Continued) **U003644517**

Install Date:	12/01/1992
Capacity Gallons:	5000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	12/01/1992
Register:	True
Modified By:	TRANSLAT
Last Modified:	04/14/2017
Material Name:	empty

Affiliation Records:

Site Id:	23276
Affiliation Type:	Facility Owner
Company Name:	TWIN PARK SOUTHWEST HOUSES,INC.
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	1985 WEBSTER AVE/1880 VALENTINE AVE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10457
Country Code:	001
Phone:	(212) 941-9500
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Site Id:	23276
Affiliation Type:	Mail Contact
Company Name:	B/S/R/ MANAGEMENT CORP
Contact Type:	Not reported
Contact Name:	MR MICHAEL MANSUETO,DOBO
Address1:	495 BROADWAY
Address2:	6TH FLOOR
City:	NEW YORK
State:	NY
Zip Code:	10012
Country Code:	001
Phone:	(212) 941-9500
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Site Id:	23276
Affiliation Type:	Facility Operator
Company Name:	TWIN PARK SOUTHWEST HOUSES,INC.
Contact Type:	Not reported
Contact Name:	FELIX SOTO
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001

MANHOLE #11975 (Continued) **U003644517**

Phone:	(212) 365-6548
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04
Site Id:	23276
Affiliation Type:	Emergency Contact
Company Name:	TWIN PARK SOUTHWEST HOUSES,INC.
Contact Type:	Not reported
Contact Name:	BSR MANAGEMENT
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(212) 941-9500
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Tank Info:

Tank Number:	001
Tank Id:	45405
Material Code:	0000
Common Name of Substance:	Empty

Equipment Records:

	B00 - Tank External Protection - None
	C00 - Pipe Location - No Piping
	F00 - Pipe External Protection - None
	J02 - Dispenser - Suction Dispenser
	I04 - Overfill - Product Level Gauge (A/G)
	G03 - Tank Secondary Containment - Vault (w/o access)
	A00 - Tank Internal Protection - None
	D01 - Pipe Type - Steel/Carbon Steel/Iron
	H99 - Tank Leak Detection - Other
Tank Location:	Aboveground - on saddles, legs, racks, etc.... Tank bottom is elevated above grade or tank pad, allowing visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	Closed - In Place
Pipe Model:	Not reported
Install Date:	12/01/1992
Capacity Gallons:	5000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	12/01/1992
Register:	True
Modified By:	TRANSLAT
Last Modified:	04/14/2017
Material Name:	empty

MANHOLE #11975 (Continued) **U003644517**

Tank Number: 001
Tank Id: 10530
Material Code: 0001
Common Name of Substance: #2 Fuel Oil (On-Site Consumption)

Equipment Records:
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
J02 - Dispenser - Suction Dispenser
G03 - Tank Secondary Containment - Vault (w/o access)
I04 - Overfill - Product Level Gauge (A/G)
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
H99 - Tank Leak Detection - Other

Tank Location: Aboveground in subterranean vault with access for inspections.....
Tank in subterranean vault but accessible for inspection.
Tank Type: Steel/Carbon Steel/Iron
Tank Status: Closed - Removed
Pipe Model: Not reported
Install Date: 01/01/1974
Capacity Gallons: 5000
Tightness Test Method: NN
Date Test: Not reported
Next Test Date: Not reported
Date Tank Closed: 06/01/1995
Register: True
Modified By: TRANSLAT
Last Modified: 04/14/2017
Material Name: #2 fuel oil (on-site consumption)

Tank Number: 002
Tank Id: 45406
Material Code: 0000
Common Name of Substance: Empty

Equipment Records:
I04 - Overfill - Product Level Gauge (A/G)
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
G03 - Tank Secondary Containment - Vault (w/o access)
J02 - Dispenser - Suction Dispenser
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
H99 - Tank Leak Detection - Other

Tank Location: Aboveground in subterranean vault with access for inspections.....
Tank in subterranean vault but accessible for inspection.
Tank Type: Steel/Carbon Steel/Iron
Tank Status: Closed - In Place
Pipe Model: Not reported
Install Date: 12/01/1992
Capacity Gallons: 5000
Tightness Test Method: NN
Date Test: Not reported

MANHOLE #11975 (Continued) **U003644517**

Next Test Date:	Not reported
Date Tank Closed:	12/01/1992
Register:	True
Modified By:	TRANSLAT
Last Modified:	04/14/2017
Material Name:	empty

SPILLS:

Spill Number/Closed Date:	0505291 / 2005-10-04
Facility ID:	0505291
Facility Type:	ER
DER Facility ID:	296714
Site ID:	350273
DEC Region:	2
Spill Cause:	Equipment Failure
Spill Class:	C3
SWIS:	0301
Spill Date:	2005-08-01
Investigator:	GDBREEN
Referred To:	Not reported
Reported to Dept:	2005-08-01
CID:	444
Water Affected:	Not reported
Spill Source:	Institutional, Educational, Gov., Other
Spill Notifier:	Responsible Party
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	False
Remediation Phase:	0
Date Entered In Computer:	2005-08-01
Spill Record Last Update:	2005-10-04
Spiller Name:	ERT DESK’
Spiller Company:	MANHOLE #11975
Spiller Address:	1880 VALENTINE AVE
Spiller Company:	001
Contact Name:	ERT DESK’
DEC Memo:	"160177. 01-Aug-2005 10:49. Oper Superv C. Clarke 16836 reported while on location to investigate energized equipment discovered 1 ounce of cable from a leaking joint in MH-11975. No smoke or fire is/was involved. No sewers, waterways, or private property affected. Env tag 46823 was placed along with D-Fault tag #03046 and sample is pending safe access. D. Rohrer 12788. Closed. 10-4-05. see e-docs for update. GB "
Remarks:	" LEAKY FEEDER NO TO 5 QUESTIONS: CLEAN UP PENDING DEENERGIZING: CONED # 160177"

All Materials:

Site ID:	350273
Operable Unit ID:	1107850
Operable Unit:	01
Material ID:	2097739
Material Code:	0541A
Material Name:	dielectric fluid
Case No.:	Not reported
Material FA:	Petroleum

MANHOLE #11975 (Continued) **U003644517**

Quantity: .00
Units: G
Recovered: .00
Oxygenate: Not reported

AA185 **CON EDISON** **RCRA NonGen / NLR** **1019903512**
ESE **593 E TREMONT AVE** **FINDS** **NYP004786489**
1/8-1/4 **BRONX, NY 10457** **ECHO**
0.183 mi.
965 ft. **Site 1 of 5 in cluster AA**

Relative:
Higher

Actual:
90 ft.

RCRA NonGen / NLR:
Date form received by agency: 05/26/2015
Facility name: CON EDISON
Facility address: 593 E TREMONT AVE
BRONX, NY 10457
EPA ID: NYP004786489
Mailing address: IRVING PL 15TH FL NE
NEW YORK, NY 10003
Contact: THOMAS TEELING
Contact address: Not reported
Not reported
Contact country: Not reported
Contact telephone: 212-460-3770
Contact email: Not reported
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 05/26/2015
Site name: CON EDISON
Classification: Large Quantity Generator

Violation Status: No violations found

FINDS:

Registry ID: 110069666506

CON EDISON (Continued) **1019903512**

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1019903512
Registry ID: 110069666506
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110069666506

AA186 **CON EDISON** **NY MANIFEST** **S118090999**
ESE **593 E TREMONT AVE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.183 mi.
965 ft. **Site 2 of 5 in cluster AA**

Relative: **Higher**
Actual: **90 ft.**

NY MANIFEST:
Country: USA
EPA ID: NYP004786489
Facility Status: Not reported
Location Address 1: 593 E TREMONT AVE
Code: BP
Location Address 2: SB 14007
Total Tanks: Not reported
Location City: BRONX
Location State: NY
Location Zip: 10457
Location Zip 4: Not reported

NY MANIFEST:
EPAID: NYP004786489
Mailing Name: CON EDISON
Mailing Contact: DENNIS HUACON
Mailing Address 1: 4 IRVING PL 15TH FL
Mailing Address 2: Not reported
Mailing City: NEW YORK
Mailing State: NY
Mailing Zip: 10003
Mailing Zip 4: Not reported
Mailing Country: USA
Mailing Phone: 2124603770

NY MANIFEST:
Document ID: Not reported
Manifest Status: Not reported
seq: Not reported
Year: 2015
Trans1 State ID: NJD003812047
Trans2 State ID: Not reported
Generator Ship Date: 05/26/2015

CON EDISON (Continued) **S118090999**

Trans1 Recv Date:	05/26/2015
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	05/26/2015
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004786489
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD991291105
TSDF ID 2:	Not reported
Manifest Tracking Number:	002660761GBF
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H110
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	200
Units:	P - Pounds
Number of Containers:	1
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

AA187 **CON EDISON** **NJ MANIFEST** **S120672116**
ESE **593 E TREMONT AVE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.183 mi.
965 ft. **Site 3 of 5 in cluster AA**

Relative: **Higher**
Actual: **90 ft.**

NJ MANIFEST:

EPA Id:	NYP004786489
Mail Address:	IRVING PL 15TH FL NE
Mail City/State/Zip:	NEW YORK, NY 10003
Facility Phone:	Not reported
Emergency Phone:	Not reported
Contact:	THOMAS TEELING

CON EDISON (Continued) **S120672116**

Comments:	Not reported
SIC Code:	Not reported
County:	NY005
Municipal:	Not reported
Previous EPA Id:	Not reported
Gen Flag:	Not reported
Trans Flag:	Not reported
TSDF Flag:	Not reported
Name Change:	Not reported
Date Change:	Not reported

Manifest:

Manifest Number:	002660761GBF
EPA ID:	NYP004786489
Date Shipped:	5/26/2015
TSDF EPA ID:	NJD991291105
Transporter EPA ID:	NJD003812047
Transporter 2 EPA ID:	Not reported
Transporter 3 EPA ID:	Not reported
Transporter 4 EPA ID:	Not reported
Transporter 5 EPA ID:	Not reported
Transporter 6 EPA ID:	Not reported
Transporter 7 EPA ID:	Not reported
Transporter 8 EPA ID:	Not reported
Transporter 9 EPA ID:	Not reported
Transporter 10 EPA ID:	Not reported
Date Trans1 Transported Waste:	Not reported
Date Trans2 Transported Waste:	Not reported
Date Trans3 Transported Waste:	Not reported
Date Trans4 Transported Waste:	Not reported
Date Trans5 Transported Waste:	Not reported
Date Trans6 Transported Waste:	Not reported
Date Trans7 Transported Waste:	Not reported
Date Trans8 Transported Waste:	Not reported
Date Trans9 Transported Waste:	Not reported
Date Trans10 Transported Waste:	Not reported
Date TSDF Received Waste:	Not reported
TSDF EPA Facility Name:	Not reported
QTY Units:	Not reported
Transporter SEQ ID:	Not reported
Transporter-1 Date:	Not reported
Waste SEQ ID:	Not reported
Waste Type Code 2:	Not reported
Waste Type Code 3:	Not reported
Waste Type Code 4:	Not reported
Waste Type Code 5:	Not reported
Waste Type Code 6:	Not reported
Date Accepted:	Not reported
Manifest Discrepancy Type:	Not reported
Data Entry Number:	Not reported
Was Load Rejected:	NEW YORK, NY 10003
Reason Load Was Rejected:	Not reported

AA188 **CON EDISON SERVICE BOX: 22519** **RCRA NonGen / NLR** **1016971392**
ESE **1971 ARTHUR AVE FRONT OF** **NY MANIFEST** **NYP004451316**
1/8-1/4 **BRONX, NY 10457**
0.185 mi.
978 ft. **Site 4 of 5 in cluster AA**

Relative:
Higher

Actual:
83 ft.

RCRA NonGen / NLR:

Date form received by agency:	03/25/2014
Facility name:	CON EDISON SERVICE BOX: 22519
Facility address:	1971 ARTHUR AVE FRONT OF BRONX, NY 10457
EPA ID:	NYP004451316
Mailing address:	IRVING PL, 15TH FL NE NEW YORK, NY 10003
Contact:	THOMAS TEELING
Contact address:	Not reported Not reported
Contact country:	Not reported
Contact telephone:	212-460-3770
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Historical Generators:

Date form received by agency:	02/25/2014
Site name:	CON EDISON SERVICE BOX: 22519
Classification:	Conditionally Exempt Small Quantity Generator
Violation Status:	No violations found

NY MANIFEST:

Country:	USA
EPA ID:	NYP004451316
Facility Status:	Not reported
Location Address 1:	1971 ARTHUR AVE
Code:	BP
Location Address 2:	SB22519
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	10461

CON EDISON SERVICE BOX: 22519 (Continued) **1016971392**

Location Zip 4: Not reported

NY MANIFEST:
EPAID: NYP004451316
Mailing Name: CON EDISON
Mailing Contact: CON EDISON
Mailing Address 1: 4 IRVING ST
Mailing Address 2: 15TH FL
Mailing City: NEW YORK
Mailing State: NY
Mailing Zip: 10003
Mailing Zip 4: Not reported
Mailing Country: USA
Mailing Phone: Not reported

NY MANIFEST:
Document ID: Not reported
Manifest Status: Not reported
seq: Not reported
Year: 2014
Trans1 State ID: NJD003812047
Trans2 State ID: Not reported
Generator Ship Date: 02/25/2014
Trans1 Recv Date: 02/25/2014
Trans2 Recv Date: Not reported
TSD Site Recv Date: 02/25/2014
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: NYP004451316
Trans1 EPA ID: Not reported
Trans2 EPA ID: Not reported
TSDF ID 1: NJD991291105
TSDF ID 2: Not reported
Manifest Tracking Number: 002219007GBF
Import Indicator: N
Export Indicator: N
Discr Quantity Indicator: N
Discr Type Indicator: N
Discr Residue Indicator: N
Discr Partial Reject Indicator: N
Discr Full Reject Indicator: N
Manifest Ref Number: Not reported
Alt Facility RCRA ID: Not reported
Alt Facility Sign Date: Not reported
MGMT Method Type Code: H110
Waste Code: Not reported
Waste Code: Not reported
Waste Code: Not reported
Waste Code: Not reported
Waste Code: Not reported
Waste Code: Not reported
Quantity: 200
Units: P - Pounds
Number of Containers: 1
Container Type: TT - Cargo tank, tank trucks
Handling Method: T Chemical, physical, or biological treatment.
Specific Gravity: 1

CON EDISON SERVICE BOX: 22519 (Continued) **1016971392**

Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

Y189 **I.S. 118 - BRONX X118** **NY UST U001839771**
ENE **577 EAST 179TH STREET** **NY AST N/A**
1/8-1/4 **BRONX, NY 10457**
0.186 mi.
984 ft. **Site 2 of 2 in cluster Y**

Relative:
Higher

Actual:
90 ft.

UST:

Id/Status:	2-352039 / Active
Program Type:	PBS
Region:	STATE
DEC Region:	2
Expiration Date:	06/28/2023
UTM X:	593349.96673
UTM Y:	4522510.01240
Site Type:	School

Affiliation Records:

Site Id:	17406
Affiliation Type:	Facility Owner
Company Name:	NEW YORK CITY DEPARTMENT OF EDUCATION
Contact Type:	MANAGER, FUEL DIVISION
Contact Name:	MUNENDRA SHARMA
Address1:	44-36 VERNON BOULEVARD
Address2:	Not reported
City:	LONG ISLAND CITY
State:	NY
Zip Code:	11101
Country Code:	001
Phone:	(718) 349-5752
EMail:	Not reported
Fax Number:	Not reported
Modified By:	ACDANIEL
Date Last Modified:	2018-07-17

Site Id:	17406
Affiliation Type:	Mail Contact
Company Name:	NEW YORK CITY DEPARTMENT OF EDUCATION
Contact Type:	Not reported
Contact Name:	MUNENDRA SHARMA
Address1:	FIELD OPERATIONS - FUEL DIVISION
Address2:	44-36 VERNON BOULEVARD
City:	LONG ISLAND CITY
State:	NY
Zip Code:	11101
Country Code:	001
Phone:	(718) 349-5752
EMail:	MSHARMA@SCHOOLS.NYC.GOV

I.S. 118 - BRONX X118 (Continued) **U001839771**

Fax Number: Not reported
Modified By: MFLEONAR
Date Last Modified: 2018-04-10

Site Id: 17406
Affiliation Type: Facility Operator
Company Name: I.S. 118 - BRONX X118
Contact Type: Not reported
Contact Name: ROBERT BIZZARD
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 001
Phone: (718) 584-2330
EMail: Not reported
Fax Number: Not reported
Modified By: MFLEONAR
Date Last Modified: 2018-04-10

Site Id: 17406
Affiliation Type: Emergency Contact
Company Name: NEW YORK CITY DEPARTMENT OF EDUCATION
Contact Type: Not reported
Contact Name: KEN MAHADEO
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 999
Phone: (646) 210-7918
EMail: Not reported
Fax Number: Not reported
Modified By: JSMACRI
Date Last Modified: 2018-12-06

Tank Info:

Tank Number: 001
Tank ID: 34089
Tank Status: Closed - Removed
Material Name: Closed - Removed
Capacity Gallons: 13000
Install Date: Not reported
Date Tank Closed: 01/31/2004
Registered: True
Tank Location: Underground
Tank Type: Steel/carbon steel
Material Code: 0003
Common Name of Substance: #6 Fuel Oil (On-Site Consumption)

Tightness Test Method: NN
Date Test: Not reported
Next Test Date: Not reported
Pipe Model: Not reported

I.S. 118 - BRONX X118 (Continued) **U001839771**

Modified By: NRLOMBAR
Last Modified: 04/14/2017

Equipment Records:

E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None
L00 - Piping Leak Detection - None
C03 - Pipe Location - Aboveground/Underground Combination
G00 - Tank Secondary Containment - None
J02 - Dispenser - Suction Dispenser
I04 - Overfill - Product Level Gauge (A/G)
A00 - Tank Internal Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
D01 - Pipe Type - Steel/Carbon Steel/Iron
F01 - Pipe External Protection - Painted/Asphalt Coating
K00 - Spill Prevention - None

AST:

Region: STATE
DEC Region: 2
Site Status: Active
Facility Id: 2-352039
Program Type: PBS
UTM X: 593349.96673
UTM Y: 4522510.01240
Expiration Date: 06/28/2023
Site Type: School

Affiliation Records:

Site Id: 17406
Affiliation Type: Facility Owner
Company Name: NEW YORK CITY DEPARTMENT OF EDUCATION
Contact Type: MANAGER, FUEL DIVISION
Contact Name: MUNENDRA SHARMA
Address1: 44-36 VERNON BOULEVARD
Address2: Not reported
City: LONG ISLAND CITY
State: NY
Zip Code: 11101
Country Code: 001
Phone: (718) 349-5752
EMail: Not reported
Fax Number: Not reported
Modified By: ACDANIEL
Date Last Modified: 2018-07-17

Site Id: 17406
Affiliation Type: Mail Contact
Company Name: NEW YORK CITY DEPARTMENT OF EDUCATION
Contact Type: Not reported
Contact Name: MUNENDRA SHARMA
Address1: FIELD OPERATIONS - FUEL DIVISION
Address2: 44-36 VERNON BOULEVARD
City: LONG ISLAND CITY
State: NY
Zip Code: 11101
Country Code: 001
Phone: (718) 349-5752

I.S. 118 - BRONX X118 (Continued) **U001839771**

EMail:	MSHARMA@SCHOOLS.NYC.GOV
Fax Number:	Not reported
Modified By:	MFLEONAR
Date Last Modified:	2018-04-10

Site Id:	17406
Affiliation Type:	Facility Operator
Company Name:	I.S. 118 - BRONX X118
Contact Type:	Not reported
Contact Name:	ROBERT BIZZARD
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 584-2330
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MFLEONAR
Date Last Modified:	2018-04-10

Site Id:	17406
Affiliation Type:	Emergency Contact
Company Name:	NEW YORK CITY DEPARTMENT OF EDUCATION
Contact Type:	Not reported
Contact Name:	KEN MAHADEO
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(646) 210-7918
EMail:	Not reported
Fax Number:	Not reported
Modified By:	JSMACRI
Date Last Modified:	2018-12-06

Tank Info:

Tank Number:	002
Tank Id:	181024
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

Equipment Records:

E00 - Piping Secondary Containment - None
K01 - Spill Prevention - Catch Basin
H06 - Tank Leak Detection - Impervious Barrier/Concrete Pad (A/G)
L00 - Piping Leak Detection - None
J02 - Dispenser - Suction Dispenser
C01 - Pipe Location - Aboveground
I04 - Overfill - Product Level Gauge (A/G)
A00 - Tank Internal Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating

I.S. 118 - BRONX X118 (Continued) **U001839771**

D01 - Pipe Type - Steel/Carbon Steel/Iron
F01 - Pipe External Protection - Painted/Asphalt Coating
G02 - Tank Secondary Containment - Vault (w/access)

Tank Location:	Aboveground - on saddles, legs, racks, etc.... Tank bottom is elevated above grade or tank pad, allowing visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	07/15/2004
Capacity Gallons:	5000
Tightness Test Method:	-
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	MFLEONAR
Last Modified:	04/10/2018
Material Name:	#2 fuel oil (on-site consumption)

X190 **WEBSTER PLACE ASSOCIATES, LP** **NY AST** **A100296707**
NW **1971 WEBSTER AVENUE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.188 mi.
990 ft. **Site 3 of 8 in cluster X**

Relative: **Lower**
Actual: **46 ft.**

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-608915
Program Type:	PBS
UTM X:	592724.76469
UTM Y:	4522637.03366
Expiration Date:	04/29/2023
Site Type:	Apartment Building/Office Building

Affiliation Records:

Site Id:	30763
Affiliation Type:	Facility Owner
Company Name:	WEBSTER PLACE ASSOCIATES LP
Contact Type:	MANAGING AGENT
Contact Name:	JOEL GENDELS
Address1:	542 MAIN STREET, STE. 2
Address2:	Not reported
City:	NEW ROCHELLE
State:	NY
Zip Code:	10801
Country Code:	001
Phone:	(914) 380-8220
EMail:	Not reported
Fax Number:	Not reported
Modified By:	dxliving
Date Last Modified:	2008-03-21

Site Id:	30763
Affiliation Type:	Mail Contact
Company Name:	WEBSTER PLACE ASSOCIATES LP
Contact Type:	Not reported

WEBSTER PLACE ASSOCIATES, LP (Continued) **A100296707**

Contact Name:	JOEL GENDELS
Address1:	542 MAIN STREET
Address2:	SUITE 2
City:	NEW ROCHELLE
State:	NY
Zip Code:	10801
Country Code:	001
Phone:	(914) 380-8220
EMail:	CVASQUEZ@CORNELLPACE.COM
Fax Number:	Not reported
Modified By:	DMPOKRZY
Date Last Modified:	2018-03-01

Site Id:	30763
Affiliation Type:	Facility Operator
Company Name:	WEBSTER PLACE ASSOCIATES, LP
Contact Type:	Not reported
Contact Name:	JUAN LIRIANO
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(914) 447-5908
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MSBAPTIS
Date Last Modified:	2013-04-12

Site Id:	30763
Affiliation Type:	Emergency Contact
Company Name:	WEBSTER PLACE ASSOCIATES LP
Contact Type:	Not reported
Contact Name:	MARY CAMACHO
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(914) 380-8255
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MSBAPTIS
Date Last Modified:	2013-04-12

Tank Info:

Tank Number:	001
Tank Id:	65964
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

Equipment Records:

C01 - Pipe Location - Aboveground

WEBSTER PLACE ASSOCIATES, LP (Continued) **A100296707**

A00 - Tank Internal Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
D01 - Pipe Type - Steel/Carbon Steel/Iron
G10 - Tank Secondary Containment - Impervious Underlayment
J02 - Dispenser - Suction Dispenser
H00 - Tank Leak Detection - None
L09 - Piping Leak Detection - Exempt Suction Piping
F00 - Pipe External Protection - None
I05 - Overfill - Vent Whistle

Tank Location:	Aboveground - on saddles, legs, racks, etc.... Tank bottom is elevated above grade or tank pad, allowing visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	04/01/2003
Capacity Gallons:	4500
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	MSBAPTIS
Last Modified:	04/14/2017
Material Name:	#2 fuel oil (on-site consumption)

AB191 **BRYANT LUMBER & BLDG** **NY AST** **U003389693**
SW **4130 PARK AVE** **N/A**
1/8-1/4 **NY, NY 10457**
0.188 mi.
991 ft. **Site 1 of 7 in cluster AB**

Relative: **Lower**
Actual: **40 ft.**

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-237248
Program Type:	PBS
UTM X:	592729.14280
UTM Y:	4522196.60230
Expiration Date:	10/02/2022
Site Type:	Other Wholesale/Retail Sales

Affiliation Records:

Site Id:	8832
Affiliation Type:	Facility Owner
Company Name:	EMIL KOCH
Contact Type:	OWNER
Contact Name:	EMIL KOCH
Address1:	534 LOGAN AVE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10465
Country Code:	001
Phone:	(718) 731-7800
EMail:	Not reported
Fax Number:	Not reported
Modified By:	DMPOKRZY

BRYANT LUMBER & BLDG (Continued) **U003389693**

Date Last Modified: 2016-11-08

Site Id: 8832
Affiliation Type: Mail Contact
Company Name: EMIL KOCH
Contact Type: Not reported
Contact Name: Not reported
Address1: 4130 PARK AVENUE
Address2: Not reported
City: NEW YORK
State: NY
Zip Code: 10457
Country Code: 001
Phone: 718 731-7800
EMail: Not reported
Fax Number: Not reported
Modified By: msbaptis
Date Last Modified: 2007-08-09

Site Id: 8832
Affiliation Type: Facility Operator
Company Name: BRYANT LUMBER & BLDG
Contact Type: Not reported
Contact Name: EMIL KOCH
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 001
Phone: (718) 731-7800
EMail: Not reported
Fax Number: Not reported
Modified By: msbaptis
Date Last Modified: 2007-08-07

Site Id: 8832
Affiliation Type: Emergency Contact
Company Name: EMIL KOCH
Contact Type: Not reported
Contact Name: EMIL KOCH
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 999
Phone: 718) 731-7800
EMail: Not reported
Fax Number: Not reported
Modified By: msbaptis
Date Last Modified: 2007-08-09

Tank Info:

Tank Number: 001
Tank Id: 17259

BRYANT LUMBER & BLDG (Continued) **U003389693**

Material Code: 0001
Common Name of Substance: #2 Fuel Oil (On-Site Consumption)

Equipment Records:

I04 - Overfill - Product Level Gauge (A/G)
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
J02 - Dispenser - Suction Dispenser
H00 - Tank Leak Detection - None
L09 - Piping Leak Detection - Exempt Suction Piping
G04 - Tank Secondary Containment - Double-Walled (Underground)

Tank Location: Aboveground - contact with soil.... Tank bottom rests on soil, allowing no visual inspection.
Tank Type: Steel/Carbon Steel/Iron
Tank Status: In Service
Pipe Model: Not reported
Install Date: 01/08/1975
Capacity Gallons: 3000
Tightness Test Method: NN
Date Test: Not reported
Next Test Date: Not reported
Date Tank Closed: Not reported
Register: True
Modified By: msbaptis
Last Modified: 04/14/2017
Material Name: #2 fuel oil (on-site consumption)

W192 **CON ED** **NY MANIFEST** **S119074254**
NE **4361 3RD AVE** **N/A**
1/8-1/4 **BRONX, NY 10454**
0.189 mi.
997 ft. **Site 11 of 14 in cluster W**

Relative: **Higher**
Actual: **88 ft.**

NY MANIFEST:
Country: USA
EPA ID: NYP004764700
Facility Status: Not reported
Location Address 1: OPP 4361 3RD AVE
Code: BP
Location Address 2: MH 33706
Total Tanks: Not reported
Location City: BRONX
Location State: NY
Location Zip: 10465
Location Zip 4: Not reported

NY MANIFEST:
EPAID: NYP004764700
Mailing Name: CON ED
Mailing Contact: TOM TEELING
Mailing Address 1: 4 IRVING PLACE - 15TH FLOOR
Mailing Address 2: Not reported
Mailing City: NEW YORK
Mailing State: NY
Mailing Zip: 10003

CON ED (Continued) **S119074254**

Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	2124603770

NY MANIFEST:

Document ID:	Not reported
Manifest Status:	Not reported
seq:	Not reported
Year:	2015
Trans1 State ID:	NYD006982359
Trans2 State ID:	Not reported
Generator Ship Date:	04/08/2015
Trans1 Recv Date:	04/08/2015
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	04/14/2015
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004764700
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD002200046
TSDF ID 2:	Not reported
Manifest Tracking Number:	011692702JJK
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H110
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	150
Units:	P - Pounds
Number of Containers:	1
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

W193
NE
1/8-1/4
0.189 mi.
997 ft.

CON EDISON
4361 3RD AVE
BRONX, NY 10454

Site 12 of 14 in cluster W

NJ MANIFEST **S120670193**
N/A

Relative:
Higher

Actual:
88 ft.

NJ MANIFEST:

EPA Id:	NYP004764700
Mail Address:	IRVING PL 15TH FL NE
Mail City/State/Zip:	NEW YORK, NY 10003
Facility Phone:	Not reported
Emergency Phone:	Not reported
Contact:	THOMAS TEELING
Comments:	Not reported
SIC Code:	Not reported
County:	NY005
Municipal:	Not reported
Previous EPA Id:	Not reported
Gen Flag:	Not reported
Trans Flag:	Not reported
TSDF Flag:	Not reported
Name Change:	Not reported
Date Change:	Not reported

Manifest:

Manifest Number:	011692702JJK
EPA ID:	NYP004764700
Date Shipped:	4/8/2015
TSDF EPA ID:	NJD002200046
Transporter EPA ID:	NYD006982359
Transporter 2 EPA ID:	Not reported
Transporter 3 EPA ID:	Not reported
Transporter 4 EPA ID:	Not reported
Transporter 5 EPA ID:	Not reported
Transporter 6 EPA ID:	Not reported
Transporter 7 EPA ID:	Not reported
Transporter 8 EPA ID:	Not reported
Transporter 9 EPA ID:	Not reported
Transporter 10 EPA ID:	Not reported
Date Trans1 Transported Waste:	Not reported
Date Trans2 Transported Waste:	Not reported
Date Trans3 Transported Waste:	Not reported
Date Trans4 Transported Waste:	Not reported
Date Trans5 Transported Waste:	Not reported
Date Trans6 Transported Waste:	Not reported
Date Trans7 Transported Waste:	Not reported
Date Trans8 Transported Waste:	Not reported
Date Trans9 Transported Waste:	Not reported
Date Trans10 Transported Waste:	Not reported
Date TSDF Received Waste:	Not reported
TSDF EPA Facility Name:	Not reported
QTY Units:	Not reported
Transporter SEQ ID:	Not reported
Transporter-1 Date:	Not reported
Waste SEQ ID:	Not reported
Waste Type Code 2:	Not reported
Waste Type Code 3:	Not reported
Waste Type Code 4:	Not reported
Waste Type Code 5:	Not reported
Waste Type Code 6:	Not reported

CON EDISON (Continued) **S120670193**

Date Accepted:	Not reported
Manifest Discrepancy Type:	Not reported
Data Entry Number:	Not reported
Was Load Rejected:	NEW YORK, NY 10003
Reason Load Was Rejected:	Not reported

W194 **CON EDISON** **RCRA NonGen / NLR** **1019901674**
NE **4361 3RD AVE** **NYP004764700**
1/8-1/4 **BRONX, NY 10454**
0.189 mi.
997 ft. **Site 13 of 14 in cluster W**

Relative:
Higher

Actual:
88 ft.

RCRA NonGen / NLR:

Date form received by agency:	04/08/2015
Facility name:	CON EDISON
Facility address:	4361 3RD AVE BRONX, NY 10454
EPA ID:	NYP004764700
Mailing address:	IRVING PL 15TH FL NE NEW YORK, NY 10003
Contact:	THOMAS TEELING
Contact address:	Not reported Not reported
Contact country:	Not reported
Contact telephone:	212-460-3770
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Historical Generators:

Date form received by agency:	04/08/2015
Site name:	CON EDISON
Classification:	Large Quantity Generator

Violation Status: No violations found

AC195 **BP WEBSTER** **NY UST** **U001833037**
WSW **1862 WEBSTER AVENUE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.190 mi.
1003 ft. **Site 1 of 7 in cluster AC**

Relative:
Lower

Actual:
36 ft.

UST:

Id/Status:	2-191221 / Active
Program Type:	PBS
Region:	STATE
DEC Region:	2
Expiration Date:	10/23/2022
UTM X:	592643.32366
UTM Y:	4522348.25599
Site Type:	Retail Gasoline Sales

Affiliation Records:

Site Id:	5949
Affiliation Type:	Facility Owner
Company Name:	AMRON REALTY CORP.
Contact Type:	IT MANAGER
Contact Name:	ELMOUBARACK DABO
Address1:	275 MADISON AVE. 37TH FLOOR
Address2:	Not reported
City:	NEW YORK
State:	NY
Zip Code:	10016
Country Code:	001
Phone:	(646) 612-7350
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MFLEONAR
Date Last Modified:	2017-10-17

Site Id:	5949
Affiliation Type:	Mail Contact
Company Name:	AMRON REALTY CORP.
Contact Type:	Not reported
Contact Name:	ELMOUBARACK DABO
Address1:	275 MADISON AVE
Address2:	37TH FLOOR
City:	NEW YORK
State:	NY
Zip Code:	10016
Country Code:	001
Phone:	(646) 612-7350
EMail:	EDABO@LARGAVISTA.COM
Fax Number:	Not reported
Modified By:	TLYE
Date Last Modified:	2018-04-09

Site Id:	5949
Affiliation Type:	Facility Operator
Company Name:	BP WEBSTER
Contact Type:	Not reported
Contact Name:	SANJAY KAPOOR
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN

BP WEBSTER (Continued) **U001833037**

Zip Code:	Not reported
Country Code:	001
Phone:	(718) 716-6600
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MXLAY
Date Last Modified:	2016-10-31
Site Id:	5949
Affiliation Type:	Emergency Contact
Company Name:	AMRON REALTY CORP.
Contact Type:	Not reported
Contact Name:	SANJAY KAPOOR
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(201) 988-8551
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MFLEONAR
Date Last Modified:	2017-10-17

Tank Info:

Tank Number:	001
Tank ID:	7434
Tank Status:	Closed - Removed
Material Name:	Closed - Removed
Capacity Gallons:	4000
Install Date:	11/01/1982
Date Tank Closed:	04/23/2009
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Material Code:	2712
Common Name of Substance:	Gasoline/Ethanol
Tightness Test Method:	21
Date Test:	11/18/2004
Next Test Date:	Not reported
Pipe Model:	Not reported
Modified By:	NRLOMBAR
Last Modified:	04/14/2017

Equipment Records:

B08 - Tank External Protection - Retrofitted Impressed Current
D02 - Pipe Type - Galvanized Steel
J01 - Dispenser - Pressurized Dispenser
C02 - Pipe Location - Underground/On-ground
E00 - Piping Secondary Containment - None
K01 - Spill Prevention - Catch Basin
F08 - Pipe External Protection - Retrofitted Impressed Current
L07 - Piping Leak Detection - Pressurized Piping Leak Detector
A00 - Tank Internal Protection - None

BP WEBSTER (Continued) **U001833037**

B01 - Tank External Protection - Painted/Asphalt Coating
G99 - Tank Secondary Containment - Other
I03 - Overfill - Automatic Shut-Off
H99 - Tank Leak Detection - Other

Tank Number:	002
Tank ID:	7435
Tank Status:	Closed - Removed
Material Name:	Closed - Removed
Capacity Gallons:	4000
Install Date:	11/01/1982
Date Tank Closed:	04/23/2009
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Material Code:	2712
Common Name of Substance:	Gasoline/Ethanol
Tightness Test Method:	21
Date Test:	11/18/2004
Next Test Date:	Not reported
Pipe Model:	Not reported
Modified By:	NRLOMBAR
Last Modified:	04/14/2017

Equipment Records:

D02 - Pipe Type - Galvanized Steel
J01 - Dispenser - Pressurized Dispenser
C02 - Pipe Location - Underground/On-ground
F08 - Pipe External Protection - Retrofitted Impressed Current
L07 - Piping Leak Detection - Pressurized Piping Leak Detector
B08 - Tank External Protection - Retrofitted Impressed Current
A00 - Tank Internal Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
G99 - Tank Secondary Containment - Other
I03 - Overfill - Automatic Shut-Off
E00 - Piping Secondary Containment - None
K01 - Spill Prevention - Catch Basin
H99 - Tank Leak Detection - Other

Tank Number:	003
Tank ID:	7436
Tank Status:	Closed - Removed
Material Name:	Closed - Removed
Capacity Gallons:	2000
Install Date:	11/01/1982
Date Tank Closed:	04/23/2009
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Material Code:	2712
Common Name of Substance:	Gasoline/Ethanol
Tightness Test Method:	21
Date Test:	11/18/2004
Next Test Date:	Not reported

BP WEBSTER (Continued) **U001833037**

Pipe Model: Not reported
Modified By: NRLOMBAR
Last Modified: 04/14/2017

Equipment Records:

L07 - Piping Leak Detection - Pressurized Piping Leak Detector
F08 - Pipe External Protection - Retrofitted Impressed Current
B08 - Tank External Protection - Retrofitted Impressed Current
C02 - Pipe Location - Underground/On-ground
J01 - Dispenser - Pressurized Dispenser
D02 - Pipe Type - Galvanized Steel
I03 - Overfill - Automatic Shut-Off
G99 - Tank Secondary Containment - Other
A00 - Tank Internal Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
K01 - Spill Prevention - Catch Basin
E00 - Piping Secondary Containment - None
H99 - Tank Leak Detection - Other

Tank Number: 004
Tank ID: 7437
Tank Status: Closed - Removed
Material Name: Closed - Removed
Capacity Gallons: 4000
Install Date: 11/01/1982
Date Tank Closed: 04/23/2009
Registered: True
Tank Location: Underground
Tank Type: Steel/carbon steel
Material Code: 2712
Common Name of Substance: Gasoline/Ethanol

Tightness Test Method: 21
Date Test: 11/18/2004
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: NRLOMBAR
Last Modified: 04/14/2017

Equipment Records:

B08 - Tank External Protection - Retrofitted Impressed Current
D02 - Pipe Type - Galvanized Steel
J01 - Dispenser - Pressurized Dispenser
C02 - Pipe Location - Underground/On-ground
E00 - Piping Secondary Containment - None
K01 - Spill Prevention - Catch Basin
A00 - Tank Internal Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
G99 - Tank Secondary Containment - Other
I03 - Overfill - Automatic Shut-Off
F08 - Pipe External Protection - Retrofitted Impressed Current
L07 - Piping Leak Detection - Pressurized Piping Leak Detector
H99 - Tank Leak Detection - Other

Tank Number: 005
Tank ID: 7438

BP WEBSTER (Continued) **U001833037**

Tank Status: Closed - Removed
Material Name: Closed - Removed
Capacity Gallons: 2000
Install Date: 11/01/1982
Date Tank Closed: 04/23/2009
Registered: True
Tank Location: Underground
Tank Type: Steel/carbon steel
Material Code: 2712
Common Name of Substance: Gasoline/Ethanol

Tightness Test Method: 21
Date Test: 11/18/2004
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: NRLOMBAR
Last Modified: 04/14/2017

Equipment Records:

C02 - Pipe Location - Underground/On-ground
B08 - Tank External Protection - Retrofitted Impressed Current
D02 - Pipe Type - Galvanized Steel
J01 - Dispenser - Pressurized Dispenser
F08 - Pipe External Protection - Retrofitted Impressed Current
L07 - Piping Leak Detection - Pressurized Piping Leak Detector
E00 - Piping Secondary Containment - None
K01 - Spill Prevention - Catch Basin
A00 - Tank Internal Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
G99 - Tank Secondary Containment - Other
I03 - Overfill - Automatic Shut-Off
H99 - Tank Leak Detection - Other

Tank Number: 006
Tank ID: 7439
Tank Status: Closed - Removed
Material Name: Closed - Removed
Capacity Gallons: 4000
Install Date: 11/01/1982
Date Tank Closed: 04/23/2009
Registered: True
Tank Location: Underground
Tank Type: Steel/carbon steel
Material Code: 0008
Common Name of Substance: Diesel

Tightness Test Method: 21
Date Test: 11/18/2004
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: NRLOMBAR
Last Modified: 04/14/2017

Equipment Records:

B08 - Tank External Protection - Retrofitted Impressed Current
C02 - Pipe Location - Underground/On-ground
F08 - Pipe External Protection - Retrofitted Impressed Current

BP WEBSTER (Continued) **U001833037**

L07 - Piping Leak Detection - Pressurized Piping Leak Detector
D02 - Pipe Type - Galvanized Steel
J01 - Dispenser - Pressurized Dispenser
E00 - Piping Secondary Containment - None
K01 - Spill Prevention - Catch Basin
A00 - Tank Internal Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
G99 - Tank Secondary Containment - Other
I03 - Overfill - Automatic Shut-Off
H99 - Tank Leak Detection - Other

Tank Number:	007
Tank ID:	229098
Tank Status:	In Service
Material Name:	In Service
Capacity Gallons:	12000
Install Date:	05/20/2009
Date Tank Closed:	Not reported
Registered:	True
Tank Location:	Underground
Tank Type:	Equivalent technology
Material Code:	2712
Common Name of Substance:	Gasoline/Ethanol
Tightness Test Method:	-
Date Test:	Not reported
Next Test Date:	Not reported
Pipe Model:	D
Modified By:	TLYE
Last Modified:	04/09/2018

Equipment Records:

L07 - Piping Leak Detection - Pressurized Piping Leak Detector
A03 - Tank Internal Protection - Fiberglass Liner (FRP)
L01 - Piping Leak Detection - Interstitial - Electronic Monitoring
C02 - Pipe Location - Underground/On-ground
F04 - Pipe External Protection - Fiberglass
J01 - Dispenser - Pressurized Dispenser
E04 - Piping Secondary Containment - Double walled UG
H01 - Tank Leak Detection - Interstitial - Electronic Monitoring
I03 - Overfill - Automatic Shut-Off
K01 - Spill Prevention - Catch Basin
I02 - Overfill - High Level Alarm
B04 - Tank External Protection - Fiberglass
D06 - Pipe Type - Fiberglass Reinforced Plastic (FRP)
G04 - Tank Secondary Containment - Double-Walled (Underground)
H05 - Tank Leak Detection - In-Tank System (ATG)

Tank Number:	008A
Tank ID:	229099
Tank Status:	In Service
Material Name:	In Service
Capacity Gallons:	7000
Install Date:	05/20/2009
Date Tank Closed:	Not reported
Registered:	True

BP WEBSTER (Continued) **U001833037**

Tank Location: Underground
Tank Type: Equivalent technology
Material Code: 2712
Common Name of Substance: Gasoline/Ethanol

Tightness Test Method: -
Date Test: Not reported
Next Test Date: Not reported
Pipe Model: D
Modified By: TLYE
Last Modified: 04/09/2018

Equipment Records:

L07 - Piping Leak Detection - Pressurized Piping Leak Detector
A03 - Tank Internal Protection - Fiberglass Liner (FRP)
L01 - Piping Leak Detection - Interstitial - Electronic Monitoring
C02 - Pipe Location - Underground/On-ground
F04 - Pipe External Protection - Fiberglass
J01 - Dispenser - Pressurized Dispenser
E04 - Piping Secondary Containment - Double walled UG
H01 - Tank Leak Detection - Interstitial - Electronic Monitoring
I03 - Overfill - Automatic Shut-Off
K01 - Spill Prevention - Catch Basin
I02 - Overfill - High Level Alarm
B04 - Tank External Protection - Fiberglass
D06 - Pipe Type - Fiberglass Reinforced Plastic (FRP)
G04 - Tank Secondary Containment - Double-Walled (Underground)
H05 - Tank Leak Detection - In-Tank System (ATG)

Tank Number: 008B
Tank ID: 237791
Tank Status: In Service
Material Name: In Service
Capacity Gallons: 5000
Install Date: 05/20/2009
Date Tank Closed: Not reported
Registered: True
Tank Location: Underground
Tank Type: Equivalent technology
Material Code: 0008
Common Name of Substance: Diesel

Tightness Test Method: -
Date Test: Not reported
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: TLYE
Last Modified: 04/09/2018

Equipment Records:

A03 - Tank Internal Protection - Fiberglass Liner (FRP)
C02 - Pipe Location - Underground/On-ground
F04 - Pipe External Protection - Fiberglass
L01 - Piping Leak Detection - Interstitial - Electronic Monitoring
E04 - Piping Secondary Containment - Double walled UG
J01 - Dispenser - Pressurized Dispenser
G04 - Tank Secondary Containment - Double-Walled (Underground)

BP WEBSTER (Continued) **U001833037**

B04 - Tank External Protection - Fiberglass
D06 - Pipe Type - Fiberglass Reinforced Plastic (FRP)
I02 - Overfill - High Level Alarm
K01 - Spill Prevention - Catch Basin
H01 - Tank Leak Detection - Interstitial - Electronic Monitoring
I03 - Overfill - Automatic Shut-Off
L07 - Piping Leak Detection - Pressurized Piping Leak Detector
H05 - Tank Leak Detection - In-Tank System (ATG)

Tank Number:	009
Tank ID:	229100
Tank Status:	Tank Converted to Non-Regulated Use
Material Name:	Tank Converted to Non-Regulated Use
Capacity Gallons:	5000
Install Date:	05/20/2009
Date Tank Closed:	Not reported
Registered:	True
Tank Location:	Underground
Tank Type:	Equivalent technology
Material Code:	9999
Common Name of Substance:	Other
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Pipe Model:	D
Modified By:	NRLOMBAR
Last Modified:	04/14/2017

Equipment Records:

L07 - Piping Leak Detection - Pressurized Piping Leak Detector
A03 - Tank Internal Protection - Fiberglass Liner (FRP)
C02 - Pipe Location - Underground/On-ground
F04 - Pipe External Protection - Fiberglass
E04 - Piping Secondary Containment - Double walled UG
J01 - Dispenser - Pressurized Dispenser
H01 - Tank Leak Detection - Interstitial - Electronic Monitoring
I03 - Overfill - Automatic Shut-Off
L08 - Piping Leak Detection - Tank Top Sump
B04 - Tank External Protection - Fiberglass
D06 - Pipe Type - Fiberglass Reinforced Plastic (FRP)
I02 - Overfill - High Level Alarm
K01 - Spill Prevention - Catch Basin
G04 - Tank Secondary Containment - Double-Walled (Underground)
H05 - Tank Leak Detection - In-Tank System (ATG)

Tank Number:	010
Tank ID:	55375
Tank Status:	Closed - In Place
Material Name:	Closed - In Place
Capacity Gallons:	550
Install Date:	Not reported
Date Tank Closed:	10/01/1978
Registered:	True
Tank Location:	Underground
Tank Type:	Z

BP WEBSTER (Continued) **U001833037**

Material Code: ZZZZ
Common Name of Substance: Invalid Material - Please Fix

Tightness Test Method: NN
Date Test: Not reported
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: TRANSLAT
Last Modified: 04/14/2017

Equipment Records:

G00 - Tank Secondary Containment - None
J00 - Dispenser - None
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
H00 - Tank Leak Detection - None
I00 - Overfill - None
A00 - Tank Internal Protection - None
D00 - Pipe Type - No Piping

Tank Number: 011
Tank ID: 55376
Tank Status: Closed - In Place
Material Name: Closed - In Place
Capacity Gallons: 550
Install Date: Not reported
Date Tank Closed: 10/01/1978
Registered: True
Tank Location: Underground
Tank Type: Z
Material Code: ZZZZ
Common Name of Substance: Invalid Material - Please Fix

Tightness Test Method: NN
Date Test: Not reported
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: TRANSLAT
Last Modified: 04/14/2017

Equipment Records:

D00 - Pipe Type - No Piping
J00 - Dispenser - None
G00 - Tank Secondary Containment - None
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
A00 - Tank Internal Protection - None
H00 - Tank Leak Detection - None
I00 - Overfill - None

Tank Number: 012
Tank ID: 55377
Tank Status: Closed - In Place
Material Name: Closed - In Place

BP WEBSTER (Continued) **U001833037**

Capacity Gallons:	550
Install Date:	Not reported
Date Tank Closed:	10/01/1978
Registered:	True
Tank Location:	Underground
Tank Type:	Z
Material Code:	ZZZZ
Common Name of Substance:	Invalid Material - Please Fix
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Pipe Model:	Not reported
Modified By:	TRANSLAT
Last Modified:	04/14/2017

Equipment Records:

D00 - Pipe Type - No Piping
J00 - Dispenser - None
G00 - Tank Secondary Containment - None
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
A00 - Tank Internal Protection - None
H00 - Tank Leak Detection - None
I00 - Overfill - None

Tank Number:	013
Tank ID:	55378
Tank Status:	Closed - In Place
Material Name:	Closed - In Place
Capacity Gallons:	550
Install Date:	Not reported
Date Tank Closed:	10/01/1978
Registered:	True
Tank Location:	Underground
Tank Type:	Z
Material Code:	ZZZZ
Common Name of Substance:	Invalid Material - Please Fix
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Pipe Model:	Not reported
Modified By:	TRANSLAT
Last Modified:	04/14/2017

Equipment Records:

G00 - Tank Secondary Containment - None
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
J00 - Dispenser - None
H00 - Tank Leak Detection - None
I00 - Overfill - None
A00 - Tank Internal Protection - None
D00 - Pipe Type - No Piping

BP WEBSTER (Continued) **U001833037**

Tank Number: 07
Tank ID: 55372
Tank Status: Closed - In Place
Material Name: Closed - In Place
Capacity Gallons: 550
Install Date: Not reported
Date Tank Closed: 10/01/1978
Registered: True
Tank Location: Underground
Tank Type: Z
Material Code: ZZZZ
Common Name of Substance: Invalid Material - Please Fix

Tightness Test Method: NN
Date Test: Not reported
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: NRLOMBAR
Last Modified: 04/14/2017

Equipment Records:

J00 - Dispenser - None
H00 - Tank Leak Detection - None
I00 - Overfill - None
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
D00 - Pipe Type - No Piping
G00 - Tank Secondary Containment - None
A00 - Tank Internal Protection - None

Tank Number: 08
Tank ID: 55373
Tank Status: Closed - In Place
Material Name: Closed - In Place
Capacity Gallons: 550
Install Date: Not reported
Date Tank Closed: 10/01/1978
Registered: True
Tank Location: Underground
Tank Type: Z
Material Code: ZZZZ
Common Name of Substance: Invalid Material - Please Fix

Tightness Test Method: NN
Date Test: Not reported
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: NRLOMBAR
Last Modified: 04/14/2017

Equipment Records:

G00 - Tank Secondary Containment - None
D00 - Pipe Type - No Piping
J00 - Dispenser - None
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping

BP WEBSTER (Continued) **U001833037**

F00 - Pipe External Protection - None
A00 - Tank Internal Protection - None
H00 - Tank Leak Detection - None
I00 - Overfill - None

Tank Number:	09
Tank ID:	55374
Tank Status:	Closed - In Place
Material Name:	Closed - In Place
Capacity Gallons:	550
Install Date:	Not reported
Date Tank Closed:	10/01/1978
Registered:	True
Tank Location:	Underground
Tank Type:	Z
Material Code:	ZZZZ
Common Name of Substance:	Invalid Material - Please Fix
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Pipe Model:	Not reported
Modified By:	NRLOMBAR
Last Modified:	04/14/2017

Equipment Records:

D00 - Pipe Type - No Piping
J00 - Dispenser - None
G00 - Tank Secondary Containment - None
F00 - Pipe External Protection - None
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
A00 - Tank Internal Protection - None
H00 - Tank Leak Detection - None
I00 - Overfill - None

X196 **CON EDISON SERVICE BOX: 27769** **RCRA NonGen / NLR** **1016971372**
WNW **365 E 178TH ST FRONT OF** **NY MANIFEST** **NYP004451118**
1/8-1/4 **BRONX, NY 10453**
0.191 mi.
1009 ft. **Site 4 of 8 in cluster X**

Relative:
Lower

Actual:
47 ft.

RCRA NonGen / NLR:

Date form received by agency:	03/25/2014
Facility name:	CON EDISON SERVICE BOX: 27769
Facility address:	365 E 178TH ST FRONT OF BRONX, NY 10453
EPA ID:	NYP004451118
Mailing address:	IRVING PL, 15TH FL NE NEW YORK, NY 10003
Contact:	THOMAS TEELING
Contact address:	Not reported Not reported
Contact country:	Not reported
Contact telephone:	212-460-3770
Contact email:	Not reported
EPA Region:	02

CON EDISON SERVICE BOX: 27769 (Continued) **1016971372**

Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 02/25/2014
Site name: CON EDISON SERVICE BOX: 27769
Classification: Conditionally Exempt Small Quantity Generator

Violation Status: No violations found

NY MANIFEST:
Country: USA
EPA ID: NYP004451118
Facility Status: Not reported
Location Address 1: 365 E 178TH ST
Code: BP
Location Address 2: SB27769
Total Tanks: Not reported
Location City: BRONX
Location State: NY
Location Zip: 10461
Location Zip 4: Not reported

NY MANIFEST:
EPAID: NYP004451118
Mailing Name: CON EDISON
Mailing Contact: CON EDISON
Mailing Address 1: 4 IRVING ST
Mailing Address 2: 15TH FL
Mailing City: NEW YORK
Mailing State: NY
Mailing Zip: 10003
Mailing Zip 4: Not reported
Mailing Country: USA
Mailing Phone: Not reported

NY MANIFEST:
Document ID: Not reported
Manifest Status: Not reported
seq: Not reported

CON EDISON SERVICE BOX: 27769 (Continued) **1016971372**

Year:	2014
Trans1 State ID:	NJD003812047
Trans2 State ID:	Not reported
Generator Ship Date:	02/25/2014
Trans1 Recv Date:	02/25/2014
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	02/25/2014
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004451118
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD991291105
TSDF ID 2:	Not reported
Manifest Tracking Number:	002219017GBF
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H110
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	200
Units:	P - Pounds
Number of Containers:	1
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

W197 **QUALITY GENERAL REPAIR CORP.** **NY AST** **A100395496**
NE **4365 THIRD AVENUE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.192 mi.
1012 ft. **Site 14 of 14 in cluster W**

Relative:
Higher

Actual:
89 ft.

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-612302
Program Type:	PBS
UTM X:	593191.69220
UTM Y:	4522754.58400
Expiration Date:	10/06/2019
Site Type:	Auto Service/Repair (No Gasoline Sales)

Affiliation Records:

Site Id:	500567
Affiliation Type:	Facility Owner
Company Name:	ALEJANDRO H. LORA
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	1363 FINDLAY AVE, 2A
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10456
Country Code:	001
Phone:	(718) 466-7608
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2014-10-06

Site Id:	500567
Affiliation Type:	Mail Contact
Company Name:	UNITED AUTO MERCHANTS ASSOC.
Contact Type:	Not reported
Contact Name:	PEDRO J. ESTEVEZ
Address1:	1332 COMMERCE AVENUE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10461
Country Code:	001
Phone:	(347) 590-1142
EMail:	COMPLIANCE@UAMANY.ORG
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2014-12-23

Site Id:	500567
Affiliation Type:	Facility Operator
Company Name:	QUALITY GENERAL REPAIR CORP.
Contact Type:	Not reported
Contact Name:	ALEJANDRO H. LORA
Address1:	Not reported
Address2:	Not reported
City:	Not reported

QUALITY GENERAL REPAIR CORP. (Continued) **A100395496**

State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 466-7608
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2014-10-06

Site Id:	500567
Affiliation Type:	Emergency Contact
Company Name:	ALEJANDRO H. LORA
Contact Type:	Not reported
Contact Name:	ALEJANDRO H. LORA
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 466-7608
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2014-10-06

Tank Info:

Tank Number:	70
Tank Id:	253243

Equipment Records:

D00 - Pipe Type - No Piping
L00 - Piping Leak Detection - None
J00 - Dispenser - None
G00 - Tank Secondary Containment - None
A00 - Tank Internal Protection - None
I01 - Overfill - Float Vent Valve
K00 - Spill Prevention - None
E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None

Tank Location:	Aboveground - on saddles, legs, racks, etc.... Tank bottom is elevated above grade or tank pad, allowing visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	09/11/2012
Capacity Gallons:	275
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	NRLOMBAR

QUALITY GENERAL REPAIR CORP. (Continued) **A100395496**

Last Modified: 04/14/2017
Material Name: waste oil/used oil

AD198 **GASETERIA 175TH & THIRD** **NY UST** **U001839283**
South **4115 THIRD AVENUE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.197 mi.
1039 ft. **Site 1 of 2 in cluster AD**

Relative:
Lower

Actual:
50 ft.

UST:
Id/Status: 2-340073 / Unregulated/Closed
Program Type: PBS
Region: STATE
DEC Region: 2
Expiration Date: N/A
UTM X: 592978.07054
UTM Y: 4522081.70874
Site Type: Retail Gasoline Sales

Affiliation Records:
Site Id: 16411
Affiliation Type: Facility Owner
Company Name: GASETERIA OIL CORP.
Contact Type: Not reported
Contact Name: Not reported
Address1: 364 MASPETH AVE.
Address2: Not reported
City: BROOKLYN
State: NY
Zip Code: 11211
Country Code: 001
Phone: (718) 782-4200
EMail: Not reported
Fax Number: Not reported
Modified By: NRLOMBAR
Date Last Modified: 2013-08-06

Site Id: 16411
Affiliation Type: Mail Contact
Company Name: GASETERIA OIL CORPORATION
Contact Type: Not reported
Contact Name: ROBERT PORCELLI
Address1: 364 MASPETH AVENUE
Address2: Not reported
City: BROOKLYN
State: NY
Zip Code: 11211
Country Code: 001
Phone: (718) 782-4200
EMail: Not reported
Fax Number: Not reported
Modified By: TRANSLAT
Date Last Modified: 2004-03-04

Site Id: 16411
Affiliation Type: Facility Operator
Company Name: GASETERIA 175TH & THIRD
Contact Type: Not reported

GASETERIA 175TH & THIRD (Continued) **U001839283**

Contact Name:	GASETERIA OIL CORPORATION
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 562-1500
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Site Id:	16411
Affiliation Type:	Emergency Contact
Company Name:	GASETERIA OIL CORP.
Contact Type:	Not reported
Contact Name:	ROBERTO PORCELLI
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 782-4200
EMail:	Not reported
Fax Number:	Not reported
Modified By:	CGFREEDM
Date Last Modified:	2007-05-21

Tank Info:

Tank Number:	001
Tank ID:	31527
Tank Status:	Closed - Removed
Material Name:	Closed - Removed
Capacity Gallons:	4000
Install Date:	11/01/1990
Date Tank Closed:	05/01/2003
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Material Code:	0009
Common Name of Substance:	Gasoline

Tightness Test Method:	ZZ
Date Test:	11/01/1990
Next Test Date:	Not reported
Pipe Model:	Not reported
Modified By:	TRANSLAT
Last Modified:	04/14/2017

Equipment Records:

K01 - Spill Prevention - Catch Basin
C02 - Pipe Location - Underground/On-ground
J01 - Dispenser - Pressurized Dispenser
B02 - Tank External Protection - Original Sacrificial Anode

GASETERIA 175TH & THIRD (Continued) **U001839283**

D02 - Pipe Type - Galvanized Steel
F02 - Pipe External Protection - Original Sacrificial Anode
G04 - Tank Secondary Containment - Double-Walled (Underground)
H01 - Tank Leak Detection - Interstitial - Electronic Monitoring
I03 - Overfill - Automatic Shut-Off
A00 - Tank Internal Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
H99 - Tank Leak Detection - Other

Tank Number:	002
Tank ID:	31528
Tank Status:	Closed - Removed
Material Name:	Closed - Removed
Capacity Gallons:	4000
Install Date:	11/01/1990
Date Tank Closed:	05/01/2003
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Material Code:	0009
Common Name of Substance:	Gasoline
Tightness Test Method:	ZZ
Date Test:	11/01/1990
Next Test Date:	Not reported
Pipe Model:	Not reported
Modified By:	TRANSLAT
Last Modified:	04/14/2017

Equipment Records:

K01 - Spill Prevention - Catch Basin
C02 - Pipe Location - Underground/On-ground
J01 - Dispenser - Pressurized Dispenser
D02 - Pipe Type - Galvanized Steel
B02 - Tank External Protection - Original Sacrificial Anode
F02 - Pipe External Protection - Original Sacrificial Anode
G04 - Tank Secondary Containment - Double-Walled (Underground)
I03 - Overfill - Automatic Shut-Off
H01 - Tank Leak Detection - Interstitial - Electronic Monitoring
A00 - Tank Internal Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
H99 - Tank Leak Detection - Other

Tank Number:	003
Tank ID:	31529
Tank Status:	Closed - Removed
Material Name:	Closed - Removed
Capacity Gallons:	4000
Install Date:	11/01/1990
Date Tank Closed:	05/01/2003
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Material Code:	0009
Common Name of Substance:	Gasoline

GASETERIA 175TH & THIRD (Continued) **U001839283**

Tightness Test Method: ZZ
Date Test: 11/01/1990
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: TRANSLAT
Last Modified: 04/14/2017

Equipment Records:

K01 - Spill Prevention - Catch Basin
C02 - Pipe Location - Underground/On-ground
J01 - Dispenser - Pressurized Dispenser
D02 - Pipe Type - Galvanized Steel
B02 - Tank External Protection - Original Sacrificial Anode
F02 - Pipe External Protection - Original Sacrificial Anode
G04 - Tank Secondary Containment - Double-Walled (Underground)
I03 - Overfill - Automatic Shut-Off
H01 - Tank Leak Detection - Interstitial - Electronic Monitoring
A00 - Tank Internal Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
H99 - Tank Leak Detection - Other

Tank Number: 004
Tank ID: 31530
Tank Status: Closed - Removed
Material Name: Closed - Removed
Capacity Gallons: 4000
Install Date: 11/01/1990
Date Tank Closed: 05/01/2003
Registered: True
Tank Location: Underground
Tank Type: Steel/carbon steel
Material Code: 0008
Common Name of Substance: Diesel

Tightness Test Method: ZZ
Date Test: 11/01/1990
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: TRANSLAT
Last Modified: 04/14/2017

Equipment Records:

K01 - Spill Prevention - Catch Basin
C02 - Pipe Location - Underground/On-ground
J01 - Dispenser - Pressurized Dispenser
B02 - Tank External Protection - Original Sacrificial Anode
D02 - Pipe Type - Galvanized Steel
F02 - Pipe External Protection - Original Sacrificial Anode
G04 - Tank Secondary Containment - Double-Walled (Underground)
H01 - Tank Leak Detection - Interstitial - Electronic Monitoring
I03 - Overfill - Automatic Shut-Off
A00 - Tank Internal Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
H99 - Tank Leak Detection - Other

Tank Number: 005

GASETERIA 175TH & THIRD (Continued) **U001839283**

Tank ID:	31531
Tank Status:	Closed - Removed
Material Name:	Closed - Removed
Capacity Gallons:	550
Install Date:	11/01/1990
Date Tank Closed:	08/01/1996
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Material Code:	0008
Common Name of Substance:	Diesel
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Pipe Model:	Not reported
Modified By:	TRANSLAT
Last Modified:	04/14/2017

Equipment Records:

K01 - Spill Prevention - Catch Basin
C02 - Pipe Location - Underground/On-ground
J01 - Dispenser - Pressurized Dispenser
D02 - Pipe Type - Galvanized Steel
B02 - Tank External Protection - Original Sacrificial Anode
F02 - Pipe External Protection - Original Sacrificial Anode
G04 - Tank Secondary Containment - Double-Walled (Underground)
I03 - Overfill - Automatic Shut-Off
H01 - Tank Leak Detection - Interstitial - Electronic Monitoring
A00 - Tank Internal Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
H99 - Tank Leak Detection - Other

AD199 **TEXACO/4115 3RD AVENUE** **NY LTANKS** **S106014998**
South **4115 3RD AVENUE** **NY Spills** **N/A**
1/8-1/4 **BRONX, NY**
0.197 mi.
1039 ft. **Site 2 of 2 in cluster AD**

Relative: **Lower**

Actual: **50 ft.**

LTANKS:

Spill Number/Closed Date:	8801134 / 1989-02-04
Facility ID:	8801134
Site ID:	278911
Spill Date:	1988-05-05
Spill Cause:	Tank Test Failure
Spill Source:	Gasoline Station or other PBS Facility
Spill Class:	C2
Cleanup Ceased:	1989-02-04
SWIS:	0301
Investigator:	JCGRATHW
Referred To:	Not reported
Reported to Dept:	1988-05-05
CID:	Not reported
Water Affected:	Not reported
Spill Notifier:	Tank Tester
Last Inspection:	Not reported
Recommended Penalty:	False
Meets Standard:	True

TEXACO/4115 3RD AVENUE (Continued) **S106014998**

UST Involvement:	True
Remediation Phase:	0
Date Entered In Computer:	1988-05-09
Spill Record Last Update:	2007-12-17
Spiller Name:	Not reported
Spiller Company:	TEXACO
Spiller Address:	Not reported
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	226465
DEC Memo:	"Prior to Sept, 2004 data translation this spill Lead_DEC Field was GRATHWOL "
Remarks:	"LEAK RATE WAS 2.0 G.P.H. BY THE PETRO-TITE TANK TEST METHOD."

All TTF:

Facility ID:	8801134
Spill Number:	8801134
Spill Tank Test:	1533841
Site ID:	278911
Tank Number:	Not reported
Tank Size:	0
Material:	0009
EPA UST:	Not reported
UST:	Not reported
Cause:	Not reported
Source:	Not reported
Test Method:	00
Test Method 2:	Unknown
Leak Rate:	.00
Gross Fail:	Not reported
Modified By:	Spills
Last Modified Date:	Not reported

All Materials:

Site ID:	278911
Operable Unit ID:	916619
Operable Unit:	01
Material ID:	460291
Material Code:	0009
Material Name:	gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

Spill Number/Closed Date:	8803618 / 1989-02-04
Facility ID:	8803618
Site ID:	114291
Spill Date:	1988-07-26
Spill Cause:	Tank Test Failure
Spill Source:	Gasoline Station or other PBS Facility

TEXACO/4115 3RD AVENUE (Continued) **S106014998**

Spill Class:	C2
Cleanup Ceased:	1989-02-04
SWIS:	0301
Investigator:	SULLIVAN
Referred To:	Not reported
Reported to Dept:	1988-07-26
CID:	Not reported
Water Affected:	Not reported
Spill Notifier:	Tank Tester
Last Inspection:	Not reported
Recommended Penalty:	False
Meets Standard:	True
UST Involvement:	True
Remediation Phase:	0
Date Entered In Computer:	1988-07-26
Spill Record Last Update:	2007-12-17
Spiller Name:	LOUIS LEXCANO
Spiller Company:	SAME
Spiller Address:	Not reported
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	99684
DEC Memo:	""
Remarks:	"4K LEADED, L R = 2.5 GAL/15 MIN; 4K PREM UNL, L R = 1 GAL/15 MIN; 4K REG UNL, L R = 1.5 GAL/15 MIN. EX, REPAIR & RETEST."

All TTF:

Facility ID:	8803618
Spill Number:	8803618
Spill Tank Test:	1534346
Site ID:	114291
Tank Number:	Not reported
Tank Size:	0
Material:	0009
EPA UST:	Not reported
UST:	Not reported
Cause:	Not reported
Source:	Not reported
Test Method:	00
Test Method 2:	Unknown
Leak Rate:	.00
Gross Fail:	Not reported
Modified By:	Spills
Last Modified Date:	Not reported

All Materials:

Site ID:	114291
Operable Unit ID:	918771
Operable Unit:	01
Material ID:	459164
Material Code:	0009
Material Name:	gasoline
Case No.:	Not reported
Material FA:	Petroleum

TEXACO/4115 3RD AVENUE (Continued) **S106014998**

Quantity:	-1.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

SPILLS:

Spill Number/Closed Date:	0302700 / 2010-02-23
Facility ID:	0302700
Facility Type:	ER
DER Facility ID:	85349
Site ID:	95423
DEC Region:	2
Spill Cause:	Other
Spill Class:	C4
SWIS:	0301
Spill Date:	2003-06-13
Investigator:	aaobliga
Referred To:	NFA
Reported to Dept:	2003-06-13
CID:	199
Water Affected:	Not reported
Spill Source:	Gasoline Station or other PBS Facility
Spill Notifier:	Other
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	False
Remediation Phase:	0
Date Entered In Computer:	2003-06-13
Spill Record Last Update:	2010-06-21
Spiller Name:	Not reported
Spiller Company:	Not reported
Spiller Address:	Not reported
Spiller Company:	001
Contact Name:	ROBERTO PORCELLI
DEC Memo:	"Prior to Sept, 2004 data translation this spill Lead_DEC Field was VOUGHT Sangesland DDO Contaminated Soil Letter sent to: Roberto Porcelli Gaseteria Oil Corp. 364 Maspeth Ave. Brooklyn, NY 11211 9/27/05 - Obligado - Spill transferred from Vought to Obligado 12/7/05 - Obligado - Review UST Closure Report, submitted by ASR, March 2004. Site documents UST excavation activities from May 19 thorugh July 9 2003. Site has elevation of 50 ft above sea level. Site was inactive with 3000 gasoline gallon USTs and 1 4000 gallon diesel UST. There were 5 former pump islands with 8 dispensers. PBS# 2340073. Plan to raze the bulding and leave an empty lot for future development. Adjoining site to north is a parking lot for the Bronx Mental Health facility. Beyond which are multistory apartment buildings with store fromts. Sensitive Receptor survey - no wells in vicinity. Crotona Park 2200 ft southeast. No federal or Public water supply wells. Closes church is 500 ft northwest of the site. BAsed on topography, regional gw flow to southeast. Site underlain by till consisting of fine to coarse sand to depths between 10 and 12 ft bgs. Gw estimated at 18 ft and flows southeast towards Bronx River. Tanks, USTs, dispensers, supply lines and pump islands were removed. Product fill, supply and vent lines were excavated, cut from the tank and

TEXACO/4115 3RD AVENUE (Continued) **S106014998**

capped. All supply lines were excavated. 5/20/03 - Soil results from UST excavation in ppb: North wall - SVOCs South wall - 870 benzene, 1600 toluene, 2700 xylene, 13000 MTBE, East Wall - 3600 MTBE West Wall - 1200 MTBE Bottom North - 800 MTBE, SVOCs Bottom South - 5200 MTBE 7/16/03 - Ground water results from geoprobe borings in ppb: GP-North - 49 MTBE GP-South - 530 MTBE GP-East - 290 MTBE GP - West - 6.2 benzene, 1200 MTBE Soil was reused onsite. Conclusions - operation of this site as a gasoline service station has caused minimal impact to the subsurface soils and groundwater to warrant further environmental site assessment or action 12/9/05 - From meeting with ASR, DEC, Gaseteria - need future well installations - 2006 9/8/06 - Emailed Gaseteria multisite stipulation agreement. Due date for ISR is 11/1/06. 9/12/06 - Sent original Stip to Gaseteria. 10/31/06 - Obligado - Stipulation Agreement executed 10/31/06 by Oliva 12/18/06 - Obligado - Review Investigation Summary Report submitted by ASR, dated December 1, 2006. The site is currently a Dunkin Donuts. Site is 46 ft above msl. Immediate vicinity is commercial. Hotel to the west and a doctors office to hte north, a park to the east. GW flow to northwest. 3 wells installed on July 28, 2006. Gw found from 11.91 to 13.39 ft bgs. 1 soil sample from each well at 13'-15' bgs. Used Air Rotary. GW results: MW1 - BTEX ND, MTBE 740 MW2 - 120 ethylbenzene, 820 xylenes, 2187 VOCs MW3 - 38 MTBE ASR recommends - 2 rounds of quartelry sampling, sensitive receptor survey. Sent email to ASR/Gaseteria requiring 3 additional wells, since no downgradient wells were installed. Due date for investigation workplan is 1/19/07. 1/19/07 - Obligado - Received Supplemental Investigation Workplan. 2/13/07 - Obligado - Reviewed Supplemental Investigation Workplan to install 3 wells. Approved of the plan with modification to move one of proposed wells into the D&D drivethrough area, so that it would be downgradient of MW2. Due date for report is 4/13/07. 3/7/07 - Obligado - Sent sidewalk opening letter to S.Muller. 6/8/07 - Obligado - Email from Steve Muller, finishing up the ISR tonight. 7/6/07 - Obligado - FISR received via email. 11/30/07 - Obligado - Reviewed Final Investigation Summary Report. 3 wells were installed, 2 onsite and 1 offsite. During well installation 3 soil samples collected from the ground water interface at 13' to 15' bgs. Soil impacts detected at MW5 above SCOs. GW impacts above TOGS were detected in MW5 (759 ug/L total BTEX) and MW2 (3040 ug/L BTEX). ASR's conclusions - Soil and ground water have been delineated and no investigation activities are warranted. Although the source has been removed, a BTEX plume exists in the central area of the subject site where USTs once exited. BTEX and MTBE plumes have not migrated off the subject site. ASR recommends - continue to perform quarterly ground water sampling and lab anlaysis by EPA Method 602 plus MTBE for MW1 through MW5 and observe trends. I found some inconsistencies with the report- The approved workplan proposed split spoon soil sampling at 5-7,7-9, and the ground water interface and screening with a PID. The boring logs had no split spoon intervals or PID readings. The sampling method on the boring log was none . I called Steve and asked him to send me revised boring logs. I also asked for boring logs from previously installed wells as they were included in the previous report. 12/17/07 - Obligado - I have not hueard from Steve regarding my request. I sent an email listing report deficiencies and required resubmittal by January 21, 2007. 3/5/08 - Obligado - Reviewed the Final Investigation Summary Report submitted by ASR. Also received and reviewed the 1Q08 monitoring report. Low levels <100 max total BTEX found in most recent sampling

TEXACO/4115 3RD AVENUE (Continued) **S106014998**

event in Jan 08. The revised FISR version addressed my comments. I sent an email to Steve cc to Gaseteria approving the report and continued monitoring. No addtional delienation is required at this time. 6/24/08 - Obligado - Review 2nd quarter 2008 update report. BTEX range from ND to 2300 ug/l in MW3. Max MTBE is 76 ug/L. Will continue monitoring results. 8/20/08 - Obligado - Meeting with ASR/Gasetera/DEC. ASR will abandon MW6 and look into location to install well closer. 12-12-08 - Obligado - Review 3Q08 report. Ground water impacts max 750 ug/L in MW2. MW6 abandoned on 8/26/08. 12/15/08 - Obligado - Meeting with GASeteria/ASR/DEC. Gaseteria will submit a workplan for installation of closer cross gradient well north of 95 and a soil boring investigaiton on-site to determine if there is a residual soil source contributing to fluctuating gw concentrations. 5/19/09 - Obligado - Meeting with GAseteria. GW concentrations low. They will do a boring in the center of the site downgradient of USTs to confirm no contaminated soil source. 6/2/09 - Obligado - Approved a workplan to do an additional boring. They will submit a closure petition within 30 days. 10/7/09 - Obligado completed review of closure petition. Do not approve closure. Report has deficiencies including innacurate statements and missing information. Sent a letter with comments requiring resubmittal within 30 days. Comments in edocs. 2/22/10 - Obligado - I received a Remedial Investigation report, which documents the most recent confirmatory soil boring in the source area just down gradient of the UST, in the location of the 2003 UST south wall endpoint sample. The boring went to 5 ft below the water table. The highest PID reading throughout the boring was 3.7 ppm. The sample from the water interface was collected for laboratory analysis. The sample was ND for VOCs and SVOCs. The ground water results from the most recent ground water sampling report 4rth Quarter 2009 showed maximum BTEX concentration of 50 u/gL in MW2 and 19 ug/L MTBE in MW5. The down-gradient wells are ND for both BTEX and MTBE. Residual soil impacts are minimal and ground water concentrations while fluctuating demonstrate an overall down ward trend, which should continue with removal of source. Ground water plume does not appear to be migrating downgradient or off-site. After discussion with DEC Tibbe, this spill does not appear to be a threat to human health or the environment and this spill has been closed. 6/21/10 - Obligado - Received well abandonment documentation."

Remarks: "while removing tank contaminated soil was located "

All Materials:

Site ID:	95423
Operable Unit ID:	870438
Operable Unit:	01
Material ID:	507160
Material Code:	0009
Material Name:	gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

AB200 **THE SALVATION ARMY** **NY AST** **U004076430**
WSW **4133 PARK AVE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.199 mi.
1050 ft. **Site 2 of 7 in cluster AB**

Relative:
Lower

Actual:
31 ft.

AST:

Region:	STATE
DEC Region:	2
Site Status:	Unregulated/Closed
Facility Id:	2-084727
Program Type:	PBS
UTM X:	592690.58855
UTM Y:	4522226.47072
Expiration Date:	N/A
Site Type:	Other

Affiliation Records:

Site Id:	1984
Affiliation Type:	Facility Owner
Company Name:	THE SALVATION ARMY
Contact Type:	ADMINISTRATOR - BRONX ARC
Contact Name:	CAPT. H. DON SANDERSON JR.
Address1:	4133 PARK AVE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10457
Country Code:	001
Phone:	(718) 583-3500
EMail:	Not reported
Fax Number:	Not reported
Modified By:	KXTANG
Date Last Modified:	2007-03-27

Site Id:	1984
Affiliation Type:	Mail Contact
Company Name:	THE SALVATION ARMY
Contact Type:	Not reported
Contact Name:	ASMINISTRATOR
Address1:	4133 PARK AVE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10457
Country Code:	001
Phone:	(212) 583-3500
EMail:	DSANDERSON@USE. SALVATIONARMY.ORG
Fax Number:	Not reported
Modified By:	KXTANG
Date Last Modified:	2007-03-27

Site Id:	1984
Affiliation Type:	Facility Operator
Company Name:	THE SALVATION ARMY
Contact Type:	Not reported
Contact Name:	THE SALVATION ARMY
Address1:	Not reported
Address2:	Not reported
City:	Not reported

THE SALVATION ARMY (Continued) **U004076430**

State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 583-3500
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Site Id:	1984
Affiliation Type:	Emergency Contact
Company Name:	THE SALVATION ARMY
Contact Type:	Not reported
Contact Name:	THE SALVATION ARMY
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 583-3500
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Tank Info:

Tank Number:	003
Tank Id:	3237
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

Equipment Records:

	J02 - Dispenser - Suction Dispenser
	B00 - Tank External Protection - None
	C00 - Pipe Location - No Piping
	F00 - Pipe External Protection - None
	A00 - Tank Internal Protection - None
	D01 - Pipe Type - Steel/Carbon Steel/Iron
	G99 - Tank Secondary Containment - Other
	H00 - Tank Leak Detection - None
	I00 - Overfill - None
	L09 - Piping Leak Detection - Exempt Suction Piping
Tank Location:	Aboveground in subterranean vault with access for inspections.....
	Tank in subterranean vault but accessible for inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	Closed - Removed
Pipe Model:	Not reported
Install Date:	01/22/1958
Capacity Gallons:	2000
Tightness Test Method:	-
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	12/31/2010
Register:	True

THE SALVATION ARMY (Continued) **U004076430**

Modified By: LXZIELIN
Last Modified: 04/14/2017
Material Name: #2 fuel oil (on-site consumption)

AB201 **THE SALVATION ARMY** **NY UST** **U003644404**
WSW **4133 PARK AVE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.199 mi.
1050 ft. **Site 3 of 7 in cluster AB**

Relative:
Lower

Actual:
31 ft.

UST:
Id/Status: 2-031844 / Unregulated/Closed
Program Type: PBS
Region: STATE
DEC Region: 2
Expiration Date: N/A
UTM X: 592690.58855
UTM Y: 4522226.47072
Site Type: Other

Affiliation Records:
Site Id: 171
Affiliation Type: Facility Owner
Company Name: THE SALVATION ARMY
Contact Type: Not reported
Contact Name: Not reported
Address1: 4133 PARK AVE
Address2: Not reported
City: BRONX
State: NY
Zip Code: 10457
Country Code: 001
Phone: (718) 583-3500
EMail: Not reported
Fax Number: Not reported
Modified By: TRANSLAT
Date Last Modified: 2004-03-04

Site Id: 171
Affiliation Type: Mail Contact
Company Name: THE SALVATION ARMY
Contact Type: Not reported
Contact Name: WILLIAM GREENAWAY
Address1: 4133 PARK AVE
Address2: Not reported
City: BRONX
State: NY
Zip Code: 10457
Country Code: 001
Phone: (718) 583-3500
EMail: Not reported
Fax Number: Not reported
Modified By: TRANSLAT
Date Last Modified: 2004-03-04

Site Id: 171
Affiliation Type: Facility Operator
Company Name: THE SALVATION ARMY

THE SALVATION ARMY (Continued) **U003644404**

Contact Type:	Not reported
Contact Name:	CAPT. DENNIS GENSLER
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 583-3500
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Site Id:	171
Affiliation Type:	Emergency Contact
Company Name:	THE SALVATION ARMY
Contact Type:	Not reported
Contact Name:	WILLIAM GREENAWAY
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 583-3500
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Tank Info:

Tank Number:	001
Tank ID:	747
Tank Status:	Closed - Removed
Material Name:	Closed - Removed
Capacity Gallons:	4000
Install Date:	04/01/1975
Date Tank Closed:	10/01/1998
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Material Code:	0008
Common Name of Substance:	Diesel

Tightness Test Method:	99
Date Test:	06/01/1996
Next Test Date:	Not reported
Pipe Model:	Not reported
Modified By:	TRANSLAT
Last Modified:	04/14/2017

Equipment Records:

G00 - Tank Secondary Containment - None
J02 - Dispenser - Suction Dispenser
B00 - Tank External Protection - None

THE SALVATION ARMY (Continued) **U003644404**

C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
H00 - Tank Leak Detection - None
I00 - Overfill - None
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron

AE202 **2032 JOCHI AUTO REPAIR** **NY AST** **U004078713**
NNW **2032 WEBSTER AVENUE** **N/A**
1/8-1/4 **NEW YORK, NY 10457**
0.201 mi.
1060 ft. **Site 1 of 15 in cluster AE**

Relative:
Lower

Actual:
46 ft.

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-609801
Program Type:	PBS
UTM X:	592804.69086
UTM Y:	4522777.71003
Expiration Date:	12/28/2019
Site Type:	Auto Service/Repair (No Gasoline Sales)

Affiliation Records:

Site Id:	335684
Affiliation Type:	Facility Owner
Company Name:	JOSE R. MOSQUEA/LUIS J. MOSQUEA
Contact Type:	MANAGER
Contact Name:	DAVID ARROYO
Address1:	2032 WEBSTER AVE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10457
Country Code:	001
Phone:	(718) 562-7268
EMail:	Not reported
Fax Number:	Not reported
Modified By:	CGFREEDM
Date Last Modified:	2014-11-20

Site Id:	335684
Affiliation Type:	Mail Contact
Company Name:	JOSE R. MOSQUEA
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	2032 WEBSTER AVENUE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10457
Country Code:	001
Phone:	(718) 562-7268
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2004-12-28

2032 JOCHI AUTO REPAIR (Continued) **U004078713**

Site Id:	335684
Affiliation Type:	Facility Operator
Company Name:	2032 JOCHI AUTO REPAIR
Contact Type:	Not reported
Contact Name:	LUIS J. MOSQUEA
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 562-7268
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2004-12-28

Site Id:	335684
Affiliation Type:	Emergency Contact
Company Name:	JOSE R. MOSQUEA
Contact Type:	Not reported
Contact Name:	LUIS J. MOSQUEA
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 562-7268
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2004-12-28

Tank Info:

Tank Number:	001
Tank Id:	181256
Material Code:	0022
Common Name of Substance:	Waste Oil/Used Oil

Equipment Records:

	C01 - Pipe Location - Aboveground
	F01 - Pipe External Protection - Painted/Asphalt Coating
	D06 - Pipe Type - Fiberglass Reinforced Plastic (FRP)
Tank Location:	Aboveground in subterranean vault with access for inspections.....
	Tank in subterranean vault but accessible for inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	07/04/2004
Capacity Gallons:	250
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported

2032 JOCHI AUTO REPAIR (Continued) **U004078713**

Register: True
Modified By: CGFREEDM
Last Modified: 04/14/2017
Material Name: waste oil/used oil

AC203 **1877 WEBSTER REALTY LLC** **NY AST** **A100291657**
West **1877 WEBSTER AVENUE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.202 mi.
1066 ft. **Site 2 of 7 in cluster AC**

Relative:
Lower

Actual:
40 ft.

AST:
Region: STATE
DEC Region: 2
Site Status: Unregulated/Closed
Facility Id: 2-285390
Program Type: PBS
UTM X: 592641.86462
UTM Y: 4522400.50464
Expiration Date: N/A
Site Type: Other Wholesale/Retail Sales

Affiliation Records:
Site Id: 12686
Affiliation Type: Facility Owner
Company Name: 1877 WEBSTER REALTY LLC
Contact Type: Not reported
Contact Name: Not reported
Address1: P.O. BOX 314
Address2: Not reported
City: YONKERS
State: NY
Zip Code: 10710
Country Code: 001
Phone: (718) 220-3632
EMail: Not reported
Fax Number: Not reported
Modified By: TRANSLAT
Date Last Modified: 2004-03-04

Site Id: 12686
Affiliation Type: Mail Contact
Company Name: 1877 WEBSTER REALTY LLC
Contact Type: Not reported
Contact Name: SAMMY ELJAMAL
Address1: 25 ST. CHARLES STREET
Address2: Not reported
City: THORNWOOD
State: NY
Zip Code: 10594
Country Code: 001
Phone: (914) 747-0544
EMail: Not reported
Fax Number: Not reported
Modified By: TRANSLAT
Date Last Modified: 2004-03-04

Site Id: 12686

1877 WEBSTER REALTY LLC (Continued) **A100291657**

Affiliation Type:	Facility Operator
Company Name:	1877 WEBSTER REALTY LLC
Contact Type:	Not reported
Contact Name:	SAMI HUJNI
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 220-3632
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Site Id:	12686
Affiliation Type:	Emergency Contact
Company Name:	1877 WEBSTER REALTY LLC
Contact Type:	Not reported
Contact Name:	SAMI HUJNI
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 220-3632
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Tank Info:

Tank Number:	001
Tank Id:	157462
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

Equipment Records:

	C01 - Pipe Location - Aboveground
	B00 - Tank External Protection - None
	F00 - Pipe External Protection - None
	J01 - Dispenser - Pressurized Dispenser
	G00 - Tank Secondary Containment - None
	I00 - Overfill - None
	A00 - Tank Internal Protection - None
	D01 - Pipe Type - Steel/Carbon Steel/Iron
	H01 - Tank Leak Detection - Interstitial - Electronic Monitoring
	H99 - Tank Leak Detection - Other
Tank Location:	Aboveground - contact with soil.... Tank bottom rests on soil, allowing no visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported

1877 WEBSTER REALTY LLC (Continued) **A100291657**

Install Date:	06/01/2003
Capacity Gallons:	550
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	04/14/2017
Material Name:	#2 fuel oil (on-site consumption)
Tank Number:	001-A
Tank Id:	157471
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

Equipment Records:

J02 - Dispenser - Suction Dispenser
I00 - Overfill - None
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
G99 - Tank Secondary Containment - Other
H05 - Tank Leak Detection - In-Tank System (ATG)

Tank Location:	Aboveground in subterranean vault with access for inspections..... Tank in subterranean vault but accessible for inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	Closed - Removed
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	1500
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	05/30/2003
Register:	True
Modified By:	TRANSLAT
Last Modified:	04/14/2017
Material Name:	#2 fuel oil (on-site consumption)

AC204 **CON EDISON** **NY MANIFEST** **S117537830**
West **1877 WEBSTER AV** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.202 mi.
1066 ft. **Site 3 of 7 in cluster AC**

Relative: NY MANIFEST:
Lower

Actual: Country:	USA
40 ft. EPA ID:	NYP004704318
Facility Status:	Not reported
Location Address 1:	1877 WEBSTER AV
Code:	BP
Location Address 2:	SB11450
Total Tanks:	Not reported

CON EDISON (Continued) **S117537830**

Location City: BRONX
Location State: NY
Location Zip: 10457
Location Zip 4: Not reported

NY MANIFEST:
EPAID: NYP004704318
Mailing Name: CON EDISON
Mailing Contact: CON EDISON
Mailing Address 1: 4 IRVING PL
Mailing Address 2: 15TH FL
Mailing City: NEW YORK
Mailing State: NY
Mailing Zip: 10003
Mailing Zip 4: Not reported
Mailing Country: USA
Mailing Phone: Not reported

NY MANIFEST:
Document ID: Not reported
Manifest Status: Not reported
seq: Not reported
Year: 2014
Trans1 State ID: NJD003812047
Trans2 State ID: NJD003812047
Generator Ship Date: 12/08/2014
Trans1 Recv Date: 12/08/2014
Trans2 Recv Date: 12/15/2014
TSD Site Recv Date: 12/15/2014
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: NYP004704318
Trans1 EPA ID: Not reported
Trans2 EPA ID: Not reported
TSDF ID 1: NJD991291105
TSDF ID 2: Not reported
Manifest Tracking Number: 002564740GBF
Import Indicator: N
Export Indicator: N
Discr Quantity Indicator: N
Discr Type Indicator: N
Discr Residue Indicator: N
Discr Partial Reject Indicator: N
Discr Full Reject Indicator: N
Manifest Ref Number: Not reported
Alt Facility RCRA ID: Not reported
Alt Facility Sign Date: Not reported
MGMT Method Type Code: H110
Waste Code: Not reported
Waste Code: Not reported
Waste Code: Not reported
Waste Code: Not reported
Waste Code: Not reported
Waste Code: Not reported
Quantity: 2000
Units: P - Pounds
Number of Containers: 1

CON EDISON (Continued) **S117537830**

Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

AC205 **SUNOCO SERVICE STATION** **RCRA NonGen / NLR** **1000328840**
WSW **1860 WEBSTER AVE & 176 ST** **FINDS** **NYD000707166**
1/8-1/4 **BRONX, NY 10457** **ECHO**
0.204 mi.
1076 ft. **Site 4 of 7 in cluster AC**

Relative:
Lower

Actual:
36 ft.

RCRA NonGen / NLR:

Date form received by agency:	01/01/2007
Facility name:	SUNOCO SERVICE STATION
Facility address:	1860 WEBSTER AVE & 176 ST BRONX, NY 10457
EPA ID:	NYD000707166
Mailing address:	WEBSTER AVE & 176TH ST BRONX, NY 10457
Contact:	HOWARD ALGEO
Contact address:	WEBSTER AVE & 176TH ST BRONX, NY 10457
Contact country:	US
Contact telephone:	215-688-8200
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	SUN OIL COMPANY OF PENNSYLVANIA
Owner/operator address:	NOT REQUIRED NOT REQUIRED, WY 99999
Owner/operator country:	US
Owner/operator telephone:	212-555-1212
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	SUN OIL COMPANY OF PENNSYLVANIA
Owner/operator address:	NOT REQUIRED NOT REQUIRED, WY 99999
Owner/operator country:	US
Owner/operator telephone:	212-555-1212

SUNOCO SERVICE STATION (Continued) **1000328840**

Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 01/01/2006
Site name: SUNOCO SERVICE STATION
Classification: Not a generator, verified

Date form received by agency: 08/18/1980
Site name: SUNOCO SERVICE STATION
Classification: Not a generator, verified

. Waste code: D000
. Waste name: Not Defined

. Waste code: D001
. Waste name: IGNITABLE WASTE

Violation Status: No violations found

FINDS:

Registry ID: 110007994769

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

SUNOCO SERVICE STATION (Continued) **1000328840**

ECHO:
Envid: 1000328840
Registry ID: 110007994769
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110007994769

Z206 **2068-72-78 BATHGATE AVENUE H.D.F.C.** **NY AST** **A100166605**
NNE **2078 BATHGATE AVENUE #6** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.205 mi.
1082 ft. **Site 2 of 3 in cluster Z**

Relative:
Higher

Actual:
95 ft.

AST:
Region: STATE
DEC Region: 2
Site Status: Active
Facility Id: 2-467863
Program Type: PBS
UTM X: 593153.68001
UTM Y: 4522770.36180
Expiration Date: 03/06/2019
Site Type: Apartment Building/Office Building

Affiliation Records:
Site Id: 20370
Affiliation Type: Facility Owner
Company Name: 2068-72-78 BATHGATE AVE H. D. F. C.
Contact Type: AGENT
Contact Name: WANDA GONZALES
Address1: 2068-72-78 BATHGATE AVENUE #6
Address2: Not reported
City: BRONX
State: NY
Zip Code: 10457
Country Code: 001
Phone: (718) 365-7152
EMail: Not reported
Fax Number: Not reported
Modified By: MSBAPTIS
Date Last Modified: 2014-06-05

Site Id: 20370
Affiliation Type: Mail Contact
Company Name: 2068-72-78 BATHGATE AVE.
Contact Type: Not reported
Contact Name: AIDA MEDINA (PRESIDENT)
Address1: C/O APX #6
Address2: 2068-72-78 BATHGATE AVE
City: BRONX
State: NY
Zip Code: 10457
Country Code: 001
Phone: (718) 365-7152
EMail: Not reported
Fax Number: Not reported
Modified By: MSBAPTIS
Date Last Modified: 2014-06-05

Site Id: 20370

2068-72-78 BATHGATE AVENUE H.D.F.C. (Continued) **A100166605**

Affiliation Type:	Facility Operator
Company Name:	2068-72-78 BATHGATE AVENUE H.D.F.C.
Contact Type:	Not reported
Contact Name:	AIDA MEDINA
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 365-7152
EMail:	Not reported
Fax Number:	Not reported
Modified By:	KXTANG
Date Last Modified:	2005-01-25

Site Id:	20370
Affiliation Type:	Emergency Contact
Company Name:	2068-72-78 BATHGATE AVE H. D. F. C.
Contact Type:	Not reported
Contact Name:	WANDA GONZALEZ
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(718) 328-0230
EMail:	Not reported
Fax Number:	Not reported
Modified By:	KXTANG
Date Last Modified:	2005-01-25

Tank Info:

Tank Number:	001
Tank Id:	37078
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

Equipment Records:

	C01 - Pipe Location - Aboveground
	J00 - Dispenser - None
	D02 - Pipe Type - Galvanized Steel
	F00 - Pipe External Protection - None
	L00 - Piping Leak Detection - None
	G00 - Tank Secondary Containment - None
	E00 - Piping Secondary Containment - None
	H00 - Tank Leak Detection - None
	I00 - Overfill - None
	A00 - Tank Internal Protection - None
	B01 - Tank External Protection - Painted/Asphalt Coating
	K00 - Spill Prevention - None
Tank Location:	Aboveground - contact with soil.... Tank bottom rests on soil, allowing no visual inspection.
Tank Type:	Steel/Carbon Steel/Iron

2068-72-78 BATHGATE AVENUE H.D.F.C. (Continued) **A100166605**

Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	01/01/1911
Capacity Gallons:	5000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	MSBAPTIS
Last Modified:	04/14/2017
Material Name:	#2 fuel oil (on-site consumption)

AE207 **CON EDISON** **NY MANIFEST** **S117316304**
NNW **2021 WEBSTER AVE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.207 mi.
1091 ft. **Site 2 of 15 in cluster AE**

Relative: **Lower**

Actual: **48 ft.**

NY MANIFEST:

Country:	USA
EPA ID:	NYP004635538
Facility Status:	Not reported
Location Address 1:	2021 WEBSTER AVE
Code:	BP
Location Address 2:	SB 10480
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	10457
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYP004635538
Mailing Name:	CON EDISON
Mailing Contact:	TOM TEELING
Mailing Address 1:	4 IRVING PLACE - 15TH FLOOR
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	10003
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	Not reported

NY MANIFEST:

Document ID:	Not reported
Manifest Status:	Not reported
seq:	Not reported
Year:	2014
Trans1 State ID:	NJD003812047
Trans2 State ID:	Not reported
Generator Ship Date:	08/21/2014
Trans1 Recv Date:	08/21/2014
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	08/21/2014
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported

CON EDISON (Continued) **S117316304**

Generator EPA ID:	NYP004635538
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD991291105
TSDF ID 2:	Not reported
Manifest Tracking Number:	002608525GBF
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H110
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	500
Units:	P - Pounds
Number of Containers:	1
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

AE208 **FELIX AUTO REPAIRS** **NY AST** **A100356929**
NNW **2040 WEBSTER AVENUE** **N/A**
1/8-1/4 **BRONX, NY 10453**
0.207 mi.
1095 ft. **Site 3 of 15 in cluster AE**

Relative: **Lower**
Actual: **44 ft.**

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-611569
Program Type:	PBS
UTM X:	592813.03509
UTM Y:	4522795.80145
Expiration Date:	04/13/2016
Site Type:	Auto Service/Repair (No Gasoline Sales)

Affiliation Records:

FELIX AUTO REPAIRS (Continued) **A100356929**

Site Id:	447873
Affiliation Type:	Facility Owner
Company Name:	FELIX GUTIERREZ
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	775 CONCOURSE VILLAGE EAST/18L
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10451
Country Code:	001
Phone:	(646) 644-0683
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2011-04-13

Site Id:	447873
Affiliation Type:	Mail Contact
Company Name:	FELIX AUTO REPAIRS
Contact Type:	Not reported
Contact Name:	FELIX GUTIERREZ
Address1:	2040 WEBSTER AVENUE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10457
Country Code:	001
Phone:	(718) 893-3459
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2011-04-13

Site Id:	447873
Affiliation Type:	Facility Operator
Company Name:	FELIX AUTO REPAIRS
Contact Type:	Not reported
Contact Name:	FELIX GUTIERREZ
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 893-3459
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2011-04-13

Site Id:	447873
Affiliation Type:	Emergency Contact
Company Name:	FELIX GUTIERREZ
Contact Type:	Not reported
Contact Name:	FELIX GUTIERREZ
Address1:	Not reported

FELIX AUTO REPAIRS (Continued) **A100356929**

Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(646) 644-0683
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2011-04-13

Tank Info:

Tank Number:	1
Tank Id:	238801
Material Code:	0022
Common Name of Substance:	Waste Oil/Used Oil

Equipment Records:

	J00 - Dispenser - None
	A00 - Tank Internal Protection - None
	B00 - Tank External Protection - None
	C00 - Pipe Location - No Piping
	F00 - Pipe External Protection - None
	G02 - Tank Secondary Containment - Vault (w/access)
	E00 - Piping Secondary Containment - None
	H00 - Tank Leak Detection - None
	I00 - Overfill - None
	K01 - Spill Prevention - Catch Basin
	D00 - Pipe Type - No Piping
	L00 - Piping Leak Detection - None
Tank Location:	Aboveground - contact with soil.... Tank bottom rests on soil, allowing no visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	04/01/2011
Capacity Gallons:	250
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	NRLOMBAR
Last Modified:	04/14/2017
Material Name:	waste oil/used oil

X209 **BELL ATLANTIC-NY** **RCRA NonGen / NLR** **1007205823**
WNW **2033 VALENTINE AVE** **NY MANIFEST** **NYP000945220**
1/8-1/4 **NEW YORK, NY 10016**
0.209 mi.
1104 ft. **Site 5 of 8 in cluster X**

Relative:
Lower

Actual:
48 ft.

RCRA NonGen / NLR:

Date form received by agency:	01/03/2001
Facility name:	BELL ATLANTIC-NY
Facility address:	2033 VALENTINE AVE NEW YORK, NY 10016-0000
EPA ID:	NYP000945220
Mailing address:	BELL ATLANTIC-ENV AFFAIRS 221 E 37TH ST 4TH FLR NEW YORK, NY 10016-0000
Contact:	JOHN QUATRALE
Contact address:	BELL ATLANTIC-ENV AFFAIRS NEW YORK, NY 10016-0000
Contact country:	US
Contact telephone:	212-338-7141
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Historical Generators:

Date form received by agency:	01/02/2001
Site name:	BELL ATLANTIC-NY
Classification:	Not a generator, verified

Date form received by agency:	01/01/2001
Site name:	BELL ATLANTIC-NY
Classification:	Large Quantity Generator

Violation Status: No violations found

NY MANIFEST:

Country:	USA
EPA ID:	NYP000945220
Facility Status:	Not reported
Location Address 1:	2033 VALENTINE AVE
Code:	BP

BELL ATLANTIC-NY (Continued) **1007205823**

Location Address 2: Not reported
Total Tanks: Not reported
Location City: NEW YORK
Location State: NY
Location Zip: 10016
Location Zip 4: 0000

NY MANIFEST:
EPAID: NYP000945220
Mailing Name: BELL ATLANTIC-NY
Mailing Contact: Not reported
Mailing Address 1: Not reported
Mailing Address 2: Not reported
Mailing City: Not reported
Mailing State: Not reported
Mailing Zip: Not reported
Mailing Zip 4: Not reported
Mailing Country: Not reported
Mailing Phone: Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

AF210 **NYC DEPT OF EDUCATION - PS 236X** **NY MANIFEST** **S118260143**
SSW **499 E 175TH ST** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.211 mi.
1115 ft. **Site 1 of 8 in cluster AF**

Relative:
Lower

Actual:
47 ft.

NY MANIFEST:
Country: USA
EPA ID: NYR000213710
Facility Status: Not reported
Location Address 1: 499 E 175TH ST
Code: BP
Location Address 2: Not reported
Total Tanks: Not reported
Location City: BRONX
Location State: NY
Location Zip: 10457
Location Zip 4: Not reported

NY MANIFEST:
EPAID: NYR000213710
Mailing Name: NYC DEPT OF EDUCATION - PS 236X
Mailing Contact: NYC DEPT OF EDUCATION - PS 236X
Mailing Address 1: 499 E 175TH ST
Mailing Address 2: Not reported
Mailing City: BRONX
Mailing State: NY
Mailing Zip: 10457
Mailing Zip 4: Not reported
Mailing Country: USA
Mailing Phone: Not reported

NY MANIFEST:
Document ID: Not reported

NYC DEPT OF EDUCATION - PS 236X (Continued) **S118260143**

Manifest Status:	Not reported
seq:	Not reported
Year:	2015
Trans1 State ID:	NJD080631369
Trans2 State ID:	NJD054126164
Generator Ship Date:	08/25/2015
Trans1 Recv Date:	08/25/2015
Trans2 Recv Date:	09/01/2015
TSD Site Recv Date:	09/02/2015
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000213710
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	MAC300017498
TSDF ID 2:	Not reported
Manifest Tracking Number:	000293389VES
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H039
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	272
Units:	K - Kilograms (2.2 pounds)
Number of Containers:	1
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	1
Waste Code:	B007
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

AF211
SSW
1/8-1/4
0.211 mi.
1115 ft.

NYC DEPT OF EDUCATION - PS 236X
499 E 175TH ST
BRONX, NY 10457

Site 2 of 8 in cluster AF

RCRA-SQG | **1016974910** / **NYR000213710**

Relative:
Lower

Actual:
47 ft.

RCRA-SQG:

Date form received by agency:	10/21/2014
Facility name:	NYC DEPT OF EDUCATION - PS 236X
Facility address:	499 E 175TH ST BRONX, NY 10457
EPA ID:	NYR000213710
Mailing address:	THOMSON AVE LONG ISLAND CITY, NY 11101
Contact:	ALEXANDER LEMPERT
Contact address:	THOMSON AVE LONG ISLAND CITY, NY 11101
Contact country:	US
Contact telephone:	718-742-8501
Contact email:	ALEMPERT@NYCSCA.ORG
EPA Region:	02
Classification:	Small Small Quantity Generator
Description:	Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:

Owner/operator name:	NYC DEPT OF EDUCATION
Owner/operator address:	THOMSON AVE LONG ISLAND CITY, NY 11101
Owner/operator country:	US
Owner/operator telephone:	718-742-8501
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Municipal
Owner/Operator Type:	Owner
Owner/Op start date:	11/04/1971
Owner/Op end date:	Not reported

Owner/operator name:	NYC DEPT OF SCHOOL FACILITIES
Owner/operator address:	Not reported Not reported
Owner/operator country:	US
Owner/operator telephone:	Not reported
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Municipal
Owner/Operator Type:	Operator
Owner/Op start date:	11/04/1971
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No

NYC DEPT OF EDUCATION - PS 236X (Continued) **1016974910**

Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

. Waste code: B004
. Waste name: PCB articles containing 50 ppm or greater of PCBs, but less than 500 ppm PCBs, excluding small capacitors. This includes oil-filled electrical equipment whose PCB concentration is unknown, except for circuit breakers, reclosers and cable.

. Waste code: B007
. Waste name: Other PCB wastes, including contaminated soil, solids, sludges, clothing, rags and dredge material.

Violation Status: No violations found

AB212 **CON EDISON - MANHOLE 20838** **RCRA-LQG** **1018277912**
SW **PARK AVE** **NYP004726568**
1/8-1/4 **BRONX, NY 10457**
0.213 mi.
1126 ft. **Site 4 of 7 in cluster AB**

Relative: **Lower**

Actual: **39 ft.**

RCRA-LQG:

Date form received by agency:	02/05/2016
Facility name:	CON EDISON - MANHOLE 20838
Facility address:	PARK AVE BRONX, NY 10457
EPA ID:	NYP004726568
Mailing address:	IRVING PLACE, 15TH FL NE NEW YORK, NY 10003
Contact:	THERESA BURKARD
Contact address:	IRVING PLACE, 15TH FL NE NEW YORK, NY 10003
Contact country:	US
Contact telephone:	212-460-2262
Contact email:	BURKARDT@CONED.COM
EPA Region:	02
Classification:	Large Quantity Generator
Description:	Handler: generates 1,000 kg or more of hazardous waste during any calendar month; or generates more than 1 kg of acutely hazardous waste during any calendar month; or generates more than 100 kg of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month; or generates 1 kg or less of acutely hazardous waste during any calendar month, and accumulates more than 1 kg of acutely hazardous waste at any time; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates more than

CON EDISON - MANHOLE 20838 (Continued) **1018277912**

100 kg of that material at any time

Owner/Operator Summary:

Owner/operator name:	CONSOLIDATED EDISON COMPANY OF NY, INC.
Owner/operator address:	IRVING PLACE
	NEW YORK, NY 10003
Owner/operator country:	US
Owner/operator telephone:	Not reported
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	02/05/2015
Owner/Op end date:	Not reported

Owner/operator name:	CONSOLIDATED EDISON COMPANY OF NY, INC.
Owner/operator address:	IRVING PLACE
	NEW YORK, NY 10003
Owner/operator country:	US
Owner/operator telephone:	Not reported
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	02/05/2015
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

. Waste code:	D008
. Waste name:	LEAD

Historical Generators:

Date form received by agency:	02/05/2015
Site name:	CON EDISON
Classification:	Not a generator, verified

Date form received by agency:	02/05/2015
Site name:	CON EDISON

CON EDISON - MANHOLE 20838 (Continued) **1018277912**

Classification: Small Quantity Generator

Biennial Reports:

Last Biennial Reporting Year: 2017

Annual Waste Handled:
Waste code: D008
Waste name: LEAD
Amount (Lbs): 3000

Violation Status: No violations found

AB213 **CON EDISON** **NY MANIFEST** **S117739534**
SW **4110 PARK AVE FRONT OF** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.213 mi.
1126 ft. **Site 5 of 7 in cluster AB**

Relative:
Lower

Actual:
39 ft.

NY MANIFEST:
Country: USA
EPA ID: NYP004726568
Facility Status: Not reported
Location Address 1: PARK AVE
Code: BP
Location Address 2: Not reported
Total Tanks: Not reported
Location City: BRONX
Location State: NY
Location Zip: 10457
Location Zip 4: Not reported

NY MANIFEST:
EPAID: NYP004726568
Mailing Name: CON EDISON
Mailing Contact: CON EDISON
Mailing Address 1: 4 IRVING PL
Mailing Address 2: 15TH FL
Mailing City: NEW YORK
Mailing State: NY
Mailing Zip: 10003
Mailing Zip 4: Not reported
Mailing Country: USA
Mailing Phone: Not reported

NY MANIFEST:
Document ID: Not reported
Manifest Status: Not reported
seq: Not reported
Year: 2015
Trans1 State ID: NJD003812047
Trans2 State ID: Not reported
Generator Ship Date: 02/05/2015
Trans1 Recv Date: 02/05/2015
Trans2 Recv Date: Not reported
TSD Site Recv Date: 02/10/2015
Part A Recv Date: Not reported
Part B Recv Date: Not reported

CON EDISON (Continued) **S117739534**

Generator EPA ID:	NYP004726568
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD991291105
TSDF ID 2:	Not reported
Manifest Tracking Number:	002564846GBF
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H110
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	3000
Units:	P - Pounds
Number of Containers:	1
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

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AE214 **2031 WEBSTER AVENUE** **NY AST** **A100178158**
NNW **2031 WEBSTER AVE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.214 mi.
1130 ft. **Site 4 of 15 in cluster AE**

Relative: **Lower**
Actual: **48 ft.**

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-605918
Program Type:	PBS
UTM X:	592806.93420
UTM Y:	4522741.76542
Expiration Date:	12/11/2019
Site Type:	Apartment Building/Office Building

Affiliation Records:

2031 WEBSTER AVENUE (Continued) **A100178158**

Site Id:	27784
Affiliation Type:	Mail Contact
Company Name:	TWIN PARKS REALTY
Contact Type:	Not reported
Contact Name:	J. RAND
Address1:	REAL ESTATE
Address2:	P.O. BOX 6179
City:	BRONX
State:	NY
Zip Code:	10451
Country Code:	001
Phone:	(718) 293-0058
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Site Id:	27784
Affiliation Type:	Facility Operator
Company Name:	2031 WEBSTER AVENUE
Contact Type:	Not reported
Contact Name:	CARLOS ZEPEDA
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(347) 270-7202
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MSBAPTIS
Date Last Modified:	2008-12-16

Site Id:	27784
Affiliation Type:	Emergency Contact
Company Name:	TWIN PARKS REALTY
Contact Type:	Not reported
Contact Name:	J RAND
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(718) 293-0058
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MSBAPTIS
Date Last Modified:	2008-12-16

Site Id:	27784
Affiliation Type:	Facility Owner
Company Name:	TWIN PARKS REALTY CORP
Contact Type:	PRES
Contact Name:	J RAND
Address1:	P.O. BOX 6179

2031 WEBSTER AVENUE (Continued) **A100178158**

Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10451
Country Code:	001
Phone:	(718) 293-0058
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NTFREEMA
Date Last Modified:	2015-12-11

Tank Info:

Tank Number:	001
Tank Id:	60712
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

Equipment Records:

I05 - Overfill - Vent Whistle
A00 - Tank Internal Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
D01 - Pipe Type - Steel/Carbon Steel/Iron
H00 - Tank Leak Detection - None
L09 - Piping Leak Detection - Exempt Suction Piping
J02 - Dispenser - Suction Dispenser
F06 - Pipe External Protection - Wrapped
G01 - Tank Secondary Containment - Diking (Aboveground)
C01 - Pipe Location - Aboveground

Tank Location:	Aboveground - contact with impervious barrier... Tank bottom rests on impervious barrier, allowing visual indication of leaks.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	06/01/1972
Capacity Gallons:	2117
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	NTFREEMA
Last Modified:	04/14/2017
Material Name:	#2 fuel oil (on-site consumption)

X215 **CON EDISON** **NY MANIFEST** **S117536268**
NW **1984 VALENTINE AV** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.215 mi.
1137 ft. **Site 6 of 8 in cluster X**

Relative: **Lower**
Actual: **48 ft.**

NY MANIFEST:

Country:	USA
EPA ID:	NYP004687307
Facility Status:	Not reported
Location Address 1:	1984 VALENTINE AV
Code:	BP

CON EDISON (Continued) **S117536268**

Location Address 2:	SB11979
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	10457
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYP004687307
Mailing Name:	CON EDISON
Mailing Contact:	CON EDISON
Mailing Address 1:	4 IRVING PL
Mailing Address 2:	15TH FL
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	10003
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	Not reported

NY MANIFEST:

Document ID:	Not reported
Manifest Status:	Not reported
seq:	Not reported
Year:	2014
Trans1 State ID:	NJD003812047
Trans2 State ID:	NJD003812047
Generator Ship Date:	10/30/2014
Trans1 Recv Date:	10/30/2014
Trans2 Recv Date:	11/04/2014
TSD Site Recv Date:	11/04/2014
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004687307
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD991291105
TSDF ID 2:	Not reported
Manifest Tracking Number:	002564508GBF
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H110
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	1000

CON EDISON (Continued) **S117536268**

Units:	P - Pounds
Number of Containers:	1
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

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-1 additional NY MANIFEST: record(s) in the EDR Site Report.

AA216 **600 EAST 178TH ST LLC** **NY AST** **A100178141**
ESE **600 EAST 178TH STREET** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.216 mi.
1138 ft. **Site 5 of 5 in cluster AA**

Relative:
Higher

Actual:
89 ft.

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-605895
Program Type:	PBS
UTM X:	593335.07034
UTM Y:	4522370.37528
Expiration Date:	03/07/2021
Site Type:	Apartment Building/Office Building

Affiliation Records:

Site Id:	27761
Affiliation Type:	Mail Contact
Company Name:	PARK AVE MANAGEMENT
Contact Type:	Not reported
Contact Name:	MAURICE MCKENZIE
Address1:	507 W 186ST SUTIE A4
Address2:	Not reported
City:	NEW YORK
State:	NY
Zip Code:	10033
Country Code:	001
Phone:	(212) 923-4840
EMail:	INDHIRA@PARKAVEMGMT.COM
Fax Number:	Not reported
Modified By:	MRBARROW
Date Last Modified:	2016-05-09

Site Id:	27761
Affiliation Type:	Facility Operator
Company Name:	600 EAST 178TH ST LLC
Contact Type:	Not reported
Contact Name:	JOSE DIAZ
Address1:	Not reported
Address2:	Not reported

600 EAST 178TH ST LLC (Continued) **A100178141**

City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(347) 422-1581
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MRBARROW
Date Last Modified:	2016-05-09

Site Id:	27761
Affiliation Type:	Emergency Contact
Company Name:	600 EAST 178TH ST LLC
Contact Type:	Not reported
Contact Name:	MAURICE MCKENZIE
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(212) 923-4840
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MRBARROW
Date Last Modified:	2016-05-09

Site Id:	27761
Affiliation Type:	Facility Owner
Company Name:	600 EAST 178TH ST LLC
Contact Type:	AGENT
Contact Name:	MAURICE MCKENZIE
Address1:	507 WEST 186 ST SUITE A4
Address2:	Not reported
City:	NEW YORK
State:	NY
Zip Code:	10033
Country Code:	001
Phone:	(212) 923-4840
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MRBARROW
Date Last Modified:	2016-05-09

Tank Info:

Tank Number:	001
Tank Id:	60678
Material Code:	0003
Common Name of Substance:	#6 Fuel Oil (On-Site Consumption)

Equipment Records:

F00 - Pipe External Protection - None
B00 - Tank External Protection - None
L09 - Piping Leak Detection - Exempt Suction Piping
E00 - Piping Secondary Containment - None

600 EAST 178TH ST LLC (Continued) **A100178141**

H00 - Tank Leak Detection - None
G00 - Tank Secondary Containment - None
J02 - Dispenser - Suction Dispenser
C01 - Pipe Location - Aboveground
K00 - Spill Prevention - None
I01 - Overfill - Float Vent Valve
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron

Tank Location:	Aboveground - contact with soil.... Tank bottom rests on soil, allowing no visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	05/19/1972
Capacity Gallons:	3000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	MRBARROW
Last Modified:	04/14/2017
Material Name:	#2 fuel oil (on-site consumption)

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217 North 1/8-1/4 0.216 mi. 1141 ft.

CON EDISON - MH 85
F.O 4360 PARK AVE
BRONX, NY 10457

RCRA NonGen / NLR **1008195579**
NYP004109138

Relative: Lower

Actual: 48 ft.

RCRA NonGen / NLR:

Date form received by agency:	02/27/2004
Facility name:	CON EDISON - MH 85
Facility address:	F.O 4360 PARK AVE BRONX, NY 10457
EPA ID:	NYP004109138
Mailing address:	4 IRVING PLACE NEW YORK, NY 10003
Contact:	ANTHONY DRUMMINGS
Contact address:	4 IRVING PLACE NEW YORK, NY 10003
Contact country:	US
Contact telephone:	212-460-3770
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	CONSOLIDATED EDISON COMPANY OF NY, INC.
Owner/operator address:	4 IRVING PLACE NEW YORK, NY 10003
Owner/operator country:	US
Owner/operator telephone:	Not reported
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported

CON EDISON - MH 85 (Continued) **1008195579**

Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 03/28/2003
Owner/Op end date: Not reported

Owner/operator name: CONSOLIDATED EDISON COMPANY OF NY, INC.
Owner/operator address: 4 IRVING PLACE
NEW YORK, NY 10003
Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 03/28/2003
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 02/26/2004
Site name: CON EDISON - MH 85
Classification: Not a generator, verified

Date form received by agency: 02/25/2004
Site name: CON EDISON - MH 85
Classification: Large Quantity Generator

. Waste code: D008
. Waste name: LEAD

Violation Status: No violations found

Z218 **CON EDISON SERVICE BOX: 5314** **RCRA NonGen / NLR** **1016973175**
NNE **2090 BATHGATE AVE FRONT OF** **NY MANIFEST** **NYP004469672**
1/8-1/4 **BRONX, NY 10457**
0.216 mi.
1141 ft. **Site 3 of 3 in cluster Z**

Relative:
Higher

Actual:
96 ft.

RCRA NonGen / NLR:

Date form received by agency:	04/18/2014
Facility name:	CON EDISON SERVICE BOX: 5314
Facility address:	2090 BATHGATE AVE FRONT OF BRONX, NY 10457
EPA ID:	NYP004469672
Mailing address:	IRVING PL, 15TH FL NE NEW YORK, NY 10003
Contact:	THOMAS TEELING
Contact address:	Not reported Not reported
Contact country:	Not reported
Contact telephone:	212-460-3770
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Historical Generators:

Date form received by agency:	03/18/2014
Site name:	CON EDISON SERVICE BOX: 5314
Classification:	Conditionally Exempt Small Quantity Generator
Violation Status:	No violations found

NY MANIFEST:

Country:	USA
EPA ID:	NYP004469672
Facility Status:	Not reported
Location Address 1:	2090 BATHGATE AVE
Code:	BP
Location Address 2:	Not reported
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	10457

CON EDISON SERVICE BOX: 5314 (Continued) **1016973175**

Location Zip 4: Not reported

NY MANIFEST:
EPAID: NYP004469672
Mailing Name: CON EDISON
Mailing Contact: CON EDISON
Mailing Address 1: 4 IRVING ST
Mailing Address 2: 15TH ST
Mailing City: NEW YORK
Mailing State: NY
Mailing Zip: 10003
Mailing Zip 4: Not reported
Mailing Country: USA
Mailing Phone: Not reported

NY MANIFEST:
Document ID: Not reported
Manifest Status: Not reported
seq: Not reported
Year: 2014
Trans1 State ID: NJD003812047
Trans2 State ID: Not reported
Generator Ship Date: 03/18/2014
Trans1 Recv Date: 03/18/2014
Trans2 Recv Date: Not reported
TSD Site Recv Date: 03/18/2014
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: NYP004469672
Trans1 EPA ID: Not reported
Trans2 EPA ID: Not reported
TSDF ID 1: NJD991291105
TSDF ID 2: Not reported
Manifest Tracking Number: 002359721GBF
Import Indicator: N
Export Indicator: N
Discr Quantity Indicator: N
Discr Type Indicator: N
Discr Residue Indicator: N
Discr Partial Reject Indicator: N
Discr Full Reject Indicator: N
Manifest Ref Number: Not reported
Alt Facility RCRA ID: Not reported
Alt Facility Sign Date: Not reported
MGMT Method Type Code: H110
Waste Code: Not reported
Waste Code: Not reported
Waste Code: Not reported
Waste Code: Not reported
Waste Code: Not reported
Waste Code: Not reported
Quantity: 300
Units: P - Pounds
Number of Containers: 1
Container Type: TT - Cargo tank, tank trucks
Handling Method: T Chemical, physical, or biological treatment.
Specific Gravity: 1

CON EDISON SERVICE BOX: 5314 (Continued) **1016973175**

Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

AG219 **BELLE APTS HDFC** **NY AST** **A100380439**
East **601 E 178TH ST** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.218 mi.
1149 ft. **Site 1 of 4 in cluster AG**

Relative:
Higher

Actual:
89 ft.

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-612060
Program Type:	PBS
UTM X:	593318.56261
UTM Y:	4522361.45735
Expiration Date:	06/21/2021
Site Type:	Apartment Building/Office Building

Affiliation Records:

Site Id:	484501
Affiliation Type:	Facility Owner
Company Name:	BELLE APTS HDFC
Contact Type:	ENERGY MANAGER
Contact Name:	STEVEN BASTIAN
Address1:	87-14 116TH ST
Address2:	Not reported
City:	RICHMOND HILL
State:	NY
Zip Code:	11418
Country Code:	001
Phone:	(718) 463-1200
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MRBARROW
Date Last Modified:	2016-06-16

Site Id:	484501
Affiliation Type:	Mail Contact
Company Name:	THE WAVEREST MANAGEMENT TEAM LTD.
Contact Type:	Not reported
Contact Name:	ROSIE SANCHEZ
Address1:	87-14 116TH ST
Address2:	Not reported
City:	RICHMOND HILL
State:	NY
Zip Code:	11418
Country Code:	001
Phone:	(718) 412-3775

BELLE APTS HDFC (Continued) **A100380439**

EMail: RSANCHEZ@TWMT.NET
Fax Number: Not reported
Modified By: MRBARROW
Date Last Modified: 2016-06-16

Site Id: 484501
Affiliation Type: Facility Operator
Company Name: BELLE APTS HDFC
Contact Type: Not reported
Contact Name: JUAN PICHARDO
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 001
Phone: (347) 522-7201
EMail: Not reported
Fax Number: Not reported
Modified By: MRBARROW
Date Last Modified: 2016-06-16

Site Id: 484501
Affiliation Type: Emergency Contact
Company Name: BELLE APTS HDFC
Contact Type: Not reported
Contact Name: STEVEN BASTIAN
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 999
Phone: (718) 412-3776
EMail: Not reported
Fax Number: Not reported
Modified By: MRBARROW
Date Last Modified: 2016-06-16

Tank Info:

Tank Number: 01
Tank Id: 249064

Equipment Records:
I05 - Overfill - Vent Whistle
F00 - Pipe External Protection - None
C01 - Pipe Location - Aboveground
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
K00 - Spill Prevention - None
J05 - Dispenser - On Site Heating System (Supply/Return)
L00 - Piping Leak Detection - None
E00 - Piping Secondary Containment - None

Tank Location: Aboveground - contact with impervious barrier... Tank bottom rests on impervious barrier, allowing visual indication of leaks.
Tank Type: Steel/Carbon Steel/Iron

BELLE APTS HDFC (Continued) **A100380439**

Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	06/21/1996
Capacity Gallons:	5000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	MRBARROW
Last Modified:	04/14/2017
Material Name:	#2 fuel oil (on-site consumption)

X220 **TWIN PARKS SOUTHWEST** **NY AST** **U001834391**
NW **2000 VALENTINE AVENUE** **N/A**
1/8-1/4 **NEW YORK, NY 10457**
0.218 mi.
1152 ft. **Site 7 of 8 in cluster X**

Relative: **Lower**

Actual: **48 ft.**

AST:

Region:	STATE
DEC Region:	2
Site Status:	Unregulated/Closed
Facility Id:	2-245046
Program Type:	PBS
UTM X:	592694.07944
UTM Y:	4522730.31405
Expiration Date:	N/A
Site Type:	Apartment Building/Office Building

Affiliation Records:

Site Id:	9514
Affiliation Type:	Facility Owner
Company Name:	TWIN PARKS SW B S R
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	2100 TIEBOUT AVE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10457
Country Code:	001
Phone:	(212) 584-6320
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Site Id:	9514
Affiliation Type:	Mail Contact
Company Name:	B S R MANAGEMENT CORPORATION
Contact Type:	Not reported
Contact Name:	MICHAEL MANSUETO
Address1:	495 BROADWAY, 6TH FLOOR
Address2:	Not reported
City:	NEW YORK
State:	NY
Zip Code:	10012

TWIN PARKS SOUTHWEST (Continued) **U001834391**

Country Code:	001
Phone:	(212) 941-9500
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Site Id:	9514
Affiliation Type:	Facility Operator
Company Name:	TWIN PARKS SOUTHWEST
Contact Type:	Not reported
Contact Name:	STANLEY PATRICK
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(212) 584-6320
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Site Id:	9514
Affiliation Type:	Emergency Contact
Company Name:	TWIN PARKS SW B S R
Contact Type:	Not reported
Contact Name:	B S R MANAGEMENT
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(212) 941-9500
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Tank Info:

Tank Number:	001
Tank Id:	11573
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

Equipment Records:

J02 - Dispenser - Suction Dispenser
I04 - Overfill - Product Level Gauge (A/G)
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
G03 - Tank Secondary Containment - Vault (w/o access)
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping

TWIN PARKS SOUTHWEST (Continued) **U001834391**

	F00 - Pipe External Protection - None
	H99 - Tank Leak Detection - Other
Tank Location:	Aboveground in subterranean vault with access for inspections.....
	Tank in subterranean vault but accessible for inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	Closed - In Place
Pipe Model:	Not reported
Install Date:	12/01/1974
Capacity Gallons:	5000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	06/01/1995
Register:	True
Modified By:	TRANSLAT
Last Modified:	04/14/2017
Material Name:	#2 fuel oil (on-site consumption)

X221 **CON EDISON MANHOLE: 11980** **RCRA NonGen / NLR** **1016970293**
NW **2000 VALENTINE AVE FRONT OF** **NY MANIFEST** **NYP004439980**
1/8-1/4 **BRONX, NY 10457**
0.218 mi.
1152 ft. **Site 8 of 8 in cluster X**

Relative: **Lower**

Actual: **48 ft.**

RCRA NonGen / NLR:

Date form received by agency:	03/11/2014
Facility name:	CON EDISON MANHOLE: 11980
Facility address:	2000 VALENTINE AVE FRONT OF
	BRONX, NY 10457
EPA ID:	NYP004439980
Mailing address:	IRVING PL, 15TH FL NE
	NEW YORK, NY 10003
Contact:	THOMAS TEELING
Contact address:	Not reported
	Not reported
Contact country:	Not reported
Contact telephone:	212-460-3770
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No

CON EDISON MANHOLE: 11980 (Continued) **1016970293**

Used oil transporter: No

Historical Generators:
Date form received by agency: 02/11/2014
Site name: CON EDISON MANHOLE: 11980
Classification: Conditionally Exempt Small Quantity Generator

Violation Status: No violations found

NY MANIFEST:
Country: USA
EPA ID: NYP004439980
Facility Status: Not reported
Location Address 1: 2000 VALENTINE AVE
Code: BP
Location Address 2: SB11980
Total Tanks: Not reported
Location City: BRONX
Location State: NY
Location Zip: 10457
Location Zip 4: Not reported

NY MANIFEST:
EPAID: NYP004439980
Mailing Name: CON EDISON
Mailing Contact: CON EDISON
Mailing Address 1: 4 IRVING PLACE
Mailing Address 2: 15TH FL
Mailing City: NEW YORK
Mailing State: NY
Mailing Zip: 10003
Mailing Zip 4: Not reported
Mailing Country: USA
Mailing Phone: Not reported

NY MANIFEST:
Document ID: Not reported
Manifest Status: Not reported
seq: Not reported
Year: 2014
Trans1 State ID: NJD003812047
Trans2 State ID: Not reported
Generator Ship Date: 02/11/2014
Trans1 Recv Date: 02/11/2014
Trans2 Recv Date: Not reported
TSD Site Recv Date: 02/12/2014
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: NYP004439980
Trans1 EPA ID: Not reported
Trans2 EPA ID: Not reported
TSDF ID 1: NJD991291105
TSDF ID 2: Not reported
Manifest Tracking Number: 002218974GBF
Import Indicator: N
Export Indicator: N
Discr Quantity Indicator: N

CON EDISON MANHOLE: 11980 (Continued) **1016970293**

Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H110
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	1000
Units:	P - Pounds
Number of Containers:	1
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

AC222 **CON EDISON - MANHOLE 10114** **RCRA NonGen / NLR** **1010325717**
WSW **1842 WASHINGTON AVE** **NY MANIFEST** **NYP004131736**
1/8-1/4 **BRONX, NY 10457**
0.219 mi.
1154 ft. **Site 5 of 7 in cluster AC**

Relative:
Lower

Actual:
35 ft.

RCRA NonGen / NLR:

Date form received by agency:	02/23/2006
Facility name:	CON EDISON - MANHOLE 10114
Facility address:	1842 WASHINGTON AVE BRONX, NY 10457
EPA ID:	NYP004131736
Mailing address:	4 IRVING PLACE NEW YORK, NY 10003
Contact:	FRANKLIN MURRAY
Contact address:	4 IRVING PLACE NEW YORK, NY 10003
Contact country:	US
Contact telephone:	212-460-2808
Contact email:	MURRAYFR@CONED.COM
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	CONSOLIDATED EDISON COMPANY OF NY, INC.

CON EDISON - MANHOLE 10114 (Continued) **1010325717**

Owner/operator address: 4 IRVING PLACE
NEW YORK, NY 10003
Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 05/05/2005
Owner/Op end date: Not reported

Owner/operator name: CONSOLIDATED EDISON COMPANY OF NY, INC.
Owner/operator address: 4 IRVING PLACE
NEW YORK, NY 10003
Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 05/05/2005
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 02/22/2006
Site name: CON EDISON - MANHOLE 10114
Classification: Not a generator, verified

Date form received by agency: 02/21/2006
Site name: CON EDISON - MANHOLE 10114
Classification: Large Quantity Generator

. Waste code: D008
. Waste name: LEAD

Violation Status: No violations found

CON EDISON - MANHOLE 10114 (Continued) **1010325717**

NY MANIFEST:

Country:	USA
EPA ID:	NYP004131736
Facility Status:	Not reported
Location Address 1:	MH10114 WASHINGTON & E 175TH S
Code:	BP
Location Address 2:	Not reported
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	Not reported
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYP004131736
Mailing Name:	CONSOLIDATED EDISON
Mailing Contact:	FRANKLIN MURRAY
Mailing Address 1:	4 IRVING PL RM 828
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	10003
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	2124603770

NY MANIFEST:

Document ID:	NJA5212703
Manifest Status:	Not reported
seq:	Not reported
Year:	2005
Trans1 State ID:	NJ0000027193
Trans2 State ID:	Not reported
Generator Ship Date:	05/31/2005
Trans1 Recv Date:	05/31/2005
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	05/31/2005
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004131736
Trans1 EPA ID:	S5811
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD002200046
TSDF ID 2:	Not reported
Manifest Tracking Number:	Not reported
Import Indicator:	Not reported
Export Indicator:	Not reported
Discr Quantity Indicator:	Not reported
Discr Type Indicator:	Not reported
Discr Residue Indicator:	Not reported
Discr Partial Reject Indicator:	Not reported
Discr Full Reject Indicator:	Not reported
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	Not reported
Waste Code:	D008 - LEAD 5.0 MG/L TCLP

CON EDISON - MANHOLE 10114 (Continued) **1010325717**

Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	00006
Units:	Y - Cubic yards* (.85 tons)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00

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-1 additional NY MANIFEST: record(s) in the EDR Site Report.

AF223 **CONSOLIDATED EDISON** **NY MANIFEST** **S111157710**
SSW **EAST 175TH & WASHINGTON** **N/A**
1/8-1/4 **BRONX, NY 10451**
0.220 mi.
1163 ft. **Site 3 of 8 in cluster AF**

Relative:
Lower

Actual:
43 ft.

NY MANIFEST:

Country:	USA
EPA ID:	NYP004230744
Facility Status:	Not reported
Location Address 1:	EAST 175TH & WASHINGTON
Code:	BP
Location Address 2:	Not reported
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	10451
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYP004230744
Mailing Name:	CONSOLIDATED EDISON
Mailing Contact:	TOM TEELING
Mailing Address 1:	4 IRVING PLACE RM 828
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	10003
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	2124603770

NY MANIFEST:

Document ID:	Not reported
Manifest Status:	Not reported
seq:	Not reported
Year:	2011
Trans1 State ID:	NYD006982359
Trans2 State ID:	Not reported
Generator Ship Date:	03/14/2011
Trans1 Recv Date:	03/14/2011
Trans2 Recv Date:	Not reported

CONSOLIDATED EDISON (Continued) **S111157710**

TSD Site Recv Date:	03/15/2011
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004230744
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD002200046
TSDF ID 2:	Not reported
Manifest Tracking Number:	007660026JJK
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	Y
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H111
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	50.0
Units:	P - Pounds
Number of Containers:	1.0
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1.0
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

AF224 **NYSDOT - CONTRACT D252298** **RCRA NonGen / NLR** **1000457880**
SSW **WASHINGTON AVE & E 175TH ST** **NYD986931590**
1/8-1/4 **BRONX, NY 10457**
0.220 mi.
1163 ft. **Site 4 of 8 in cluster AF**

Relative: RCRA NonGen / NLR:
Lower

Date form received by agency:	01/01/2007
Facility name:	NYSDOT - CONTRACT D252298
Facility address:	WASHINGTON AVE & E 175TH ST BRONX, NY 10457
EPA ID:	NYD986931590
Mailing address:	21ST ST LONG ISLAND CITY, NY 11101
Contact:	Not reported

Actual:
43 ft.

NYSDOT - CONTRACT D252298 (Continued) **1000457880**

Contact address: 21ST ST
LONG ISLAND CITY, NY 11101
Contact country: US
Contact telephone: Not reported
Contact email: Not reported
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: NYSDOT
Owner/operator address: NOT REQUIRED
NOT REQUIRED, WY 99999
Owner/operator country: US
Owner/operator telephone: 212-555-1212
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: State
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: NYSDOT
Owner/operator address: NOT REQUIRED
NOT REQUIRED, WY 99999
Owner/operator country: US
Owner/operator telephone: 212-555-1212
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: State
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 01/01/2006
Site name: NYSDOT - CONTRACT D252298

NYSDOT - CONTRACT D252298 (Continued) **1000457880**

Classification: Not a generator, verified

Date form received by agency: 03/22/1995
Site name: NYSDOT - CONTRACT D252298
Classification: Unverified

. Waste code: NONE
. Waste name: None

Date form received by agency: 11/28/1990
Site name: NYSDOT - CONTRACT D252298
Classification: Large Quantity Generator

. Waste code: D000
. Waste name: Not Defined

. Waste code: D008
. Waste name: LEAD

Violation Status: No violations found

AF225 **CON EDISON - GAS MAIN 21788** **RCRA-LQG** **1014395807**
SSW **WASHINGTON AVE & E 175 ST** **NJ MANIFEST** **NYP004172730**
1/8-1/4 **BRONX, NY 10451** **NY MANIFEST**
0.220 mi.
1163 ft. **Site 5 of 8 in cluster AF**

Relative: **Lower**
Actual: **43 ft.**

RCRA-LQG:
Date form received by agency: 03/23/2010
Facility name: CON EDISON - GAS MAIN 21788
Facility address: WASHINGTON AVE & E 175 ST
BRONX, NY 10451
EPA ID: NYP004172730
Mailing address: 4 IRVING PLACE
NEW YORK, NY 10003
Contact: FRANKLYN MURRAY
Contact address: Not reported
Not reported
Contact country: Not reported
Contact telephone: 212-460-2808
Contact email: MURRAYFR@CONED.COM
EPA Region: 02
Classification: Large Quantity Generator
Description: Handler: generates 1,000 kg or more of hazardous waste during any calendar month; or generates more than 1 kg of acutely hazardous waste during any calendar month; or generates more than 100 kg of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month; or generates 1 kg or less of acutely hazardous waste during any calendar month, and accumulates more than 1 kg of acutely hazardous waste at any time; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates more than 100 kg of that material at any time

Owner/Operator Summary:
Owner/operator name: CONSOLIDATED EDISON COMPANY OF NY, INC.

CON EDISON - GAS MAIN 21788 (Continued) **1014395807**

Owner/operator address: 4 IRVING PLACE
NEW YORK, NY 10003
Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 06/12/2009
Owner/Op end date: Not reported

Owner/operator name: CONSOLIDATED EDISON COMPANY OF NY, INC.
Owner/operator address: 4 IRVING PLACE
NEW YORK, NY 10003
Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 06/12/2009
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

. Waste code: D018
. Waste name: BENZENE

. Waste code: D024
. Waste name: M-CRESOL

. Waste code: D025
. Waste name: P-CRESOL

. Waste code: B002
. Waste name: Petroleum oil or other liquid containing 50 ppm or greater of PCBs, but less than 500 ppm PCBs. This includes oil from electrical equipment whose PCB concentration is unknown, except for circuit breakers, reclosers and cable.

CON EDISON - GAS MAIN 21788 (Continued) **1014395807**

Historical Generators:
Date form received by agency: 06/12/2009
Site name: CON EDISON
Classification: Conditionally Exempt Small Quantity Generator

Violation Status: No violations found

NJ MANIFEST:

EPA Id:	NYP004172730
Mail Address:	4 IRVING PLACE
Mail City/State/Zip:	NEW YORK, NY 10003
Facility Phone:	Not reported
Emergency Phone:	Not reported
Contact:	FRANKLYN MURRAY
Comments:	Not reported
SIC Code:	Not reported
County:	NY005
Municipal:	Not reported
Previous EPA Id:	Not reported
Gen Flag:	Not reported
Trans Flag:	Not reported
TSDF Flag:	Not reported
Name Change:	Not reported
Date Change:	Not reported

Manifest:

Manifest Number:	003533875JJK
EPA ID:	NYP004172730
Date Shipped:	06/12/2009
TSDF EPA ID:	NJD002200046
Transporter EPA ID:	NJ0000027193
Transporter 2 EPA ID:	Not reported
Transporter 3 EPA ID:	Not reported
Transporter 4 EPA ID:	Not reported
Transporter 5 EPA ID:	Not reported
Transporter 6 EPA ID:	Not reported
Transporter 7 EPA ID:	Not reported
Transporter 8 EPA ID:	Not reported
Transporter 9 EPA ID:	Not reported
Transporter 10 EPA ID:	Not reported
Date Trans1 Transported Waste:	06/12/2009
Date Trans2 Transported Waste:	Not reported
Date Trans3 Transported Waste:	Not reported
Date Trans4 Transported Waste:	Not reported
Date Trans5 Transported Waste:	Not reported
Date Trans6 Transported Waste:	Not reported
Date Trans7 Transported Waste:	Not reported
Date Trans8 Transported Waste:	Not reported
Date Trans9 Transported Waste:	Not reported
Date Trans10 Transported Waste:	Not reported
Date TSDF Received Waste:	06/15/2009
TSDF EPA Facility Name:	Not reported
QTY Units:	Not reported
Transporter SEQ ID:	Not reported
Transporter-1 Date:	Not reported
Waste SEQ ID:	Not reported
Waste Type Code 2:	Not reported
Waste Type Code 3:	Not reported

CON EDISON - GAS MAIN 21788 (Continued) **1014395807**

Waste Type Code 4: Not reported
Waste Type Code 5: Not reported
Waste Type Code 6: Not reported
Date Accepted: Not reported
Manifest Discrepancy Type: Not reported
Data Entry Number: Not reported
Was Load Rejected: NEW YORK, NY 10003
Reason Load Was Rejected: Not reported

Waste:
Manifest Year: Not reported
Waste Code: D018
Hand Code: H141
Quantity: 827 K

NY MANIFEST:
Country: USA
EPA ID: NYP004172730
Facility Status: Not reported
Location Address 1: WASHINGTON AVE & E 175 ST
Code: BP
Location Address 2: Not reported
Total Tanks: Not reported
Location City: BRONX
Location State: NY
Location Zip: 10451
Location Zip 4: Not reported

NY MANIFEST:
EPAID: NYP004172730
Mailing Name: CONSOLIDATED EDISON
Mailing Contact: FRANKLYN MURRAY
Mailing Address 1: 4 IRVING PLACE RM 828
Mailing Address 2: Not reported
Mailing City: NEW YORK
Mailing State: NY
Mailing Zip: 10003
Mailing Zip 4: Not reported
Mailing Country: USA
Mailing Phone: 2124602808

NY MANIFEST:
Document ID: Not reported
Manifest Status: Not reported
seq: Not reported
Year: 2009
Trans1 State ID: NYD006982359
Trans2 State ID: Not reported
Generator Ship Date: 06/25/2009
Trans1 Recv Date: 06/25/2009
Trans2 Recv Date: Not reported
TSD Site Recv Date: 06/26/2009
Part A Recv Date: Not reported
Part B Recv Date: Not reported

CON EDISON - GAS MAIN 21788 (Continued) **1014395807**

Generator EPA ID:	NYP004172730
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NYD980593636
TSDF ID 2:	Not reported
Manifest Tracking Number:	001440634FLE
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	Y
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H135
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	100.0
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	2.0
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1.0
Waste Code:	D018
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

AF226 **CONSOLIDATED EDISON** **NY MANIFEST** **S111157758**
SSW **WASHINGTON & 175TH ST.** **N/A**
1/8-1/4 **BRONX, NY 10462**
0.220 mi.
1163 ft. **Site 6 of 8 in cluster AF**

Relative: NY MANIFEST:
Lower

Actual: Country:	USA
43 ft. EPA ID:	NYP004231353
Facility Status:	Not reported
Location Address 1:	WASHINGTON & 175TH ST.
Code:	BP
Location Address 2:	Not reported
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	10462
Location Zip 4:	Not reported

CONSOLIDATED EDISON (Continued) **S111157758**

NY MANIFEST:

EPAID:	NYP004231353
Mailing Name:	CONSOLIDATED EDISON
Mailing Contact:	CONSOLIDATED EDISON
Mailing Address 1:	4 IRVING PLACE RM 828
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	10003
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	2124603770

NY MANIFEST:

Document ID:	Not reported
Manifest Status:	Not reported
seq:	Not reported
Year:	2011
Trans1 State ID:	MAD039322250
Trans2 State ID:	MAD039322250
Generator Ship Date:	03/17/2011
Trans1 Recv Date:	03/17/2011
Trans2 Recv Date:	03/18/2011
TSD Site Recv Date:	03/18/2011
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004231353
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD991291105
TSDF ID 2:	Not reported
Manifest Tracking Number:	003416334FLE
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H141
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	1800.0
Units:	P - Pounds
Number of Containers:	1.0
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	L Landfill.
Specific Gravity:	1.0
Waste Code:	D008

CONSOLIDATED EDISON (Continued) **S111157758**

Waste Code 1_2: Not reported
Waste Code 1_3: Not reported
Waste Code 1_4: Not reported
Waste Code 1_5: Not reported
Waste Code 1_6: Not reported

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-1 additional NY MANIFEST: record(s) in the EDR Site Report.

AF227 **CON ED - V 2443** **RCRA NonGen / NLR** **1007206599**
SSW **WASHINGTON AVE & E 175TH ST** **NY MANIFEST** **NYP004012787**
1/8-1/4 **BRONX, NY 10457**
0.220 mi.
1163 ft. **Site 7 of 8 in cluster AF**

Relative:
Lower

Actual:
43 ft.

RCRA NonGen / NLR:
Date form received by agency: 02/28/1998
Facility name: CON ED - V 2443
Facility address: WASHINGTON AVE & E 175TH ST
BRONX, NY 10457-0000
EPA ID: NYP004012787
Mailing address: CONSOLIDATED EDISON INC
4 IRVING PL RM 300
NEW YORK, NY 10003-0000
Contact: ANTHONY DRUMMINGS
Contact address: CONSOLIDATED EDISON INC
NEW YORK, NY 10003-0000
Contact country: US
Contact telephone: 212-460-3770
Contact email: Not reported
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 02/27/1998
Site name: CON ED - V 2443
Classification: Not a generator, verified

CON ED - V 2443 (Continued) **1007206599**

Date form received by agency: 02/26/1998
Site name: CON ED - V 2443
Classification: Large Quantity Generator

Violation Status: No violations found

NY MANIFEST:
Country: USA
EPA ID: NYP004012787
Facility Status: Not reported
Location Address 1: EAST 175TH ST AND WASHINGTON
Code: BP
Location Address 2: Not reported
Total Tanks: Not reported
Location City: Not reported
Location State: NY
Location Zip: Not reported
Location Zip 4: Not reported

NY MANIFEST:
EPAID: NYP004012787
Mailing Name: CONSOLIDATED EDISON CO - V-2443
Mailing Contact: FRANKLIN MURRAY
Mailing Address 1: 4 IRVING PLACE RM 828
Mailing Address 2: Not reported
Mailing City: NEW YORK
Mailing State: NY
Mailing Zip: 10003
Mailing Zip 4: Not reported
Mailing Country: USA
Mailing Phone: 2124602808

NY MANIFEST:
Document ID: NYE0004473
Manifest Status: C
seq: Not reported
Year: 1997
Trans1 State ID: 20855AD
Trans2 State ID: Not reported
Generator Ship Date: 10/16/1997
Trans1 Recv Date: 10/16/1997
Trans2 Recv Date: / /
TSD Site Recv Date: 10/17/1997
Part A Recv Date: 11/10/1997
Part B Recv Date: 11/04/1997
Generator EPA ID: NYP004012787
Trans1 EPA ID: NYD006982359
Trans2 EPA ID: Not reported
TSDF ID 1: NYD980593636
TSDF ID 2: Not reported
Manifest Tracking Number: Not reported
Import Indicator: Not reported
Export Indicator: Not reported
Discr Quantity Indicator: Not reported
Discr Type Indicator: Not reported
Discr Residue Indicator: Not reported
Discr Partial Reject Indicator: Not reported
Discr Full Reject Indicator: Not reported

CON ED - V 2443 (Continued) **1007206599**

Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	Not reported
Waste Code:	B002 - PETROLEUM OIL WITH 50 BUT < 500 PPM PCB
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	01027
Units:	K - Kilograms (2.2 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

AF228 **CON EDISON MANHOLE 5300** **RCRA NonGen / NLR** **1014918248**
SSW **BATHGATE AVE & E 175TH ST E** **NJ MANIFEST** **NYP004218596**
1/8-1/4 **BRONX, NY 10457** **NY MANIFEST**
0.220 mi.
1164 ft. **Site 8 of 8 in cluster AF**

Relative:
Lower

Actual:
46 ft.

RCRA NonGen / NLR:

Date form received by agency:	11/20/2010
Facility name:	CON EDISON MANHOLE 5300
Facility address:	BATHGATE AVE & E 175TH ST E SIDE BRONX, NY 10457
EPA ID:	NYP004218596
Mailing address:	IRVING PL RM 828 NEW YORK, NY 10003
Contact:	GINO FRABASILE
Contact address:	Not reported Not reported
Contact country:	Not reported
Contact telephone:	914-925-6219
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No

CON EDISON MANHOLE 5300 (Continued) **1014918248**

User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 10/21/2010
Site name: CON EDISON MANHOLE 5300
Classification: Conditionally Exempt Small Quantity Generator

Violation Status: No violations found

NJ MANIFEST:
EPA Id: NYP004218596
Mail Address: IRVING PL RM 828
Mail City/State/Zip: NEW YORK, NY 10003
Facility Phone: Not reported
Emergency Phone: Not reported
Contact: GINO FRABASILE
Comments: Not reported
SIC Code: Not reported
County: NY005
Municipal: Not reported
Previous EPA Id: Not reported
Gen Flag: Not reported
Trans Flag: Not reported
TSDF Flag: Not reported
Name Change: Not reported
Date Change: Not reported

Manifest:
Manifest Number: 001086105GBF
EPA ID: NYP004218596
Date Shipped: 10/21/2010
TSDF EPA ID: NJD002200046
Transporter EPA ID: NYD006982359
Transporter 2 EPA ID: Not reported
Transporter 3 EPA ID: Not reported
Transporter 4 EPA ID: Not reported
Transporter 5 EPA ID: Not reported
Transporter 6 EPA ID: Not reported
Transporter 7 EPA ID: Not reported
Transporter 8 EPA ID: Not reported
Transporter 9 EPA ID: Not reported
Transporter 10 EPA ID: Not reported
Date Trans1 Transported Waste: 10/21/2010
Date Trans2 Transported Waste: Not reported
Date Trans3 Transported Waste: Not reported
Date Trans4 Transported Waste: Not reported
Date Trans5 Transported Waste: Not reported
Date Trans6 Transported Waste: Not reported
Date Trans7 Transported Waste: Not reported
Date Trans8 Transported Waste: Not reported
Date Trans9 Transported Waste: Not reported
Date Trans10 Transported Waste: Not reported
Date TSDF Received Waste: 10/25/2010
TSDF EPA Facility Name: Not reported

CON EDISON MANHOLE 5300 (Continued) **1014918248**

QTY Units:	Not reported
Transporter SEQ ID:	Not reported
Transporter-1 Date:	Not reported
Waste SEQ ID:	Not reported
Waste Type Code 2:	Not reported
Waste Type Code 3:	Not reported
Waste Type Code 4:	Not reported
Waste Type Code 5:	Not reported
Waste Type Code 6:	Not reported
Date Accepted:	Not reported
Manifest Discrepancy Type:	Not reported
Data Entry Number:	Not reported
Was Load Rejected:	NEW YORK, NY 10003
Reason Load Was Rejected:	Not reported

Waste:

Manifest Year:	Not reported
Waste Code:	D008
Hand Code:	H111
Quantity:	150 P

NY MANIFEST:

Country:	USA
EPA ID:	NYP004218596
Facility Status:	Not reported
Location Address 1:	E BATHGATE AV NE 1755ST
Code:	BP
Location Address 2:	MH 5300
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	Not reported
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYP004218596
Mailing Name:	CONSOLIDATED EDISON
Mailing Contact:	TOM TEELING
Mailing Address 1:	4 IRVING PLACE RM 828
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	10003
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	2124603770

NY MANIFEST:

Document ID:	Not reported
Manifest Status:	Not reported
seq:	Not reported
Year:	2010
Trans1 State ID:	NYD006982359
Trans2 State ID:	Not reported

CON EDISON MANHOLE 5300 (Continued) **1014918248**

Generator Ship Date:	10/21/2010
Trans1 Recv Date:	10/21/2010
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	10/25/2010
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004218596
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD002200046
TSDF ID 2:	Not reported
Manifest Tracking Number:	001086105GBF
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	Y
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H111
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	150.0
Units:	P - Pounds
Number of Containers:	1.0
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1.0
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

AE229 **2037 WEBSTER AVENUE** **NY LTANKS** **S103517644**
NNW **2037 WEBSTER AVENUE** **NY AST** **N/A**
1/8-1/4 **BRONX, NY** **NY Spills**
0.221 mi.
1168 ft. **Site 5 of 15 in cluster AE**

Relative: LTANKS:
Lower

Spill Number/Closed Date:	9415175 / 1995-09-13
Facility ID:	9415175
Site ID:	98872
Spill Date:	1995-02-18
Spill Cause:	Tank Failure

Actual:
49 ft.

2037 WEBSTER AVENUE (Continued) **S103517644**

Spill Source:	Unknown
Spill Class:	C3
Cleanup Ceased:	1995-09-13
SWIS:	0301
Investigator:	CAENGELH
Referred To:	Not reported
Reported to Dept:	1995-02-18
CID:	Not reported
Water Affected:	Not reported
Spill Notifier:	Citizen
Last Inspection:	Not reported
Recommended Penalty:	False
Meets Standard:	True
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	1995-03-28
Spill Record Last Update:	1995-09-13
Spiller Name:	Not reported
Spiller Company:	SAME
Spiller Address:	Not reported
Spiller County:	999
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	87919
DEC Memo:	"Prior to Sept, 2004 data translation this spill Lead_DEC Field was ENGELHARDT 09/13/95: ON 2/18/95 NYCFD HAZMAT II DISPATCHER NALLAN (718) 446-8257 REPORTED THAT THERE WAS ABOUT 1GAL OF OIL NEAR FILL PIPE AND NONE INSIDE BUILDING. THIS WAS CONFIRMED THE NEXT DAY BY CENTURY OIL CREW. "
Remarks:	"CENTURY OIL MADE A DELIVERY LAST WEEK. TENANT IS CALLING THERE IS A LARGE SPILL IN THE BASEMENT. NYCFD ON THE SCENE. APPARENTLY TANK IS LEAKING. EMS IS ON THE SCENE ALSO - WANTS CALL BACK"

All Materials:

Site ID:	98872
Operable Unit ID:	1008630
Operable Unit:	01
Material ID:	370356
Material Code:	0001A
Material Name:	#2 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1.00
Units:	Not reported
Recovered:	.00
Oxygenate:	Not reported

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-469408
Program Type:	PBS
UTM X:	592810.45822

2037 WEBSTER AVENUE (Continued) **S103517644**

UTM Y: 4522748.13827
Expiration Date: 06/29/2021
Site Type: Apartment Building/Office Building

Affiliation Records:

Site Id: 20507
Affiliation Type: Mail Contact
Company Name: WEBSTER PARK AVE HDFC
Contact Type: Not reported
Contact Name: CONSOLATO CICCIU
Address1: C/O BELMONT ARTHUR AVE LDC
Address2: 660 E 183RD ST.
City: BRONX
State: NY
Zip Code: 10458
Country Code: 001
Phone: (718) 295-2882
EMail: Not reported
Fax Number: Not reported
Modified By: dxliving
Date Last Modified: 2008-04-08

Site Id: 20507
Affiliation Type: Facility Operator
Company Name: 2037 WEBSTER AVENUE
Contact Type: Not reported
Contact Name: ROLANDO LOPEZ
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 001
Phone: (718) 295-2882
EMail: Not reported
Fax Number: Not reported
Modified By: MRBARROW
Date Last Modified: 2016-05-25

Site Id: 20507
Affiliation Type: Emergency Contact
Company Name: WEBSTER PARK AVE HDFC
Contact Type: Not reported
Contact Name: CONSOLATO CICCIU
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 999
Phone: (718) 295-2882
EMail: Not reported
Fax Number: Not reported
Modified By: MRBARROW
Date Last Modified: 2016-05-25

Site Id: 20507
Affiliation Type: Facility Owner

2037 WEBSTER AVENUE (Continued) **S103517644**

Company Name:	WEBSTER PARK AVE HDFC
Contact Type:	PRESIDENT
Contact Name:	CONSOLATO CICCIU
Address1:	660 E 183RD STREET
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10458
Country Code:	001
Phone:	(718) 295-2882
EMail:	Not reported
Fax Number:	Not reported
Modified By:	dxliving
Date Last Modified:	2008-04-21

Tank Info:

Tank Number:	001
Tank Id:	37231
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

Equipment Records:

	I04 - Overfill - Product Level Gauge (A/G)
	B00 - Tank External Protection - None
	C00 - Pipe Location - No Piping
	F00 - Pipe External Protection - None
	A00 - Tank Internal Protection - None
	D01 - Pipe Type - Steel/Carbon Steel/Iron
	G03 - Tank Secondary Containment - Vault (w/o access)
	H00 - Tank Leak Detection - None
	L09 - Piping Leak Detection - Exempt Suction Piping
	J02 - Dispenser - Suction Dispenser
Tank Location:	Aboveground - contact with soil.... Tank bottom rests on soil, allowing no visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	Closed - Removed
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	3000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	08/02/2007
Register:	True
Modified By:	dxliving
Last Modified:	04/14/2017
Material Name:	#2 fuel oil (on-site consumption)

Tank Number:	002
Tank Id:	222360
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

2037 WEBSTER AVENUE (Continued) **S103517644**

Equipment Records:

F00 - Pipe External Protection - None
J02 - Dispenser - Suction Dispenser
C01 - Pipe Location - Aboveground
I04 - Overfill - Product Level Gauge (A/G)
A00 - Tank Internal Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
D01 - Pipe Type - Steel/Carbon Steel/Iron
K00 - Spill Prevention - None
E00 - Piping Secondary Containment - None
L09 - Piping Leak Detection - Exempt Suction Piping
G02 - Tank Secondary Containment - Vault (w/access)
I05 - Overfill - Vent Whistle
H06 - Tank Leak Detection - Impervious Barrier/Concrete Pad (A/G)

Tank Location:	Aboveground - on saddles, legs, racks, etc.... Tank bottom is elevated above grade or tank pad, allowing visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	02/28/2008
Capacity Gallons:	2000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	MRBARROW
Last Modified:	04/14/2017
Material Name:	#2 fuel oil (on-site consumption)

SPILLS:

Spill Number/Closed Date:	9414630 / 1995-02-07
Facility ID:	9414630
Facility Type:	ER
DER Facility ID:	115461
Site ID:	134371
DEC Region:	2
Spill Cause:	Unknown
Spill Class:	Not reported
SWIS:	0301
Spill Date:	1995-02-07
Investigator:	O'DOWD
Referred To:	Not reported
Reported to Dept:	1995-02-07
CID:	Not reported
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Fire Department
Cleanup Ceased:	1995-02-07
Cleanup Meets Std:	True
Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	False
Remediation Phase:	0
Date Entered In Computer:	1995-02-10
Spill Record Last Update:	1995-02-13

2037 WEBSTER AVENUE (Continued) **S103517644**

Spiller Name:	Not reported
Spiller Company:	UNKNOWN DRIVER
Spiller Address:	Not reported
Spiller Company:	999
Contact Name:	Not reported
DEC Memo:	""
Remarks:	"OIL COMPANY INVOLVED, TRUCK NOT THERE NOW."

All Materials:

Site ID:	134371
Operable Unit ID:	1012192
Operable Unit:	01
Material ID:	373367
Material Code:	0001A
Material Name:	#2 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	40.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

AE230 **CON EDISON** **NJ MANIFEST** **S120678373**
NNW **2043 WEBSTER AVE** **N/A**
1/8-1/4 **BRONX, NY 10472**
0.227 mi.
1199 ft. **Site 6 of 15 in cluster AE**

Relative: **Lower**

Actual: **50 ft.**

NJ MANIFEST:

EPA Id:	NYP004882284
Mail Address:	IRVING PL 15TH FL NE
Mail City/State/Zip:	NEW YORK, NY 10003
Facility Phone:	Not reported
Emergency Phone:	Not reported
Contact:	THOMAS TEELING
Comments:	Not reported
SIC Code:	Not reported
County:	NY005
Municipal:	Not reported
Previous EPA Id:	Not reported
Gen Flag:	Not reported
Trans Flag:	Not reported
TSDF Flag:	Not reported
Name Change:	Not reported
Date Change:	Not reported

Manifest:

Manifest Number:	015322007JJK
EPA ID:	NYP004882284
Date Shipped:	12/21/2015
TSDF EPA ID:	NJD002200046
Transporter EPA ID:	NJ0000027193
Transporter 2 EPA ID:	Not reported
Transporter 3 EPA ID:	Not reported
Transporter 4 EPA ID:	Not reported
Transporter 5 EPA ID:	Not reported
Transporter 6 EPA ID:	Not reported
Transporter 7 EPA ID:	Not reported

CON EDISON (Continued) **S120678373**

Transporter 8 EPA ID:	Not reported
Transporter 9 EPA ID:	Not reported
Transporter 10 EPA ID:	Not reported
Date Trans1 Transported Waste:	Not reported
Date Trans2 Transported Waste:	Not reported
Date Trans3 Transported Waste:	Not reported
Date Trans4 Transported Waste:	Not reported
Date Trans5 Transported Waste:	Not reported
Date Trans6 Transported Waste:	Not reported
Date Trans7 Transported Waste:	Not reported
Date Trans8 Transported Waste:	Not reported
Date Trans9 Transported Waste:	Not reported
Date Trans10 Transported Waste:	Not reported
Date TSDF Received Waste:	Not reported
TSDF EPA Facility Name:	Not reported
QTY Units:	Not reported
Transporter SEQ ID:	Not reported
Transporter-1 Date:	Not reported
Waste SEQ ID:	Not reported
Waste Type Code 2:	Not reported
Waste Type Code 3:	Not reported
Waste Type Code 4:	Not reported
Waste Type Code 5:	Not reported
Waste Type Code 6:	Not reported
Date Accepted:	Not reported
Manifest Discrepancy Type:	Not reported
Data Entry Number:	Not reported
Was Load Rejected:	NEW YORK, NY 10003
Reason Load Was Rejected:	Not reported

AE231 **CON EDISON** **NJ MANIFEST** **S120675745**
NNW **2043 WEBSTER AVE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.227 mi.
1199 ft. **Site 7 of 15 in cluster AE**

Relative: **Lower**
Actual: **50 ft.**

NJ MANIFEST:

EPA Id:	NYP004828085
Mail Address:	IRVING PL 15TH FL NE
Mail City/State/Zip:	NEW YORK, NY 10003
Facility Phone:	Not reported
Emergency Phone:	Not reported
Contact:	THOMAS TEELING
Comments:	Not reported
SIC Code:	Not reported
County:	NY005
Municipal:	Not reported
Previous EPA Id:	Not reported
Gen Flag:	Not reported
Trans Flag:	Not reported
TSDF Flag:	Not reported
Name Change:	Not reported
Date Change:	Not reported

Manifest:

Manifest Number:	014470746JJK

CON EDISON (Continued) **S120675745**

EPA ID:	NYP004828085
Date Shipped:	8/21/2015
TSDF EPA ID:	NJD002200046
Transporter EPA ID:	NJ0000027193
Transporter 2 EPA ID:	Not reported
Transporter 3 EPA ID:	Not reported
Transporter 4 EPA ID:	Not reported
Transporter 5 EPA ID:	Not reported
Transporter 6 EPA ID:	Not reported
Transporter 7 EPA ID:	Not reported
Transporter 8 EPA ID:	Not reported
Transporter 9 EPA ID:	Not reported
Transporter 10 EPA ID:	Not reported
Date Trans1 Transported Waste:	Not reported
Date Trans2 Transported Waste:	Not reported
Date Trans3 Transported Waste:	Not reported
Date Trans4 Transported Waste:	Not reported
Date Trans5 Transported Waste:	Not reported
Date Trans6 Transported Waste:	Not reported
Date Trans7 Transported Waste:	Not reported
Date Trans8 Transported Waste:	Not reported
Date Trans9 Transported Waste:	Not reported
Date Trans10 Transported Waste:	Not reported
Date TSDF Received Waste:	Not reported
TSDF EPA Facility Name:	Not reported
QTY Units:	Not reported
Transporter SEQ ID:	Not reported
Transporter-1 Date:	Not reported
Waste SEQ ID:	Not reported
Waste Type Code 2:	Not reported
Waste Type Code 3:	Not reported
Waste Type Code 4:	Not reported
Waste Type Code 5:	Not reported
Waste Type Code 6:	Not reported
Date Accepted:	Not reported
Manifest Discrepancy Type:	Not reported
Data Entry Number:	Not reported
Was Load Rejected:	NEW YORK, NY 10003
Reason Load Was Rejected:	Not reported

AE232 **CON ED** **NY MANIFEST** **S118563473**
NNW **2043 WEBSTER AVE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.227 mi.
1199 ft. **Site 8 of 15 in cluster AE**

Relative: **Lower**
Actual: **50 ft.**

NY MANIFEST:

Country:	USA
EPA ID:	NYP004828085
Facility Status:	Not reported
Location Address 1:	2043 WEBSTER AVE
Code:	BP
Location Address 2:	Not reported
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY

CON ED (Continued) **S118563473**

Location Zip: 10457
Location Zip 4: Not reported

NY MANIFEST:
EPAID: NYP004828085
Mailing Name: CON ED
Mailing Contact: THERESA BURKARD
Mailing Address 1: 4 IRVING PL 15TH FL NE
Mailing Address 2: Not reported
Mailing City: NEW YORK
Mailing State: NY
Mailing Zip: 10003
Mailing Zip 4: Not reported
Mailing Country: USA
Mailing Phone: 2124602262

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

AE233 **CON EDISON** **RCRA NonGen / NLR** **1019325449**
NNW **2043 WEBSTER AVE** **NYP004828085**
1/8-1/4 **BRONX, NY 10457**
0.227 mi.
1199 ft. **Site 9 of 15 in cluster AE**

Relative:
Lower

Actual:
50 ft.

RCRA NonGen / NLR:
Date form received by agency: 02/26/2016
Facility name: CON EDISON
Site name: CON EDISON - MANHOLE M01482
Facility address: 2043 WEBSTER AVE
BRONX, NY 10457
EPA ID: NYP004828085
Mailing address: IRVING PL 15TH FL NE
NEW YORK, NY 10003
Contact: THERESA BURKARD
Contact address: IRVING PL 15TH FL NE
NEW YORK, NY 10003
Contact country: US
Contact telephone: 212-460-2262
Contact email: BURKARDT@CONED.COM
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: CONSOLIDATED EDISON COMPANY OF NY, INC.
Owner/operator address: IRVING PLACE
NEW YORK, NY 10003
Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 08/21/2015
Owner/Op end date: Not reported

CON EDISON (Continued) **1019325449**

Owner/operator name: CONSOLIDATED EDISON COMPANY OF NY, INC.
Owner/operator address: IRVING PLACE
NEW YORK, NY 10003
Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 08/21/2015
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

. Waste code: D008
. Waste name: LEAD

Historical Generators:
Date form received by agency: 08/21/2015
Site name: CON EDISON
Classification: Not a generator, verified

Date form received by agency: 08/21/2015
Site name: CON EDISON
Classification: Large Quantity Generator

Biennial Reports:

Last Biennial Reporting Year: 2017

Annual Waste Handled:
Waste code: D008
Waste name: LEAD
Amount (Lbs): 8000

Violation Status: No violations found

AE234 **CON EDISON** **RCRA NonGen / NLR** **1019909214**
NNW **2043 WEBSTER AVE** **NYP004882284**
1/8-1/4 **BRONX, NY 10472**
0.227 mi.
1199 ft. **Site 10 of 15 in cluster AE**

Relative: **Lower**
Actual: **50 ft.**

RCRA NonGen / NLR:
Date form received by agency: 12/21/2015
Facility name: CON EDISON
Facility address: 2043 WEBSTER AVE
BRONX, NY 10472
EPA ID: NYP004882284
Mailing address: IRVING PL 15TH FL NE
NEW YORK, NY 10003
Contact: THOMAS TEELING
Contact address: Not reported
Not reported
Contact country: Not reported
Contact telephone: 212-460-3770
Contact email: Not reported
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 12/21/2015
Site name: CON EDISON
Classification: Small Quantity Generator

Violation Status: No violations found

AH235 **NEW YORK AUTOMOTIVE** **RCRA NonGen / NLR** **1001090256**
WSW **1828 WEBSTER AVE** **FINDS** **NYR000020933**
1/8-1/4 **BRONX, NY 10457** **ECHO**
0.228 mi. **NY MANIFEST**
1205 ft. **Site 1 of 4 in cluster AH**

Relative: **Lower**
Actual: **34 ft.**

RCRA NonGen / NLR:
Date form received by agency: 01/01/2007
Facility name: NEW YORK AUTOMOTIVE
Facility address: 1828 WEBSTER AVE
BRONX, NY 10457-6004
EPA ID: NYR000020933

NEW YORK AUTOMOTIVE (Continued) **1001090256**

Mailing address: WEBSTER AVE
BRONX, NY 10457
Contact: Not reported
Contact address: WEBSTER AVE
BRONX, NY 10457
Contact country: US
Contact telephone: Not reported
Contact email: Not reported
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: THOMAS MARROCCOLI
Owner/operator address: 1828 WEBSTER AVE
BRONX, NY 10457
Owner/operator country: US
Owner/operator telephone: 718-731-5511
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: THOMAS MARROCCOLI
Owner/operator address: 1828 WEBSTER AVE
BRONX, NY 10457
Owner/operator country: US
Owner/operator telephone: 718-731-5511
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

NEW YORK AUTOMOTIVE (Continued) **1001090256**

Historical Generators:
Date form received by agency: 01/01/2006
Site name: NEW YORK AUTOMOTIVE
Classification: Not a generator, verified

Date form received by agency: 07/08/1999
Site name: NEW YORK AUTOMOTIVE
Classification: Not a generator, verified

Date form received by agency: 03/13/1996
Site name: NEW YORK AUTOMOTIVE
Classification: Small Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE WASTE

. Waste code: D018
. Waste name: BENZENE

Violation Status: No violations found

FINDS:

Registry ID: 110004523114

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1001090256
Registry ID: 110004523114
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110004523114

NY MANIFEST:
Country: USA
EPA ID: NYR000020933
Facility Status: Not reported
Location Address 1: 1828 WEBSTER AVE
Code: BP
Location Address 2: Not reported
Total Tanks: Not reported
Location City: BRONX
Location State: NY
Location Zip: 10457
Location Zip 4: Not reported

NY MANIFEST:
EPAID: NYR000020933

NEW YORK AUTOMOTIVE (Continued) **1001090256**

Mailing Name:	NEW YORK AUTOMOTIVE
Mailing Contact:	JEANINE MARROCCOLI
Mailing Address 1:	1828 WEBSTER AVE
Mailing Address 2:	Not reported
Mailing City:	BRONX
Mailing State:	NY
Mailing Zip:	10457
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	7187313511

NY MANIFEST:

Document ID:	NJA2663043
Manifest Status:	C
seq:	Not reported
Year:	1997
Trans1 State ID:	08690
Trans2 State ID:	Not reported
Generator Ship Date:	02/24/1997
Trans1 Recv Date:	02/24/1997
Trans2 Recv Date:	/ /
TSD Site Recv Date:	03/03/1997
Part A Recv Date:	03/07/1997
Part B Recv Date:	03/13/1997
Generator EPA ID:	NYR000020933
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD002182897
TSDF ID 2:	Not reported
Manifest Tracking Number:	Not reported
Import Indicator:	Not reported
Export Indicator:	Not reported
Discr Quantity Indicator:	Not reported
Discr Type Indicator:	Not reported
Discr Residue Indicator:	Not reported
Discr Partial Reject Indicator:	Not reported
Discr Full Reject Indicator:	Not reported
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	Not reported
Waste Code:	D018 - BENZENE 0.5 MG/L TCLP
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	00560
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100

NEW YORK AUTOMOTIVE (Continued) **1001090256**

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

AI236 **CON EDISON** **RCRA NonGen / NLR** **1019903264**
NE **180TH ST & 3RD AVE** **NYP004783445**
1/8-1/4 **BRONX, NY 10457**
0.230 mi.
1215 ft. **Site 1 of 7 in cluster AI**

Relative:
Higher

Actual:
93 ft.

RCRA NonGen / NLR:

Date form received by agency:	05/17/2015
Facility name:	CON EDISON
Facility address:	180TH ST & 3RD AVE BRONX, NY 10457
EPA ID:	NYP004783445
Mailing address:	IRVING PL 15TH FL NE NEW YORK, NY 10003
Contact:	THOMAS TEELING
Contact address:	Not reported Not reported
Contact country:	Not reported
Contact telephone:	212-460-3770
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Historical Generators:

Date form received by agency:	05/17/2015
Site name:	CON EDISON
Classification:	Small Quantity Generator

Violation Status: No violations found

AI237
NE
1/8-1/4
0.230 mi.
1215 ft.

CON EDISON
180TH ST & 3RD AVE
BRONX, NY 10457

Site 2 of 7 in cluster AI

NJ MANIFEST **S120671852**
N/A

Relative:
Higher

Actual:
93 ft.

NJ MANIFEST:

EPA Id:	NYP004783445
Mail Address:	IRVING PL 15TH FL NE
Mail City/State/Zip:	NEW YORK, NY 10003
Facility Phone:	Not reported
Emergency Phone:	Not reported
Contact:	THOMAS TEELING
Comments:	Not reported
SIC Code:	Not reported
County:	NY005
Municipal:	Not reported
Previous EPA Id:	Not reported
Gen Flag:	Not reported
Trans Flag:	Not reported
TSDF Flag:	Not reported
Name Change:	Not reported
Date Change:	Not reported

Manifest:

Manifest Number:	002660832GBF
EPA ID:	NYP004783445
Date Shipped:	5/17/2015
TSDF EPA ID:	NJD991291105
Transporter EPA ID:	NJD003812047
Transporter 2 EPA ID:	Not reported
Transporter 3 EPA ID:	Not reported
Transporter 4 EPA ID:	Not reported
Transporter 5 EPA ID:	Not reported
Transporter 6 EPA ID:	Not reported
Transporter 7 EPA ID:	Not reported
Transporter 8 EPA ID:	Not reported
Transporter 9 EPA ID:	Not reported
Transporter 10 EPA ID:	Not reported
Date Trans1 Transported Waste:	Not reported
Date Trans2 Transported Waste:	Not reported
Date Trans3 Transported Waste:	Not reported
Date Trans4 Transported Waste:	Not reported
Date Trans5 Transported Waste:	Not reported
Date Trans6 Transported Waste:	Not reported
Date Trans7 Transported Waste:	Not reported
Date Trans8 Transported Waste:	Not reported
Date Trans9 Transported Waste:	Not reported
Date Trans10 Transported Waste:	Not reported
Date TSDF Received Waste:	Not reported
TSDF EPA Facility Name:	Not reported
QTY Units:	Not reported
Transporter SEQ ID:	Not reported
Transporter-1 Date:	Not reported
Waste SEQ ID:	Not reported
Waste Type Code 2:	Not reported
Waste Type Code 3:	Not reported
Waste Type Code 4:	Not reported
Waste Type Code 5:	Not reported
Waste Type Code 6:	Not reported

CON EDISON (Continued) **S120671852**

Date Accepted:	Not reported
Manifest Discrepancy Type:	Not reported
Data Entry Number:	Not reported
Was Load Rejected:	NEW YORK, NY 10003
Reason Load Was Rejected:	Not reported

AI238 **CON EDISON MANHOLE 26028** **RCRA NonGen / NLR** **1010787431**
NE **3RD AVE & E 180 ST** **NYP004149530**
1/8-1/4 **BRONX, NY 10455**
0.230 mi.
1215 ft. **Site 3 of 7 in cluster AI**

Relative:
Higher

Actual:
93 ft.

RCRA NonGen / NLR:

Date form received by agency:	03/15/2008
Facility name:	CON EDISON MANHOLE 26028
Facility address:	3RD AVE & E 180 ST BRONX, NY 10455
EPA ID:	NYP004149530
Mailing address:	4 IRVING PL, RM 828 NEW YORK, NY 10003
Contact:	PAUL WALSH
Contact address:	4 IRVING PL, RM 828 NEW YORK, NY 10003
Contact country:	US
Contact telephone:	212-580-8383
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Historical Generators:

Date form received by agency:	03/14/2008
Site name:	CON EDISON
Classification:	Unverified

Violation Status: No violations found

AI239 **CON EDISON** **NY MANIFEST** **S118090708**
NE **180TH ST & 3RD AVE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.230 mi.
1215 ft. **Site 4 of 7 in cluster AI**

Relative:
Higher

Actual:
93 ft.

NY MANIFEST:

Country:	USA
EPA ID:	NYP004783445
Facility Status:	Not reported
Location Address 1:	180TH ST & 3RD AVE
Code:	BP
Location Address 2:	MH 33705
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	Not reported
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYP004783445
Mailing Name:	CON EDISON
Mailing Contact:	DENNIS HUACON
Mailing Address 1:	4 IRVING PL 15TH FL
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	10003
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	2124603770

NY MANIFEST:

Document ID:	Not reported
Manifest Status:	Not reported
seq:	Not reported
Year:	2015
Trans1 State ID:	NJD003812047
Trans2 State ID:	Not reported
Generator Ship Date:	05/17/2015
Trans1 Recv Date:	05/17/2015
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	05/22/2015
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004783445
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD991291105
TSDF ID 2:	Not reported
Manifest Tracking Number:	002660832GBF
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported

CON EDISON (Continued) **S118090708**

Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H110
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	600
Units:	P - Pounds
Number of Containers:	1
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

AG240 **TRI-BEL, LP** **NY AST** **U003394783**
ESE **611 EAST 178TH STREET** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.231 mi.
1222 ft. **Site 2 of 4 in cluster AG**

Relative:
Higher

Actual:
91 ft.

AST:

Region:	STATE
DEC Region:	2
Site Status:	Unregulated/Closed
Facility Id:	2-468398
Program Type:	PBS
UTM X:	593360.50019
UTM Y:	4522359.59416
Expiration Date:	N/A
Site Type:	Apartment Building/Office Building

Affiliation Records:

Site Id:	20417
Affiliation Type:	Mail Contact
Company Name:	BELMONT ARTHUR AVE LDC
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	660 EAST 183RD ST.
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10458
Country Code:	001
Phone:	(212) 806-8037
EMail:	MRICCIARDI@BELMONTARTHUR.COM
Fax Number:	Not reported

TRI-BEL, LP (Continued) **U003394783**

Modified By:	ACDANIEL
Date Last Modified:	2016-09-16
Site Id:	20417
Affiliation Type:	Facility Operator
Company Name:	TRI-BEL, LP
Contact Type:	Not reported
Contact Name:	TRI-BEL, LP
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	Not reported
EMail:	Not reported
Fax Number:	Not reported
Modified By:	ACDANIEL
Date Last Modified:	2016-09-16
Site Id:	20417
Affiliation Type:	Emergency Contact
Company Name:	TRI-BEL, LP
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	Not reported
EMail:	Not reported
Fax Number:	Not reported
Modified By:	ACDANIEL
Date Last Modified:	2016-09-16
Site Id:	20417
Affiliation Type:	Facility Owner
Company Name:	TRI-BEL, LP
Contact Type:	PRESIDENT
Contact Name:	CONSOLATO CICCUI
Address1:	660 E 183RD ST.
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10458
Country Code:	001
Phone:	(718) 295-2882
EMail:	Not reported
Fax Number:	Not reported
Modified By:	ACDANIEL
Date Last Modified:	2016-09-16

Tank Info:

Tank Number:	001

TRI-BEL, LP (Continued) **U003394783**

Tank Id: 37117
Material Code: 0003
Common Name of Substance: #6 Fuel Oil (On-Site Consumption)

Equipment Records:
I04 - Overfill - Product Level Gauge (A/G)
F00 - Pipe External Protection - None
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
G00 - Tank Secondary Containment - None
J02 - Dispenser - Suction Dispenser
D01 - Pipe Type - Steel/Carbon Steel/Iron
A00 - Tank Internal Protection - None
L09 - Piping Leak Detection - Exempt Suction Piping
H00 - Tank Leak Detection - None

Tank Location: Aboveground - on saddles, legs, racks, etc.... Tank bottom is elevated above grade or tank pad, allowing visual inspection.
Tank Type: Steel/Carbon Steel/Iron
Tank Status: Closed - Removed
Pipe Model: Not reported
Install Date: Not reported
Capacity Gallons: 2000
Tightness Test Method: -
Date Test: Not reported
Next Test Date: Not reported
Date Tank Closed: 06/17/2003
Register: True
Modified By: ACDANIEL
Last Modified: 04/14/2017
Material Name: #6 fuel oil (on-site consumption)

AB241 **CON EDISON TRANSFORMER MANHOLE: 1521** **RCRA NonGen / NLR** **1017778181**
SW **E 175TH ST & PARK AVE** **FINDS** **NYP004561049**
1/8-1/4 **BRONX, NY 10463**
0.232 mi.
1227 ft. **Site 6 of 7 in cluster AB**

Relative:
Lower

Actual:
31 ft.

RCRA NonGen / NLR:
Date form received by agency: 07/11/2014
Facility name: CON EDISON TRANSFORMER MANHOLE: 1521
Facility address: E 175TH ST & PARK AVE
BRONX, NY 10463
EPA ID: NYP004561049
Mailing address: IRVING PL, 15TH FL NE
NEW YORK, NY 10003
Contact: THOMAS TEELING
Contact address: Not reported
Not reported
Contact country: Not reported
Contact telephone: 212-460-3770
Contact email: Not reported
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:
U.S. importer of hazardous waste: No

CON EDISON TRANSFORMER MANHOLE: 1521 (Continued) **1017778181**

Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 06/11/2014
Site name: CON EDISON
Classification: Large Quantity Generator

Date form received by agency: 06/11/2014
Site name: CON EDISON
Classification: Not a generator, verified

Violation Status: No violations found

FINDS:

Registry ID: 110063832866

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

AB242 **CONSOLIDATED EDISON** **NY MANIFEST** **S109584363**
SW **PARK AVENUE & EAST 175 STREET** **N/A**
1/8-1/4 **BRONX, NY 10452**
0.233 mi.
1229 ft. **Site 7 of 7 in cluster AB**

Relative: **Lower**
Actual: **31 ft.**

NY MANIFEST:
Country: USA
EPA ID: NYP004156717
Facility Status: Not reported
Location Address 1: PARK AVENUE & EAST 175 STREET
Code: BP
Location Address 2: Not reported
Total Tanks: Not reported
Location City: BRONX
Location State: NY

CONSOLIDATED EDISON (Continued) **S109584363**

Location Zip:	10452
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYP004156717
Mailing Name:	CONSOLIDATED EDISON
Mailing Contact:	FRANKLYN MURRAY
Mailing Address 1:	4 IRVING PLACE RM 828
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	10003
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	2124602808

NY MANIFEST:

Document ID:	Not reported
Manifest Status:	Not reported
seq:	Not reported
Year:	2008
Trans1 State ID:	NJ0000027193
Trans2 State ID:	Not reported
Generator Ship Date:	02/20/2008
Trans1 Recv Date:	02/20/2008
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	02/20/2008
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004156717
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD002200046
TSDF ID 2:	Not reported
Manifest Tracking Number:	003535310JJK
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	Y
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H111
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	582.0
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	1.0
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.

CONSOLIDATED EDISON (Continued) **S109584363**

Specific Gravity:	1.0
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Country:	USA
EPA ID:	NYP004156725
Facility Status:	Not reported
Location Address 1:	PARK AVENUE & EAST 175 STREET
Code:	BP
Location Address 2:	Not reported
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	10452
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYP004156725
Mailing Name:	CONSOLIDATED EDISON
Mailing Contact:	FRANKLYN MURRAY
Mailing Address 1:	4 IRVING PLACE RM 828
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	10003
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	2124602808

NY MANIFEST:

Document ID:	Not reported
Manifest Status:	Not reported
seq:	Not reported
Year:	2008
Trans1 State ID:	NJ0000027193
Trans2 State ID:	Not reported
Generator Ship Date:	02/20/2008
Trans1 Recv Date:	02/20/2008
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	02/20/2008
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004156725
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD002200046
TSDF ID 2:	Not reported
Manifest Tracking Number:	003535309JJK
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	Y
Discr Type Indicator:	N

CONSOLIDATED EDISON (Continued) **S109584363**

Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H111
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	633.0
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	1.0
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1.0
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

AC243 **SHELL SERVICE STATION** **NY UST** **U000396500**
WSW **1845 WEBSTER AVENUE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.233 mi.
1229 ft. **Site 6 of 7 in cluster AC**

Relative:
Lower

Actual:
38 ft.

UST:

Id/Status:	2-190799 / Active
Program Type:	PBS
Region:	STATE
DEC Region:	2
Expiration Date:	06/10/2021
UTM X:	592565.60756
UTM Y:	4522322.38065
Site Type:	Retail Gasoline Sales

Affiliation Records:

Site Id:	5910
Affiliation Type:	Mail Contact
Company Name:	1845 WEBSTER AVE GASOLINE CORP.
Contact Type:	Not reported
Contact Name:	CARY WOLF
Address1:	100 JERICHO QUADRANGLE
Address2:	SUITE 209
City:	JERICHO
State:	NY
Zip Code:	11753
Country Code:	001

SHELL SERVICE STATION (Continued) **U000396500**

Phone:	(516) 997-9300
EMail:	CWOLF@BWPETROLEUM.COM
Fax Number:	Not reported
Modified By:	DAFRANCI
Date Last Modified:	2017-12-27

Site Id:	5910
Affiliation Type:	Facility Operator
Company Name:	SHELL SERVICE STATION
Contact Type:	Not reported
Contact Name:	ARSHAD HUSSAIN
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 294-4808
EMail:	Not reported
Fax Number:	Not reported
Modified By:	LXZIELIN
Date Last Modified:	2016-12-20

Site Id:	5910
Affiliation Type:	Emergency Contact
Company Name:	1845 WEBSTER AVE GASOLINE CORP % WOLF
Contact Type:	Not reported
Contact Name:	CARY WOLF
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(516) 997-9300
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2011-11-08

Site Id:	5910
Affiliation Type:	Facility Owner
Company Name:	1845 WEBSTER AVE GASOLINE CORP.
Contact Type:	PRESIDENT
Contact Name:	CARY WOLF
Address1:	100 JERICHO QUADRANGLE - SUITE 209
Address2:	Not reported
City:	JERICHO
State:	NY
Zip Code:	11753
Country Code:	001
Phone:	(516) 997-9300
EMail:	Not reported
Fax Number:	Not reported
Modified By:	DAFRANCI
Date Last Modified:	2017-12-27

SHELL SERVICE STATION (Continued) **U000396500**

Tank Info:

Tank Number:	001
Tank ID:	7794
Tank Status:	Closed - Removed
Material Name:	Closed - Removed
Capacity Gallons:	4000
Install Date:	12/01/1971
Date Tank Closed:	12/17/2007
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Material Code:	0009
Common Name of Substance:	Gasoline
Tightness Test Method:	20
Date Test:	07/10/2001
Next Test Date:	Not reported
Pipe Model:	Not reported
Modified By:	NRLOMBAR
Last Modified:	04/14/2017

Equipment Records:

F05 - Pipe External Protection - Jacketed
D11 - Pipe Type - Flexible Piping
H05 - Tank Leak Detection - In-Tank System (ATG)
C02 - Pipe Location - Underground/On-ground
G00 - Tank Secondary Containment - None
A01 - Tank Internal Protection - Epoxy Liner
K01 - Spill Prevention - Catch Basin
B00 - Tank External Protection - None
E04 - Piping Secondary Containment - Double walled UG
J01 - Dispenser - Pressurized Dispenser
L07 - Piping Leak Detection - Pressurized Piping Leak Detector
I03 - Overfill - Automatic Shut-Off

Tank Number:	002
Tank ID:	7795
Tank Status:	Closed - Removed
Material Name:	Closed - Removed
Capacity Gallons:	4000
Install Date:	12/01/1971
Date Tank Closed:	12/17/2007
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Material Code:	0009
Common Name of Substance:	Gasoline
Tightness Test Method:	20
Date Test:	07/10/2001
Next Test Date:	Not reported
Pipe Model:	Not reported
Modified By:	NRLOMBAR
Last Modified:	04/14/2017

SHELL SERVICE STATION (Continued) **U000396500**

Equipment Records:

F05 - Pipe External Protection - Jacketed
A01 - Tank Internal Protection - Epoxy Liner
K01 - Spill Prevention - Catch Basin
B00 - Tank External Protection - None
E04 - Piping Secondary Containment - Double walled UG
J01 - Dispenser - Pressurized Dispenser
C02 - Pipe Location - Underground/On-ground
G00 - Tank Secondary Containment - None
I03 - Overfill - Automatic Shut-Off
D11 - Pipe Type - Flexible Piping
L07 - Piping Leak Detection - Pressurized Piping Leak Detector
H05 - Tank Leak Detection - In-Tank System (ATG)

Tank Number:	003
Tank ID:	7796
Tank Status:	Closed - Removed
Material Name:	Closed - Removed
Capacity Gallons:	4000
Install Date:	12/01/1971
Date Tank Closed:	12/17/2007
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Material Code:	0009
Common Name of Substance:	Gasoline
Tightness Test Method:	20
Date Test:	07/10/2001
Next Test Date:	Not reported
Pipe Model:	Not reported
Modified By:	NRLOMBAR
Last Modified:	04/14/2017

Equipment Records:

F05 - Pipe External Protection - Jacketed
D11 - Pipe Type - Flexible Piping
L07 - Piping Leak Detection - Pressurized Piping Leak Detector
I03 - Overfill - Automatic Shut-Off
A01 - Tank Internal Protection - Epoxy Liner
K01 - Spill Prevention - Catch Basin
B00 - Tank External Protection - None
E04 - Piping Secondary Containment - Double walled UG
J01 - Dispenser - Pressurized Dispenser
H05 - Tank Leak Detection - In-Tank System (ATG)
C02 - Pipe Location - Underground/On-ground
G00 - Tank Secondary Containment - None

Tank Number:	004
Tank ID:	7797
Tank Status:	Closed - Removed
Material Name:	Closed - Removed
Capacity Gallons:	1000
Install Date:	12/01/1953
Date Tank Closed:	01/01/1997

SHELL SERVICE STATION (Continued) **U000396500**

Registered: True
Tank Location: Underground
Tank Type: Steel/carbon steel
Material Code: 9999
Common Name of Substance: Other

Tightness Test Method: NN
Date Test: Not reported
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: TRANSLAT
Last Modified: 04/14/2017

Equipment Records:

D06 - Pipe Type - Fiberglass Reinforced Plastic (FRP)
H00 - Tank Leak Detection - None
I00 - Overfill - None
F00 - Pipe External Protection - None
B07 - Tank External Protection - Retrofitted Sacrificial Anode
C02 - Pipe Location - Underground/On-ground
G00 - Tank Secondary Containment - None
A00 - Tank Internal Protection - None

Tank Number: 005
Tank ID: 7798
Tank Status: Tank Converted to Non-Regulated Use
Material Name: Tank Converted to Non-Regulated Use
Capacity Gallons: 550
Install Date: 12/01/1979
Date Tank Closed: 08/01/1996
Registered: True
Tank Location: Underground
Tank Type: Equivalent technology
Material Code: 0001
Common Name of Substance: #2 Fuel Oil (On-Site Consumption)

Tightness Test Method: NN
Date Test: Not reported
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: TRANSLAT
Last Modified: 04/14/2017

Equipment Records:

B00 - Tank External Protection - None
D02 - Pipe Type - Galvanized Steel
F00 - Pipe External Protection - None
H00 - Tank Leak Detection - None
I00 - Overfill - None
A00 - Tank Internal Protection - None
C02 - Pipe Location - Underground/On-ground
G00 - Tank Secondary Containment - None
J02 - Dispenser - Suction Dispenser

Tank Number: 006
Tank ID: 7799

SHELL SERVICE STATION (Continued) **U000396500**

Tank Status: Closed - In Place
Material Name: Closed - In Place
Capacity Gallons: 550
Install Date: Not reported
Date Tank Closed: 10/01/1993
Registered: True
Tank Location: Underground
Tank Type: Steel/carbon steel
Material Code: 9999
Common Name of Substance: Other

Tightness Test Method: NN
Date Test: Not reported
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: TRANSLAT
Last Modified: 04/14/2017

Equipment Records:
C02 - Pipe Location - Underground/On-ground
G00 - Tank Secondary Containment - None
B00 - Tank External Protection - None
D02 - Pipe Type - Galvanized Steel
F00 - Pipe External Protection - None
A00 - Tank Internal Protection - None
H00 - Tank Leak Detection - None
I00 - Overfill - None

Tank Number: 007
Tank ID: 7800
Tank Status: Closed - In Place
Material Name: Closed - In Place
Capacity Gallons: 550
Install Date: Not reported
Date Tank Closed: 10/01/1993
Registered: True
Tank Location: Underground
Tank Type: Steel/carbon steel
Material Code: 9999
Common Name of Substance: Other

Tightness Test Method: NN
Date Test: Not reported
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: TRANSLAT
Last Modified: 04/14/2017

Equipment Records:
G00 - Tank Secondary Containment - None
C02 - Pipe Location - Underground/On-ground
B00 - Tank External Protection - None
D02 - Pipe Type - Galvanized Steel
F00 - Pipe External Protection - None
A00 - Tank Internal Protection - None
H00 - Tank Leak Detection - None
I00 - Overfill - None

SHELL SERVICE STATION (Continued) **U000396500**

Tank Number:	008
Tank ID:	7801
Tank Status:	Closed - In Place
Material Name:	Closed - In Place
Capacity Gallons:	550
Install Date:	Not reported
Date Tank Closed:	10/01/1993
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Material Code:	9999
Common Name of Substance:	Other
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Pipe Model:	Not reported
Modified By:	TRANSLAT
Last Modified:	04/14/2017

Equipment Records:

A00 - Tank Internal Protection - None
B00 - Tank External Protection - None
D02 - Pipe Type - Galvanized Steel
F00 - Pipe External Protection - None
H00 - Tank Leak Detection - None
I00 - Overfill - None
C02 - Pipe Location - Underground/On-ground
G00 - Tank Secondary Containment - None

Tank Number:	009
Tank ID:	7802
Tank Status:	Closed - In Place
Material Name:	Closed - In Place
Capacity Gallons:	550
Install Date:	Not reported
Date Tank Closed:	10/01/1993
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Material Code:	9999
Common Name of Substance:	Other
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Pipe Model:	Not reported
Modified By:	TRANSLAT
Last Modified:	04/14/2017

Equipment Records:

C02 - Pipe Location - Underground/On-ground
G00 - Tank Secondary Containment - None
H00 - Tank Leak Detection - None
I00 - Overfill - None
B00 - Tank External Protection - None
D02 - Pipe Type - Galvanized Steel

SHELL SERVICE STATION (Continued) **U000396500**

F00 - Pipe External Protection - None
A00 - Tank Internal Protection - None

Tank Number: 010
Tank ID: 7803
Tank Status: Closed - In Place
Material Name: Closed - In Place
Capacity Gallons: 550
Install Date: Not reported
Date Tank Closed: 10/01/1993
Registered: True
Tank Location: Underground
Tank Type: Steel/carbon steel
Material Code: 9999
Common Name of Substance: Other

Tightness Test Method: NN
Date Test: Not reported
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: TRANSLAT
Last Modified: 04/14/2017

Equipment Records:

C02 - Pipe Location - Underground/On-ground
G00 - Tank Secondary Containment - None
H00 - Tank Leak Detection - None
I00 - Overfill - None
B00 - Tank External Protection - None
D02 - Pipe Type - Galvanized Steel
F00 - Pipe External Protection - None
A00 - Tank Internal Protection - None

Tank Number: 011
Tank ID: 7804
Tank Status: Closed - In Place
Material Name: Closed - In Place
Capacity Gallons: 550
Install Date: Not reported
Date Tank Closed: 10/01/1993
Registered: True
Tank Location: Underground
Tank Type: Steel/carbon steel
Material Code: 9999
Common Name of Substance: Other

Tightness Test Method: NN
Date Test: Not reported
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: TRANSLAT
Last Modified: 04/14/2017

Equipment Records:

A00 - Tank Internal Protection - None
B00 - Tank External Protection - None

SHELL SERVICE STATION (Continued) **U000396500**

D02 - Pipe Type - Galvanized Steel
F00 - Pipe External Protection - None
H00 - Tank Leak Detection - None
I00 - Overfill - None
C02 - Pipe Location - Underground/On-ground
G00 - Tank Secondary Containment - None

Tank Number:	012
Tank ID:	7805
Tank Status:	Closed - In Place
Material Name:	Closed - In Place
Capacity Gallons:	550
Install Date:	Not reported
Date Tank Closed:	10/01/1993
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Material Code:	9999
Common Name of Substance:	Other
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Pipe Model:	Not reported
Modified By:	TRANSLAT
Last Modified:	04/14/2017

Equipment Records:

H00 - Tank Leak Detection - None
I00 - Overfill - None
G00 - Tank Secondary Containment - None
C02 - Pipe Location - Underground/On-ground
F00 - Pipe External Protection - None
B00 - Tank External Protection - None
D02 - Pipe Type - Galvanized Steel
A00 - Tank Internal Protection - None

Tank Number:	013
Tank ID:	7806
Tank Status:	Closed - In Place
Material Name:	Closed - In Place
Capacity Gallons:	550
Install Date:	Not reported
Date Tank Closed:	10/01/1993
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Material Code:	9999
Common Name of Substance:	Other
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Pipe Model:	Not reported
Modified By:	TRANSLAT
Last Modified:	04/14/2017

SHELL SERVICE STATION (Continued) **U000396500**

Equipment Records:
H00 - Tank Leak Detection - None
I00 - Overfill - None
C02 - Pipe Location - Underground/On-ground
G00 - Tank Secondary Containment - None
B00 - Tank External Protection - None
D02 - Pipe Type - Galvanized Steel
F00 - Pipe External Protection - None
A00 - Tank Internal Protection - None

Tank Number: 014
Tank ID: 7807
Tank Status: Closed - In Place
Material Name: Closed - In Place
Capacity Gallons: 550
Install Date: Not reported
Date Tank Closed: 10/01/1993
Registered: True
Tank Location: Underground
Tank Type: Steel/carbon steel
Material Code: 9999
Common Name of Substance: Other

Tightness Test Method: NN
Date Test: Not reported
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: TRANSLAT
Last Modified: 04/14/2017

Equipment Records:
C02 - Pipe Location - Underground/On-ground
G00 - Tank Secondary Containment - None
H00 - Tank Leak Detection - None
I00 - Overfill - None
A00 - Tank Internal Protection - None
B00 - Tank External Protection - None
D02 - Pipe Type - Galvanized Steel
F00 - Pipe External Protection - None

Tank Number: 015
Tank ID: 7808
Tank Status: Closed - In Place
Material Name: Closed - In Place
Capacity Gallons: 550
Install Date: Not reported
Date Tank Closed: 10/01/1993
Registered: True
Tank Location: Underground
Tank Type: Steel/carbon steel
Material Code: 9999
Common Name of Substance: Other

Tightness Test Method: NN
Date Test: Not reported

SHELL SERVICE STATION (Continued) **U000396500**

Next Test Date: Not reported
Pipe Model: Not reported
Modified By: TRANSLAT
Last Modified: 04/14/2017

Equipment Records:

C02 - Pipe Location - Underground/On-ground
G00 - Tank Secondary Containment - None
H00 - Tank Leak Detection - None
I00 - Overfill - None
B00 - Tank External Protection - None
D02 - Pipe Type - Galvanized Steel
F00 - Pipe External Protection - None
A00 - Tank Internal Protection - None

Tank Number: 016
Tank ID: 7809
Tank Status: Closed - In Place
Material Name: Closed - In Place
Capacity Gallons: 550
Install Date: 10/01/1993
Date Tank Closed: 10/01/1993
Registered: True
Tank Location: Underground
Tank Type: Steel/carbon steel
Material Code: 9999
Common Name of Substance: Other

Tightness Test Method: NN
Date Test: Not reported
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: TRANSLAT
Last Modified: 04/14/2017

Equipment Records:

C02 - Pipe Location - Underground/On-ground
G00 - Tank Secondary Containment - None
H00 - Tank Leak Detection - None
I00 - Overfill - None
A00 - Tank Internal Protection - None
B00 - Tank External Protection - None
D02 - Pipe Type - Galvanized Steel
F00 - Pipe External Protection - None

Tank Number: 017
Tank ID: 7810
Tank Status: Closed - In Place
Material Name: Closed - In Place
Capacity Gallons: 550
Install Date: 10/01/1993
Date Tank Closed: 10/01/1993
Registered: True
Tank Location: Underground
Tank Type: Steel/carbon steel
Material Code: 9999

SHELL SERVICE STATION (Continued) **U000396500**

Common Name of Substance: Other

Tightness Test Method: NN
Date Test: Not reported
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: TRANSLAT
Last Modified: 04/14/2017

Equipment Records:

H00 - Tank Leak Detection - None
I00 - Overfill - None
C02 - Pipe Location - Underground/On-ground
G00 - Tank Secondary Containment - None
B00 - Tank External Protection - None
D02 - Pipe Type - Galvanized Steel
F00 - Pipe External Protection - None
A00 - Tank Internal Protection - None

Tank Number: 018
Tank ID: 53720
Tank Status: Closed - Removed
Material Name: Closed - Removed
Capacity Gallons: 8000
Install Date: 06/01/1998
Date Tank Closed: 12/17/2007
Registered: True
Tank Location: Underground
Tank Type: Equivalent technology
Material Code: 0009
Common Name of Substance: Gasoline

Tightness Test Method: 20
Date Test: 07/10/2001
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: NRLOMBAR
Last Modified: 04/14/2017

Equipment Records:

E04 - Piping Secondary Containment - Double walled UG
J01 - Dispenser - Pressurized Dispenser
F05 - Pipe External Protection - Jacketed
B04 - Tank External Protection - Fiberglass
K01 - Spill Prevention - Catch Basin
D11 - Pipe Type - Flexible Piping
G04 - Tank Secondary Containment - Double-Walled (Underground)
C02 - Pipe Location - Underground/On-ground
A00 - Tank Internal Protection - None
H01 - Tank Leak Detection - Interstitial - Electronic Monitoring
I03 - Overfill - Automatic Shut-Off
L07 - Piping Leak Detection - Pressurized Piping Leak Detector

Tank Number: 101
Tank ID: 239879
Tank Status: In Service

SHELL SERVICE STATION (Continued) **U000396500**

Material Name: In Service
Capacity Gallons: 12000
Install Date: 06/10/2011
Date Tank Closed: Not reported
Registered: True
Tank Location: Underground
Tank Type: Equivalent technology
Material Code: 2712
Common Name of Substance: Gasoline/Ethanol

Tightness Test Method: -
Date Test: Not reported
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: LXZIELIN
Last Modified: 10/11/2018

Equipment Records:

C02 - Pipe Location - Underground/On-ground
F04 - Pipe External Protection - Fiberglass
J01 - Dispenser - Pressurized Dispenser
E04 - Piping Secondary Containment - Double walled UG
I01 - Overfill - Float Vent Valve
L99 - Piping Leak Detection - Other
H01 - Tank Leak Detection - Interstitial - Electronic Monitoring
A00 - Tank Internal Protection - None
L07 - Piping Leak Detection - Pressurized Piping Leak Detector
I02 - Overfill - High Level Alarm
K01 - Spill Prevention - Catch Basin
D06 - Pipe Type - Fiberglass Reinforced Plastic (FRP)
B04 - Tank External Protection - Fiberglass
G04 - Tank Secondary Containment - Double-Walled (Underground)

Tank Number: 102
Tank ID: 239880
Tank Status: In Service
Material Name: In Service
Capacity Gallons: 8000
Install Date: 06/10/2011
Date Tank Closed: Not reported
Registered: True
Tank Location: Underground
Tank Type: Equivalent technology
Material Code: 2712
Common Name of Substance: Gasoline/Ethanol

Tightness Test Method: -
Date Test: Not reported
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: LXZIELIN
Last Modified: 10/11/2018

Equipment Records:

B04 - Tank External Protection - Fiberglass
D06 - Pipe Type - Fiberglass Reinforced Plastic (FRP)
I02 - Overfill - High Level Alarm

SHELL SERVICE STATION (Continued) **U000396500**

K01 - Spill Prevention - Catch Basin
C02 - Pipe Location - Underground/On-ground
F04 - Pipe External Protection - Fiberglass
L07 - Piping Leak Detection - Pressurized Piping Leak Detector
E04 - Piping Secondary Containment - Double walled UG
J01 - Dispenser - Pressurized Dispenser
A00 - Tank Internal Protection - None
H01 - Tank Leak Detection - Interstitial - Electronic Monitoring
I01 - Overfill - Float Vent Valve
L99 - Piping Leak Detection - Other
G04 - Tank Secondary Containment - Double-Walled (Underground)

Tank Number:	103
Tank ID:	239881
Tank Status:	In Service
Material Name:	In Service
Capacity Gallons:	4000
Install Date:	06/10/2011
Date Tank Closed:	Not reported
Registered:	True
Tank Location:	Underground
Tank Type:	Equivalent technology
Material Code:	0008
Common Name of Substance:	Diesel
Tightness Test Method:	-
Date Test:	Not reported
Next Test Date:	Not reported
Pipe Model:	Not reported
Modified By:	LXZIELIN
Last Modified:	10/11/2018

Equipment Records:

G04 - Tank Secondary Containment - Double-Walled (Underground)
C02 - Pipe Location - Underground/On-ground
F04 - Pipe External Protection - Fiberglass
A00 - Tank Internal Protection - None
H01 - Tank Leak Detection - Interstitial - Electronic Monitoring
I01 - Overfill - Float Vent Valve
L99 - Piping Leak Detection - Other
L07 - Piping Leak Detection - Pressurized Piping Leak Detector
B04 - Tank External Protection - Fiberglass
D06 - Pipe Type - Fiberglass Reinforced Plastic (FRP)
I02 - Overfill - High Level Alarm
K01 - Spill Prevention - Catch Basin
E04 - Piping Secondary Containment - Double walled UG
J01 - Dispenser - Pressurized Dispenser

AC244 **SHELL OIL-NELSON'S AC CNT INC** **NY LTANKS** **1000694372**
WSW **1845 WEBSTER AVE** **NY Spills** **NYD987006848**
1/8-1/4 **BRONX, NY 10457** **RCRA NonGen / NLR**
0.233 mi. **US AIRS**
1229 ft. **Site 7 of 7 in cluster AC** **FINDS**
ECHO
Relative: **NY MANIFEST**
Lower

Actual: **38 ft.**

LTANKS:

Spill Number/Closed Date:	9411243 / 1998-09-02
Facility ID:	9411243
Site ID:	204336
Spill Date:	1994-11-18
Spill Cause:	Tank Test Failure
Spill Source:	Commercial/Industrial
Spill Class:	C3
Cleanup Ceased:	Not reported
SWIS:	0301
Investigator:	TOMASELLO
Referred To:	Not reported
Reported to Dept:	1994-11-22
CID:	Not reported
Water Affected:	Not reported
Spill Notifier:	Responsible Party
Last Inspection:	Not reported
Recommended Penalty:	False
Meets Standard:	False
UST Involvement:	True
Remediation Phase:	0
Date Entered In Computer:	1994-12-13
Spill Record Last Update:	2005-07-20
Spiller Name:	Not reported
Spiller Company:	SHELL OIL COMPANY
Spiller Address:	ONE JERICHO PLAZA
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	5903
DEC Memo:	""
Remarks:	"TTF, PASSED RETEST GIVEN 11/22/94"

All TTF:

Facility ID:	9411243
Spill Number:	9411243
Spill Tank Test:	1543378
Site ID:	204336
Tank Number:	Not reported
Tank Size:	0
Material:	0009
EPA UST:	Not reported
UST:	Not reported
Cause:	Not reported
Source:	Not reported
Test Method:	00
Test Method 2:	Unknown
Leak Rate:	.00
Gross Fail:	Not reported
Modified By:	Spills

SHELL OIL-NELSON'S AC CNT INC (Continued) **1000694372**

Last Modified Date: Not reported

All Materials:
Site ID: 204336
Operable Unit ID: 1005036
Operable Unit: 01
Material ID: 377106
Material Code: 0009
Material Name: gasoline
Case No.: Not reported
Material FA: Petroleum
Quantity: -1.00
Units: L
Recovered: .00
Oxygenate: Not reported

SPILLS:
Spill Number/Closed Date: 9710337 / 2017-10-12
Facility ID: 9710337
Facility Type: ER
DER Facility ID: 5903
Site ID: 60242
DEC Region: 2
Spill Cause: Unknown
Spill Class: B3
SWIS: 0301
Spill Date: 1997-12-09
Investigator: aaobliga
Referred To: 8/16/13 - RAP APPROVED AS/SVE INSTALL
Reported to Dept: 1997-12-09
CID: 365
Water Affected: Not reported
Spill Source: Gasoline Station or other PBS Facility
Spill Notifier: Other
Cleanup Ceased: 1998-10-16
Cleanup Meets Std: False
Last Inspection: Not reported
Recommended Penalty: False
UST Trust: True
Remediation Phase: 0
Date Entered In Computer: 1997-12-09
Spill Record Last Update: 2017-10-12
Spiller Name: DAVE MCNEIL
Spiller Company: SHELL
Spiller Address: 30 JERICHO TPKE
Spiller Company: 001
Contact Name: Not reported
DEC Memo: "PBS #2-190799 ON 12/2/97 3 x 4k GASOLINE UST'S UPGRADED, 1 x 8k GASOLINE UST INSTALLED AND 1 550 WO & 1 x 2k #2 FUEL OIL UST'S WERE REMOVED. 450 TONS OF SOIL WERE EXCAVATED AND DISPOSED OF. SMALL HOLE OBSERVED IN TOP OF FUEL OIL UST. GW DATA FROM B-2 SHOWS HIGH BTEX & MTBE. NEEDS ADDITIONAL DELINEATION. STIP ISSUED 9/2/98, EFFECTIVE 10/16/98. SEE ALSO SPILL # 94-11243 WHICH WAS CLOSED. 1/00 System to be moved from 175-22 Horace Harding. MW-7 to be connected to the system and operating by 2/00. 2/29/00 SVE system was activated.

SHELL OIL-NELSON'S AC CNT INC (Continued) **1000694372**

System sampled weekly for one month and monthly thereafter. 4/00 LNAPL in MW-7 was sampled and ID'd as premium unleaded gasoline. 6/00 A product baildown test was performed on MW-7. Static measurements showed a product thickness of 1.82' and baildown test results estimated product thickness in the aquifer as 0.07'. Weekly product recovery by hand bailing and a PRB to continue. 8/00 Plan to install two wells across Webster Ave downgradient of MW-2. The AS system will be activated. 12/00 Two off-site borings were advanced and monitoring wells installed as MW-8 and MW-9. No VOCs were detected in soil samples. 4/10/02 Analytical from 2/11/02 showed an MTBE conc of 1,360,000ppb in MW-1 and 433,000ppb in MW-2. Over the past 4 sampling events, MTBE conc have ranged from 4,000 ppm total VOCs) in 3 locations, which does not corresponde with the ground water results from the well which was installed in that location MW11 which was ND. They will propose installing AS/SVE pilot test wells and submit a workplan. At least one AS or SVE well will be installed in tank grave to confirm soil/ground water data. 6/17/09 - Obligado - Sent approval letter for investigation, and required submissino of pilot test workplan within 60 days. 11/2/09- Obligado - Review Pilot Test work plan. Proposes to install an SVE well, an AS well, and a monitoring well in the vicinity of the former USts in order to conduct a AS/SVE pilot test in the vicinity of the impacted soil and ground water around UST area and MW7. A pilot test report will be submitted within 120 days. 11/9/09 - Obligado - Meeting with DEC, Shell, GES. They will proceed with the approved workplan. 4/15/10 - Obligado - I reviewed the Pilot Test Report. According to the report, AS/SVE is an effective strategy. The pilot tested SVE only, AS only, and AS/SVE combined. They calculated an(ROI) for SVE only, AS only and combined SVE/AS is estimated to be 15 feet, 14.5 feet and 17 feet respectively. VOC recovery increased significantly when sparging in combination with SVE as compared to SVE alone. The report recommends submitting a detailed RAWP for AS/SVE within 120 days. I emailed an approval letter for the report. 4/20/10 - Obligado - Meeting with DEC, Shell, GES. RAWP will be submitted by August 13, 2010. Remediation system installation and start up activities will be dependent on the development activities on the property 10-31-10 - Obligado - RAP submitted. 11-3-10 - Obligado - Completed review of the remedial Action Plan. The plan proposes to install a AS/SVE system. 8 SVE wells and 7 AS wells will be installed. The system will be installed in concurrence with the site redevelopment activities. I sent a approval letter for the RAP. 3-15-11 - Obligado - I reviewed the 4Q10 report. Max BTEX is 9423 ug/L (MW7). They plan to prepare bid documents for SVE/AS system installation. System installation will be performed in conjunction with site redevelopment, anticipated to occur early 2011. 5/16/11 - Obligado - I received an email from Jennifer Guilles. The Wolf Petroleum has initiated site redevelopment. They will begin istalling the AS/SVE system shortly. I reviewed the 1Q11 update report. BTEX Range is ND up to 11,091 ?g/L (MW- 15). 8/8/11 - Obligado - I reviewed a work plan dated 7/26/11 to reinstall 3 monitoring wells to replace those that were destroyed during system redevelopment. I sent an email approving of the well installations. 1/14/13 - Obligado - I reviewed the 3rd Quarter 2012 report. According to the report, MW7 in the source area was also destroyed during redevelopment. The workplan I approved on 8/8/11 said mistakenly reported it as intact. I sent an email to Jennifer Gillies requiring a replacement well for MW7. I also requested the report documenting the removal of 600+ tons of contaminated soil and

SHELL OIL-NELSON'S AC CNT INC (Continued) **1000694372**

endpoint sampling. 2/5/13 - Obligado - I received a letter from URS explaining why MW7 was not re-installed and proposing not to reinstall it. The letter also explained that endpoint samples were not collected as 1845 Webster Avenue Gasoline LLC utilized sheeting during the excavation. 2/7/13 - Obligado- I sent a response letter requiring re-installation of MW7 and implementation of the approved AS/SVE RAP. Based on the available site plans, the new tank field soil excavation area described in the letter is not located in the same area as the former Shell UST source area or the MW7 source area, which were the treatment areas for the approved AS/SVE Remedial Action Plan (RAP). Heavily contaminated soil in excess of CP-51 standards remains at the site at locations MW15 (299 ppm Total VOCs), AS1 (698 ppm TVOCs), SVE-1 (304 ppm TVOCs), TB16 (1,542 ppm TVOCS), TB10 (5,622 ppm TVOCs), TB4 (2,707 ppm TVOCs), TB12 (453 ppm TVOCs) TB11 (3,267 ppm TVOCS), TB8 (4,961 ppm TVOCs), and TB5 (1,785 ppm TVOCs). Based on the 4th quarter report, over past 5 quarters GW concentrations have been increasing in MW17, from 4,555 ug/L BTEX in 4Q11 to 9,837 ug/L BTEX in 4Q12. Required submission of a AS/SVE system installation implementation schedule within 30 days. 3/6/13 - Obligado - I received a letter from URS rqeuesting to defer the implementation schedule for the reinstallation of MW7 and the remediation system. According to the letter, Shell attended a meeting with the NYCDEC Central Office on February 19, 2013, and as a result, the Central Office is reviewing historic and future activities for former Shell Service Station #138578 located at 1845 Webster Avenue in Bronx. URS, on behalf of Shell, would like to request that the implementation schedule be deferred at this time until a formal decision regarding future activities at the site is redered by the Central Office . 4/18/13 - Obligado - I received the 1st Quarter 2013 monitoring report. Maximum total BTEX found in MW17 with 10,480 ug/L, including 513 ug/L benzene, 4,560 ug/L toluene, 977 ug/L ethylbenzene, and 4,430 ug/L xylenes. All other wells were below standard. 5/17/13 - Obligado - I called Jennifer to inquire about the extent to which the remedial system has already been installed. According to Jennifer, all the horizontal piping has been installed in accordance with the approved RAP. Behind the station, the piping stubs up to the location of the proposed system enclosure. The pipes lead to the AS and SVE 2 x 2 Manholes which are also currently empty. She provided a map showing the current piping system layout as installed. 6/12/13 - Obligado - I sent a letter to Shell and URS requiring submission of an alternate remedial plan to clean up the site within 60 days. 8/12/13 - Obligado - Shell/URS submits a RAP for a scaled down AS/SVE system focusing on the tank area with 2 air sparge wells and 3 soil vapor extraction wells. 8/16/13 - Obligado - I approved the RAP. RAP approval letter sent to Rob Rule and URS cc to Bill Wolf Petroleum 6/12/15- Obligado - Jennifer Gillies requested to shut down the system based on asymptotic recovery. I approved the request. They will monitor the groundwater for rebound. 8/20/15 - Obligado - I reviewed the Quarterly Monitoring Report. Maximum BTEX concentrations were 1040 ugL in MW17. No benzene reported in sVE effluent collected on 4/7/15. According to the report, 139 lbs of petroleum hydrocarbons have been removed to date. AECOM will collect groundwater samples in 3rd quarter to confirm no rebound. 11/10/16 - Obligado - Meeting with Shell, GES. This site still has a small hot spot of contaminate mass iaround 1 well MW17. We agreed since the plume is not migrating off-site and on-site impacts are limited, they can submit an exposure assessment and closure request. They would

SHELL OIL-NELSON'S AC CNT INC (Continued) **1000694372**

like to take the system from 1845 webster and move it to 3555 Tremont. 10/9/17 - Obligado - I received a Exposure Assessment and Closure Request. Shell requests closure based on: -the old USTS, associated piping, an dispenser system was removed and upgraded -During site redevelopment, 679 tons of petroleum impacted soils were removed -An AS/SVE system operated between 2014 until 2016 until asymptotic recovery was reached -An exposure assessment shows minimal impact to human health or the environment. -Impacted soil and groundwater are between 11 and 15 ft bgs and-not likely to impact receptors except in the case of on-site excavation workers. -The area is served by a public water supply. -vapor intrusions is unlikely to occur I approve spill closure in accordance with spill project closure guidance based on 1 The spill has been properly investigated 2 The plume is completely delineated and is localized to former MW7/current MW17 hotspot. Ground water attenuates to ND before reaching the down-gradient well. 3 Soil impacts have been delineated and are localized to the area of the tank field from below 11 ft bgs. 4 Significant remediation has been performed to reduce the contaminant mass - UST removal, 600 tons of soil removed down to 15 ft in the tank area, two separate AS/SVE systems have been operated at the site till asymptotic recovery. 5 LNAPL has not been observed since 2002 and was recovered using VEFR, bailing, and Passive recovery bailers. 6 Impacts primarily at depth below 11 ft. 7 Site is continuing to operate as a gasoline station 8 There are no threats of vapor impact to existing structures based on depth of impact and slab on grade construction of on-site building 9 Ground water plume has been shrinking in areal extent and contaminant levels have been decreasing over time. This spill no longer appears to be a threat to human health or the environment. Spill closed. "

Remarks: "CALLERS COMPANY DOING A STATION UPGRADE WHEN THEY ENCOUNTERED CONTAMINATED SOIL."

All Materials:

Site ID:	60242
Operable Unit ID:	1056715
Operable Unit:	01
Material ID:	328642
Material Code:	0009
Material Name:	gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	.00
Units:	G
Recovered:	.00
Oxygenate:	True

Site ID:	60242
Operable Unit ID:	1056715
Operable Unit:	01
Material ID:	575287
Material Code:	2645A
Material Name:	BTEX
Case No.:	Not reported
Material FA:	Oxygenates
Quantity:	Not reported
Units:	Not reported
Recovered:	Not reported
Oxygenate:	True

SHELL OIL-NELSON'S AC CNT INC (Continued) **1000694372**

Site ID: 60242
Operable Unit ID: 1056715
Operable Unit: 01
Material ID: 573763
Material Code: 1213A
Material Name: MTBE (methyl-tert-butyl ether)
Case No.: 01634044
Material FA: Hazardous Material
Quantity: Not reported
Units: Not reported
Recovered: Not reported
Oxygenate: True

RCRA NonGen / NLR:
Date form received by agency: 12/22/2011
Facility name: SHELL OIL CO
Facility address: 1845 WEBSTER AVE
BRONX, NY 10457
EPA ID: NYD987006848
Mailing address: JERICHO PLZ
JERICHO, NY 11753
Contact: ROBERT BILLECK
Contact address: LOUISIANA ST OSP 657
HOUSTON, TX 77002
Contact country: US
Contact telephone: 713-241-6998
Contact email: ROBERT.BILLECK@SHELL.COM
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 01/01/2007
Site name: SHELL OIL CO
Classification: Not a generator, verified

Date form received by agency: 01/01/2006
Site name: SHELL OIL CO

SHELL OIL-NELSON'S AC CNT INC (Continued) **1000694372**

Classification: Not a generator, verified

Date form received by agency: 07/14/1999
Site name: SHELL OIL CO
Classification: Small Quantity Generator

Date form received by agency: 06/25/1992
Site name: SHELL OIL CO
Classification: Large Quantity Generator

. Waste code: D018
. Waste name: BENZENE

Violation Status: No violations found

US AIRS MINOR:
Envid: 1000694372
Region Code: 02
Programmatic ID: AIR NY0000002600500080
Facility Registry ID: 110001565967
D and B Number: Not reported
Primary SIC Code: 5541
NAICS Code: 999999
Default Air Classification Code: MIN
Facility Type of Ownership Code: POF
Air CMS Category Code: Not reported
HPV Status: Not reported

US AIRS MINOR:
Region Code: 02
Programmatic ID: AIR NY0000002600500080
Facility Registry ID: 110001565967
Air Operating Status Code: OPR
Default Air Classification Code: MIN
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1988-03-22 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

US AIRS MINOR:
Envid: 1000694372
Region Code: 02
Programmatic ID: AIR NY0000002600500080
Facility Registry ID: 110001565967
D and B Number: Not reported
Primary SIC Code: 5541
NAICS Code: 999999
Default Air Classification Code: MIN
Facility Type of Ownership Code: POF
Air CMS Category Code: Not reported
HPV Status: Not reported

US AIRS MINOR:
Region Code: 02
Programmatic ID: AIR NY0000002600500080

SHELL OIL-NELSON'S AC CNT INC (Continued) **1000694372**

Facility Registry ID: 110001565967
Air Operating Status Code: OPR
Default Air Classification Code: MIN
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1988-03-22 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

FINDS:

Registry ID: 110001565967

Environmental Interest/Information System

AFS (Aerometric Information Retrieval System (AIRS) Facility Subsystem) replaces the former Compliance Data System (CDS), the National Emission Data System (NEDS), and the Storage and Retrieval of Aerometric Data (SAROAD). AIRS is the national repository for information concerning airborne pollution in the United States. AFS is used to track emissions and compliance data from industrial plants. AFS data are utilized by states to prepare State Implementation Plans to comply with regulatory programs and by EPA as an input for the estimation of total national emissions. AFS is undergoing a major redesign to support facility operating permits required under Title V of the Clean Air Act.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

FIS (New York - Facility Information System) is New York's Department of Environmental Conservation (DEC) information system for tracking environmental facility information found across the State.

AIR MINOR

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid: 1000694372
Registry ID: 110001565967
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110001565967

NY MANIFEST:

Country: USA
EPA ID: NYD987006848
Facility Status: Not reported
Location Address 1: 1848 WEBSTER AVE
Code: BP

SHELL OIL-NELSON'S AC CNT INC (Continued) **1000694372**

Location Address 2:	Not reported
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	10457
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYD987006848
Mailing Name:	SHELL OIL CO
Mailing Contact:	STEPHANIE RICE
Mailing Address 1:	P.O. BOX 4540
Mailing Address 2:	Not reported
Mailing City:	HOUSTON
Mailing State:	TX
Mailing Zip:	77210
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	7132412258

NY MANIFEST:

Document ID:	ARA9257290
Manifest Status:	Not reported
seq:	01
Year:	1998
Trans1 State ID:	0902H205
Trans2 State ID:	Not reported
Generator Ship Date:	02/10/1998
Trans1 Recv Date:	02/10/1998
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	02/19/1998
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD987006848
Trans1 EPA ID:	OHD009865825
Trans2 EPA ID:	Not reported
TSDF ID 1:	ARD069748192
TSDF ID 2:	Not reported
Manifest Tracking Number:	Not reported
Import Indicator:	Not reported
Export Indicator:	Not reported
Discr Quantity Indicator:	Not reported
Discr Type Indicator:	Not reported
Discr Residue Indicator:	Not reported
Discr Partial Reject Indicator:	Not reported
Discr Full Reject Indicator:	Not reported
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	Not reported
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	01212

SHELL OIL-NELSON'S AC CNT INC (Continued) **1000694372**

Units:	P - Pounds
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	01212
Units:	P - Pounds
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

AH245 **THE SALVATION ARMY** **NY AST** **U004076431**
SW **4109 PARK AVE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.233 mi.
1231 ft. **Site 2 of 4 in cluster AH**

Relative: **Lower**

Actual: **31 ft.**

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-084735
Program Type:	PBS
UTM X:	592662.49960
UTM Y:	4522167.05173
Expiration Date:	03/24/2022
Site Type:	Other

Affiliation Records:

Site Id:	1985
Affiliation Type:	Facility Owner
Company Name:	THE SALVATION ARMY
Contact Type:	ADMINISTRATOR
Contact Name:	MAJOR FRED MUHS
Address1:	4109 PARK AVE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10457
Country Code:	001
Phone:	(718) 583-3500
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MRBARROW
Date Last Modified:	2017-03-28

Site Id:	1985
Affiliation Type:	Mail Contact

THE SALVATION ARMY (Continued) **U004076431**

Company Name:	THE SALVATION ARMY
Contact Type:	Not reported
Contact Name:	ADMINISTRATOR
Address1:	4109 PARK AVE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10457
Country Code:	001
Phone:	(718) 583-3500
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MRBARROW
Date Last Modified:	2017-03-28

Site Id:	1985
Affiliation Type:	Facility Operator
Company Name:	THE SALVATION ARMY
Contact Type:	Not reported
Contact Name:	THE SALVATION ARMY
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 583-3500
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Site Id:	1985
Affiliation Type:	Emergency Contact
Company Name:	THE SALVATION ARMY
Contact Type:	Not reported
Contact Name:	THE SALVATION ARMY
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 583-3500
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Tank Info:

Tank Number:	002
Tank Id:	3238
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

THE SALVATION ARMY (Continued) **U004076431**

Equipment Records:

	J02 - Dispenser - Suction Dispenser
	A00 - Tank Internal Protection - None
	D01 - Pipe Type - Steel/Carbon Steel/Iron
	G99 - Tank Secondary Containment - Other
	B00 - Tank External Protection - None
	C00 - Pipe Location - No Piping
	F00 - Pipe External Protection - None
	H00 - Tank Leak Detection - None
	I00 - Overfill - None
	L09 - Piping Leak Detection - Exempt Suction Piping
Tank Location:	Aboveground in subterranean vault with access for inspections.....
	Tank in subterranean vault but accessible for inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	01/01/1950
Capacity Gallons:	2000
Tightness Test Method:	-
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	MRBARROW
Last Modified:	04/14/2017
Material Name:	#2 fuel oil (on-site consumption)

AJ246 **PREMIUM AUTO REPAIR** **NY AST** **A100295587**
SSW **1805 WASHINGTON AVENUE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.234 mi.
1238 ft. **Site 1 of 9 in cluster AJ**

Relative: **Lower**
Actual: **42 ft.**

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-603404
Program Type:	PBS
UTM X:	592793.49213
UTM Y:	4522097.91696
Expiration Date:	02/15/2020
Site Type:	Auto Service/Repair (No Gasoline Sales)

Affiliation Records:

Site Id:	25321
Affiliation Type:	Mail Contact
Company Name:	PREMIUM AUTO REPAIR
Contact Type:	Not reported
Contact Name:	RAMON AMPARO
Address1:	1805 WASHINGTON AVENUE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10457
Country Code:	001
Phone:	(718) 294-2200
EMail:	RAMONAMARO1@MSN.COM

PREMIUM AUTO REPAIR (Continued) **A100295587**

Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2015-02-06
Site Id:	25321
Affiliation Type:	Facility Operator
Company Name:	PREMIUM AUTO REPAIR
Contact Type:	Not reported
Contact Name:	PREMIUM AUTO REPAIR
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 294-2200
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2005-02-15
Site Id:	25321
Affiliation Type:	Emergency Contact
Company Name:	RAMON AMPARO
Contact Type:	Not reported
Contact Name:	RAMON AMPARO
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(917) 560-5888
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2005-02-15
Site Id:	25321
Affiliation Type:	Facility Owner
Company Name:	RAMON AMPARO
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	700 W 178TH ST, #2
Address2:	Not reported
City:	NEW YORK
State:	NY
Zip Code:	10033
Country Code:	001
Phone:	(917) 560-5888
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2015-02-12

Tank Info:

PREMIUM AUTO REPAIR (Continued) **A100295587**

Tank Number:	001
Tank Id:	182017
Material Code:	0022
Common Name of Substance:	Waste Oil/Used Oil

Equipment Records:

E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None
I00 - Overfill - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
D00 - Pipe Type - No Piping
J03 - Dispenser - Gravity
L00 - Piping Leak Detection - None
A00 - Tank Internal Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
G10 - Tank Secondary Containment - Impervious Underlayment
K00 - Spill Prevention - None

Tank Location:	Aboveground - on saddles, legs, racks, etc.... Tank bottom is elevated above grade or tank pad, allowing visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	01/01/2004
Capacity Gallons:	250
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	NRLOMBAR
Last Modified:	04/14/2017
Material Name:	waste oil/used oil

AJ247 **CLOSED GAS STATION** **NY LTANKS** **S103557954**
SSW **1805 WASHINGTON AVE** **N/A**
1/8-1/4 **BRONX, NY**
0.234 mi.
1238 ft. **Site 2 of 9 in cluster AJ**

Relative: LTANKS:
Lower

Actual: Spill Number/Closed Date:	9808700 / 2003-03-03
42 ft. Facility ID:	9808700
Site ID:	229993
Spill Date:	1998-10-13
Spill Cause:	Tank Overfill
Spill Source:	Gasoline Station or other PBS Facility
Spill Class:	B3
Cleanup Ceased:	Not reported
SWIS:	0301
Investigator:	TOMASELLO
Referred To:	Not reported
Reported to Dept:	1998-10-13
CID:	233
Water Affected:	Not reported
Spill Notifier:	Other
Last Inspection:	Not reported

CLOSED GAS STATION (Continued) **S103557954**

Recommended Penalty:	False
Meets Standard:	False
UST Involvement:	True
Remediation Phase:	0
Date Entered In Computer:	1998-10-13
Spill Record Last Update:	2003-03-03
Spiller Name:	MAHOMAD MALIX
Spiller Company:	MALIX MANAGMENT CORP
Spiller Address:	PO BOX 770538
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	189562
DEC Memo:	""
Remarks:	"3 TANKS BEING REMOVED TANKS APPEAR SOUND MAY HAVE BEEN FROM OVERFILLS OR FROM CUSTOMER SPILAGE ALL TANKS 4000 GALLON SOIL BEING STOCK PILED PBS # 2-603404 "

All Materials:

Site ID:	229993
Operable Unit ID:	1069886
Operable Unit:	01
Material ID:	316191
Material Code:	0009
Material Name:	gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

AJ248 **PREMIUM AUTO REPAIR** **NY UST** **U004079329**
SSW **1805 WASHINGTON AVENUE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.234 mi.
1238 ft. **Site 3 of 9 in cluster AJ**

Relative: **Lower**

Actual: **42 ft.**

UST:

Id/Status:	2-603404 / Active
Program Type:	PBS
Region:	STATE
DEC Region:	2
Expiration Date:	02/15/2020
UTM X:	592793.49213
UTM Y:	4522097.91696
Site Type:	Auto Service/Repair (No Gasoline Sales)

Affiliation Records:

Site Id:	25321
Affiliation Type:	Mail Contact
Company Name:	PREMIUM AUTO REPAIR
Contact Type:	Not reported
Contact Name:	RAMON AMPARO
Address1:	1805 WASHINGTON AVENUE
Address2:	Not reported

PREMIUM AUTO REPAIR (Continued) **U004079329**

City:	BRONX
State:	NY
Zip Code:	10457
Country Code:	001
Phone:	(718) 294-2200
EMail:	RAMONAMARO1@MSN.COM
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2015-02-06

Site Id:	25321
Affiliation Type:	Facility Operator
Company Name:	PREMIUM AUTO REPAIR
Contact Type:	Not reported
Contact Name:	PREMIUM AUTO REPAIR
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 294-2200
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2005-02-15

Site Id:	25321
Affiliation Type:	Emergency Contact
Company Name:	RAMON AMPARO
Contact Type:	Not reported
Contact Name:	RAMON AMPARO
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(917) 560-5888
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2005-02-15

Site Id:	25321
Affiliation Type:	Facility Owner
Company Name:	RAMON AMPARO
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	700 W 178TH ST, #2
Address2:	Not reported
City:	NEW YORK
State:	NY
Zip Code:	10033
Country Code:	001
Phone:	(917) 560-5888
EMail:	Not reported

PREMIUM AUTO REPAIR (Continued) **U004079329**

Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2015-02-12

Tank Info:

Tank Number:	01
Tank ID:	54147
Tank Status:	Closed - Removed
Material Name:	Closed - Removed
Capacity Gallons:	4000
Install Date:	Not reported
Date Tank Closed:	04/01/1998
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Material Code:	9999
Common Name of Substance:	Other
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Pipe Model:	Not reported
Modified By:	TRANSLAT
Last Modified:	04/14/2017

Equipment Records:

C02 - Pipe Location - Underground/On-ground
G00 - Tank Secondary Containment - None
J02 - Dispenser - Suction Dispenser
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
H00 - Tank Leak Detection - None
I00 - Overfill - None
B00 - Tank External Protection - None
F00 - Pipe External Protection - None

Tank Number:	02
Tank ID:	54148
Tank Status:	Closed - Removed
Material Name:	Closed - Removed
Capacity Gallons:	4000
Install Date:	Not reported
Date Tank Closed:	04/01/1998
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Material Code:	9999
Common Name of Substance:	Other
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Pipe Model:	Not reported
Modified By:	TRANSLAT
Last Modified:	04/14/2017

PREMIUM AUTO REPAIR (Continued) **U004079329**

Equipment Records:
B00 - Tank External Protection - None
F00 - Pipe External Protection - None
C02 - Pipe Location - Underground/On-ground
G00 - Tank Secondary Containment - None
J02 - Dispenser - Suction Dispenser
H00 - Tank Leak Detection - None
I00 - Overfill - None
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron

Tank Number: 03
Tank ID: 54149
Tank Status: Closed - Removed
Material Name: Closed - Removed
Capacity Gallons: 4000
Install Date: Not reported
Date Tank Closed: 04/01/1998
Registered: True
Tank Location: Underground
Tank Type: Steel/carbon steel
Material Code: 9999
Common Name of Substance: Other

Tightness Test Method: NN
Date Test: Not reported
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: TRANSLAT
Last Modified: 04/14/2017

Equipment Records:
C02 - Pipe Location - Underground/On-ground
G00 - Tank Secondary Containment - None
J02 - Dispenser - Suction Dispenser
B00 - Tank External Protection - None
F00 - Pipe External Protection - None
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
H00 - Tank Leak Detection - None
I00 - Overfill - None

Tank Number: 04
Tank ID: 54150
Tank Status: Closed - Removed
Material Name: Closed - Removed
Capacity Gallons: 550
Install Date: Not reported
Date Tank Closed: 04/01/1998
Registered: True
Tank Location: Underground
Tank Type: Steel/carbon steel
Material Code: 9999
Common Name of Substance: Other

PREMIUM AUTO REPAIR (Continued) **U004079329**

Tightness Test Method: NN
Date Test: Not reported
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: TRANSLAT
Last Modified: 04/14/2017

Equipment Records:

C02 - Pipe Location - Underground/On-ground
G00 - Tank Secondary Containment - None
J02 - Dispenser - Suction Dispenser
B00 - Tank External Protection - None
F00 - Pipe External Protection - None
H00 - Tank Leak Detection - None
I00 - Overfill - None
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron

Tank Number: 05
Tank ID: 54151
Tank Status: Closed - Removed
Material Name: Closed - Removed
Capacity Gallons: 550
Install Date: Not reported
Date Tank Closed: 04/01/1998
Registered: True
Tank Location: Underground
Tank Type: Steel/carbon steel
Material Code: 9999
Common Name of Substance: Other

Tightness Test Method: NN
Date Test: Not reported
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: TRANSLAT
Last Modified: 04/14/2017

Equipment Records:

B00 - Tank External Protection - None
F00 - Pipe External Protection - None
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
H00 - Tank Leak Detection - None
I00 - Overfill - None
C02 - Pipe Location - Underground/On-ground
G00 - Tank Secondary Containment - None
J02 - Dispenser - Suction Dispenser

AJ249 **CON EDISON** **RCRA NonGen / NLR** **1018277863**
SW **452 E 175TH ST** **FINDS** **NYP004726055**
1/8-1/4 **BRONX, NY 10457** **ECHO**
0.235 mi.
1241 ft. **Site 4 of 9 in cluster AJ**

Relative:
Lower

Actual:
39 ft.

RCRA NonGen / NLR:

Date form received by agency:	02/05/2015
Facility name:	CON EDISON
Facility address:	452 E 175TH ST BRONX, NY 10457
EPA ID:	NYP004726055
Mailing address:	IRVING PL, 15TH FL NE NEW YORK, NY 10003
Contact:	THOMAS TEELING
Contact address:	Not reported Not reported
Contact country:	Not reported
Contact telephone:	212-460-3770
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Historical Generators:

Date form received by agency:	02/05/2015
Site name:	CON EDISON
Classification:	Large Quantity Generator

Violation Status: No violations found

FINDS:

Registry ID: 110067695756

Environmental Interest/Information System

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

CON EDISON (Continued) **1018277863**

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
- Envid: 1018277863
- Registry ID: 110067695756
- DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110067695756

AJ250 **CON EDISON** **NY MANIFEST** **S117739485**
SW **452 E 175TH ST** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.235 mi.
1241 ft. **Site 5 of 9 in cluster AJ**

Relative: **Lower**
Actual: **39 ft.**

NY MANIFEST:
- Country: USA
- EPA ID: NYP004726055
- Facility Status: Not reported
- Location Address 1: 452 EAST 175 ST
- Code: BP
- Location Address 2: SB8180
- Total Tanks: Not reported
- Location City: BRONX
- Location State: NY
- Location Zip: 10457
- Location Zip 4: Not reported

NY MANIFEST:
- EPAID: NYP004726055
- Mailing Name: CON EDISON
- Mailing Contact: CON EDISON
- Mailing Address 1: 4 IRVING PL
- Mailing Address 2: 15TH FL
- Mailing City: NEW YORK
- Mailing State: NY
- Mailing Zip: 10003
- Mailing Zip 4: Not reported
- Mailing Country: USA
- Mailing Phone: Not reported

NY MANIFEST:
- Document ID: Not reported
- Manifest Status: Not reported
- seq: Not reported
- Year: 2015
- Trans1 State ID: NJD003812047
- Trans2 State ID: Not reported
- Generator Ship Date: 02/05/2015
- Trans1 Recv Date: 02/05/2015
- Trans2 Recv Date: Not reported
- TSD Site Recv Date: 02/10/2015
- Part A Recv Date: Not reported
- Part B Recv Date: Not reported
- Generator EPA ID: NYP004726055
- Trans1 EPA ID: Not reported
- Trans2 EPA ID: Not reported

CON EDISON (Continued) **S117739485**

TSDF ID 1:	NJD991291105
TSDF ID 2:	Not reported
Manifest Tracking Number:	002564835GBF
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H110
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	1000
Units:	P - Pounds
Number of Containers:	1
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

AJ251 **CON EDISON** **NJ MANIFEST** **S120666776**
SW **452 E 175TH ST** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.235 mi.
1241 ft. **Site 6 of 9 in cluster AJ**

Relative: NJ MANIFEST:
Lower

Actual:
39 ft.

EPA Id:	NYP004726055
Mail Address:	IRVING PL, 15TH FL NE
Mail City/State/Zip:	NEW YORK, NY 10003
Facility Phone:	Not reported
Emergency Phone:	Not reported
Contact:	THOMAS TEELING
Comments:	Not reported
SIC Code:	Not reported
County:	NY005
Municipal:	Not reported
Previous EPA Id:	Not reported
Gen Flag:	Not reported
Trans Flag:	Not reported
TSDF Flag:	Not reported

CON EDISON (Continued) **S120666776**

Name Change:	Not reported
Date Change:	Not reported

Manifest:

Manifest Number:	002564835GBF
EPA ID:	NYP004726055
Date Shipped:	2/5/2015
TSDF EPA ID:	NJD991291105
Transporter EPA ID:	NJD003812047
Transporter 2 EPA ID:	Not reported
Transporter 3 EPA ID:	Not reported
Transporter 4 EPA ID:	Not reported
Transporter 5 EPA ID:	Not reported
Transporter 6 EPA ID:	Not reported
Transporter 7 EPA ID:	Not reported
Transporter 8 EPA ID:	Not reported
Transporter 9 EPA ID:	Not reported
Transporter 10 EPA ID:	Not reported
Date Trans1 Transported Waste:	Not reported
Date Trans2 Transported Waste:	Not reported
Date Trans3 Transported Waste:	Not reported
Date Trans4 Transported Waste:	Not reported
Date Trans5 Transported Waste:	Not reported
Date Trans6 Transported Waste:	Not reported
Date Trans7 Transported Waste:	Not reported
Date Trans8 Transported Waste:	Not reported
Date Trans9 Transported Waste:	Not reported
Date Trans10 Transported Waste:	Not reported
Date TSDF Received Waste:	Not reported
TSDF EPA Facility Name:	Not reported
QTY Units:	Not reported
Transporter SEQ ID:	Not reported
Transporter-1 Date:	Not reported
Waste SEQ ID:	Not reported
Waste Type Code 2:	Not reported
Waste Type Code 3:	Not reported
Waste Type Code 4:	Not reported
Waste Type Code 5:	Not reported
Waste Type Code 6:	Not reported
Date Accepted:	Not reported
Manifest Discrepancy Type:	Not reported
Data Entry Number:	Not reported
Was Load Rejected:	NEW YORK, NY 10003
Reason Load Was Rejected:	Not reported

AK252 **CON EDISON** **RCRA NonGen / NLR** **1018278125**
ESE **1932 ARTHUR AVE** **FINDS** **NYP004728796**
1/8-1/4 **BRONX, NY 10457** **ECHO**
0.235 mi.
1242 ft. **Site 1 of 13 in cluster AK**

Relative:
Higher

Actual:
99 ft.

RCRA NonGen / NLR:

Date form received by agency:	02/09/2015
Facility name:	CON EDISON
Facility address:	1932 ARTHUR AVE BRONX, NY 10457

CON EDISON (Continued) **1018278125**

EPA ID: NYP004728796
Mailing address: IRVING PL, 15TH FL NE
NEW YORK, NY 10003
Contact: THOMAS TEELING
Contact address: Not reported
Not reported
Contact country: Not reported
Contact telephone: 212-460-3770
Contact email: Not reported
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 02/09/2015
Site name: CON EDISON
Classification: Large Quantity Generator

Violation Status: No violations found

FINDS:

Registry ID: 110067700278

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1018278125
Registry ID: 110067700278

CON EDISON (Continued) **1018278125**

DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110067700278

AK253 **BRONX BERGEN BUILDING** **NY AST** **U003391853**
ESE **1932 ARTHUR AVENUE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.235 mi.
1242 ft. **Site 2 of 13 in cluster AK**

Relative:
Higher

Actual:
99 ft.

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-216933
Program Type:	PBS
UTM X:	593319.97907
UTM Y:	4522231.87793
Expiration Date:	10/15/2022
Site Type:	Municipality (Incl. Waste Water Treatment Plants, Utilities, Swimming Pools, etc.)

Affiliation Records:

Site Id:	8183
Affiliation Type:	Facility Owner
Company Name:	DCAS - JOSEPH WAGNER CHIEF ENGINEER
Contact Type:	ENGINEER
Contact Name:	JOSEPH WAGNER
Address1:	1 CENTRE ST - 20TH FL SOUTH
Address2:	Not reported
City:	NEW YORK
State:	NY
Zip Code:	10007
Country Code:	001
Phone:	(212) 386-0481
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MRBARROW
Date Last Modified:	2017-11-09

Site Id:	8183
Affiliation Type:	Mail Contact
Company Name:	DCAS - JOSEPH WAGNER CHIEF ENGINEER
Contact Type:	Not reported
Contact Name:	ROBERT SANTIAGO
Address1:	1 CENTRE STREET
Address2:	20TH FLOOR SOUTH
City:	NEW YORK
State:	NY
Zip Code:	10007
Country Code:	001
Phone:	(212) 386-6340
EMail:	RSANTIAGO@DCAS.NYC.GOV
Fax Number:	Not reported
Modified By:	MRBARROW
Date Last Modified:	2017-11-09

Site Id:	8183
Affiliation Type:	Facility Operator
Company Name:	BRONX BERGEN BUILDING
Contact Type:	Not reported

BRONX BERGEN BUILDING (Continued) **U003391853**

Contact Name:	ANN CASEY
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 579-6730
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2012-05-29

Site Id:	8183
Affiliation Type:	Emergency Contact
Company Name:	DCAS - JOSEPH WAGNER CHIEF ENGINEER
Contact Type:	Not reported
Contact Name:	ROBERT SANTIAGO
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(917) 772-0529
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MRBARROW
Date Last Modified:	2017-11-09

Tank Info:

Tank Number:	001
Tank Id:	22435
Material Code:	0002
Common Name of Substance:	#4 Fuel Oil (On-Site Consumption)

Equipment Records:

E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None
C03 - Pipe Location - Aboveground/Underground Combination
J02 - Dispenser - Suction Dispenser
L00 - Piping Leak Detection - None
B00 - Tank External Protection - None
F00 - Pipe External Protection - None
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
K00 - Spill Prevention - None
G02 - Tank Secondary Containment - Vault (w/access)
I05 - Overfill - Vent Whistle

Tank Location:	Aboveground in subterranean vault with access for inspections..... Tank in subterranean vault but accessible for inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	01/01/1940

BRONX BERGEN BUILDING (Continued) **U003391853**

Capacity Gallons:	5000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	NRLOMBAR
Last Modified:	04/14/2017
Material Name:	#4 fuel oil (on-site consumption)

Tank Number:	002
Tank Id:	22436
Material Code:	0002
Common Name of Substance:	#4 Fuel Oil (On-Site Consumption)

Equipment Records:

C03 - Pipe Location - Aboveground/Underground Combination
J02 - Dispenser - Suction Dispenser
B00 - Tank External Protection - None
F00 - Pipe External Protection - None
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
K00 - Spill Prevention - None
E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None
L00 - Piping Leak Detection - None
G02 - Tank Secondary Containment - Vault (w/access)
I05 - Overfill - Vent Whistle

Tank Location:	Aboveground in subterranean vault with access for inspections..... Tank in subterranean vault but accessible for inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	01/01/1940
Capacity Gallons:	5000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	NRLOMBAR
Last Modified:	04/14/2017
Material Name:	#4 fuel oil (on-site consumption)

Tank Number:	003
Tank Id:	236314
Material Code:	0008
Common Name of Substance:	Diesel

Equipment Records:

E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None
I00 - Overfill - None
G00 - Tank Secondary Containment - None

BRONX BERGEN BUILDING (Continued) **U003391853**

A00 - Tank Internal Protection - None
K00 - Spill Prevention - None
C01 - Pipe Location - Aboveground
B00 - Tank External Protection - None
F00 - Pipe External Protection - None
D00 - Pipe Type - No Piping
J03 - Dispenser - Gravity
L00 - Piping Leak Detection - None

Tank Location:	Aboveground - on saddles, legs, racks, etc.... Tank bottom is elevated above grade or tank pad, allowing visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	10/02/1986
Capacity Gallons:	275
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	NRLOMBAR
Last Modified:	04/14/2017
Material Name:	diesel

AK254 **CON EDISON** **NY MANIFEST** **S117739741**
ESE **1932 ARTHUR AVE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.235 mi.
1242 ft. **Site 3 of 13 in cluster AK**

Relative:
Higher

Actual:
99 ft.

NY MANIFEST:

Country:	USA
EPA ID:	NYP004728788
Facility Status:	Not reported
Location Address 1:	1932 ARTHUR AV
Code:	BP
Location Address 2:	SB795
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	10457
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYP004728788
Mailing Name:	CON EDISON
Mailing Contact:	CON EDISON
Mailing Address 1:	4 IRVING PL
Mailing Address 2:	15TH FL
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	10003
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	Not reported

NY MANIFEST:

Document ID:	Not reported

CON EDISON (Continued) **S117739741**

Manifest Status:	Not reported
seq:	Not reported
Year:	2015
Trans1 State ID:	NJD003812047
Trans2 State ID:	NJD003812047
Generator Ship Date:	02/09/2015
Trans1 Recv Date:	02/09/2015
Trans2 Recv Date:	02/13/2015
TSD Site Recv Date:	02/13/2015
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004728788
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD991291105
TSDF ID 2:	Not reported
Manifest Tracking Number:	002564841GBF
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H110
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	500
Units:	P - Pounds
Number of Containers:	1
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

AK255 **NYCDEP - ABAX INC** **RCRA NonGen / NLR** **1001489331**
ESE **1932 ARTHUR AVE 6TH FLOOR** **FINDS** **NYR000074146**
1/8-1/4 **BRONX, NY 10462** **ECHO**
0.235 mi. **NY MANIFEST**
1242 ft. **Site 4 of 13 in cluster AK**

Relative:
Higher

Actual:
99 ft.

RCRA NonGen / NLR:

Date form received by agency:	01/01/2007
Facility name:	NYCDEP - ABAX INC
Facility address:	1932 ARTHUR AVE 6TH FLOOR BRONX, NY 10462
EPA ID:	NYR000074146
Mailing address:	2ND ST LONG ISLAND CITY, NY 11101
Contact:	LECH SAWICKI
Contact address:	2ND ST LONG ISLAND CITY, NY 11101
Contact country:	US
Contact telephone:	718-784-2229
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	NYCDEP
Owner/operator address:	1932 ARTHUR AVE 6TH FL BRONX, NY 10462
Owner/operator country:	US
Owner/operator telephone:	718-579-6985
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Municipal
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	NYCDEP
Owner/operator address:	1932 ARTHUR AVE 6TH FL BRONX, NY 10462
Owner/operator country:	US
Owner/operator telephone:	718-579-6985
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Municipal
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No

NYCDEP - ABAX INC (Continued) **1001489331**

On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 01/01/2006
Site name: NYCDEP - ABAX INC
Classification: Not a generator, verified

Date form received by agency: 07/30/1999
Site name: NYCDEP - ABAX INC
Classification: Small Quantity Generator

. Waste code: D008
. Waste name: LEAD

Violation Status: No violations found

FINDS:

Registry ID: 110004554786

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1001489331
Registry ID: 110004554786
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110004554786

NY MANIFEST:
Country: USA
EPA ID: NYR000074146
Facility Status: Not reported
Location Address 1: 1932 ARTHUR AVE - 6TH FL
Code: BP
Location Address 2: Not reported
Total Tanks: Not reported
Location City: BRONX
Location State: NY
Location Zip: 10462

NYCDEP - ABAX INC (Continued) **1001489331**

Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYR000074146
Mailing Name:	NYCDEP
Mailing Contact:	N/S
Mailing Address 1:	1932 ARTHUR AVE - 6TH FL
Mailing Address 2:	Not reported
Mailing City:	BRONX
Mailing State:	NY
Mailing Zip:	10462
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	7187842229

NY MANIFEST:

Document ID:	NYB6717069
Manifest Status:	Not reported
seq:	01
Year:	1999
Trans1 State ID:	NY1A371
Trans2 State ID:	NY1A371
Generator Ship Date:	09/22/1999
Trans1 Recv Date:	09/22/1999
Trans2 Recv Date:	10/18/1999
TSD Site Recv Date:	10/18/1999
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000074146
Trans1 EPA ID:	NY0000148163
Trans2 EPA ID:	NY0000148163
TSDF ID 1:	NYD049178296
TSDF ID 2:	Not reported
Manifest Tracking Number:	Not reported
Import Indicator:	Not reported
Export Indicator:	Not reported
Discr Quantity Indicator:	Not reported
Discr Type Indicator:	Not reported
Discr Residue Indicator:	Not reported
Discr Partial Reject Indicator:	Not reported
Discr Full Reject Indicator:	Not reported
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	Not reported
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	00200
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	L Landfill.
Specific Gravity:	01.00

NYCDEP - ABAX INC (Continued) **1001489331**

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

AK256 **CON EDISON** **RCRA NonGen / NLR** **1018278124**
ESE **1932 ARTHUR AVE** **NYP004728788**
1/8-1/4 **BRONX, NY 10457**
0.235 mi.
1242 ft. **Site 5 of 13 in cluster AK**

Relative:
Higher

Actual:
99 ft.

RCRA NonGen / NLR:

Date form received by agency:	02/09/2015
Facility name:	CON EDISON
Facility address:	1932 ARTHUR AVE BRONX, NY 10457
EPA ID:	NYP004728788
Mailing address:	IRVING PL, 15TH FL NE NEW YORK, NY 10003
Contact:	THOMAS TEELING
Contact address:	Not reported Not reported
Contact country:	Not reported
Contact telephone:	212-460-3770
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Historical Generators:

Date form received by agency:	02/09/2015
Site name:	CON EDISON
Classification:	Large Quantity Generator

Violation Status: No violations found

AK257 **CON EDISON** **NJ MANIFEST** **S120667015**
ESE **1932 ARTHUR AVE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.235 mi.
1242 ft. **Site 6 of 13 in cluster AK**

Relative:
Higher

Actual:
99 ft.

NJ MANIFEST:

EPA Id:	NYP004728796
Mail Address:	IRVING PL, 15TH FL NE
Mail City/State/Zip:	NEW YORK, NY 10003
Facility Phone:	Not reported
Emergency Phone:	Not reported
Contact:	THOMAS TEELING
Comments:	Not reported
SIC Code:	Not reported
County:	NY005
Municipal:	Not reported
Previous EPA Id:	Not reported
Gen Flag:	Not reported
Trans Flag:	Not reported
TSDF Flag:	Not reported
Name Change:	Not reported
Date Change:	Not reported

Manifest:

Manifest Number:	002564847GBF
EPA ID:	NYP004728796
Date Shipped:	2/9/2015
TSDF EPA ID:	NJD991291105
Transporter EPA ID:	NJD003812047
Transporter 2 EPA ID:	Not reported
Transporter 3 EPA ID:	Not reported
Transporter 4 EPA ID:	Not reported
Transporter 5 EPA ID:	Not reported
Transporter 6 EPA ID:	Not reported
Transporter 7 EPA ID:	Not reported
Transporter 8 EPA ID:	Not reported
Transporter 9 EPA ID:	Not reported
Transporter 10 EPA ID:	Not reported
Date Trans1 Transported Waste:	Not reported
Date Trans2 Transported Waste:	Not reported
Date Trans3 Transported Waste:	Not reported
Date Trans4 Transported Waste:	Not reported
Date Trans5 Transported Waste:	Not reported
Date Trans6 Transported Waste:	Not reported
Date Trans7 Transported Waste:	Not reported
Date Trans8 Transported Waste:	Not reported
Date Trans9 Transported Waste:	Not reported
Date Trans10 Transported Waste:	Not reported
Date TSDF Received Waste:	Not reported
TSDF EPA Facility Name:	Not reported
QTY Units:	Not reported
Transporter SEQ ID:	Not reported
Transporter-1 Date:	Not reported
Waste SEQ ID:	Not reported
Waste Type Code 2:	Not reported
Waste Type Code 3:	Not reported
Waste Type Code 4:	Not reported
Waste Type Code 5:	Not reported
Waste Type Code 6:	Not reported

CON EDISON (Continued) **S120667015**

Date Accepted:	Not reported
Manifest Discrepancy Type:	Not reported
Data Entry Number:	Not reported
Was Load Rejected:	NEW YORK, NY 10003
Reason Load Was Rejected:	Not reported

AK258 **CON EDISON** **NJ MANIFEST** **S120667014**
ESE **1932 ARTHUR AVE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.235 mi.
1242 ft. **Site 7 of 13 in cluster AK**

Relative:
Higher

Actual:
99 ft.

NJ MANIFEST:

EPA Id:	NYP004728788
Mail Address:	IRVING PL, 15TH FL NE
Mail City/State/Zip:	NEW YORK, NY 10003
Facility Phone:	Not reported
Emergency Phone:	Not reported
Contact:	THOMAS TEELING
Comments:	Not reported
SIC Code:	Not reported
County:	NY005
Municipal:	Not reported
Previous EPA Id:	Not reported
Gen Flag:	Not reported
Trans Flag:	Not reported
TSDF Flag:	Not reported
Name Change:	Not reported
Date Change:	Not reported

Manifest:

Manifest Number:	002564841GBF
EPA ID:	NYP004728788
Date Shipped:	2/9/2015
TSDF EPA ID:	NJD991291105
Transporter EPA ID:	NJD003812047
Transporter 2 EPA ID:	Not reported
Transporter 3 EPA ID:	Not reported
Transporter 4 EPA ID:	Not reported
Transporter 5 EPA ID:	Not reported
Transporter 6 EPA ID:	Not reported
Transporter 7 EPA ID:	Not reported
Transporter 8 EPA ID:	Not reported
Transporter 9 EPA ID:	Not reported
Transporter 10 EPA ID:	Not reported
Date Trans1 Transported Waste:	Not reported
Date Trans2 Transported Waste:	Not reported
Date Trans3 Transported Waste:	Not reported
Date Trans4 Transported Waste:	Not reported
Date Trans5 Transported Waste:	Not reported
Date Trans6 Transported Waste:	Not reported
Date Trans7 Transported Waste:	Not reported
Date Trans8 Transported Waste:	Not reported
Date Trans9 Transported Waste:	Not reported
Date Trans10 Transported Waste:	Not reported
Date TSDF Received Waste:	Not reported

CON EDISON (Continued) **S120667014**

TSDF EPA Facility Name:	Not reported
QTY Units:	Not reported
Transporter SEQ ID:	Not reported
Transporter-1 Date:	Not reported
Waste SEQ ID:	Not reported
Waste Type Code 2:	Not reported
Waste Type Code 3:	Not reported
Waste Type Code 4:	Not reported
Waste Type Code 5:	Not reported
Waste Type Code 6:	Not reported
Date Accepted:	Not reported
Manifest Discrepancy Type:	Not reported
Data Entry Number:	Not reported
Was Load Rejected:	NEW YORK, NY 10003
Reason Load Was Rejected:	Not reported

AK259 **CON EDISON** **NY MANIFEST** **S117739742**
ESE **1932 ARTHUR AVE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.235 mi.
1242 ft. **Site 8 of 13 in cluster AK**

Relative:
Higher

Actual:
99 ft.

NY MANIFEST:

Country:	USA
EPA ID:	NYP004728796
Facility Status:	Not reported
Location Address 1:	1932 ARTHUR AV
Code:	BP
Location Address 2:	MH794
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	10457
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYP004728796
Mailing Name:	CON EDISON
Mailing Contact:	CON EDISON
Mailing Address 1:	4 IRVING PL
Mailing Address 2:	15TH FL
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	10003
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	Not reported

NY MANIFEST:

Document ID:	Not reported
Manifest Status:	Not reported
seq:	Not reported
Year:	2015
Trans1 State ID:	NJD003812047
Trans2 State ID:	Not reported
Generator Ship Date:	02/09/2015

CON EDISON (Continued) **S117739742**

Trans1 Recv Date:	02/09/2015
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	02/13/2015
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004728796
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD991291105
TSDF ID 2:	Not reported
Manifest Tracking Number:	002564847GBF
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H110
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	2000
Units:	P - Pounds
Number of Containers:	1
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

AG260 **615 EAST 178TH STREET** **NY AST** **U003394689**
ESE **615 EAST 178 STREET** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.237 mi.
1253 ft. **Site 3 of 4 in cluster AG**

Relative: **Higher**

Actual: **91 ft.**

AST:

Region:	STATE
DEC Region:	2
Site Status:	Unregulated/Closed
Facility Id:	2-467413
Program Type:	PBS
UTM X:	593370.67213

615 EAST 178TH STREET (Continued) **U003394689**

UTM Y: 4522355.28172
Expiration Date: N/A
Site Type: Unknown

Affiliation Records:

Site Id: 20330
Affiliation Type: Facility Owner
Company Name: CITY OF NY HOUSING PRES & DEV
Contact Type: Not reported
Contact Name: Not reported
Address1: 75 MAIDEN LANE
Address2: Not reported
City: NEW YORK
State: NY
Zip Code: 10038
Country Code: 001
Phone: (212) 806-8091
EMail: Not reported
Fax Number: Not reported
Modified By: TRANSLAT
Date Last Modified: 2004-03-04

Site Id: 20330
Affiliation Type: Mail Contact
Company Name: CITY OF NY HOUSING PRES & DEV
Contact Type: Not reported
Contact Name: Not reported
Address1: 75 MAIDEN LANE
Address2: Not reported
City: NEW YORK
State: NY
Zip Code: 10038
Country Code: 001
Phone: (212) 806-8091
EMail: Not reported
Fax Number: Not reported
Modified By: TRANSLAT
Date Last Modified: 2004-03-04

Site Id: 20330
Affiliation Type: Facility Operator
Company Name: 615 EAST 178TH STREET
Contact Type: Not reported
Contact Name: PIJUSH LODH
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 001
Phone: (212) 806-8091
EMail: Not reported
Fax Number: Not reported
Modified By: TRANSLAT
Date Last Modified: 2004-03-04

Site Id: 20330
Affiliation Type: Emergency Contact

615 EAST 178TH STREET (Continued) **U003394689**

Company Name:	CITY OF NY HOUSING PRES & DEV
Contact Type:	Not reported
Contact Name:	DAVID RUBINOVITZ
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(212) 806-8217
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Tank Info:

Tank Number:	001
Tank Id:	37007
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

Equipment Records:

	I04 - Overfill - Product Level Gauge (A/G)
	G00 - Tank Secondary Containment - None
	J02 - Dispenser - Suction Dispenser
	B00 - Tank External Protection - None
	C00 - Pipe Location - No Piping
	F00 - Pipe External Protection - None
	A00 - Tank Internal Protection - None
	D01 - Pipe Type - Steel/Carbon Steel/Iron
	H00 - Tank Leak Detection - None
	L09 - Piping Leak Detection - Exempt Suction Piping
Tank Location:	Aboveground - contact with soil.... Tank bottom rests on soil, allowing no visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	Closed - Removed
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	5000
Tightness Test Method:	-
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	11/22/2004
Register:	True
Modified By:	LXZIELIN
Last Modified:	04/14/2017
Material Name:	#2 fuel oil (on-site consumption)

AL261 **PEPSI BOTTLING COMPANY** **NY AST** **U004081905**
NNW **2044-2084 WEBSTER AVENUE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.238 mi.
1258 ft. **Site 1 of 3 in cluster AL**

Relative:
Lower

Actual:
46 ft.

AST:

Region:	STATE
DEC Region:	2
Site Status:	Unregulated/Closed
Facility Id:	2-600891
Program Type:	PBS
UTM X:	592857.31376
UTM Y:	4522842.97775
Expiration Date:	N/A
Site Type:	Manufacturing (Other than Chemical)/Processing

Affiliation Records:

Site Id:	22862
Affiliation Type:	Mail Contact
Company Name:	WESTERN BEEF RETAIL
Contact Type:	Not reported
Contact Name:	JOHN FRASCHILLA
Address1:	47-05 METROPOLITAIN AVE
Address2:	Not reported
City:	RIDGEWOOD
State:	NY
Zip Code:	11385
Country Code:	001
Phone:	(718) 628-2387
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MSBAPTIS
Date Last Modified:	2010-05-24

Site Id:	22862
Affiliation Type:	Facility Operator
Company Name:	PEPSI BOTTLING COMPANY
Contact Type:	Not reported
Contact Name:	JOHN FRASCHILLA
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(917) 299-3198
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MSBAPTIS
Date Last Modified:	2010-05-24

Site Id:	22862
Affiliation Type:	Emergency Contact
Company Name:	CACTUS PROPERTIES LLC
Contact Type:	Not reported
Contact Name:	JOHN FRASCHILLA
Address1:	Not reported
Address2:	Not reported
City:	Not reported

PEPSI BOTTLING COMPANY (Continued) **U004081905**

State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(917) 299-3198
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MSBAPTIS
Date Last Modified:	2010-05-24

Site Id:	22862
Affiliation Type:	Facility Owner
Company Name:	CACTUS PROPERTIES LLC
Contact Type:	AGENT
Contact Name:	JOHN FRASCHILLA
Address1:	129 BIRCHILL RD
Address2:	Not reported
City:	LOCUST VALLEY
State:	NY
Zip Code:	14563
Country Code:	001
Phone:	(516) 671-2560
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MSBAPTIS
Date Last Modified:	2010-05-24

Tank Info:

Tank Number:	001
Tank Id:	44327
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

Equipment Records:

D00 - Pipe Type - No Piping
C01 - Pipe Location - Aboveground
I04 - Overfill - Product Level Gauge (A/G)
J02 - Dispenser - Suction Dispenser
G03 - Tank Secondary Containment - Vault (w/o access)
H00 - Tank Leak Detection - None
L09 - Piping Leak Detection - Exempt Suction Piping
F00 - Pipe External Protection - None
A00 - Tank Internal Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating

Tank Location:	Aboveground in subterranean vault with access for inspections..... Tank in subterranean vault but accessible for inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	Closed - Removed
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	5000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	05/17/2010
Register:	True

PEPSI BOTTLING COMPANY (Continued) **U004081905**

Modified By:	NRLOMBAR
Last Modified:	04/14/2017
Material Name:	#2 fuel oil (on-site consumption)
Tank Number:	002
Tank Id:	44328
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

Equipment Records:

B00 - Tank External Protection - None
F00 - Pipe External Protection - None
G03 - Tank Secondary Containment - Vault (w/o access)
H00 - Tank Leak Detection - None
L09 - Piping Leak Detection - Exempt Suction Piping
C01 - Pipe Location - Aboveground
I04 - Overfill - Product Level Gauge (A/G)
J02 - Dispenser - Suction Dispenser
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron

Tank Location:	Aboveground in subterranean vault with access for inspections..... Tank in subterranean vault but accessible for inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	Closed - Removed
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	5000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	05/17/2010
Register:	True
Modified By:	NRLOMBAR
Last Modified:	04/14/2017
Material Name:	#2 fuel oil (on-site consumption)

AK262 **VIP COMMUNITY SERVICES** **NY AST** **A100168921**
SE **1910 ARTHUR AVE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.239 mi.
1263 ft. **Site 9 of 13 in cluster AK**

Relative:
Higher

Actual:
99 ft.

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-340421
Program Type:	PBS
UTM X:	593287.94956
UTM Y:	4522194.53756
Expiration Date:	02/07/2023
Site Type:	Apartment Building/Office Building

Affiliation Records:

Site Id:	16441
Affiliation Type:	Mail Contact
Company Name:	VIP COMMUNITY SERVICE

VIP COMMUNITY SERVICES (Continued) **A100168921**

Contact Type:	Not reported
Contact Name:	JONATHAN ROBLES
Address1:	1910 ARTHUR AVENUE
Address2:	8TH FLOOR
City:	BRONX
State:	NY
Zip Code:	10457
Country Code:	001
Phone:	(718) 466-8970
EMail:	JROBLES@VIPSERVICES.ORG
Fax Number:	Not reported
Modified By:	DMPOKRZY
Date Last Modified:	2018-02-05

Site Id:	16441
Affiliation Type:	Facility Operator
Company Name:	VIP COMMUNITY SERVICES
Contact Type:	Not reported
Contact Name:	VIP COMMUNITY SERVICES
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 583-5150
EMail:	Not reported
Fax Number:	Not reported
Modified By:	KXTANG
Date Last Modified:	2006-10-02

Site Id:	16441
Affiliation Type:	Emergency Contact
Company Name:	VIP COMMUNITY SERVICES
Contact Type:	Not reported
Contact Name:	JONATHAN ROBLES
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(718) 466-8970
EMail:	Not reported
Fax Number:	Not reported
Modified By:	KXTANG
Date Last Modified:	2006-10-02

Site Id:	16441
Affiliation Type:	Facility Owner
Company Name:	VOCATIONAL INSTRUCTION PROJECT COMMUNITY SERVICES
Contact Type:	CFO
Contact Name:	IRVING C. DELA CRUZ
Address1:	1910 ARTHUR AVENUE, 6TH FL
Address2:	Not reported
City:	BRONX
State:	NY

VIP COMMUNITY SERVICES (Continued) **A100168921**

Zip Code:	10457
Country Code:	001
Phone:	(718) 583-5150
EMail:	Not reported
Fax Number:	Not reported
Modified By:	DMPOKRZY
Date Last Modified:	2018-02-05

Tank Info:

Tank Number:	001
Tank Id:	27757
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

Equipment Records:

G03 - Tank Secondary Containment - Vault (w/o access)
H00 - Tank Leak Detection - None
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
I04 - Overfill - Product Level Gauge (A/G)
J02 - Dispenser - Suction Dispenser
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None

Tank Location:	Aboveground - contact with soil.... Tank bottom rests on soil, allowing no visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	Tank Converted to Non-Regulated Use
Pipe Model:	Not reported
Install Date:	06/01/2000
Capacity Gallons:	3000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	12/27/2000
Register:	True
Modified By:	TRANSLAT
Last Modified:	04/14/2017
Material Name:	#2 fuel oil (on-site consumption)

Tank Number:	001
Tank Id:	31599
Material Code:	0002
Common Name of Substance:	#4 Fuel Oil (On-Site Consumption)

Equipment Records:

F00 - Pipe External Protection - None
G00 - Tank Secondary Containment - None
J02 - Dispenser - Suction Dispenser
C01 - Pipe Location - Aboveground
A00 - Tank Internal Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
D01 - Pipe Type - Steel/Carbon Steel/Iron
K00 - Spill Prevention - None

VIP COMMUNITY SERVICES (Continued) **A100168921**

E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None
L09 - Piping Leak Detection - Exempt Suction Piping
I05 - Overfill - Vent Whistle

Tank Location:	Aboveground - on saddles, legs, racks, etc.... Tank bottom is elevated above grade or tank pad, allowing visual inspection.
Tank Type:	Steel Tank in Concrete
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	09/01/2000
Capacity Gallons:	5000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	DMMOLOUG
Last Modified:	04/14/2017
Material Name:	#4 fuel oil (on-site consumption)

Tank Number:	002
Tank Id:	27758
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

Equipment Records:

B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
J02 - Dispenser - Suction Dispenser
I04 - Overfill - Product Level Gauge (A/G)
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
G03 - Tank Secondary Containment - Vault (w/o access)
H00 - Tank Leak Detection - None

Tank Location:	Aboveground - contact with soil.... Tank bottom rests on soil, allowing no visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	Tank Converted to Non-Regulated Use
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	4000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	12/27/2000
Register:	True
Modified By:	TRANSLAT
Last Modified:	04/14/2017
Material Name:	#2 fuel oil (on-site consumption)

Affiliation Records:

Site Id:	16251
Affiliation Type:	Facility Owner
Company Name:	1910 ARTHUR AVE CORP.

VIP COMMUNITY SERVICES (Continued) **A100168921**

Contact Type:	Not reported
Contact Name:	Not reported
Address1:	295 LAFAYETTE STREET
Address2:	Not reported
City:	NEW YORK
State:	NY
Zip Code:	10012
Country Code:	001
Phone:	(212) 431-3322
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Site Id:	16251
Affiliation Type:	Mail Contact
Company Name:	SENATOR REALTY
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	8206 3RD AVENUE
Address2:	Not reported
City:	BROOKLYN
State:	NY
Zip Code:	11209
Country Code:	001
Phone:	(718) 716-3626
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Site Id:	16251
Affiliation Type:	Facility Operator
Company Name:	1910 ARTHUR AVENUE
Contact Type:	Not reported
Contact Name:	MARTIN ROSARIO
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(917) 942-7375
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Site Id:	16251
Affiliation Type:	Emergency Contact
Company Name:	1910 ARTHUR AVE CORP.
Contact Type:	Not reported
Contact Name:	LUIS RODON
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN

VIP COMMUNITY SERVICES (Continued) **A100168921**

Zip Code:	Not reported
Country Code:	001
Phone:	(718) 716-3626
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Tank Info:

Tank Number:	001
Tank Id:	27757
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

Equipment Records:

G03 - Tank Secondary Containment - Vault (w/o access)
H00 - Tank Leak Detection - None
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
I04 - Overfill - Product Level Gauge (A/G)
J02 - Dispenser - Suction Dispenser
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None

Tank Location:	Aboveground - contact with soil.... Tank bottom rests on soil, allowing no visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	Tank Converted to Non-Regulated Use
Pipe Model:	Not reported
Install Date:	06/01/2000
Capacity Gallons:	3000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	12/27/2000
Register:	True
Modified By:	TRANSLAT
Last Modified:	04/14/2017
Material Name:	#2 fuel oil (on-site consumption)

Tank Number:	001
Tank Id:	31599
Material Code:	0002
Common Name of Substance:	#4 Fuel Oil (On-Site Consumption)

Equipment Records:

F00 - Pipe External Protection - None
G00 - Tank Secondary Containment - None
J02 - Dispenser - Suction Dispenser
C01 - Pipe Location - Aboveground
A00 - Tank Internal Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
D01 - Pipe Type - Steel/Carbon Steel/Iron
K00 - Spill Prevention - None

VIP COMMUNITY SERVICES (Continued) **A100168921**

E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None
L09 - Piping Leak Detection - Exempt Suction Piping
I05 - Overfill - Vent Whistle

Tank Location:	Aboveground - on saddles, legs, racks, etc.... Tank bottom is elevated above grade or tank pad, allowing visual inspection.
Tank Type:	Steel Tank in Concrete
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	09/01/2000
Capacity Gallons:	5000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	DMMOLOUG
Last Modified:	04/14/2017
Material Name:	#4 fuel oil (on-site consumption)

Tank Number:	002
Tank Id:	27758
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

Equipment Records:

B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
J02 - Dispenser - Suction Dispenser
I04 - Overfill - Product Level Gauge (A/G)
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
G03 - Tank Secondary Containment - Vault (w/o access)
H00 - Tank Leak Detection - None

Tank Location:	Aboveground - contact with soil.... Tank bottom rests on soil, allowing no visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	Tank Converted to Non-Regulated Use
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	4000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	12/27/2000
Register:	True
Modified By:	TRANSLAT
Last Modified:	04/14/2017
Material Name:	#2 fuel oil (on-site consumption)

AI263 **CON EDISON** **RCRA NonGen / NLR** **1019901795**
NNE **505 E 180TH ST** **FINDS** **NYP004766127**
1/8-1/4 **BRONX, NY 10457** **ECHO**
0.240 mi.
1269 ft. **Site 5 of 7 in cluster AI**

Relative:
Higher

Actual:
94 ft.

RCRA NonGen / NLR:

Date form received by agency:	04/10/2015
Facility name:	CON EDISON
Facility address:	505 E 180TH ST BRONX, NY 10457
EPA ID:	NYP004766127
Mailing address:	IRVING PL 15TH FL NE NEW YORK, NY 10003
Contact:	THOMAS TEELING
Contact address:	Not reported Not reported
Contact country:	Not reported
Contact telephone:	212-460-3770
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Historical Generators:

Date form received by agency:	04/10/2015
Site name:	CON EDISON
Classification:	Large Quantity Generator
Violation Status:	No violations found

FINDS:

Registry ID: 110069656937

Environmental Interest/Information System

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

CON EDISON (Continued) **1019901795**

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1019901795
Registry ID:	110069656937
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110069656937

AI264 **CON EDISON** **NY MANIFEST** **S119074336**
NNE **505 E 180TH ST** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.240 mi.
1269 ft. **Site 6 of 7 in cluster AI**

Relative:
Higher

Actual:
94 ft.

NY MANIFEST:

Country:	USA
EPA ID:	NYP004766127
Facility Status:	Not reported
Location Address 1:	F/O 505 E 180TH ST
Code:	BP
Location Address 2:	MH 26031
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	10457
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYP004766127
Mailing Name:	CON EDISON
Mailing Contact:	TOM TEELING
Mailing Address 1:	4 IRVING PLACE - 15TH FLOOR
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	10003
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	Not reported

NY MANIFEST:

Document ID:	Not reported
Manifest Status:	Not reported
seq:	Not reported
Year:	2015
Trans1 State ID:	NJD003812047
Trans2 State ID:	Not reported
Generator Ship Date:	04/10/2015
Trans1 Recv Date:	04/10/2015
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	04/15/2015
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004766127
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported

CON EDISON (Continued) **S119074336**

TSDF ID 1:	NJD991291105
TSDF ID 2:	Not reported
Manifest Tracking Number:	002660855GBF
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H110
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	1000
Units:	P - Pounds
Number of Containers:	1
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

AI265 **CON EDISON** **NJ MANIFEST** **S120670323**
NNE **505 E 180TH ST** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.240 mi.
1269 ft. **Site 7 of 7 in cluster AI**

Relative:
Higher

Actual:
94 ft.

NJ MANIFEST:

EPA Id:	NYP004766127
Mail Address:	IRVING PL 15TH FL NE
Mail City/State/Zip:	NEW YORK, NY 10003
Facility Phone:	Not reported
Emergency Phone:	Not reported
Contact:	THOMAS TEELING
Comments:	Not reported
SIC Code:	Not reported
County:	NY005
Municipal:	Not reported
Previous EPA Id:	Not reported
Gen Flag:	Not reported
Trans Flag:	Not reported
TSDF Flag:	Not reported

CON EDISON (Continued) **S120670323**

Name Change:	Not reported
Date Change:	Not reported

Manifest:

Manifest Number:	002660855GBF
EPA ID:	NYP004766127
Date Shipped:	4/10/2015
TSDF EPA ID:	NJD991291105
Transporter EPA ID:	NJD003812047
Transporter 2 EPA ID:	Not reported
Transporter 3 EPA ID:	Not reported
Transporter 4 EPA ID:	Not reported
Transporter 5 EPA ID:	Not reported
Transporter 6 EPA ID:	Not reported
Transporter 7 EPA ID:	Not reported
Transporter 8 EPA ID:	Not reported
Transporter 9 EPA ID:	Not reported
Transporter 10 EPA ID:	Not reported
Date Trans1 Transported Waste:	Not reported
Date Trans2 Transported Waste:	Not reported
Date Trans3 Transported Waste:	Not reported
Date Trans4 Transported Waste:	Not reported
Date Trans5 Transported Waste:	Not reported
Date Trans6 Transported Waste:	Not reported
Date Trans7 Transported Waste:	Not reported
Date Trans8 Transported Waste:	Not reported
Date Trans9 Transported Waste:	Not reported
Date Trans10 Transported Waste:	Not reported
Date TSDF Received Waste:	Not reported
TSDF EPA Facility Name:	Not reported
QTY Units:	Not reported
Transporter SEQ ID:	Not reported
Transporter-1 Date:	Not reported
Waste SEQ ID:	Not reported
Waste Type Code 2:	Not reported
Waste Type Code 3:	Not reported
Waste Type Code 4:	Not reported
Waste Type Code 5:	Not reported
Waste Type Code 6:	Not reported
Date Accepted:	Not reported
Manifest Discrepancy Type:	Not reported
Data Entry Number:	Not reported
Was Load Rejected:	NEW YORK, NY 10003
Reason Load Was Rejected:	Not reported

AG266 **620 EAST 178 LLC** **NY AST** **A100175514**
ESE **620 EAST 178TH STREET** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.241 mi.
1273 ft. **Site 4 of 4 in cluster AG**

Relative:
Higher

Actual:
93 ft.

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-605230

620 EAST 178 LLC (Continued) **A100175514**

Program Type: PBS
UTM X: 593385.93004
UTM Y: 4522348.81305
Expiration Date: 12/05/2022
Site Type: Apartment Building/Office Building

Affiliation Records:

Site Id: 27099
Affiliation Type: Mail Contact
Company Name: SHARP MANAGEMENT
Contact Type: Not reported
Contact Name: LOU SCHWIMMER
Address1: P.O. BOX 100897
Address2: Not reported
City: BROOKLYN
State: NY
Zip Code: 11210
Country Code: 001
Phone: (718) 258-8800 213
EMail: LOU@SHARPMGMT.COM
Fax Number: Not reported
Modified By: MFLEONAR
Date Last Modified: 2018-04-03

Site Id: 27099
Affiliation Type: Facility Operator
Company Name: 620 EAST 178 LLC
Contact Type: Not reported
Contact Name: JOSE PENA
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 999
Phone: (718) 258-8800
EMail: Not reported
Fax Number: Not reported
Modified By: MFLEONAR
Date Last Modified: 2018-04-03

Site Id: 27099
Affiliation Type: Emergency Contact
Company Name: 620 EAST 178 LLC
Contact Type: Not reported
Contact Name: JOSE PENA
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 999
Phone: (718) 258-8800
EMail: Not reported
Fax Number: Not reported
Modified By: MFLEONAR
Date Last Modified: 2018-04-03

620 EAST 178 LLC (Continued) **A100175514**

Site Id:	27099
Affiliation Type:	Facility Owner
Company Name:	620 EAST 178 LLC
Contact Type:	OWNER
Contact Name:	MARTIN KIRZWEN
Address1:	P.O. BOX 100897
Address2:	Not reported
City:	BROOKLYN
State:	NY
Zip Code:	11210
Country Code:	001
Phone:	(718) 258-8800
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MFLEONAR
Date Last Modified:	2018-04-03

Tank Info:

Tank Number:	001
Tank Id:	59597
Material Code:	0003
Common Name of Substance:	#6 Fuel Oil (On-Site Consumption)

Equipment Records:

	I04 - Overfill - Product Level Gauge (A/G) B00 - Tank External Protection - None C00 - Pipe Location - No Piping F00 - Pipe External Protection - None G00 - Tank Secondary Containment - None J02 - Dispenser - Suction Dispenser A00 - Tank Internal Protection - None D01 - Pipe Type - Steel/Carbon Steel/Iron E00 - Piping Secondary Containment - None H00 - Tank Leak Detection - None L09 - Piping Leak Detection - Exempt Suction Piping
Tank Location:	Aboveground - on saddles, legs, racks, etc.... Tank bottom is elevated above grade or tank pad, allowing visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	02/10/1930
Capacity Gallons:	4000
Tightness Test Method:	-
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	MFLEONAR
Last Modified:	04/03/2018
Material Name:	#2 fuel oil (on-site consumption)

AJ267 **CON EDISON** **NJ MANIFEST** **S120666824**
SW **442 E 175TH ST FRONT OF** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.242 mi.
1277 ft. **Site 7 of 9 in cluster AJ**

Relative:
Lower

Actual:
36 ft.

NJ MANIFEST:

EPA Id:	NYP004726576
Mail Address:	IRVING PL, 15TH FL NE
Mail City/State/Zip:	NEW YORK, NY 10003
Facility Phone:	Not reported
Emergency Phone:	Not reported
Contact:	THOMAS TEELING
Comments:	Not reported
SIC Code:	Not reported
County:	NY005
Municipal:	Not reported
Previous EPA Id:	Not reported
Gen Flag:	Not reported
Trans Flag:	Not reported
TSDF Flag:	Not reported
Name Change:	Not reported
Date Change:	Not reported

Manifest:

Manifest Number:	002564853GBF
EPA ID:	NYP004726576
Date Shipped:	2/5/2015
TSDF EPA ID:	NJD991291105
Transporter EPA ID:	NJD003812047
Transporter 2 EPA ID:	Not reported
Transporter 3 EPA ID:	Not reported
Transporter 4 EPA ID:	Not reported
Transporter 5 EPA ID:	Not reported
Transporter 6 EPA ID:	Not reported
Transporter 7 EPA ID:	Not reported
Transporter 8 EPA ID:	Not reported
Transporter 9 EPA ID:	Not reported
Transporter 10 EPA ID:	Not reported
Date Trans1 Transported Waste:	Not reported
Date Trans2 Transported Waste:	Not reported
Date Trans3 Transported Waste:	Not reported
Date Trans4 Transported Waste:	Not reported
Date Trans5 Transported Waste:	Not reported
Date Trans6 Transported Waste:	Not reported
Date Trans7 Transported Waste:	Not reported
Date Trans8 Transported Waste:	Not reported
Date Trans9 Transported Waste:	Not reported
Date Trans10 Transported Waste:	Not reported
Date TSDF Received Waste:	Not reported
TSDF EPA Facility Name:	Not reported
QTY Units:	Not reported
Transporter SEQ ID:	Not reported
Transporter-1 Date:	Not reported
Waste SEQ ID:	Not reported
Waste Type Code 2:	Not reported
Waste Type Code 3:	Not reported
Waste Type Code 4:	Not reported
Waste Type Code 5:	Not reported
Waste Type Code 6:	Not reported

CON EDISON (Continued) **S120666824**

Date Accepted:	Not reported
Manifest Discrepancy Type:	Not reported
Data Entry Number:	Not reported
Was Load Rejected:	NEW YORK, NY 10003
Reason Load Was Rejected:	Not reported

AJ268 **CON EDISON** **RCRA NonGen / NLR** **1018277913**
SW **442 E 175TH ST FRONT OF** **FINDS** **NYP004726576**
1/8-1/4 **BRONX, NY 10457** **ECHO**
0.242 mi.
1277 ft. **Site 8 of 9 in cluster AJ**

Relative:
Lower

Actual:
36 ft.

RCRA NonGen / NLR:

Date form received by agency:	02/05/2015
Facility name:	CON EDISON
Facility address:	442 E 175TH ST FRONT OF BRONX, NY 10457
EPA ID:	NYP004726576
Mailing address:	IRVING PL, 15TH FL NE NEW YORK, NY 10003
Contact:	THOMAS TEELING
Contact address:	Not reported Not reported
Contact country:	Not reported
Contact telephone:	212-460-3770
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Historical Generators:

Date form received by agency:	02/05/2015
Site name:	CON EDISON
Classification:	Small Quantity Generator

Violation Status: No violations found

FINDS:

CON EDISON (Continued) **1018277913**

Registry ID: 110067696194

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1018277913
Registry ID: 110067696194
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110067696194

AJ269 **CON EDISON** **NY MANIFEST** **S117739535**
SW **442 E 175TH ST FRONT OF** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.242 mi.
1277 ft. **Site 9 of 9 in cluster AJ**

Relative:
Lower

Actual:
36 ft.

NY MANIFEST:
Country: USA
EPA ID: NYP004726576
Facility Status: Not reported
Location Address 1: 442 EAST 175 ST
Code: BP
Location Address 2: SB8179
Total Tanks: Not reported
Location City: BRONX
Location State: NY
Location Zip: 10457
Location Zip 4: Not reported

NY MANIFEST:
EPAID: NYP004726576
Mailing Name: CON EDISON
Mailing Contact: CON EDISON
Mailing Address 1: 4 IRVING PL
Mailing Address 2: 15TH FL
Mailing City: NEW YORK
Mailing State: NY
Mailing Zip: 10003
Mailing Zip 4: Not reported
Mailing Country: USA
Mailing Phone: Not reported

NY MANIFEST:
Document ID: Not reported
Manifest Status: Not reported
seq: Not reported
Year: 2015
Trans1 State ID: NJD003812047

CON EDISON (Continued) **S117739535**

Trans2 State ID:	Not reported
Generator Ship Date:	02/05/2015
Trans1 Recv Date:	02/05/2015
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	02/10/2015
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004726576
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD991291105
TSDF ID 2:	Not reported
Manifest Tracking Number:	002564853GBF
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H110
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	1000
Units:	P - Pounds
Number of Containers:	1
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

AK270 **CON EDISON** **NJ MANIFEST** **S120666742**
ESE **613 E TREMONT AVE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.243 mi.
1282 ft. **Site 10 of 13 in cluster AK**

Relative: NJ MANIFEST:
Higher

EPA Id:	NYP004725669
Mail Address:	IRVING PL, 15TH FL NE
Mail City/State/Zip:	NEW YORK, NY 10003
Facility Phone:	Not reported

Actual:
97 ft.

CON EDISON (Continued) **S120666742**

Emergency Phone:	Not reported
Contact:	THOMAS TEELING
Comments:	Not reported
SIC Code:	Not reported
County:	NY005
Municipal:	Not reported
Previous EPA Id:	Not reported
Gen Flag:	Not reported
Trans Flag:	Not reported
TSDF Flag:	Not reported
Name Change:	Not reported
Date Change:	Not reported

Manifest:

Manifest Number:	012774730JJK
EPA ID:	NYP004725669
Date Shipped:	2/4/2015
TSDF EPA ID:	NJD002200046
Transporter EPA ID:	NYD006982359
Transporter 2 EPA ID:	Not reported
Transporter 3 EPA ID:	Not reported
Transporter 4 EPA ID:	Not reported
Transporter 5 EPA ID:	Not reported
Transporter 6 EPA ID:	Not reported
Transporter 7 EPA ID:	Not reported
Transporter 8 EPA ID:	Not reported
Transporter 9 EPA ID:	Not reported
Transporter 10 EPA ID:	Not reported
Date Trans1 Transported Waste:	Not reported
Date Trans2 Transported Waste:	Not reported
Date Trans3 Transported Waste:	Not reported
Date Trans4 Transported Waste:	Not reported
Date Trans5 Transported Waste:	Not reported
Date Trans6 Transported Waste:	Not reported
Date Trans7 Transported Waste:	Not reported
Date Trans8 Transported Waste:	Not reported
Date Trans9 Transported Waste:	Not reported
Date Trans10 Transported Waste:	Not reported
Date TSDF Received Waste:	Not reported
TSDF EPA Facility Name:	Not reported
QTY Units:	Not reported
Transporter SEQ ID:	Not reported
Transporter-1 Date:	Not reported
Waste SEQ ID:	Not reported
Waste Type Code 2:	Not reported
Waste Type Code 3:	Not reported
Waste Type Code 4:	Not reported
Waste Type Code 5:	Not reported
Waste Type Code 6:	Not reported
Date Accepted:	Not reported
Manifest Discrepancy Type:	Not reported
Data Entry Number:	Not reported
Was Load Rejected:	NEW YORK, NY 10003
Reason Load Was Rejected:	Not reported

AK271 **CON EDISON** **RCRA NonGen / NLR** **1018277826**
ESE **613 E TREMONT AVE** **FINDS** **NYP004725669**
1/8-1/4 **BRONX, NY 10457** **ECHO**
0.243 mi.
1282 ft. **Site 11 of 13 in cluster AK**

Relative:
Higher

Actual:
97 ft.

RCRA NonGen / NLR:

Date form received by agency:	02/04/2015
Facility name:	CON EDISON
Facility address:	613 E TREMONT AVE BRONX, NY 10457
EPA ID:	NYP004725669
Mailing address:	IRVING PL, 15TH FL NE NEW YORK, NY 10003
Contact:	THOMAS TEELING
Contact address:	Not reported Not reported
Contact country:	Not reported
Contact telephone:	212-460-3770
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Historical Generators:

Date form received by agency:	02/04/2015
Site name:	CON EDISON
Classification:	Small Quantity Generator
Violation Status:	No violations found

FINDS:

Registry ID: 110067694347

Environmental Interest/Information System

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

CON EDISON (Continued) **1018277826**

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1018277826
Registry ID: 110067694347
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110067694347

AK272 **CON EDISON** **NY MANIFEST** **S117739450**
ESE **613 E TREMONT AVE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.243 mi.
1282 ft. **Site 12 of 13 in cluster AK**

Relative:
Higher

Actual:
97 ft.

NY MANIFEST:
Country: USA
EPA ID: NYP004725669
Facility Status: Not reported
Location Address 1: SEC E TREMONT AV & ARTHUR AV
Code: BP
Location Address 2: SB58795
Total Tanks: Not reported
Location City: BRONX
Location State: NY
Location Zip: 10461
Location Zip 4: Not reported

NY MANIFEST:
EPAID: NYP004725669
Mailing Name: CON EDISON
Mailing Contact: CON EDISON
Mailing Address 1: 4 IRVING PL
Mailing Address 2: 15TH FL
Mailing City: NEW YORK
Mailing State: NY
Mailing Zip: 10003
Mailing Zip 4: Not reported
Mailing Country: USA
Mailing Phone: Not reported

NY MANIFEST:
Document ID: Not reported
Manifest Status: Not reported
seq: Not reported
Year: 2015
Trans1 State ID: NYD006982359
Trans2 State ID: Not reported
Generator Ship Date: 02/04/2015
Trans1 Recv Date: 02/04/2015
Trans2 Recv Date: Not reported
TSD Site Recv Date: 02/05/2015
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: NYP004725669
Trans1 EPA ID: Not reported
Trans2 EPA ID: Not reported

CON EDISON (Continued) **S117739450**

TSDF ID 1:	NJD002200046
TSDF ID 2:	Not reported
Manifest Tracking Number:	012774730JJK
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H110
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	45
Units:	P - Pounds
Number of Containers:	1
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

AL273 **PEPSI COLA BOTTLING CO. OF NY INC.** **NY UST** **U004047942**
NNW **2050 WEBSTER AVENUE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.243 mi.
1283 ft. **Site 2 of 3 in cluster AL**

Relative:
Lower

Actual:
46 ft.

UST:

Id/Status:	2-609269 / Unregulated/Closed
Program Type:	PBS
Region:	STATE
DEC Region:	2
Expiration Date:	N/A
UTM X:	592829.80898
UTM Y:	4522831.76297
Site Type:	Other

Affiliation Records:

Site Id:	31114
Affiliation Type:	Facility Owner
Company Name:	PEPSICO
Contact Type:	Not reported

PEPSI COLA BOTTLING CO. OF NY INC. (Continued) **U004047942**

Contact Name:	Not reported
Address1:	700 ANDERSON HILL ROAD
Address2:	Not reported
City:	PURCHASE
State:	NY
Zip Code:	10577
Country Code:	001
Phone:	(914) 253-2000
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Site Id:	31114
Affiliation Type:	Mail Contact
Company Name:	PEPSI COLA BOTTLING CO OF NY INC
Contact Type:	Not reported
Contact Name:	MR. ROBERT SHERMAN
Address1:	112-02 15TH AVENUE
Address2:	Not reported
City:	COLLEGE POINT
State:	NY
Zip Code:	11356
Country Code:	001
Phone:	(718) 463-1990
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Site Id:	31114
Affiliation Type:	Facility Operator
Company Name:	PEPSI COLA BOTTLING CO. OF NY INC.
Contact Type:	Not reported
Contact Name:	PEPSI COLA BOTTLING
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 463-1990
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Site Id:	31114
Affiliation Type:	Emergency Contact
Company Name:	PEPSICO
Contact Type:	Not reported
Contact Name:	ROBERT SHERMAN
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported

PEPSI COLA BOTTLING CO. OF NY INC. (Continued) **U004047942**

Country Code:	001
Phone:	(718) 463-1990
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Tank Info:

Tank Number:	01
Tank ID:	66983
Tank Status:	Closed - In Place
Material Name:	Closed - In Place
Capacity Gallons:	1000
Install Date:	Not reported
Date Tank Closed:	09/19/2003
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Material Code:	0000
Common Name of Substance:	Empty
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Pipe Model:	Not reported
Modified By:	TRANSLAT
Last Modified:	04/14/2017

Equipment Records:

H00 - Tank Leak Detection - None
I00 - Overfill - None
A00 - Tank Internal Protection - None
G10 - Tank Secondary Containment - Impervious Underlayment
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
D00 - Pipe Type - No Piping

Tank Number:	02
Tank ID:	66984
Tank Status:	Closed - In Place
Material Name:	Closed - In Place
Capacity Gallons:	1000
Install Date:	Not reported
Date Tank Closed:	09/19/2003
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Material Code:	0000
Common Name of Substance:	Empty
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Pipe Model:	Not reported

PEPSI COLA BOTTLING CO. OF NY INC. (Continued) **U004047942**

Modified By: TRANSLAT
Last Modified: 04/14/2017

Equipment Records:

H00 - Tank Leak Detection - None
I00 - Overfill - None
D00 - Pipe Type - No Piping
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
A00 - Tank Internal Protection - None
G10 - Tank Secondary Containment - Impervious Underlayment

Tank Number: 03
Tank ID: 66985
Tank Status: Closed - In Place
Material Name: Closed - In Place
Capacity Gallons: 1000
Install Date: Not reported
Date Tank Closed: 09/19/2003
Registered: True
Tank Location: Underground
Tank Type: Steel/carbon steel
Material Code: 0000
Common Name of Substance: Empty

Tightness Test Method: NN
Date Test: Not reported
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: TRANSLAT
Last Modified: 04/14/2017

Equipment Records:

H00 - Tank Leak Detection - None
I00 - Overfill - None
D00 - Pipe Type - No Piping
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
A00 - Tank Internal Protection - None
G10 - Tank Secondary Containment - Impervious Underlayment

Tank Number: 04
Tank ID: 66986
Tank Status: Closed - In Place
Material Name: Closed - In Place
Capacity Gallons: 550
Install Date: Not reported
Date Tank Closed: 09/19/2003
Registered: True
Tank Location: Underground
Tank Type: Steel/carbon steel
Material Code: 0000
Common Name of Substance: Empty

PEPSI COLA BOTTLING CO. OF NY INC. (Continued) **U004047942**

Tightness Test Method: NN
Date Test: Not reported
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: TRANSLAT
Last Modified: 04/14/2017

Equipment Records:

H00 - Tank Leak Detection - None
I00 - Overfill - None
D00 - Pipe Type - No Piping
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
B00 - Tank External Protection - None
G10 - Tank Secondary Containment - Impervious Underlayment
A00 - Tank Internal Protection - None

Tank Number: 05
Tank ID: 66987
Tank Status: Closed - In Place
Material Name: Closed - In Place
Capacity Gallons: 550
Install Date: Not reported
Date Tank Closed: 09/19/2003
Registered: True
Tank Location: Underground
Tank Type: Steel/carbon steel
Material Code: 0000
Common Name of Substance: Empty

Tightness Test Method: NN
Date Test: Not reported
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: TRANSLAT
Last Modified: 04/14/2017

Equipment Records:

I00 - Overfill - None
H00 - Tank Leak Detection - None
D00 - Pipe Type - No Piping
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
G10 - Tank Secondary Containment - Impervious Underlayment
A00 - Tank Internal Protection - None

Tank Number: 06
Tank ID: 66988
Tank Status: Closed - In Place
Material Name: Closed - In Place
Capacity Gallons: 550
Install Date: Not reported
Date Tank Closed: 09/19/2003
Registered: True
Tank Location: Underground

PEPSI COLA BOTTLING CO. OF NY INC. (Continued) **U004047942**

Tank Type: Steel/carbon steel
Material Code: 0000
Common Name of Substance: Empty

Tightness Test Method: NN
Date Test: Not reported
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: TRANSLAT
Last Modified: 04/14/2017

Equipment Records:

B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
D00 - Pipe Type - No Piping
A00 - Tank Internal Protection - None
G10 - Tank Secondary Containment - Impervious Underlayment
H00 - Tank Leak Detection - None
I00 - Overfill - None

AK274 **BSP ARTHUR 1 LLC / 2 LLC** **NY AST** **A100175409**
SE **1892 ARTHUR AVENUE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.243 mi.
1285 ft. **Site 13 of 13 in cluster AK**

Relative:
Higher

Actual:
99 ft.

AST:
Region: STATE
DEC Region: 2
Site Status: Active
Facility Id: 2-605103
Program Type: PBS
UTM X: 593271.63382
UTM Y: 4522159.00926
Expiration Date: 07/08/2020
Site Type: Apartment Building/Office Building

Affiliation Records:
Site Id: 26972
Affiliation Type: Mail Contact
Company Name: NIEUW AMSTERDAM PROPERTY MANAGEMENT LLC
Contact Type: Not reported
Contact Name: BORUCH HERSH
Address1: 243 FIFTH AVENUE #409
Address2: Not reported
City: NEW YORK
State: NY
Zip Code: 10016
Country Code: 001
Phone: (646) 217-1077
EMail: BRAD@AMSTERDAMPROP.COM
Fax Number: Not reported
Modified By: NTFREEMA
Date Last Modified: 2016-01-19

Site Id: 26972
Affiliation Type: Facility Operator
Company Name: BSP ARTHUR 1 LLC / 2 LLC

BSP ARTHUR 1 LLC / 2 LLC (Continued) **A100175409**

Contact Type:	Not reported
Contact Name:	JOHN TOLEDO
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 249-0596
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NTFREEMA
Date Last Modified:	2016-01-19

Site Id:	26972
Affiliation Type:	Emergency Contact
Company Name:	BSP ARTHUR 1 LLC / 2 LLC
Contact Type:	Not reported
Contact Name:	CARLOS SORIANO
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(347) 353-4314
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NTFREEMA
Date Last Modified:	2016-01-19

Site Id:	26972
Affiliation Type:	Facility Owner
Company Name:	BSP ARTHUR 1 LLC / 2 LLC
Contact Type:	MANAGING AGENT
Contact Name:	BORUCH HERSH
Address1:	243 FIFTH AVENUE #409
Address2:	Not reported
City:	NEW YORK
State:	NY
Zip Code:	10016
Country Code:	001
Phone:	(646) 217-1077
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NTFREEMA
Date Last Modified:	2016-01-19

Tank Info:

Tank Number:	01
Tank Id:	59437
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

Equipment Records:

BSP ARTHUR 1 LLC / 2 LLC (Continued) **A100175409**

G01 - Tank Secondary Containment - Diking (Aboveground)
H05 - Tank Leak Detection - In-Tank System (ATG)
C02 - Pipe Location - Underground/On-ground
A00 - Tank Internal Protection - None
B00 - Tank External Protection - None
D02 - Pipe Type - Galvanized Steel
F00 - Pipe External Protection - None
I05 - Overfill - Vent Whistle

Tank Location:	Aboveground - contact with soil.... Tank bottom rests on soil, allowing no visual inspection.
Tank Type:	Stainless Steel Alloy
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	01/01/1981
Capacity Gallons:	4000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	NTFREEMA
Last Modified:	04/14/2017
Material Name:	#2 fuel oil (on-site consumption)

AM275 **CON EDISON - MANHOLE 26001** **RCRA-LQG** **1012184902**
NNE **EAST 180TH STREET & WASHINGTON** **NJ MANIFEST** **NYP004153169**
1/8-1/4 **BRONX, NY 10460** **NY MANIFEST**
0.244 mi.
1287 ft. **Site 1 of 7 in cluster AM**

Relative: **Higher**
Actual: **85 ft.**

RCRA-LQG:

Date form received by agency:	02/21/2008
Facility name:	CON EDISON - MANHOLE 26001
Facility address:	EAST 180TH STREET & WASHINGTON AVE BRONX, NY 10460
EPA ID:	NYP004153169
Mailing address:	4 IRVING PLACE NEW YORK, NY 10003
Contact:	FRANKLIN MURRAY
Contact address:	Not reported Not reported
Contact country:	Not reported
Contact telephone:	212-460-2808
Contact email:	MURRAYFR@CONED.COM
EPA Region:	02
Classification:	Large Quantity Generator
Description:	Handler: generates 1,000 kg or more of hazardous waste during any calendar month; or generates more than 1 kg of acutely hazardous waste during any calendar month; or generates more than 100 kg of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month; or generates 1 kg or less of acutely hazardous waste during any calendar month, and accumulates more than 1 kg of acutely hazardous waste at any time; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates more than

CON EDISON - MANHOLE 26001 (Continued) **1012184902**

100 kg of that material at any time

Owner/Operator Summary:

Owner/operator name:	CONSOLIDATED EDISON COMPANY OF NY, INC.
Owner/operator address:	4 IRVING PLACE
	NEW YORK, NY 10003
Owner/operator country:	US
Owner/operator telephone:	Not reported
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	08/22/2007
Owner/Op end date:	Not reported

Owner/operator name:	CONSOLIDATED EDISON COMPANY OF NY, INC.
Owner/operator address:	4 IRVING PLACE
	NEW YORK, NY 10003
Owner/operator country:	US
Owner/operator telephone:	Not reported
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	08/22/2007
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

. Waste code:	D008
. Waste name:	LEAD

Violation Status: No violations found

NJ MANIFEST:

EPA Id:	NYP004153169
Mail Address:	4 IRVING PLACE
Mail City/State/Zip:	NEW YORK, NY 10003
Facility Phone:	Not reported
Emergency Phone:	Not reported

CON EDISON - MANHOLE 26001 (Continued) **1012184902**

Contact:	FRANKLIN MURRAY
Comments:	Not reported
SIC Code:	Not reported
County:	NY005
Municipal:	Not reported
Previous EPA Id:	Not reported
Gen Flag:	Not reported
Trans Flag:	Not reported
TSDF Flag:	Not reported
Name Change:	Not reported
Date Change:	Not reported

Manifest:

Manifest Number:	001457343FLE
EPA ID:	NYP004153169
Date Shipped:	08/19/2007
TSDF EPA ID:	NJD002200046
Transporter EPA ID:	NYD006982359
Transporter 2 EPA ID:	NJ0000027193
Transporter 3 EPA ID:	Not reported
Transporter 4 EPA ID:	Not reported
Transporter 5 EPA ID:	Not reported
Transporter 6 EPA ID:	Not reported
Transporter 7 EPA ID:	Not reported
Transporter 8 EPA ID:	Not reported
Transporter 9 EPA ID:	Not reported
Transporter 10 EPA ID:	Not reported
Date Trans1 Transported Waste:	08/19/2007
Date Trans2 Transported Waste:	08/22/2007
Date Trans3 Transported Waste:	Not reported
Date Trans4 Transported Waste:	Not reported
Date Trans5 Transported Waste:	Not reported
Date Trans6 Transported Waste:	Not reported
Date Trans7 Transported Waste:	Not reported
Date Trans8 Transported Waste:	Not reported
Date Trans9 Transported Waste:	Not reported
Date Trans10 Transported Waste:	Not reported
Date TSDF Received Waste:	08/22/2007
TSDF EPA Facility Name:	Not reported
QTY Units:	Not reported
Transporter SEQ ID:	Not reported
Transporter-1 Date:	Not reported
Waste SEQ ID:	Not reported
Waste Type Code 2:	Not reported
Waste Type Code 3:	Not reported
Waste Type Code 4:	Not reported
Waste Type Code 5:	Not reported
Waste Type Code 6:	Not reported
Date Accepted:	Not reported
Manifest Discrepancy Type:	Not reported
Data Entry Number:	Not reported
Was Load Rejected:	NEW YORK, NY 10003
Reason Load Was Rejected:	Full Rejection

NY MANIFEST:

CON EDISON - MANHOLE 26001 (Continued) **1012184902**

Country:	USA
EPA ID:	NYP004153169
Facility Status:	Not reported
Location Address 1:	EAST 180TH STREET & WASHINGTON
Code:	BP
Location Address 2:	AVE
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	10460
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYP004153169
Mailing Name:	consolidated edison
Mailing Contact:	FRANKLYN MURRAY
Mailing Address 1:	4 IRVING PL RM 828
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	10003
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	2124602808

NY MANIFEST:

Document ID:	Not reported
Manifest Status:	Not reported
seq:	Not reported
Year:	2007
Trans1 State ID:	NYD006982359
Trans2 State ID:	NJD000027193
Generator Ship Date:	08/19/2007
Trans1 Recv Date:	08/19/2007
Trans2 Recv Date:	08/22/2007
TSD Site Recv Date:	08/22/2007
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004153169
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NYD137976247
TSDF ID 2:	Not reported
Manifest Tracking Number:	001457343FLE
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	Y
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	NJD002200046
Alt Facility Sign Date:	8/31/2007
MGMT Method Type Code:	H141
Waste Code:	Not reported
Waste Code:	Not reported

CON EDISON - MANHOLE 26001 (Continued) **1012184902**

Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	300
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	1
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

AE276 **CARIDAD DEL COBRE** **RCRA NonGen / NLR** **1004756901**
NNW **2051 WEBSTER AVE** **FINDS** **NYD982537813**
1/8-1/4 **BRONX, NY 10457** **ECHO**
0.244 mi. **NY MANIFEST**
1287 ft. **Site 11 of 15 in cluster AE**

Relative:
Lower

Actual:
58 ft.

RCRA NonGen / NLR:

Date form received by agency:	01/01/2007
Facility name:	CARIDAD DEL COBRE
Facility address:	2051 WEBSTER AVE BRONX, NY 10457
EPA ID:	NYD982537813
Mailing address:	WEBSTER AVE BRONX, NY 10457
Contact:	ADA BRETON
Contact address:	WEBSTER AVE BRONX, NY 10457
Contact country:	US
Contact telephone:	718-364-2231
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	ADA BRETON
Owner/operator address:	511 W 184TH ST NEW YORK, NY 10033
Owner/operator country:	US
Owner/operator telephone:	212-923-8403
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported

CARIDAD DEL COBRE (Continued) **1004756901**

Owner/Op end date: Not reported

Owner/operator name: ADA BRETON
Owner/operator address: 511 W 184TH ST
NEW YORK, NY 10033
Owner/operator country: US
Owner/operator telephone: 212-923-8403
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 01/01/2006
Site name: CARIDAD DEL COBRE
Classification: Not a generator, verified

Date form received by agency: 12/19/1996
Site name: CARIDAD DEL COBRE
Classification: Conditionally Exempt Small Quantity Generator

. Waste code: D000
. Waste name: Not Defined

. Waste code: D001
. Waste name: IGNITABLE WASTE

. Waste code: F002
. Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE, TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2, TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND

CARIDAD DEL COBRE (Continued) **1004756901**

SPENT SOLVENT MIXTURES.

Date form received by agency: 04/26/1995
Site name: CARIDAD DEL COBRE
Classification: Not a generator, verified

. Waste code: NONE
. Waste name: None

Violation Status: No violations found

FINDS:

Registry ID: 110010284110

Environmental Interest/Information System

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

FIS (New York - Facility Information System) is New York's Department of Environmental Conservation (DEC) information system for tracking environmental facility information found across the State.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid: 1004756901
Registry ID: 110010284110
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110010284110

NY MANIFEST:

Country: USA
EPA ID: NYD982537813
Facility Status: Not reported
Location Address 1: 2051 WEBSTER AVE
Code: BP
Location Address 2: Not reported
Total Tanks: Not reported
Location City: NEW YORK
Location State: NY
Location Zip: 10457
Location Zip 4: Not reported

NY MANIFEST:

EPAID: NYD982537813
Mailing Name: NEW WEBSTER SPEEDY CLEANERS
Mailing Contact: NEW WEBSTER SPEEDY CLEANERS
Mailing Address 1: 2051 WEBSTER AVE
Mailing Address 2: Not reported
Mailing City: BRONX
Mailing State: NY

CARIDAD DEL COBRE (Continued) **1004756901**

Mailing Zip:	10457
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	2123642231

NY MANIFEST:

Document ID:	NYC6355866
Manifest Status:	Not reported
seq:	01
Year:	2001
Trans1 State ID:	EH2705NY
Trans2 State ID:	NJ044
Generator Ship Date:	04/04/2001
Trans1 Recv Date:	04/04/2001
Trans2 Recv Date:	04/06/2001
TSD Site Recv Date:	04/11/2001
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD982537813
Trans1 EPA ID:	SCR000075150
Trans2 EPA ID:	NJD071629976
TSDF ID 1:	OHD980587364
TSDF ID 2:	Not reported
Manifest Tracking Number:	Not reported
Import Indicator:	Not reported
Export Indicator:	Not reported
Discr Quantity Indicator:	Not reported
Discr Type Indicator:	Not reported
Discr Residue Indicator:	Not reported
Discr Partial Reject Indicator:	Not reported
Discr Full Reject Indicator:	Not reported
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	Not reported
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	00195
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

AE277 **ASHER 26 MGMT LLC** **NY AST** **A100173359**
NNW **2051 WEBSTER AVENUE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.244 mi.
1287 ft. **Site 12 of 15 in cluster AE**

Relative:
Lower

Actual:
58 ft.

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-273805
Program Type:	PBS
UTM X:	592831.09842
UTM Y:	4522789.53341
Expiration Date:	04/30/2022
Site Type:	Apartment Building/Office Building

Affiliation Records:

Site Id:	11667
Affiliation Type:	Mail Contact
Company Name:	ASHER 26 MGMT LLC
Contact Type:	PARTNER
Contact Name:	MICHAEL ASHERIAN
Address1:	PO BOX 231024
Address2:	Not reported
City:	GREAT NECK
State:	NY
Zip Code:	11023
Country Code:	001
Phone:	(516) 312-3931
EMail:	RGADOLIAN@GMAIL.COM
Fax Number:	Not reported
Modified By:	MFLEONAR
Date Last Modified:	2017-06-13

Site Id:	11667
Affiliation Type:	Facility Operator
Company Name:	ASHER 26 MGMT LLC
Contact Type:	Not reported
Contact Name:	VICTOR VASQUEZ
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(516) 312-3931
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MSBAPTIS
Date Last Modified:	2010-09-09

Site Id:	11667
Affiliation Type:	Emergency Contact
Company Name:	ASHER 26 MGMT LLC
Contact Type:	Not reported
Contact Name:	MICHAEL ASHERIAN
Address1:	Not reported
Address2:	Not reported
City:	Not reported

ASHER 26 MGMT LLC (Continued) **A100173359**

State: NN
Zip Code: Not reported
Country Code: 999
Phone: (516) 312-3931
EMail: Not reported
Fax Number: Not reported
Modified By: MFLEONAR
Date Last Modified: 2017-06-13

Site Id: 11667
Affiliation Type: Facility Owner
Company Name: ASHER 26 MGMT LLC
Contact Type: MANAGING AGENT
Contact Name: RAFAEL GADOLIAN
Address1: PO BOX 231024
Address2: Not reported
City: GREAT NECK
State: NY
Zip Code: 11023
Country Code: 001
Phone: (516) 312-3931
EMail: Not reported
Fax Number: Not reported
Modified By: MFLEONAR
Date Last Modified: 2017-06-13

Tank Info:

Tank Number: 001
Tank Id: 9024
Material Code: 0001
Common Name of Substance: #2 Fuel Oil (On-Site Consumption)

Equipment Records:

H99 - Tank Leak Detection - Other
B00 - Tank External Protection - None
D02 - Pipe Type - Galvanized Steel
F00 - Pipe External Protection - None
L09 - Piping Leak Detection - Exempt Suction Piping
E00 - Piping Secondary Containment - None
J02 - Dispenser - Suction Dispenser
G00 - Tank Secondary Containment - None
K00 - Spill Prevention - None
A00 - Tank Internal Protection - None
I04 - Overfill - Product Level Gauge (A/G)
C01 - Pipe Location - Aboveground

Tank Location: Aboveground - contact with soil.... Tank bottom rests on soil, allowing no visual inspection.
Tank Type: Steel/Carbon Steel/Iron
Tank Status: In Service
Pipe Model: Not reported
Install Date: 10/20/1999
Capacity Gallons: 5000
Tightness Test Method: -
Date Test: Not reported
Next Test Date: Not reported

ASHER 26 MGMT LLC (Continued) **A100173359**

Date Tank Closed:	Not reported
Register:	True
Modified By:	MFLEONAR
Last Modified:	06/13/2017
Material Name:	#2 fuel oil (on-site consumption)

AE278 **CON EDISON SERVICE BOX: 10483** **RCRA NonGen / NLR** **1016970192**
NNW **2051 WEBSTER AVE** **NY MANIFEST** **NYP004438933**
1/8-1/4 **BRONX, NY 10456**
0.244 mi.
1287 ft. **Site 13 of 15 in cluster AE**

Relative:
Lower

Actual:
58 ft.

RCRA NonGen / NLR:

Date form received by agency:	03/10/2014
Facility name:	CON EDISON SERVICE BOX: 10483
Facility address:	2051 WEBSTER AVE BRONX, NY 10456
EPA ID:	NYP004438933
Mailing address:	IRVING PL, 15TH FL NE NEW YORK, NY 10003
Contact:	THOMAS TEELING
Contact address:	Not reported Not reported
Contact country:	Not reported
Contact telephone:	212-460-3770
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Historical Generators:

Date form received by agency:	02/10/2014
Site name:	CON EDISON SERVICE BOX: 10483
Classification:	Conditionally Exempt Small Quantity Generator

Violation Status: No violations found

NY MANIFEST:

Country:	USA
EPA ID:	NYP004438933

CON EDISON SERVICE BOX: 10483 (Continued) **1016970192**

Facility Status:	Not reported
Location Address 1:	F/O 2501 WEBSTER AVE
Code:	BP
Location Address 2:	Not reported
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	10461
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYP004438933
Mailing Name:	CON EDISON
Mailing Contact:	CON EDISON
Mailing Address 1:	4 IRVING PLACE
Mailing Address 2:	15TH FL
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	10003
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	Not reported

NY MANIFEST:

Document ID:	Not reported
Manifest Status:	Not reported
seq:	Not reported
Year:	2014
Trans1 State ID:	NJD003812047
Trans2 State ID:	Not reported
Generator Ship Date:	02/10/2014
Trans1 Recv Date:	02/10/2014
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	02/12/2014
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004438933
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD991291105
TSDF ID 2:	Not reported
Manifest Tracking Number:	002218971GBF
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H110
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported

CON EDISON SERVICE BOX: 10483 (Continued) **1016970192**

Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	70
Units:	P - Pounds
Number of Containers:	1
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

AE279 **APARTMENT BUILDING** **NY LTANKS** **S109208756**
NNW **2051 WEBSTER AVE** **NY Spills** **N/A**
1/8-1/4 **BRONX, NY**
0.244 mi.
1287 ft. **Site 14 of 15 in cluster AE**

Relative: LTANKS:
Lower

Actual: **58 ft.**

Spill Number/Closed Date:	0804609 / 2008-07-23
Facility ID:	0804609
Site ID:	401550
Spill Date:	2008-07-22
Spill Cause:	Tank Test Failure
Spill Source:	Private Dwelling
Spill Class:	Not reported
Cleanup Ceased:	Not reported
SWIS:	0301
Investigator:	HRAHMED
Referred To:	Not reported
Reported to Dept:	2008-07-22
CID:	408
Water Affected:	Not reported
Spill Notifier:	Tank Tester
Last Inspection:	Not reported
Recommended Penalty:	False
Meets Standard:	False
UST Involvement:	Not reported
Remediation Phase:	0
Date Entered In Computer:	2008-07-22
Spill Record Last Update:	2008-07-23
Spiller Name:	MARLIN JOSEPH
Spiller Company:	APT. BUILDING
Spiller Address:	2051 WEBSTER AVE
Spiller County:	001
Spiller Contact:	MARLIN JOSEPH
Spiller Phone:	(718) 624-4842
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	350646
DEC Memo:	"07/23/08-HRAHMED-Marlin Joseph of Petroleum Tank (PTC) reported a

APARTMENT BUILDING (Continued) **S109208756**

tank system integrity failure of 5000 gallon AST. This case is closed and reffered to spill # 0804489. "
Remarks: "NONE;"

All TTF:
Facility ID: 0804609
Spill Number: 0804609
Spill Tank Test: 2486519
Site ID: 401550
Tank Number: 1
Tank Size: 5000
Material: 0001
EPA UST: Not reported
UST: False
Cause: Not reported
Source: Not reported
Test Method: 03
Test Method 2: Horner EZ Check I or II
Leak Rate: .00
Gross Fail: Not reported
Modified By: Watchdog
Last Modified Date: Not reported

All Materials:
Site ID: 401550
Operable Unit ID: 1158337
Operable Unit: 01
Material ID: 2149395
Material Code: 0001A
Material Name: #2 fuel oil
Case No.: Not reported
Material FA: Petroleum
Quantity: .00
Units: G
Recovered: .00
Oxygenate: Not reported

SPILLS:
Spill Number/Closed Date: 0804489 / 2016-12-07
Facility ID: 0804489
Facility Type: ER
DER Facility ID: 350646
Site ID: 401403
DEC Region: 2
Spill Cause: Unknown
Spill Class: C4
SWIS: 0301
Spill Date: 2008-07-20
Investigator: RMOMAR
Referred To: Not reported
Reported to Dept: 2008-07-20
CID: 74
Water Affected: Not reported
Spill Source: Private Dwelling
Spill Notifier: Other
Cleanup Ceased: Not reported

APARTMENT BUILDING (Continued) **S109208756**

Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	Not reported
Remediation Phase:	0
Date Entered In Computer:	2008-07-20
Spill Record Last Update:	2016-12-07
Spiller Name:	RAFI GADOLIAN
Spiller Company:	APARTMENT BUILDING
Spiller Address:	2051 WEBSTER AVE
Spiller Company:	001
Contact Name:	RAFI GADOLIAN
DEC Memo:	"07/21/08-HRAHMED-Ahmed and DEC Vought responded to the site on 07/20/08 during off-hours. Vought spoke to the owner of the building Rafael (516 629 6284(off), 516 669 2788(cell)), he said Castle Oil were cleaning up the spill. Sean from Castle Oil (718 823 8800) and The super of the building Juan (347 339 9942) was present at the site. Ahmed noticed that oil was leaking from the bottom corner of two adjacent above ground tanks, one was 5000 gallon and the other one was 275 gallon. As per castle Oil, the 275 gallon tank was empty and 5000 gallon tank had 24 product in it. Also noticed some spill under the boiler, which were covered by the sand. As per the super they received a delivery of 1000 gallon on Thursday (07/10/08). As per the super, the 275 gallon tank is used by Washing Machines. The concrete floor was in good condition and no impact in the sump was observed. As per super there was no odor complain from the residents. Ahmed talked to the building partner Mike (516 312 3931) and told him that the department required proper clean up and do a tightness test on both the tanks. Ahmed checked the PBS registration which was up-to-date. Ahmed send CSL letter requiring proper cleanup and tightness test on both the tank to: 2051 Webster Avenue LLC Attn: Rafael Gadolian 1306 Fteley Avenue Bronx, NY 10472 07/22/08-HRAHMED-Spoke with the owner Rafael Gadolian (516 669 2788, Fax-516 629 6284). Rafael hired Petroleum Tank (PTC) to do tightness test. PTC Joe reported that tank system test was failed and they are preparing a proposal for the owner to do isolated tank test and isolated line test. A tank test failure letter was sent to Rafael Godalian. 07/23/08-HRAHMED-Spoke to PTC Joe. As per him tank test passed but the line test failed. They are preparing proposal for the owner to repair/replace the pipe. Talked to Rafael about testing the 275 gallon AST. He said they are considering to take out that tank and they are hiring Eastmond to do that job. 08/08/08-HRAHMED-Spoke to Rafael(516 669 2788). He told that the dry cleaners will hire a contractor to take out the 275 gallon tank and send me a report and disposal manifest. They replaced the fill pipe to the tank. DEC Ahmed mailed PBS information correction form to change ownership info to Rafael . 10/27/11 - Austin - Spill Transferred from Ahmed to Vought - end 3/31/2016: Rashad Spill reassigned to DEC Omar as per DEC Vought. 4/1/2016: Rashad 2051 Webster Ave has an alternate address of 2049-2051 Webster Avenue. Additional Spill#0804609 found for site which was called in for a TTF, spill closed and cross referenced to this spill. PBS 2-273805 found for site, there is a 5,000 gallon #2 fuel AST in contact with soil. 12/7/2016: Rashad Spill will be administratively closed as per tank test failure guidance document for TTF greater then 5 years old. Prior notes state that the 5,000 gallon tank passed tank test and only fill line failed and was replaced. Tank system and piping is also above ground. Spill

APARTMENT BUILDING (Continued) **S109208756**

administratively closed."
Remarks: "unknown cause 5000 gallon tank and 275 gallon tank - does not know which is leaking - tanks are wrapped with something Basement - unknown if concrete or dirt the 275 gallon belongs to a cleaning company - not the property owner "

All Materials:
Site ID: 401403
Operable Unit ID: 1158193
Operable Unit: 01
Material ID: 2149250
Material Code: 0001A
Material Name: #2 fuel oil
Case No.: Not reported
Material FA: Petroleum
Quantity: Not reported
Units: G
Recovered: .00
Oxygenate: Not reported

AE280 **NEW CARIDAD DEL COBRE/WEBSTER CLENRS** **NY DRYCLEANERS** **S110247405**
NNW **2051 WEBSTER AVENUE** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.244 mi.
1287 ft. **Site 15 of 15 in cluster AE**

Relative: **Lower**
Actual: **58 ft.**

DRYCLEANERS:
Facility ID: 2-6005-00826
Phone Number: 718-364-2231
Region: Not reported
Registration Effective Date: 7/29/2003 14:38:30:27
Inspection Date: 07DEC19
Install Date: 95/07
Drop Shop: Not reported
Shutdown: Y
Alternate Solvent: Not reported
Current Business: Not reported

AH281 **CE - E. 175TH ST. STATION** **NY VCP** **S105684651**
WSW **1815 - 1845 WEBSTER AVE.** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.244 mi.
1287 ft. **Site 3 of 4 in cluster AH**

Relative: **Lower**
Actual: **35 ft.**

VCP:
Program Type: VCP
Site Code: 57096
HW Code: V00556
Site Class: N
SWIS: 0301
Region: 2
Town: New York City
Acres: Not reported
Date Record Added: 03/05/2002
Date Record Updated: 02/26/2018
Updated By: GWHEITZM

CE - E. 175TH ST. STATION (Continued) **S105684651**

Site Description:	Location: This site is in an urban area, located in the Tremont section of the Bronx, between East 175th and East 176th Streets, between Carter Avenue and Webster Avenue. Site Features: The site is approximately 1 acre in size and is presently occupied by two gas stations and a White Castle Restaurant. Current Zoning/Use(s): The site is comprised of 3 parcels of land on a block of commercial buildings. The nearest residential buildings are apartment houses located approximately 250 feet to the east of the site. Historical Use(s): Northern Union Gas, a predecessor company to ConEdison, began operations sometime before 1893 and continued in use until ca. 1927. Two gas storage holders were constructed on the site. No gas was manufactured at the site. The holder station was demolished sometime between 1927 and 1936.
Env Problem:	The results of the Site Characterization completed in 2010 indicate that MGP impacts are limited to stained soil and coal tar odors in a small portion of the site at depths of 7 to 9 feet bgs. Subsurface soil in this are exceeds restricted commercial SCOs for Benzo(a)pyrene and metals. Significant petroleum contamination related to the northernmost gas station on the site has resulted in exceedances of restricted commercial SCOs for subsuurface soil and groundwater for BTEX compounds and semivolatiles. The petroleum contamination was referred to NYSDEC Spills, who assigned Spill # 97-10337. 450 tons of petroleum contaminated soil was removed and disposed offsite, an SVE system was activated in September 2000, and vacuum extraction recovery was performed in 2006 and 2007.
Health Problem:	NYSDOH has insufficient information to fully evaluate the potential for human exposures.
Dump:	Not reported
Structure:	Not reported
Lagoon:	Not reported
Landfill:	Not reported
Pond:	Not reported
Disp Start:	Not reported
Disp Term:	Not reported
Lat/Long:	Not reported
Dell:	Not reported
Record Add:	Not reported
Record Upd:	Not reported
Updated By:	Not reported
Own Op:	Applicant/Requestor
Sub Type:	01
Owner Name:	Ken Kaiser
Owner Company:	CONSOLIDATED EDISON CO OF NY.,INC.
Owner Address:	4 IRVING PLACE
Owner Addr2:	Not reported
Owner City,St,Zip:	NY, NY 10003
Owner Country:	United States of America
Own Op:	Owner
Sub Type:	ZZZ
Owner Name:	Not reported
Owner Company:	VARIOUS - SEE PROGRAM FOLDER
Owner Address:	Not reported
Owner Addr2:	Not reported
Owner City,St,Zip:	ZZ
Owner Country:	United States of America
HW Code:	Not reported
Waste Type:	Not reported

CE - E. 175TH ST. STATION (Continued) **S105684651**

Waste Quantity:	Not reported
Waste Code:	Not reported
Crossref ID:	Not reported
Cross Ref Type Code:	Not reported
Cross Ref Type:	Not reported
Record Added Date:	Not reported
Record Updated:	Not reported
Updated By:	Not reported

AL282 **CON EDISON SERVICE BOX: 10484** **RCRA NonGen / NLR** **1016960824**
NNW **2061 WEBSTER AVE** **NY MANIFEST** **NYP004330106**
1/8-1/4 **BRONX, NY 10457**
0.247 mi.
1304 ft. **Site 3 of 3 in cluster AL**

Relative:
Lower

Actual:
48 ft.

RCRA NonGen / NLR:

Date form received by agency:	08/16/2013
Facility name:	CON EDISON SERVICE BOX: 10484
Facility address:	2061 WEBSTER AVE BRONX, NY 10457
EPA ID:	NYP004330106
Mailing address:	IRVING PL, RM 828 NEW YORK, NY 10003
Contact:	GINO FRABASILE
Contact address:	Not reported Not reported
Contact country:	Not reported
Contact telephone:	914-925-6219
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Historical Generators:

Date form received by agency:	07/16/2013
Site name:	CON EDISON SERVICE BOX: 10484
Classification:	Conditionally Exempt Small Quantity Generator

Violation Status:	No violations found

CON EDISON SERVICE BOX: 10484 (Continued) **1016960824**

NY MANIFEST:

Country:	USA
EPA ID:	NYP004330106
Facility Status:	Not reported
Location Address 1:	FO 2061 WEBSTER AVENUE
Code:	BP
Location Address 2:	SB #10484
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	10457
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYP004330106
Mailing Name:	CON EDISON
Mailing Contact:	CON EDISON
Mailing Address 1:	4 IRVING PLACE 15TH FLOOR
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	10003
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	2124603770

NY MANIFEST:

Document ID:	Not reported
Manifest Status:	Not reported
seq:	Not reported
Year:	2013
Trans1 State ID:	NJD003812047
Trans2 State ID:	Not reported
Generator Ship Date:	07/16/2013
Trans1 Recv Date:	07/16/2013
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	07/16/2013
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004330106
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD991291105
TSDF ID 2:	Not reported
Manifest Tracking Number:	002085413GBF
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H110
Waste Code:	Not reported

CON EDISON SERVICE BOX: 10484 (Continued) **1016960824**

Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	150
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	1
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

283
SE
1/8-1/4
0.248 mi.
1307 ft.

CON EDISON
1884 ARTHUR AVE
BRONX, NY

NY AST **U003395893**
NY MANIFEST **N/A**

Relative:
Higher

Actual:
98 ft.

AST:

Region:	STATE
DEC Region:	2
Site Status:	Unregulated/Closed
Facility Id:	2-601018
Program Type:	PBS
UTM X:	593264.38238
UTM Y:	4522143.21890
Expiration Date:	N/A
Site Type:	Apartment Building/Office Building

Affiliation Records:

Site Id:	22988
Affiliation Type:	Facility Owner
Company Name:	CITY OF N.Y DEPARTMENT OF H.P.D
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	75 MAIDEN LANE
Address2:	Not reported
City:	NEW YORK
State:	NY
Zip Code:	10038
Country Code:	001
Phone:	(212) 806-8306
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2012-11-19

Site Id:	22988

CON EDISON (Continued) **U003395893**

Affiliation Type:	Mail Contact
Company Name:	CITY OF N.Y DEPARTMENT OF H.P.D
Contact Type:	Not reported
Contact Name:	IVAN SCHWARTZ
Address1:	75 MAIDEN LANE
Address2:	4TH FL- RM 427
City:	NEW YORK
State:	NY
Zip Code:	10038
Country Code:	001
Phone:	(212) 806-8037
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Site Id:	22988
Affiliation Type:	Facility Operator
Company Name:	CITY OF N.Y DEPARTMENT OF H.P.D
Contact Type:	Not reported
Contact Name:	WALTER GINGOLD
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(212) 716-0223
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Site Id:	22988
Affiliation Type:	Emergency Contact
Company Name:	CITY OF N.Y DEPARTMENT OF H.P.D
Contact Type:	Not reported
Contact Name:	CALVIN THORBOURNE
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(212) 716-0267
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Tank Info:

Tank Number:	1
Tank Id:	44716
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

CON EDISON (Continued) **U003395893**

Equipment Records:

G03 - Tank Secondary Containment - Vault (w/o access)
H00 - Tank Leak Detection - None
L09 - Piping Leak Detection - Exempt Suction Piping
A00 - Tank Internal Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
D01 - Pipe Type - Steel/Carbon Steel/Iron
F01 - Pipe External Protection - Painted/Asphalt Coating
I05 - Overfill - Vent Whistle
C03 - Pipe Location - Aboveground/Underground Combination
J02 - Dispenser - Suction Dispenser

Tank Location:	Aboveground - contact with soil.... Tank bottom rests on soil, allowing no visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	Closed - Removed
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	5000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	06/01/2000
Register:	True
Modified By:	CGFREEDM
Last Modified:	04/14/2017
Material Name:	#2 fuel oil (on-site consumption)

NY MANIFEST:

Country:	USA
EPA ID:	NYP004671384
Facility Status:	Not reported
Location Address 1:	1884 ARTHUR AVE
Code:	BP
Location Address 2:	SB 790
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	Not reported
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYP004671384
Mailing Name:	CON EDISON
Mailing Contact:	CON EDISON
Mailing Address 1:	4 IRVING PL 15TH FL
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	10003
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	2124603770

NY MANIFEST:

Document ID:	Not reported
Manifest Status:	Not reported

CON EDISON (Continued) **U003395893**

seq:	Not reported
Year:	2014
Trans1 State ID:	NJD003812047
Trans2 State ID:	NJD003812047
Generator Ship Date:	10/02/2014
Trans1 Recv Date:	10/02/2014
Trans2 Recv Date:	10/06/2014
TSD Site Recv Date:	10/06/2014
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004671384
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD991291105
TSDF ID 2:	Not reported
Manifest Tracking Number:	002564176GBF
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H110
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	600
Units:	P - Pounds
Number of Containers:	1
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

284
NNW
1/8-1/4
0.248 mi.
1308 ft.

2028 VALENTINE AVE REALTY, LLC.
2028 VALENTINE AVENUE
BRONX, NY 10457

NY AST **A100129086**
N/A

Relative:
Lower

Actual:
63 ft.

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-603752
Program Type:	PBS
UTM X:	592700.76388
UTM Y:	4522814.35856
Expiration Date:	04/06/2022
Site Type:	Apartment Building/Office Building

Affiliation Records:

Site Id:	25655
Affiliation Type:	Mail Contact
Company Name:	2028 VALENTINE AVE REALTY, LLC
Contact Type:	MANAGER
Contact Name:	MOSES STAHL
Address1:	PO BOX 967
Address2:	Not reported
City:	NEW YORK
State:	NY
Zip Code:	10272
Country Code:	001
Phone:	(212) 613-1700
EMail:	SHIRA@ARCHROCKGROUP.COM
Fax Number:	Not reported
Modified By:	DMPOKRZY
Date Last Modified:	2018-06-15

Site Id:	25655
Affiliation Type:	Facility Operator
Company Name:	2028 VALENTINE AVE BRONX LLC
Contact Type:	Not reported
Contact Name:	JULIO FELIX
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(212) 613-1700
EMail:	Not reported
Fax Number:	Not reported
Modified By:	DMPOKRZY
Date Last Modified:	2018-06-15

Site Id:	25655
Affiliation Type:	Emergency Contact
Company Name:	2028 VALENTINE AVE REALTY, LLC
Contact Type:	Not reported
Contact Name:	MOSES STAHL
Address1:	Not reported
Address2:	Not reported
City:	Not reported

2028 VALENTINE AVE REALTY, LLC. (Continued) **A100129086**

State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(347) 831-4712
EMail:	Not reported
Fax Number:	Not reported
Modified By:	DMPOKRZY
Date Last Modified:	2018-06-15

Site Id:	25655
Affiliation Type:	Facility Owner
Company Name:	2028 VALENTINE AVE REALTY, LLC
Contact Type:	MANAGER
Contact Name:	MOSES STAHL
Address1:	PO BOX 967
Address2:	Not reported
City:	NEW YORK
State:	NY
Zip Code:	10272
Country Code:	001
Phone:	(212) 613-1700
EMail:	SHIRA@ARCHROCKGROUP.COM
Fax Number:	Not reported
Modified By:	DMPOKRZY
Date Last Modified:	2018-06-15

Tank Info:

Tank Number:	001
Tank Id:	55492
Material Code:	0002
Common Name of Substance:	#4 Fuel Oil (On-Site Consumption)

Equipment Records:

E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None
L09 - Piping Leak Detection - Exempt Suction Piping
G00 - Tank Secondary Containment - None
J02 - Dispenser - Suction Dispenser
A00 - Tank Internal Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
D01 - Pipe Type - Steel/Carbon Steel/Iron
F01 - Pipe External Protection - Painted/Asphalt Coating
K00 - Spill Prevention - None
C01 - Pipe Location - Aboveground
I04 - Overfill - Product Level Gauge (A/G)

Tank Location:	Aboveground - contact with soil.... Tank bottom rests on soil, allowing no visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	06/18/1996
Capacity Gallons:	5000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported

2028 VALENTINE AVE REALTY, LLC. (Continued) **A100129086**

Date Tank Closed: Not reported
Register: True
Modified By: JSMACRI
Last Modified: 01/24/2019
Material Name: #4 fuel oil (on-site consumption)

AM285 **CON EDISION - MH26002** **RCRA NonGen / NLR** **1007208592**
NNE **489 E. 180TH STREET 489 E. 180** **NYP004093472**
1/8-1/4 **BRONX, NY 10003**
0.249 mi.
1313 ft. **Site 2 of 7 in cluster AM**

Relative:
Higher

Actual:
92 ft.

RCRA NonGen / NLR:
Date form received by agency: 06/02/2002
Facility name: CON EDISION - MH26002
Facility address: 489 E. 180TH STREET 489 E. 180
BRONX, NY 10003
EPA ID: NYP004093472
Mailing address: IRVING PLACE
NEW YORK, NY 10003
Contact: ANTHONY DRUMMINGS
Contact address: IRVING PLACE
NEW YORK, NY 10003
Contact country: US
Contact telephone: 212-460-3770
Contact email: Not reported
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 06/01/2002
Site name: CON EDISION - MH26002
Classification: Not a generator, verified

Date form received by agency: 05/31/2002
Site name: CON EDISION - MH26002
Classification: Large Quantity Generator

Violation Status: No violations found

AM286 **CONSOLIDATED EDISON** **NY MANIFEST** **S117564161**
NNE **489 E. 180TH STREET 489 E. 180** **N/A**
1/8-1/4 **BRONX, NY 10003**
0.249 mi.
1313 ft. **Site 3 of 7 in cluster AM**

Relative:
Higher

Actual:
92 ft.

NY MANIFEST:

Country:	USA
EPA ID:	NYP004093472
Facility Status:	Not reported
Location Address 1:	180 ST & WASHINGTON MH26002
Code:	BP
Location Address 2:	Not reported
Total Tanks:	Not reported
Location City:	RYE
Location State:	NY
Location Zip:	10580
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYP004093472
Mailing Name:	CONSOLIDATED EDISON
Mailing Contact:	FRANKLIN MURRAY
Mailing Address 1:	4 IRVING PLACE RM 828
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	10003
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	2124602808

NY MANIFEST:

Document ID:	NJA3259106
Manifest Status:	Not reported
seq:	01
Year:	2001
Trans1 State ID:	E07759
Trans2 State ID:	Not reported
Generator Ship Date:	12/04/2001
Trans1 Recv Date:	12/04/2001
Trans2 Recv Date:	12/07/2001
TSD Site Recv Date:	12/07/2001
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004093472
Trans1 EPA ID:	MAD039322250
Trans2 EPA ID:	MAD039322250
TSDF ID 1:	NJD991291105
TSDF ID 2:	Not reported
Manifest Tracking Number:	Not reported
Import Indicator:	Not reported
Export Indicator:	Not reported
Discr Quantity Indicator:	Not reported
Discr Type Indicator:	Not reported
Discr Residue Indicator:	Not reported
Discr Partial Reject Indicator:	Not reported
Discr Full Reject Indicator:	Not reported
Manifest Ref Number:	Not reported

CONSOLIDATED EDISON (Continued) **S117564161**

Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	Not reported
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	00520
Units:	P - Pounds
Number of Containers:	001
Container Type:	DT - Dump trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00

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-1 additional NY MANIFEST: record(s) in the EDR Site Report.

AM287 **GLOBAL MONTELLO GROUP #5418** **NY UST** **U004222818**
NNE **495 EAST 180TH STREET** **N/A**
1/8-1/4 **BRONX, NY 10400**
0.249 mi.
1317 ft. **Site 4 of 7 in cluster AM**

Relative:
Higher

Actual:
94 ft.

UST:

Id/Status:	2-152889 / Active
Program Type:	PBS
Region:	STATE
DEC Region:	2
Expiration Date:	03/25/2019
UTM X:	593149.54764
UTM Y:	4522849.83532
Site Type:	Retail Gasoline Sales

Affiliation Records:

Site Id:	4809
Affiliation Type:	Emergency Contact
Company Name:	LEEMILTS PETROLEUM
Contact Type:	Not reported
Contact Name:	CALL CENTER
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(888) 674-7601
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MFLEONAR
Date Last Modified:	2017-10-30

Site Id:	4809
Affiliation Type:	Facility Owner
Company Name:	LEEMILTS PETROLEUM
Contact Type:	Not reported

GLOBAL MONTELLO GROUP #5418 (Continued) **U004222818**

Contact Name:	Not reported
Address1:	125 JERICHO TURNPIKE
Address2:	Not reported
City:	JERICHO
State:	NY
Zip Code:	11754
Country Code:	001
Phone:	(516) 478-5400
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MXLAY
Date Last Modified:	2017-02-09

Site Id:	4809
Affiliation Type:	Facility Operator
Company Name:	Not reported
Contact Type:	Not reported
Contact Name:	ERIC HARVEY
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NY
Zip Code:	Not reported
Country Code:	001
Phone:	Not reported
EMail:	Not reported
Fax Number:	Not reported
Modified By:	erobrech
Date Last Modified:	2017-01-10

Site Id:	4809
Affiliation Type:	Mail Contact
Company Name:	ATC ECLIPSE
Contact Type:	Not reported
Contact Name:	MEGAN KAZMIERCZAK
Address1:	705 A LAKEVIEW PLAZA BLVD.
Address2:	Not reported
City:	WORTHINGTON
State:	OH
Zip Code:	43085
Country Code:	001
Phone:	(413) 789-3530
EMail:	MEGAN.KAZMIERCZAK@ATCGS.COM
Fax Number:	Not reported
Modified By:	ELMOORE
Date Last Modified:	2018-03-28

Tank Info:

Tank Number:	001
Tank ID:	23398
Tank Status:	Closed - Removed
Material Name:	Closed - Removed
Capacity Gallons:	550
Install Date:	07/01/1962
Date Tank Closed:	06/01/1998
Registered:	True

GLOBAL MONTELLO GROUP #5418 (Continued) **U004222818**

Tank Location: Underground
Tank Type: Steel/carbon steel
Tightness Test Method: 01
Date Test: 11/01/1993
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: TRANSLAT
Last Modified: 04/14/2017

Equipment Records:

H00 - Tank Leak Detection - None
I00 - Overfill - None
B00 - Tank External Protection - None
D02 - Pipe Type - Galvanized Steel
F00 - Pipe External Protection - None
C02 - Pipe Location - Underground/On-ground
G00 - Tank Secondary Containment - None
J02 - Dispenser - Suction Dispenser
A00 - Tank Internal Protection - None

Tank Number: 002
Tank ID: 23399
Tank Status: Closed - Removed
Material Name: Closed - Removed
Capacity Gallons: 550
Install Date: 07/01/1962
Date Tank Closed: 06/01/1998
Registered: True
Tank Location: Underground
Tank Type: Steel/carbon steel
Tightness Test Method: 01
Date Test: 11/01/1993
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: TRANSLAT
Last Modified: 04/14/2017

Equipment Records:

A00 - Tank Internal Protection - None
C02 - Pipe Location - Underground/On-ground
G00 - Tank Secondary Containment - None
J02 - Dispenser - Suction Dispenser
B00 - Tank External Protection - None
D02 - Pipe Type - Galvanized Steel
F00 - Pipe External Protection - None
H00 - Tank Leak Detection - None
I00 - Overfill - None

Tank Number: 003
Tank ID: 23400
Tank Status: Closed - Removed
Material Name: Closed - Removed
Capacity Gallons: 550
Install Date: 07/01/1962
Date Tank Closed: 06/01/1998
Registered: True

GLOBAL MONTELLO GROUP #5418 (Continued) **U004222818**

Tank Location: Underground
Tank Type: Steel/carbon steel
Tightness Test Method: 01
Date Test: 11/01/1993
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: TRANSLAT
Last Modified: 04/14/2017

Equipment Records:

H00 - Tank Leak Detection - None
I00 - Overfill - None
C02 - Pipe Location - Underground/On-ground
G00 - Tank Secondary Containment - None
J02 - Dispenser - Suction Dispenser
A00 - Tank Internal Protection - None
B00 - Tank External Protection - None
D02 - Pipe Type - Galvanized Steel
F00 - Pipe External Protection - None

Tank Number: 004
Tank ID: 23401
Tank Status: Closed - Removed
Material Name: Closed - Removed
Capacity Gallons: 550
Install Date: 07/01/1962
Date Tank Closed: 06/01/1998
Registered: True
Tank Location: Underground
Tank Type: Steel/carbon steel
Tightness Test Method: 01
Date Test: 11/01/1993
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: TRANSLAT
Last Modified: 04/14/2017

Equipment Records:

H00 - Tank Leak Detection - None
I00 - Overfill - None
B00 - Tank External Protection - None
D02 - Pipe Type - Galvanized Steel
F00 - Pipe External Protection - None
C02 - Pipe Location - Underground/On-ground
G00 - Tank Secondary Containment - None
J02 - Dispenser - Suction Dispenser
A00 - Tank Internal Protection - None

Tank Number: 005
Tank ID: 23402
Tank Status: Closed - Removed
Material Name: Closed - Removed
Capacity Gallons: 550
Install Date: 07/01/1962
Date Tank Closed: 06/01/1998
Registered: True

GLOBAL MONTELLO GROUP #5418 (Continued) **U004222818**

Tank Location: Underground
Tank Type: Steel/carbon steel
Tightness Test Method: 01
Date Test: 11/01/1993
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: TRANSLAT
Last Modified: 04/14/2017

Equipment Records:

H00 - Tank Leak Detection - None
I00 - Overfill - None
B00 - Tank External Protection - None
D02 - Pipe Type - Galvanized Steel
F00 - Pipe External Protection - None
C02 - Pipe Location - Underground/On-ground
G00 - Tank Secondary Containment - None
J02 - Dispenser - Suction Dispenser
A00 - Tank Internal Protection - None

Tank Number: 006
Tank ID: 23403
Tank Status: Closed - Removed
Material Name: Closed - Removed
Capacity Gallons: 550
Install Date: 07/01/1962
Date Tank Closed: 06/01/1998
Registered: True
Tank Location: Underground
Tank Type: Steel/carbon steel
Tightness Test Method: 01
Date Test: 11/01/1993
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: TRANSLAT
Last Modified: 04/14/2017

Equipment Records:

H00 - Tank Leak Detection - None
I00 - Overfill - None
A00 - Tank Internal Protection - None
C02 - Pipe Location - Underground/On-ground
G00 - Tank Secondary Containment - None
J02 - Dispenser - Suction Dispenser
B00 - Tank External Protection - None
D02 - Pipe Type - Galvanized Steel
F00 - Pipe External Protection - None

Tank Number: 007
Tank ID: 23404
Tank Status: Closed - Removed
Material Name: Closed - Removed
Capacity Gallons: 550
Install Date: 07/01/1962
Date Tank Closed: 06/01/1998
Registered: True

GLOBAL MONTELLO GROUP #5418 (Continued) **U004222818**

Tank Location: Underground
Tank Type: Steel/carbon steel
Tightness Test Method: 01
Date Test: 11/01/1993
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: TRANSLAT
Last Modified: 04/14/2017

Equipment Records:

H00 - Tank Leak Detection - None
I00 - Overfill - None
A00 - Tank Internal Protection - None
C02 - Pipe Location - Underground/On-ground
G00 - Tank Secondary Containment - None
J02 - Dispenser - Suction Dispenser
B00 - Tank External Protection - None
D02 - Pipe Type - Galvanized Steel
F00 - Pipe External Protection - None

Tank Number: 008
Tank ID: 23405
Tank Status: Closed Prior to Micro Conversion, 03/91
Material Name: Closed Prior to Micro Conversion, 03/91
Capacity Gallons: 550
Install Date: 07/01/1962
Date Tank Closed: 03/01/1998
Registered: True
Tank Location: Underground
Tank Type: Steel/carbon steel
Tightness Test Method: 01
Date Test: 11/01/1993
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: TRANSLAT
Last Modified: 04/14/2017

Equipment Records:

H00 - Tank Leak Detection - None
I00 - Overfill - None
B00 - Tank External Protection - None
D02 - Pipe Type - Galvanized Steel
F00 - Pipe External Protection - None
C02 - Pipe Location - Underground/On-ground
G00 - Tank Secondary Containment - None
J02 - Dispenser - Suction Dispenser
A00 - Tank Internal Protection - None

Tank Number: 009
Tank ID: 23406
Tank Status: Closed - Removed
Material Name: Closed - Removed
Capacity Gallons: 550
Install Date: 07/01/1962
Date Tank Closed: 06/01/1998
Registered: True

GLOBAL MONTELLO GROUP #5418 (Continued) **U004222818**

Tank Location:	Underground
Tank Type:	Steel/carbon steel
Tightness Test Method:	01
Date Test:	11/01/1993
Next Test Date:	Not reported
Pipe Model:	Not reported
Modified By:	TRANSLAT
Last Modified:	04/14/2017

Equipment Records:

H00 - Tank Leak Detection - None
I00 - Overfill - None
B00 - Tank External Protection - None
D02 - Pipe Type - Galvanized Steel
F00 - Pipe External Protection - None
A00 - Tank Internal Protection - None
C02 - Pipe Location - Underground/On-ground
G00 - Tank Secondary Containment - None
J02 - Dispenser - Suction Dispenser

Tank Number:	010
Tank ID:	23407
Tank Status:	Closed - Removed
Material Name:	Closed - Removed
Capacity Gallons:	550
Install Date:	07/01/1962
Date Tank Closed:	06/01/1998
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Tightness Test Method:	01
Date Test:	11/01/1993
Next Test Date:	Not reported
Pipe Model:	Not reported
Modified By:	TRANSLAT
Last Modified:	04/14/2017

Equipment Records:

A00 - Tank Internal Protection - None
H00 - Tank Leak Detection - None
I00 - Overfill - None
C02 - Pipe Location - Underground/On-ground
G00 - Tank Secondary Containment - None
J02 - Dispenser - Suction Dispenser
B00 - Tank External Protection - None
D02 - Pipe Type - Galvanized Steel
F00 - Pipe External Protection - None

Tank Number:	011
Tank ID:	23408
Tank Status:	Closed - Removed
Material Name:	Closed - Removed
Capacity Gallons:	550
Install Date:	07/01/1962
Date Tank Closed:	06/01/1998
Registered:	True

GLOBAL MONTELLO GROUP #5418 (Continued) **U004222818**

Tank Location: Underground
Tank Type: Steel/carbon steel
Tightness Test Method: 01
Date Test: 11/01/1993
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: TRANSLAT
Last Modified: 04/14/2017

Equipment Records:

A00 - Tank Internal Protection - None
H00 - Tank Leak Detection - None
I00 - Overfill - None
B00 - Tank External Protection - None
D02 - Pipe Type - Galvanized Steel
F00 - Pipe External Protection - None
C02 - Pipe Location - Underground/On-ground
G00 - Tank Secondary Containment - None
J02 - Dispenser - Suction Dispenser

Tank Number: 012
Tank ID: 23409
Tank Status: Closed - Removed
Material Name: Closed - Removed
Capacity Gallons: 550
Install Date: 07/01/1962
Date Tank Closed: 06/01/1998
Registered: True
Tank Location: Underground
Tank Type: Steel/carbon steel
Tightness Test Method: 01
Date Test: 11/01/1993
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: TRANSLAT
Last Modified: 04/14/2017

Equipment Records:

H00 - Tank Leak Detection - None
I00 - Overfill - None
C02 - Pipe Location - Underground/On-ground
G00 - Tank Secondary Containment - None
J02 - Dispenser - Suction Dispenser
A00 - Tank Internal Protection - None
B00 - Tank External Protection - None
D02 - Pipe Type - Galvanized Steel
F00 - Pipe External Protection - None

Tank Number: 013
Tank ID: 23410
Tank Status: In Service
Material Name: In Service
Capacity Gallons: 4000
Install Date: 06/01/1998
Date Tank Closed: Not reported
Registered: True

GLOBAL MONTELLO GROUP #5418 (Continued) **U004222818**

Tank Location: Underground
Tank Type: Equivalent technology
Tightness Test Method: 21
Date Test: 07/01/2013
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: TLYE
Last Modified: 06/18/2018

Equipment Records:

G04 - Tank Secondary Containment - Double-Walled (Underground)
L07 - Piping Leak Detection - Pressurized Piping Leak Detector
A00 - Tank Internal Protection - None
H01 - Tank Leak Detection - Interstitial - Electronic Monitoring
I01 - Overfill - Float Vent Valve
C02 - Pipe Location - Underground/On-ground
F04 - Pipe External Protection - Fiberglass
B04 - Tank External Protection - Fiberglass
D06 - Pipe Type - Fiberglass Reinforced Plastic (FRP)
I02 - Overfill - High Level Alarm
K01 - Spill Prevention - Catch Basin
E04 - Piping Secondary Containment - Double walled UG
J01 - Dispenser - Pressurized Dispenser
H05 - Tank Leak Detection - In-Tank System (ATG)
L02 - Piping Leak Detection - Interstitial - Manual Monitoring

Tank Number: 014
Tank ID: 54295
Tank Status: In Service
Material Name: In Service
Capacity Gallons: 4000
Install Date: 06/01/1998
Date Tank Closed: Not reported
Registered: True
Tank Location: Underground
Tank Type: Equivalent technology
Tightness Test Method: 21
Date Test: 07/01/2013
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: TLYE
Last Modified: 06/18/2018

Equipment Records:

G04 - Tank Secondary Containment - Double-Walled (Underground)
L07 - Piping Leak Detection - Pressurized Piping Leak Detector
B04 - Tank External Protection - Fiberglass
D06 - Pipe Type - Fiberglass Reinforced Plastic (FRP)
I02 - Overfill - High Level Alarm
K01 - Spill Prevention - Catch Basin
E04 - Piping Secondary Containment - Double walled UG
J01 - Dispenser - Pressurized Dispenser
A00 - Tank Internal Protection - None
H01 - Tank Leak Detection - Interstitial - Electronic Monitoring
I01 - Overfill - Float Vent Valve
C02 - Pipe Location - Underground/On-ground
F04 - Pipe External Protection - Fiberglass

GLOBAL MONTELLO GROUP #5418 (Continued) **U004222818**

H05 - Tank Leak Detection - In-Tank System (ATG)
L02 - Piping Leak Detection - Interstitial - Manual Monitoring

Tank Number:	015
Tank ID:	54296
Tank Status:	Closed - Removed
Material Name:	Closed - Removed
Capacity Gallons:	4000
Install Date:	06/01/1998
Date Tank Closed:	08/06/2002
Registered:	True
Tank Location:	Underground
Tank Type:	Equivalent technology
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Pipe Model:	Not reported
Modified By:	TRANSLAT
Last Modified:	04/14/2017

Equipment Records:

A03 - Tank Internal Protection - Fiberglass Liner (FRP)
F05 - Pipe External Protection - Jacketed
B05 - Tank External Protection - Jacketed
G04 - Tank Secondary Containment - Double-Walled (Underground)
H01 - Tank Leak Detection - Interstitial - Electronic Monitoring
C02 - Pipe Location - Underground/On-ground
F04 - Pipe External Protection - Fiberglass
B04 - Tank External Protection - Fiberglass
D06 - Pipe Type - Fiberglass Reinforced Plastic (FRP)
I02 - Overfill - High Level Alarm
K01 - Spill Prevention - Catch Basin
J01 - Dispenser - Pressurized Dispenser
H05 - Tank Leak Detection - In-Tank System (ATG)

AM288 **GETTY # 275** **RCRA NonGen / NLR** **1000872316**
NNE **495 E 180TH ST** **FINDS** **NYD987035292**
1/8-1/4 **BRONX, NY 10457** **ECHO**
0.249 mi. **NY MANIFEST**
1317 ft. **Site 5 of 7 in cluster AM**

Relative: **Higher**
Actual: **94 ft.**

RCRA NonGen / NLR:

Date form received by agency:	01/01/2007
Facility name:	GETTY PETROLEUM CORP
Facility address:	495 E 180TH ST BRONX, NY 10461
EPA ID:	NYD987035292
Mailing address:	E 180TH ST BRONX, NY 10461
Contact:	BUCK COLLINS
Contact address:	E 180TH ST BRONX, NY 10461
Contact country:	US
Contact telephone:	516-488-2500
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator

GETTY # 275 (Continued) **1000872316**

Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: GETTY PETROLEUM CORP
Owner/operator address: 125 JERICHO TNPK
JERICHO, NY 11753
Owner/operator country: US
Owner/operator telephone: 516-338-6000
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: GETTY PETROLEUM CORP
Owner/operator address: 125 JERICHO TNPK
JERICHO, NY 11753
Owner/operator country: US
Owner/operator telephone: 516-338-6000
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 01/01/2006
Site name: GETTY PETROLEUM CORP
Classification: Not a generator, verified

Date form received by agency: 06/07/1993
Site name: GETTY PETROLEUM CORP
Classification: Small Quantity Generator

. Waste code: D001

GETTY # 275 (Continued) **1000872316**

. Waste name: IGNITABLE WASTE

Violation Status: No violations found

FINDS:

Registry ID: 110004505508

Environmental Interest/Information System

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

ICIS (Integrated Compliance Information System) is the Integrated Compliance Information System and provides a database that, when complete, will contain integrated Enforcement and Compliance information across most of EPA's programs. The vision for ICIS is to replace EPA's independent databases that contain Enforcement data with a single repository for that information. Currently, ICIS contains all Federal Administrative and Judicial enforcement actions. This information is maintained in ICIS by EPA in the Regional offices and it Headquarters. A future release of ICIS will replace the Permit Compliance System (PCS) which supports the NPDES and will integrate that information with Federal actions already in the system. ICIS also has the capability to track other activities occurring in the Region that support Compliance and Enforcement programs. These include; Incident Tracking, Compliance Assistance, and Compliance Monitoring.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1000872316
Registry ID:	110004505508
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110004505508

NY MANIFEST:

Country:	USA
EPA ID:	NYD987035292
Facility Status:	Not reported
Location Address 1:	495 E 180TH ST
Code:	BP
Location Address 2:	Not reported
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	10457
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYD987035292
Mailing Name:	GETTY PETROLEUM
Mailing Contact:	JOE CAPORICCI

GETTY # 275 (Continued) **1000872316**

Mailing Address 1:	495 E 180TH ST
Mailing Address 2:	Not reported
Mailing City:	BRONX
Mailing State:	NY
Mailing Zip:	10457
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	5164882500

NY MANIFEST:

Document ID:	CTF0534243
Manifest Status:	Not reported
seq:	01
Year:	1998
Trans1 State ID:	Not reported
Trans2 State ID:	Not reported
Generator Ship Date:	04/01/1998
Trans1 Recv Date:	04/01/1998
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	04/01/1998
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD987035292
Trans1 EPA ID:	CTD021816889
Trans2 EPA ID:	Not reported
TSDF ID 1:	CTD021816889
TSDF ID 2:	Not reported
Manifest Tracking Number:	Not reported
Import Indicator:	Not reported
Export Indicator:	Not reported
Discr Quantity Indicator:	Not reported
Discr Type Indicator:	Not reported
Discr Residue Indicator:	Not reported
Discr Partial Reject Indicator:	Not reported
Discr Full Reject Indicator:	Not reported
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	Not reported
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	00385
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	007
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	01.00

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

AM289 **LIRA SERVICE CENTER INC.** **NY AST** **A100393038**
NNE **495 EAST 180TH STREET** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.249 mi.
1317 ft. **Site 6 of 7 in cluster AM**

Relative:
Higher

Actual:
94 ft.

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-612315
Program Type:	PBS
UTM X:	593152.06820
UTM Y:	4522837.18400
Expiration Date:	11/07/2019
Site Type:	Auto Service/Repair (No Gasoline Sales)

Affiliation Records:

Site Id:	501105
Affiliation Type:	Mail Contact
Company Name:	UNITED AUTO MERCHANTS ASSOC.
Contact Type:	Not reported
Contact Name:	PEDRO J. ESTEVEZ
Address1:	1332 COMMERCE AVENUE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10461
Country Code:	001
Phone:	(347) 590-1142
EMail:	COMPLIANCE@UAMANY.ORG
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2014-12-23

Site Id:	501105
Affiliation Type:	Facility Operator
Company Name:	LIRA SERVICE CENTER INC.
Contact Type:	Not reported
Contact Name:	RAFAEL A. ALBA
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(347) 771-2754
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2014-11-07

Site Id:	501105
Affiliation Type:	Emergency Contact
Company Name:	RAFAEL A. ALBA
Contact Type:	Not reported
Contact Name:	RAFAEL A. ALBA
Address1:	Not reported
Address2:	Not reported
City:	Not reported

LIRA SERVICE CENTER INC. (Continued) **A100393038**

State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(347) 771-2754
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2014-11-07
Site Id:	501105
Affiliation Type:	Facility Owner
Company Name:	RAFAEL A. ALBA
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	4 MANHATTAN AVE
Address2:	Not reported
City:	NEW YORK
State:	NY
Zip Code:	10025
Country Code:	001
Phone:	(347) 771-2754
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2014-12-16

Tank Info:

Tank Number:	017
Tank Id:	54298

Equipment Records:

D00 - Pipe Type - No Piping
H06 - Tank Leak Detection - Impervious Barrier/Concrete Pad (A/G)
L00 - Piping Leak Detection - None
J00 - Dispenser - None
E00 - Piping Secondary Containment - None
I02 - Overfill - High Level Alarm
K01 - Spill Prevention - Catch Basin
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
H02 - Tank Leak Detection - Interstitial - Manual Monitoring
A00 - Tank Internal Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
G09 - Tank Secondary Containment - Modified Double-Walled (Aboveground)
G10 - Tank Secondary Containment - Impervious Underlayment

Tank Location:	Aboveground - contact with impervious barrier... Tank bottom rests on impervious barrier, allowing visual indication of leaks.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	06/01/1998
Capacity Gallons:	240
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported

LIRA SERVICE CENTER INC. (Continued) **A100393038**

Date Tank Closed: Not reported
Register: True
Modified By: CGFREEDM
Last Modified: 04/14/2017
Material Name: waste oil/used oil

Tank Number: 018
Tank Id: 54297

Equipment Records:

C01 - Pipe Location - Aboveground
D10 - Pipe Type - Copper
H06 - Tank Leak Detection - Impervious Barrier/Concrete Pad (A/G)
A00 - Tank Internal Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
G09 - Tank Secondary Containment - Modified Double-Walled (Aboveground)
G10 - Tank Secondary Containment - Impervious Underlayment
J02 - Dispenser - Suction Dispenser
E00 - Piping Secondary Containment - None
I02 - Overfill - High Level Alarm
K01 - Spill Prevention - Catch Basin
L09 - Piping Leak Detection - Exempt Suction Piping
F00 - Pipe External Protection - None
H02 - Tank Leak Detection - Interstitial - Manual Monitoring

Tank Location: Aboveground - contact with impervious barrier... Tank bottom rests on impervious barrier, allowing visual indication of leaks.
Tank Type: Steel/Carbon Steel/Iron
Tank Status: In Service
Pipe Model: Not reported
Install Date: 06/01/1998
Capacity Gallons: 240
Tightness Test Method: NN
Date Test: Not reported
Next Test Date: Not reported
Date Tank Closed: Not reported
Register: True
Modified By: CGFREEDM
Last Modified: 04/14/2017
Material Name: #2 fuel oil (on-site consumption)

Tank Number: 75
Tank Id: 253381

Equipment Records:

J00 - Dispenser - None
D00 - Pipe Type - No Piping
L00 - Piping Leak Detection - None
E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
G00 - Tank Secondary Containment - None
A00 - Tank Internal Protection - None
I01 - Overfill - Float Vent Valve

LIRA SERVICE CENTER INC. (Continued) **A100393038**

	K00 - Spill Prevention - None
Tank Location:	Aboveground - on saddles, legs, racks, etc.... Tank bottom is elevated above grade or tank pad, allowing visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	11/05/2013
Capacity Gallons:	275
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	NRLOMBAR
Last Modified:	04/14/2017
Material Name:	waste oil/used oil

Affiliation Records:

Site Id:	4809
Affiliation Type:	Emergency Contact
Company Name:	LEEMILTS PETROLEUM
Contact Type:	Not reported
Contact Name:	CALL CENTER
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(888) 674-7601
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MFLEONAR
Date Last Modified:	2017-10-30

Site Id:	4809
Affiliation Type:	Facility Owner
Company Name:	LEEMILTS PETROLEUM
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	125 JERICHO TURNPIKE
Address2:	Not reported
City:	JERICHO
State:	NY
Zip Code:	11754
Country Code:	001
Phone:	(516) 478-5400
EMail:	Not reported
Fax Number:	Not reported
Modified By:	MXLAY
Date Last Modified:	2017-02-09

Site Id:	4809
Affiliation Type:	Facility Operator
Company Name:	Not reported
Contact Type:	Not reported
Contact Name:	ERIC HARVEY

LIRA SERVICE CENTER INC. (Continued) **A100393038**

Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NY
Zip Code:	Not reported
Country Code:	001
Phone:	Not reported
EMail:	Not reported
Fax Number:	Not reported
Modified By:	erobrech
Date Last Modified:	2017-01-10

Site Id:	4809
Affiliation Type:	Mail Contact
Company Name:	ATC ECLIPSE
Contact Type:	Not reported
Contact Name:	MEGAN KAZMIERCZAK
Address1:	705 A LAKEVIEW PLAZA BLVD.
Address2:	Not reported
City:	WORTHINGTON
State:	OH
Zip Code:	43085
Country Code:	001
Phone:	(413) 789-3530
EMail:	MEGAN.KAZMIERCZAK@ATCGS.COM
Fax Number:	Not reported
Modified By:	ELMOORE
Date Last Modified:	2018-03-28

Tank Info:

Tank Number:	017
Tank Id:	54298

Equipment Records:

D00 - Pipe Type - No Piping
H06 - Tank Leak Detection - Impervious Barrier/Concrete Pad (A/G)
L00 - Piping Leak Detection - None
J00 - Dispenser - None
E00 - Piping Secondary Containment - None
I02 - Overfill - High Level Alarm
K01 - Spill Prevention - Catch Basin
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
H02 - Tank Leak Detection - Interstitial - Manual Monitoring
A00 - Tank Internal Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
G09 - Tank Secondary Containment - Modified Double-Walled (Aboveground)
G10 - Tank Secondary Containment - Impervious Underlayment

Tank Location:	Aboveground - contact with impervious barrier... Tank bottom rests on impervious barrier, allowing visual indication of leaks.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	06/01/1998
Capacity Gallons:	240

LIRA SERVICE CENTER INC. (Continued) **A100393038**

Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	CGFREEDM
Last Modified:	04/14/2017
Material Name:	waste oil/used oil
Tank Number:	018
Tank Id:	54297

Equipment Records:

C01 - Pipe Location - Aboveground
D10 - Pipe Type - Copper
H06 - Tank Leak Detection - Impervious Barrier/Concrete Pad (A/G)
A00 - Tank Internal Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
G09 - Tank Secondary Containment - Modified Double-Walled (Aboveground)
G10 - Tank Secondary Containment - Impervious Underlayment
J02 - Dispenser - Suction Dispenser
E00 - Piping Secondary Containment - None
I02 - Overfill - High Level Alarm
K01 - Spill Prevention - Catch Basin
L09 - Piping Leak Detection - Exempt Suction Piping
F00 - Pipe External Protection - None
H02 - Tank Leak Detection - Interstitial - Manual Monitoring

Tank Location:	Aboveground - contact with impervious barrier... Tank bottom rests on impervious barrier, allowing visual indication of leaks.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	06/01/1998
Capacity Gallons:	240
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	CGFREEDM
Last Modified:	04/14/2017
Material Name:	#2 fuel oil (on-site consumption)
Tank Number:	75
Tank Id:	253381

Equipment Records:

J00 - Dispenser - None
D00 - Pipe Type - No Piping
L00 - Piping Leak Detection - None
E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None

LIRA SERVICE CENTER INC. (Continued) **A100393038**

G00 - Tank Secondary Containment - None
A00 - Tank Internal Protection - None
I01 - Overfill - Float Vent Valve
K00 - Spill Prevention - None

Tank Location:	Aboveground - on saddles, legs, racks, etc.... Tank bottom is elevated above grade or tank pad, allowing visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	11/05/2013
Capacity Gallons:	275
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	NRLOMBAR
Last Modified:	04/14/2017
Material Name:	waste oil/used oil

AM290 **485 EAST 180 STREET REALTY LLC** **NY AST** **A100175584**
NNE **485 EAST 180TH STREET** **N/A**
1/8-1/4 **BRONX, NY 10457**
0.250 mi.
1319 ft. **Site 7 of 7 in cluster AM**

Relative:
Higher

Actual:
90 ft.

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-605310
Program Type:	PBS
UTM X:	593121.43025
UTM Y:	4522857.22431
Expiration Date:	04/06/2022
Site Type:	Apartment Building/Office Building

Affiliation Records:

Site Id:	27179
Affiliation Type:	Facility Owner
Company Name:	485 EAST 180 STREET REALTY LLC
Contact Type:	MANAGER
Contact Name:	MOSES STAHL
Address1:	PO BOX 967
Address2:	Not reported
City:	NEW YORK
State:	NY
Zip Code:	10272
Country Code:	001
Phone:	(212) 613-1700
EMail:	SHIRA@ARCHROCKGROUP.COM
Fax Number:	Not reported
Modified By:	ACDANIEL
Date Last Modified:	2018-07-20

Site Id:	27179
Affiliation Type:	Mail Contact
Company Name:	485 EAST 180 STREET REALTY LLC

485 EAST 180 STREET REALTY LLC (Continued) **A100175584**

Contact Type:	MANAGER
Contact Name:	MOSES STAHL
Address1:	PO BOX 967
Address2:	Not reported
City:	NEW YORK
State:	NY
Zip Code:	10272
Country Code:	001
Phone:	(212) 613-1700
EMail:	SHIRA@ARCHROCKGROUP.COM
Fax Number:	Not reported
Modified By:	ACDANIEL
Date Last Modified:	2018-07-20

Site Id:	27179
Affiliation Type:	Facility Operator
Company Name:	485 E. 180TH ST REALTY LLC
Contact Type:	Not reported
Contact Name:	NELSON CASTILLO
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(212) 613-1700
EMail:	Not reported
Fax Number:	Not reported
Modified By:	DMPOKRZY
Date Last Modified:	2018-06-19

Site Id:	27179
Affiliation Type:	Emergency Contact
Company Name:	485 E. 180TH ST REALTY LLC
Contact Type:	Not reported
Contact Name:	MOSES STAHL
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(347) 831-4712
EMail:	Not reported
Fax Number:	Not reported
Modified By:	DMPOKRZY
Date Last Modified:	2018-06-19

Tank Info:

Tank Number:	001
Tank Id:	59703
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

Equipment Records:

485 EAST 180 STREET REALTY LLC (Continued) **A100175584**

J02 - Dispenser - Suction Dispenser
H99 - Tank Leak Detection - Other
A00 - Tank Internal Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
F00 - Pipe External Protection - None
G03 - Tank Secondary Containment - Vault (w/o access)
L09 - Piping Leak Detection - Exempt Suction Piping
C01 - Pipe Location - Aboveground
B99 - Tank External Protection - Other
D00 - Pipe Type - No Piping
I05 - Overfill - Vent Whistle

Tank Location:	Aboveground - contact with soil.... Tank bottom rests on soil, allowing no visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	01/01/1960
Capacity Gallons:	2000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	ACDANIEL
Last Modified:	07/20/2018
Material Name:	#2 fuel oil (on-site consumption)

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291 West 1/8-1/4 0.250 mi. 1320 ft.

CON EDISON SERVICE BOX: 908
1859 CARTER AVE
BRONX, NY 10457

RCRA NonGen / NLR **1016968311**
NY MANIFEST **NYP004419222**

Relative: Lower

Actual: 47 ft.

RCRA NonGen / NLR:

Date form received by agency:	02/15/2014
Facility name:	CON EDISON SERVICE BOX: 908
Facility address:	1859 CARTER AVE BRONX, NY 10457
EPA ID:	NYP004419222
Mailing address:	IRVING PL, 15TH FL NE NEW YORK, NY 10003
Contact:	THOMAS TEELING
Contact address:	Not reported Not reported
Contact country:	Not reported
Contact telephone:	212-460-3770
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No

CON EDISON SERVICE BOX: 908 (Continued) **1016968311**

Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 01/15/2014
Site name: CON EDISON SERVICE BOX: 908
Classification: Conditionally Exempt Small Quantity Generator

Violation Status: No violations found

NY MANIFEST:
Country: USA
EPA ID: NYP004419222
Facility Status: Not reported
Location Address 1: OPP 1839 CARTER AVE
Code: BP
Location Address 2: SB908
Total Tanks: Not reported
Location City: BRONX
Location State: NY
Location Zip: 10461
Location Zip 4: Not reported

NY MANIFEST:
EPAID: NYP004419222
Mailing Name: CON EDISON
Mailing Contact: CON EDISON
Mailing Address 1: 4 IRVING PLACE
Mailing Address 2: 15TH FL
Mailing City: NEW YORK
Mailing State: NY
Mailing Zip: 10003
Mailing Zip 4: Not reported
Mailing Country: USA
Mailing Phone: Not reported

NY MANIFEST:
Document ID: Not reported
Manifest Status: Not reported
seq: Not reported
Year: 2014
Trans1 State ID: NJD003812047
Trans2 State ID: Not reported
Generator Ship Date: 01/15/2014
Trans1 Recv Date: 01/15/2014
Trans2 Recv Date: Not reported
TSD Site Recv Date: 01/17/2014
Part A Recv Date: Not reported
Part B Recv Date: Not reported

CON EDISON SERVICE BOX: 908 (Continued) **1016968311**

Generator EPA ID:	NYP004419222
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD991291105
TSDF ID 2:	Not reported
Manifest Tracking Number:	002085591GBF
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H110
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	50
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	1
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

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292 **4386 PARK AVE** **NY LTANKS** **S103038526**
North **4386 PARK AVE** **N/A**
1/4-1/2 **BRONX, NY**
0.266 mi.
1403 ft.

Relative: LTANKS:
Lower

Spill Number/Closed Date:	9713748 / 2003-02-25
Facility ID:	9713748
Site ID:	168919
Spill Date:	1998-03-11
Spill Cause:	Tank Overfill
Spill Source:	Commercial Vehicle
Spill Class:	C4
Cleanup Ceased:	Not reported
SWIS:	0301
Investigator:	CAENGELH
Referred To:	Not reported

Actual:
65 ft.

4386 PARK AVE (Continued) **S103038526**

Reported to Dept:	1998-03-11
CID:	322
Water Affected:	Not reported
Spill Notifier:	Responsible Party
Last Inspection:	Not reported
Recommended Penalty:	False
Meets Standard:	False
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	1998-03-11
Spill Record Last Update:	2003-02-25
Spiller Name:	CALLER
Spiller Company:	CRYSTAL TRANSPORTATION
Spiller Address:	2010 WHITE PLAINS RD
Spiller County:	001
Spiller Contact:	ROSYLN IZQUIERDO
Spiller Phone:	(718) 933-2252
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	142260
DEC Memo:	"Prior to Sept, 2004 data translation this spill Lead_DEC Field was ENGELHARDT 2/25/2003 - Closed Due To The Nature / Extent Of The Spill Report"
Remarks:	"driver overfilled tank - spill cleaned up "

All Materials:

Site ID:	168919
Operable Unit ID:	1056610
Operable Unit:	01
Material ID:	563718
Material Code:	0001A
Material Name:	#2 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	10.00
Units:	G
Recovered:	10.00
Oxygenate:	Not reported

---

293 **CLOSED-LACKOF RECENT INFO** **NY LTANKS** **S100346442**
SSE **1826 ARTHUR AV** **N/A**
1/4-1/2 **NYC, NY**
0.266 mi.
1404 ft.

Relative: **Higher**
Actual: **87 ft.**

LTANKS:

Spill Number/Closed Date:	8805780 / 2003-03-05
Facility ID:	8805780
Site ID:	111211
Spill Date:	1988-10-05
Spill Cause:	Tank Test Failure
Spill Source:	Institutional, Educational, Gov., Other
Spill Class:	C4
Cleanup Ceased:	Not reported
SWIS:	0301
Investigator:	ADMIN. CLOSED
Referred To:	Not reported

CLOSED-LACKOF RECENT INFO (Continued) **S100346442**

Reported to Dept:	1988-10-07
CID:	Not reported
Water Affected:	Not reported
Spill Notifier:	Tank Tester
Last Inspection:	Not reported
Recommended Penalty:	False
Meets Standard:	False
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	1988-10-17
Spill Record Last Update:	2003-03-19
Spiller Name:	INSPCTR FEUERMAN
Spiller Company:	TREMONT HLTH CNTR/NYC DOH
Spiller Address:	Not reported
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	97278
DEC Memo:	"Prior to Sept, 2004 data translation this spill Lead_DEC Field was ADMIN.CLOSED 03/05/2003- Closed Due To The Nature / Extent Of The Spill Report"
Remarks:	"3K TK SYS FAILED HORNER EZY. GROSS LEAK IS DEFINITELY IN REMOTE OR VENT.CLOSED DUE TO LACK OF ANY RECENT INFO- DOES NOT MEET ANY CLEAN UP REQUIREMENTS."

All TTF:

Facility ID:	8805780
Spill Number:	8805780
Spill Tank Test:	1534734
Site ID:	111211
Tank Number:	Not reported
Tank Size:	0
Material:	0001
EPA UST:	Not reported
UST:	Not reported
Cause:	Not reported
Source:	Not reported
Test Method:	00
Test Method 2:	Unknown
Leak Rate:	.00
Gross Fail:	Not reported
Modified By:	Spills
Last Modified Date:	Not reported

All Materials:

Site ID:	111211
Operable Unit ID:	920942
Operable Unit:	01
Material ID:	457689
Material Code:	0001A
Material Name:	#2 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1.00
Units:	L

CLOSED-LACKOF RECENT INFO (Continued) **S100346442**

Recovered: .00
Oxygenate: Not reported

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294 **E. 180-MONTEREY -NYCHA** **NY LTANKS** **U001840655**
ENE **2111 LA FONTAINE** **N/A**
1/4-1/2 **BRONX, NY**
0.270 mi.
1427 ft.

Relative: **Higher**

Actual: **98 ft.**

LTANKS:

Spill Number/Closed Date:	9807883 / 2017-02-07
Facility ID:	9807883
Site ID:	161781
Spill Date:	1998-09-28
Spill Cause:	Tank Test Failure
Spill Source:	Private Dwelling
Spill Class:	B3
Cleanup Ceased:	Not reported
SWIS:	0301
Investigator:	jkkann
Referred To:	Not reported
Reported to Dept:	1998-09-28
CID:	211
Water Affected:	Not reported
Spill Notifier:	Tank Tester
Last Inspection:	Not reported
Recommended Penalty:	False
Meets Standard:	False
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	1998-09-28
Spill Record Last Update:	2017-02-07
Spiller Name:	SEBASTIAN LOREFICE
Spiller Company:	NYC HOUSING AUTHORITY
Spiller Address:	250 BROADWAY
Spiller County:	001
Spiller Contact:	SEBASTIAN LOREFICE
Spiller Phone:	(212) 306-3229
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	136574
DEC Memo:	"12/02/05: This spill transferred from J.Kolleeny to S.Kraszewski. 07/26/06: NYCHA update summary states one 15K UST installed in 1972 and store #4 and #6 oil was replaced by a 12K UST in 1999 and currently stores #2 fuel oil. One TTF but no mention of which tank caused it. No product recovery system and on MWs. NYCHA recommends DEC review the available site assessment. - SK 02/08/07 : DEC lead changed from S. Kraszewski to J. Kann. J.Kann 3/10/11: J.Kann - Investigative work plan submitted on 3/3/11. 12/3/13: J.Kann - call rcvd from Mark at AB Environmental 631-484-6088. Need to follow up. 12/5/13: J.Kann - followed up with Mark. Reviewed SIWP. Sent approval email for the SIWP to Yelena today. Requested that investigative work be performed prior to UST closure in place. 8/15/14: J.Kann - sent a followup email to Yelena today requesting an update on this site. 12/30/14: J.Kann - part of multi site stip. SIR due 4/14/15 4/29/15: J.Kann - report received 3/24/15. Soil below CP-51 and groundwater below TOGS. Requested submittal of 1999 closure report. Once

E. 180-MONTEREY -NYCHA (Continued) **U001840655**

received, will consider spill for closure. 4/29/15- J.Kann -NYCHA submitted the 1999 Closure report from National Environmental. The 15K UST was removed and replaced with a 12K in October 1999, after this spill was called in. Therefore, this spill was related to the 15K UST. Endpoints collected in 1999 and 1 contained some SVOCs above CP-10. This sample was on the south wall. Additional borings (3) advanced in 2015 did not have any elevated levels above CP-51 (one boring was to the south of the tank. One groundwater sample was analyzed for VOCs in 2015 and was below TOGS 1.1.1. NFA 2/7/17: J.Kann - performed a review of NYCHA sites and noticed this one was not marked closed in the database. Closed today as per notes from 4/29/15."

Remarks: "isolate and retest"

All TTF:

Facility ID:	9807883
Spill Number:	9807883
Spill Tank Test:	1546310
Site ID:	161781
Tank Number:	1
Tank Size:	15000
Material:	0001
EPA UST:	Not reported
UST:	Not reported
Cause:	Not reported
Source:	Not reported
Test Method:	03
Test Method 2:	Horner EZ Check I or II
Leak Rate:	.00
Gross Fail:	F
Modified By:	Spills
Last Modified Date:	Not reported

All Materials:

Site ID:	161781
Operable Unit ID:	1065456
Operable Unit:	01
Material ID:	315424
Material Code:	0001A
Material Name:	#2 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

AH295
WSW
1/4-1/2
0.277 mi.
1463 ft.

CON EDISON - EAST 175TH ST. STATION MGP
1815 - 1845 WEBSTER AVE.
BRONX, NY 10457

Site 4 of 4 in cluster AH

EDR MGP **1008407868**
N/A

Relative:
Lower

Actual:
36 ft.

Manufactured Gas Plants:
No additional information available

296
WSW
1/4-1/2
0.287 mi.
1516 ft.

R2B2
1809 CARTER STREET
BRONX, NY 10457

NY AST **U000405554**
NY SWRCY **N/A**

Relative:
Lower

Actual:
40 ft.

AST:

Region:	STATE
DEC Region:	2
Site Status:	Unregulated/Closed
Facility Id:	2-404810
Program Type:	PBS
UTM X:	592487.96608
UTM Y:	4522178.64946
Expiration Date:	N/A
Site Type:	Other

Affiliation Records:

Site Id:	19489
Affiliation Type:	Facility Owner
Company Name:	JOAR REALTY CORP.
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	4000 PARK AVENUE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10457
Country Code:	001
Phone:	(718) 901-1110
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Site Id:	19489
Affiliation Type:	Mail Contact
Company Name:	JOAR REALTY CORP.
Contact Type:	Not reported
Contact Name:	ARON BLUM
Address1:	4000 PARK AVENUE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10457
Country Code:	001
Phone:	(718) 901-0001
EMail:	Not reported
Fax Number:	Not reported

R2B2 (Continued) **U000405554**

Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Site Id:	19489
Affiliation Type:	Facility Operator
Company Name:	JOAR REALTY CORP.
Contact Type:	Not reported
Contact Name:	ARON BLUM
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 901-0001
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Site Id:	19489
Affiliation Type:	Emergency Contact
Company Name:	JOAR REALTY CORP.
Contact Type:	Not reported
Contact Name:	ARON BLUM
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 901-0001
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	2004-03-04

Tank Info:

Tank Number:	001
Tank Id:	23027
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

Equipment Records:

	B00 - Tank External Protection - None
	C00 - Pipe Location - No Piping
	F00 - Pipe External Protection - None
	J02 - Dispenser - Suction Dispenser
	G03 - Tank Secondary Containment - Vault (w/o access)
	H00 - Tank Leak Detection - None
	I00 - Overfill - None
	A00 - Tank Internal Protection - None
	D01 - Pipe Type - Steel/Carbon Steel/Iron
Tank Location:	Aboveground in subterranean vault with access for inspections.....
	Tank in subterranean vault but accessible for inspection.

R2B2 (Continued) **U000405554**

Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	Closed - Removed
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	1500
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	04/14/2017
Material Name:	#2 fuel oil (on-site consumption)

SWRCY:

Region:	2
Facility Address 2:	Not reported
Phone Number:	2127318666
Owner Type:	Not reported
Owner Name:	Not reported
Owner Address:	Not reported
Owner Address 2:	Not reported
Owner City,St,Zip:	Not reported
Owner Email:	Not reported
Owner Phone:	Not reported
Contact Name:	PHYLLIS ATWATER
Contact Address:	Not reported
Contact Address 2:	Not reported
Contact City,St,Zip:	Not reported
Contact Email:	Not reported
Contact Phone:	Not reported
Activity Desc:	z Retired - RHRF - registration
Activity Number:	[03M08]
Active:	No
East Coordinate:	Not reported
North Coordinate:	Not reported
Accuracy Code:	Not reported
Regulatory Status:	Not reported
Permit #:	2-6005-00074
Auth. Date:	Not reported
Expiration Date:	Not reported
Waste Types:	Not reported
Operator Name:	Not reported
Operator Type:	Not reported
Last Date:	Not reported

297
SW
1/4-1/2
0.291 mi.
1538 ft.

FDNY 46 **NY LTANKS** **S118953574**
450 CROSS BRONX EXPRESSWY **N/A**
BRONX, NY

Relative:
Lower

Actual:
39 ft.

LTANKS:

Spill Number/Closed Date:	1607055 / 2016-12-09
Facility ID:	1607055
Site ID:	533707
Spill Date:	2016-10-18

FDNY 46 (Continued) **S118953574**

Spill Cause:	Tank Test Failure
Spill Source:	Institutional, Educational, Gov., Other
Spill Class:	Not reported
Cleanup Ceased:	Not reported
SWIS:	0301
Investigator:	HRPATEL
Referred To:	Not reported
Reported to Dept:	2016-10-18
CID:	Not reported
Water Affected:	Not reported
Spill Notifier:	Tank Tester
Last Inspection:	Not reported
Recommended Penalty:	False
Meets Standard:	False
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	2016-10-18
Spill Record Last Update:	2016-12-09
Spiller Name:	STEVE STARBARO
Spiller Company:	FDNY 46
Spiller Address:	450 CROSS BRONX EXPRESSWY
Spiller County:	999
Spiller Contact:	STEVE STARBARO
Spiller Phone:	(845) 476-2475
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	487695
DEC Memo:	"10-18-16 - Obligado - Desk Duty - I called Steve Spadaro. He said they were called to due a tank tightness test because FDNY observed diesel in the the tank sump. Franklin did the the test and the tank line failed. They believe they have located the failure point and need to cut out piece of the line to do the repair. They repair will likely occur tomorrow. Steve Spadaro - sspadaro@franklin company 11/01/16-Hiralkumar Patel. DEC Andre sent TTF letter on 10/19/16 to following address: FDNY Fire Department Facilities 48-34 35th Stret Long Island City, NY 10075 Attn.: Joseph Mastropietro Ph. (718) 784-6510 email: mastroj@fdny.nyc.gov alternate address: 450-460 Cross Bronx Expressway no other spills found. PBS #: 2-600569. as per PBS record, the site has/had following tanks: - one (1) 1,080 gal biodiesel UST, in-service, installed in Dec. 1998 - one (1) 550 gal gasoline UST, removed in Mar. 1998 - two (2) 550 gal diesel USTs, removed in Mar. 1998 - two (2) 5,000 gal #2 oil ASTs, removed - one (1) 550 gal gasoline UST, closed-in-place in Mar. 1998 1:09 PM:- spoke with Steve at Franklin Co. he will call back with updates. 1:12 PM:- received call from Steve. he stated that the tank system failed an initial tightness test. during inspection, they found faulty flexible joint on remote fill line section within the tank sump. there was some oil spilled from this faulty joint, but was contained within the sump. faulty fill line will be fixed tomorrow and system will be retested. 11/03/16-Hiralkumar Patel. 10:14 AM:- received call from Steve. he mentioned that they replaced the 3 inch flex connector on fill line within the tank top sump and tested the tank system which passed. asked Steve to submit letter report including cause of failure, summary of work performed and result of tank system test. 11/18/16-Hiralkumar Patel. 10:24 AM:- received email from Cassandra Richard from FDNY including report. 11/21/16 - Lakhani - working on case as per DEC Patel Initial test showing a fuel leak between the

FDNY 46 (Continued) **S118953574**

primary and secondary tanks, but this was a false alarm. Found the 3 x 18 flex line leaking in diesel sump. Removed three (3) gallons of water/fuel from sump. Removed union and leaking flex connector and re-piped new flex and union. Performed another precision tank and lines systems test on 11/3/16 and the tank and lines passed. However, the sump was not tested after flex connector was replaced, therefore DEC Kumar will request a sump test to be performed before closing the case to confirm that the sump was never leaking. Bill from Franklin Co. confirmed that all of the water/fuel was contained within the sump. DEC Kumar called Bill requiring a sump test as per Zielinski. 11/21/16-Hiralkumar Patel. 11:56 AM:- spoke with Bill at The Franklin Company. he stated that leak was found on fill line within sump and he believes that the leak was contained. Bill mentioned that they have not tested the tank sump. discussed with DEC Leszek regarding testing of sump. Leszek mentioned that prior to resuming use of the tank system, the sump should be tested. 12:07 PM:- spoke with Bill and asked him to test the sump. 12/02/16-Hiralkumar Patel. 3:05 PM:- left message for Bill inquiring about sump test result. 3:08 PM:- received call from Bill. he mentioned that the tank sump was tested tight on 11/23/16. he will submit result. 12/09/16-Hiralkumar Patel. 1:07 PM:- received email from Mikhail Altshiler from FDNY including an affidavit from The Frankling Company confirming tight tank sump. case closed based on available information. 1:22 PM:- sent spill closure letter to Mr. Mastropietro. letter emailed to Mr. Mastropietro, Mr. Altshiler and Bill."

Remarks: "test failure, leak caused loss to sump. Repairs pending"

All Materials:

Site ID:	533707
Operable Unit ID:	1282421
Operable Unit:	01
Material ID:	2287788
Material Code:	0008
Material Name:	diesel
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	Not reported
Units:	Not reported
Recovered:	Not reported
Oxygenate:	Not reported

AN298 **SPILL NUMBER 9905740** **NY LTANKS** **S104620363**
NW **1966 ANTHONY AVE** **N/A**
1/4-1/2 **BRONX, NY**
0.323 mi.
1704 ft. **Site 1 of 2 in cluster AN**

Relative:
Higher

Actual:
93 ft.

LTANKS:

Spill Number/Closed Date:	9905740 / 2003-02-19
Facility ID:	9905740
Site ID:	147864
Spill Date:	1999-08-10
Spill Cause:	Tank Overfill
Spill Source:	Private Dwelling
Spill Class:	C3
Cleanup Ceased:	Not reported
SWIS:	0301

SPILL NUMBER 9905740 (Continued) **S104620363**

Investigator:	TOMASELLO
Referred To:	Not reported
Reported to Dept:	1999-08-12
CID:	207
Water Affected:	Not reported
Spill Notifier:	Local Agency
Last Inspection:	Not reported
Recommended Penalty:	False
Meets Standard:	False
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	1999-08-12
Spill Record Last Update:	2003-02-19
Spiller Name:	Not reported
Spiller Company:	ALMAR OIL
Spiller Address:	Not reported
Spiller County:	001
Spiller Contact:	NYFD
Spiller Phone:	(917) 769-0483
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	125865
DEC Memo:	""
Remarks:	""

All Materials:

Site ID:	147864
Operable Unit ID:	1080185
Operable Unit:	01
Material ID:	302029
Material Code:	0001A
Material Name:	#2 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	25.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

299
SE
1/4-1/2
0.343 mi.
1812 ft.

MULTI DWELING BLDG **NY LTANKS** **S102673142**
1904 CROTONA AVE **N/A**
BRONX, NY

Relative:
Higher

Actual:
96 ft.

LTANKS:

Spill Number/Closed Date:	9512020 / 2003-10-27
Facility ID:	9512020
Site ID:	121846
Spill Date:	1995-12-22
Spill Cause:	Tank Overfill
Spill Source:	Private Dwelling
Spill Class:	C4
Cleanup Ceased:	Not reported
SWIS:	0301
Investigator:	ADZHITOM
Referred To:	Not reported

MULTI DWELING BLDG (Continued) **S102673142**

Reported to Dept:	1995-12-22
CID:	Not reported
Water Affected:	Not reported
Spill Notifier:	Fire Department
Last Inspection:	Not reported
Recommended Penalty:	False
Meets Standard:	False
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	1995-12-22
Spill Record Last Update:	2003-10-27
Spiller Name:	Not reported
Spiller Company:	CENTURY STAR FUEL CO
Spiller Address:	MT VERNON
Spiller County:	001
Spiller Contact:	NONE AT THIS TIME
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	105754
DEC Memo:	"Prior to Sept, 2004 data translation this spill Lead_DEC Field was ZHITOMIRSKY Closed by A. Zhitomirsky 10/27/2003"
Remarks:	"appears to be a tank overfill - fire dept called to scene and applied speedy dry to basement where the fuel was located - oil co. being contacted for clean-up"

All Materials:

Site ID:	121846
Operable Unit ID:	1026230
Operable Unit:	01
Material ID:	359341
Material Code:	0001A
Material Name:	#2 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	10.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

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300 NNW 1/4-1/2 0.348 mi. 1837 ft. **2096 VALENTINE AVE** **NY LTANKS** **S102555953**
2096 VALENTINE AVE **N/A**
BRONX, NY

Relative: Lower
Actual: 67 ft.

LTANKS:

Spill Number/Closed Date:	9613764 / 1997-02-24
Facility ID:	9613764
Site ID:	239395
Spill Date:	1997-02-24
Spill Cause:	Tank Failure
Spill Source:	Private Dwelling
Spill Class:	C4
Cleanup Ceased:	Not reported
SWIS:	0301
Investigator:	SIGONA

2096 VALENTINE AVE (Continued) **S102555953**

Referred To:	Not reported
Reported to Dept:	1997-02-24
CID:	351
Water Affected:	Not reported
Spill Notifier:	Responsible Party
Last Inspection:	Not reported
Recommended Penalty:	False
Meets Standard:	False
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	1997-02-24
Spill Record Last Update:	1997-02-27
Spiller Name:	GEORGIA TURNER
Spiller Company:	GEORGIA TURNER
Spiller Address:	2096 VALENTINE AVE
Spiller County:	001
Spiller Contact:	GEORGIA TURNER
Spiller Phone:	(718) 733-0792
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	196893
DEC Memo:	""
Remarks:	"CALLER WAS TOLD BY HER OIL COMPANY THAT HER TANK WAS LEAKING AND THEY MADE HER CALL AND REPORT IT BEFORE THEY WOULD DO ANYTHING ABOUT THE LEAK"

All Materials:

Site ID:	239395
Operable Unit ID:	1041330
Operable Unit:	01
Material ID:	338868
Material Code:	0001A
Material Name:	#2 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

AO301 **NYS DEP** **NY LTANKS** **S102147312**
North **2136 WEBSTER AVE** **NY Spills** **N/A**
1/4-1/2 **BRONX, NY**
0.351 mi.
1854 ft. **Site 1 of 2 in cluster AO**

Relative:
Lower

Actual:
46 ft.

LTANKS:

Spill Number/Closed Date:	9515934 / 2003-10-31
Facility ID:	9515934
Site ID:	254573
Spill Date:	1996-03-12
Spill Cause:	Tank Test Failure
Spill Source:	Commercial/Industrial
Spill Class:	B3
Cleanup Ceased:	Not reported
SWIS:	0301
Investigator:	JMKRIMGO

NYS DEP (Continued) **S102147312**

Referred To:	Not reported
Reported to Dept:	1996-03-12
CID:	252
Water Affected:	Not reported
Spill Notifier:	Tank Tester
Last Inspection:	Not reported
Recommended Penalty:	False
Meets Standard:	False
UST Involvement:	True
Remediation Phase:	0
Date Entered In Computer:	1996-03-12
Spill Record Last Update:	2003-10-31
Spiller Name:	UNKNOWN
Spiller Company:	Unknown
Spiller Address:	UNKNOWN
Spiller County:	999
Spiller Contact:	ALAN VIDEL
Spiller Phone:	(800) 964-0013
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	208504
DEC Memo:	"Prior to Sept, 2004 data translation this spill Lead_DEC Field was KRIMGOLD "
Remarks:	"tanks are being emptied at this time-. Same as spill # 9507993."

All Materials:

Site ID:	254573
Operable Unit ID:	1030584
Operable Unit:	01
Material ID:	352478
Material Code:	0009
Material Name:	gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

SPILLS:

Spill Number/Closed Date:	9309942 / 1993-11-16
Facility ID:	9309942
Facility Type:	ER
DER Facility ID:	226597
Site ID:	279064
DEC Region:	2
Spill Cause:	Unknown
Spill Class:	C4
SWIS:	0301
Spill Date:	1993-11-16
Investigator:	UNASSIGNED
Referred To:	Not reported
Reported to Dept:	1993-11-16
CID:	Not reported
Water Affected:	Not reported
Spill Source:	Commercial/Industrial

NYS DEP (Continued) **S102147312**

Spill Notifier:	Local Agency
Cleanup Ceased:	1993-11-16
Cleanup Meets Std:	True
Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	False
Remediation Phase:	0
Date Entered In Computer:	1993-11-17
Spill Record Last Update:	2004-09-30
Spiller Name:	Not reported
Spiller Company:	UNK
Spiller Address:	Not reported
Spiller Company:	999
Contact Name:	Not reported
DEC Memo:	"Prior to Sept, 2004 data translation this spill Lead_DEC Field was "
Remarks:	"ROD OIL CO. DELIV. OIL - HAZMAT GOING OUT. CALLED DEP SEWAGE @2136 WEBSTER AVE. CONFIRMED PICKED UP W/ SPEED. DRY."

All Materials:

Site ID:	279064
Operable Unit ID:	991648
Operable Unit:	01
Material ID:	567269
Material Code:	0008
Material Name:	diesel
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	20.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

Spill Number/Closed Date:	9507993 / 2009-01-09
Facility ID:	9507993
Facility Type:	ER
DER Facility ID:	246646
Site ID:	305330
DEC Region:	2
Spill Cause:	Unknown
Spill Class:	B3
SWIS:	3101
Spill Date:	1995-09-29
Investigator:	jamaison
Referred To:	NFA
Reported to Dept:	1995-09-29
CID:	349
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	DEC
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	True
Remediation Phase:	0
Date Entered In Computer:	1995-09-29
Spill Record Last Update:	2009-01-09

NYS DEP (Continued) **S102147312**

Spiller Name: CRAIG CADWELL
Spiller Company: WEBSTER AV YARD
Spiller Address: 2136 WEBSTER AV
Spiller Company: 001
Contact Name: CRAIG CADWELL
DEC Memo: "Prior to Sept, 2004 data translation this spill Lead_DEC Field was KOLLEENY 3/09/06: This spill transferred From I. Islam. to Q.Abidi. 5/2/06: Contacted to URS, Ms. Jane Staten she said that Shaw Environmental performed Pilot Test in May 2004. Sample result showed low concentration recovery of SVOCs. SVE system is not really appropriate. She will ask for report to Shaw Environmental and if she will get any information from them, She will send it to me. URS needs Pdf file, they don't have copy of Pilot test too. There is lot of construction work is going on at the site. They will figure out what is around. That all she told on phone. -QA 5/05/06: Ms. Jane Staten of URS e-mailed me that Shaw Environmental installed only two wells (MW-1A and MW-6A) for investigation purposes due to difficult subsurface drilling conditions. Radius of influence could not performed during may 2004 during May 2004 pilot Test. During the test Shaw collected two vapor samples for lab analysis. Results showed low cocentrations of VOCs were recovered. -QA 8/18/06 DEC lead transferred from Q. Abidi to J.A. Maisonave. - JAM 2/28/08 Spoke to Jane Staten at URS. A new facility was built at this site and investigations will be difficult. I requested a site update. - JAM 1/9/09 Reviewed the Request for Spill Closure Report submitted by URS dated December 18, 2008. This site has been split into 4 different areas designated Areas A through D. Between 1997 and 1998, ten USTs were either removed or abandoned on site. According to the report, the DEC approved No Further Action for Areas C and D in a letter dated October 28, 1998. Site background: Area A contained one 4,000-gallon fuel oil UST located in the sidewalk along Webster Ave. Two wells were installed in this area and free product was observed. Free product was recovered from these wells by a vaccuum truck on four occassions in 1997. In 1998, the tank and contaminated soil was removed. Only one soil sample exhibited one VOC compound which exceeded TAGM. Subsequent groundwater monitoring events showed no free product present and no dissolved phase contamination. Area B contained one 550-gallon gasoline UST and one 550-gallon diesel UST. In May 1996, these tanks were removed and soil sample results showed soil sample with VOCcontamination and several soil samples with SVOC contamination. Groundwater sample results showed no contamination above DEC standards. In May 14, 1998, the DEC did not approve recommendations to excavate shallow soil which exhibited high SVOC contamination because the locations where the high SVOC concentrations were observed were in the shallow soils, approximately 20' to 60' away from the USTs and associated piping. Current site conditions: Sometime prior to October 2006, DOT constructed a new garage which covers Areas A and B. Based on construction diagrams, the elevation where the two former USTs in Area B were located has increase by approximately four feet. So the area was filled in with approximately 4 feet of material. There are currently two active wells at the site in Area A and Area C. The wells were sampled on June 16, 2006 by URS and results were ND for VOCs and SVOCs in both wells. URS' Conclusions and Recommendations: Although URS could find no evidence that the residual contaminated soil was removed during the construction of the new DOT garage, it is unlikely that any residual soil contamination that may be present poses a threat to

NYS DEP (Continued) **S102147312**

human health or the following reasons: 1. The soil is isolated from the onsite building by at least four feet of soil and concrete and this surface barrier prevents direct exposure. 2. With the exception of one soil boring, the shallow contamination that was detected in Area B consisted of SVOCs, and vapor migration is not a concern due to the relatively low vapor pressures of SVOCs and the concrete barrier. 3. No SVOCs were detected in the groundwater that exceeded NYSDEC standards, so the SVOCs in the soil are not impacting the groundwater. Based on this information the NYSDEC approved spill closure and issued a No Further Action letter on 1/9/2009. The URS report and the NFA letter are uploaded to eDocs. -JAM"

Remarks: "HISTORIC SPILL - CONTAMINATED SOIL - Also see spill # 9515934."

All Materials:

Site ID:	305330
Operable Unit ID:	1022624
Operable Unit:	01
Material ID:	362439
Material Code:	0009
Material Name:	gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

Site ID:	305330
Operable Unit ID:	1022624
Operable Unit:	01
Material ID:	362438
Material Code:	0008
Material Name:	diesel
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

302
SSE
1/4-1/2
0.360 mi.
1902 ft.

MURPHY HOUSES -NYCHA
1805 CROTONA AVE
BRONX, NY

NY LTANKS **S102238978**
NY Spills **N/A**

Relative:
Higher

Actual:
101 ft.

LTANKS:

Spill Number/Closed Date:	9600613 / 1996-04-25
Facility ID:	9600613
Site ID:	167963
Spill Date:	1996-04-12
Spill Cause:	Tank Overfill
Spill Source:	Institutional, Educational, Gov., Other
Spill Class:	C3
Cleanup Ceased:	Not reported
SWIS:	0301
Investigator:	HEALY

MURPHY HOUSES -NYCHA (Continued) **S102238978**

Referred To:	Not reported
Reported to Dept:	1996-04-12
CID:	257
Water Affected:	Not reported
Spill Notifier:	Other
Last Inspection:	Not reported
Recommended Penalty:	False
Meets Standard:	False
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	1996-04-12
Spill Record Last Update:	1996-04-25
Spiller Name:	DORIS WELCH
Spiller Company:	MURPHY HOUSING
Spiller Address:	1805 CORTONA AVE
Spiller County:	001
Spiller Contact:	DORIS WELCH
Spiller Phone:	(718) 589-8330
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	141510
DEC Memo:	""
Remarks:	"came back through return line"

All Materials:

Site ID:	167963
Operable Unit ID:	1028293
Operable Unit:	01
Material ID:	354008
Material Code:	0001A
Material Name:	#2 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	25.00
Units:	G
Recovered:	25.00
Oxygenate:	Not reported

Spill Number/Closed Date:	0001287 / 2006-04-12
Facility ID:	0001287
Site ID:	250521
Spill Date:	2000-05-02
Spill Cause:	Tank Failure
Spill Source:	Institutional, Educational, Gov., Other
Spill Class:	B3
Cleanup Ceased:	Not reported
SWIS:	0301
Investigator:	SWKRASZE
Referred To:	Not reported
Reported to Dept:	2000-05-02
CID:	211
Water Affected:	Not reported
Spill Notifier:	Responsible Party
Last Inspection:	Not reported
Recommended Penalty:	False
Meets Standard:	False
UST Involvement:	False

MURPHY HOUSES -NYCHA (Continued) **S102238978**

Remediation Phase:	0
Date Entered In Computer:	2000-05-02
Spill Record Last Update:	2006-04-21
Spiller Name:	LEWIS PONCE
Spiller Company:	MURPHY HOUSES
Spiller Address:	1010 EAST 178TH ST
Spiller County:	001
Spiller Contact:	LEWIS PONCE
Spiller Phone:	(212) 306-3229
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	141510
DEC Memo:	"04/10/06: Reviewed March 2005 ISRP for Spill #9402159, a follow-up to the tank closure activities from 1999. Spill #9402159 has been closed leaving this spill, #0001287 the remaining open spill for this site. Boring samples indicate low levels of SVOC contamination in the vacinity of the former 10K tank but no VOCs were detected. Three MWs were advanced around the former tank area and results show that no VOC or SVOC contamination present in the GW. I discussed these results with J.Kolleeny and we agree that this spill poses little risk to the environment and the public. However, a problem with the report was noticed. SK sent out an Email to Frank Inoa requesting information about a 2004 ISRP for Spill #9402159, which is closed. The report indicated that three monitoring wells were installed and three GW samples were collected, one from each well. However, the lab sheets show that four monitoring wells were sampled. I asked Frank to look into this discrepancy. - SK 04/12/06: Frank returned my Email with an explanation. Apparently, the text indicates that the fourth GW samples is a duplicate sample. Since the residual soil contamination is not impacting the GW it is safe to close this site. Closed out. - SK 04/21/06: NFA letter sent out to Brian Clarke and Ralph Trocchio from NYCHA. - SK"
Remarks:	"during tank removal soil contamination discovered. See 9006683, 9402159. Spill 0001240 closed and referred to this spill. - J. Kolleeny 3/8/05."

All Materials:

Site ID:	250521
Operable Unit ID:	822927
Operable Unit:	01
Material ID:	289509
Material Code:	0001A
Material Name:	#2 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

Spill Number/Closed Date:	9006683 / 1995-04-26
Facility ID:	9006683
Site ID:	143713
Spill Date:	1990-09-18
Spill Cause:	Tank Test Failure
Spill Source:	Commercial/Industrial
Spill Class:	C3

MURPHY HOUSES -NYCHA (Continued) **S102238978**

Cleanup Ceased:	1995-04-26
SWIS:	0301
Investigator:	HEALY
Referred To:	Not reported
Reported to Dept:	1990-09-18
CID:	Not reported
Water Affected:	Not reported
Spill Notifier:	Tank Tester
Last Inspection:	Not reported
Recommended Penalty:	False
Meets Standard:	True
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	1990-09-20
Spill Record Last Update:	2005-11-02
Spiller Name:	Not reported
Spiller Company:	NYCHA
Spiller Address:	Not reported
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	122538
DEC Memo:	""
Remarks:	"20K TANK FAILED HORNER EZY CHECK WITH A GROSS LEAK, WILL EXCAVATE, ISOLATE & RETEST, VISUAL LEAK. SEE SPILL # 9402159 and 0001287."

All TTF:

Facility ID:	9006683
Spill Number:	9006683
Spill Tank Test:	1537559
Site ID:	143713
Tank Number:	001
Tank Size:	0
Material:	0002
EPA UST:	Not reported
UST:	Not reported
Cause:	Not reported
Source:	Not reported
Test Method:	00
Test Method 2:	Unknown
Leak Rate:	.00
Gross Fail:	Not reported
Modified By:	Spills
Last Modified Date:	Not reported

All Materials:

Site ID:	143713
Operable Unit ID:	944186
Operable Unit:	01
Material ID:	434133
Material Code:	0002A
Material Name:	#4 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1.00

MURPHY HOUSES -NYCHA (Continued) **S102238978**

Units:	L
Recovered:	.00
Oxygenate:	Not reported
Spill Number/Closed Date:	9402159 / 2004-04-06
Facility ID:	9402159
Site ID:	143714
Spill Date:	1992-04-23
Spill Cause:	Tank Test Failure
Spill Source:	Institutional, Educational, Gov., Other
Spill Class:	C3
Cleanup Ceased:	Not reported
SWIS:	0301
Investigator:	SACCACIO
Referred To:	Not reported
Reported to Dept:	1994-05-13
CID:	Not reported
Water Affected:	Not reported
Spill Notifier:	DEC
Last Inspection:	Not reported
Recommended Penalty:	False
Meets Standard:	False
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	1994-08-22
Spill Record Last Update:	2006-04-10
Spiller Name:	Not reported
Spiller Company:	NYC HOUSING AUTHORITY
Spiller Address:	Not reported
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	141510
DEC Memo:	""
Remarks:	"INITIALLY REPORTED AS PASSED. See 9006683 and 0001287"

All TTF:

Facility ID:	9402159
Spill Number:	9402159
Spill Tank Test:	1542712
Site ID:	143714
Tank Number:	001
Tank Size:	0
Material:	0002
EPA UST:	Not reported
UST:	Not reported
Cause:	Not reported
Source:	Not reported
Test Method:	00
Test Method 2:	Unknown
Leak Rate:	.00
Gross Fail:	Not reported
Modified By:	Spills
Last Modified Date:	Not reported

MURPHY HOUSES -NYCHA (Continued) **S102238978**

All Materials:

Site ID:	143714
Operable Unit ID:	999227
Operable Unit:	01
Material ID:	385903
Material Code:	0002A
Material Name:	#4 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

SPILLS:

Spill Number/Closed Date:	9712189 / 2006-03-08
Facility ID:	9712189
Facility Type:	ER
DER Facility ID:	141510
Site ID:	251334
DEC Region:	2
Spill Cause:	Traffic Accident
Spill Class:	C3
SWIS:	0301
Spill Date:	1997-11-14
Investigator:	SWKRASZE
Referred To:	Not reported
Reported to Dept:	1998-02-02
CID:	351
Water Affected:	Not reported
Spill Source:	Institutional, Educational, Gov., Other
Spill Notifier:	Affected Persons
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	False
Remediation Phase:	0
Date Entered In Computer:	1998-02-02
Spill Record Last Update:	2006-03-08
Spiller Name:	Not reported
Spiller Company:	A BOHLER & ASSOC INC
Spiller Address:	Not reported
Spiller Company:	001
Contact Name:	ED MALONE
DEC Memo:	"12/08/05: This spill transferred from J.Kolleeny to S.Kraszewski. 03/08/06: This spill deemed no threat to the environment or pulic health and safety. This spill closed out. - SK"
Remarks:	"SPILLER DROVE A TRUCK THROUGH A FIRE BREAK AND FOUND HIT AN OVER HEAD OIL LINE CAUSING SPILL - TRUCK DROVE OFF. See 9712049."

All Materials:

Site ID:	251334
Operable Unit ID:	1058548
Operable Unit:	01
Material ID:	326816

MURPHY HOUSES -NYCHA (Continued) **S102238978**

Material Code:	0001A
Material Name:	#2 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	5.00
Units:	G
Recovered:	5.00
Oxygenate:	Not reported

Spill Number/Closed Date:	9513836 / 1996-02-06
Facility ID:	9513836
Facility Type:	ER
DER Facility ID:	141510
Site ID:	167961
DEC Region:	2
Spill Cause:	Equipment Failure
Spill Class:	C3
SWIS:	0301
Spill Date:	1996-01-31
Investigator:	HEALY
Referred To:	Not reported
Reported to Dept:	1996-01-31
CID:	270
Water Affected:	Not reported
Spill Source:	Institutional, Educational, Gov., Other
Spill Notifier:	Responsible Party
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	False
Remediation Phase:	0
Date Entered In Computer:	1996-01-31
Spill Record Last Update:	1996-02-12
Spiller Name:	CALLER
Spiller Company:	NYC HOUSING AUTHORITY
Spiller Address:	250 BROADWAY
Spiller Company:	001
Contact Name:	DORIS WELCH
DEC Memo:	""
Remarks:	"gauge rupture causing spill"

All Materials:

Site ID:	167961
Operable Unit ID:	1028320
Operable Unit:	01
Material ID:	357543
Material Code:	0002A
Material Name:	#4 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	100.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

MURPHY HOUSES -NYCHA (Continued) **S102238978**

Spill Number/Closed Date:	9600600 / 1996-04-25
Facility ID:	9600600
Facility Type:	ER
DER Facility ID:	141510
Site ID:	167962
DEC Region:	2
Spill Cause:	Unknown
Spill Class:	C3
SWIS:	0301
Spill Date:	1996-04-12
Investigator:	HEALY
Referred To:	Not reported
Reported to Dept:	1996-04-12
CID:	257
Water Affected:	Not reported
Spill Source:	Institutional, Educational, Gov., Other
Spill Notifier:	Other
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	False
Remediation Phase:	0
Date Entered In Computer:	1996-04-12
Spill Record Last Update:	1996-04-25
Spiller Name:	Not reported
Spiller Company:	ALPS MECHANICAL
Spiller Address:	Not reported
Spiller Company:	001
Contact Name:	FRANK OCELLO
DEC Memo:	""
Remarks:	"caller was contacted to clean up he has no further info at this time"
	Not reported

All Materials:

Site ID:	167962
Operable Unit ID:	1032030
Operable Unit:	01
Material ID:	353997
Material Code:	0002A
Material Name:	#4 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	25.00
Units:	G
Recovered:	25.00
Oxygenate:	Not reported

Spill Number/Closed Date:	9600999 / 1996-04-25
Facility ID:	9600999
Facility Type:	ER
DER Facility ID:	141510
Site ID:	167964
DEC Region:	2
Spill Cause:	Equipment Failure
Spill Class:	C3
SWIS:	0301

MURPHY HOUSES -NYCHA (Continued) **S102238978**

Spill Date:	1996-04-20
Investigator:	HEALY
Referred To:	Not reported
Reported to Dept:	1996-04-20
CID:	322
Water Affected:	Not reported
Spill Source:	Institutional, Educational, Gov., Other
Spill Notifier:	Local Agency
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	False
Remediation Phase:	0
Date Entered In Computer:	1996-04-20
Spill Record Last Update:	1996-04-25
Spiller Name:	Not reported
Spiller Company:	ALPS MECHANICAL
Spiller Address:	Not reported
Spiller Company:	001
Contact Name:	DORIS WELCH
DEC Memo:	""
Remarks:	"flange was tightened too much and it cracked - leaking oil winston contracting called to do clean up "

All Materials:

Site ID:	167964
Operable Unit ID:	1028634
Operable Unit:	01
Material ID:	350830
Material Code:	0001A
Material Name:	#2 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	75.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

Spill Number/Closed Date:	9712049 / 2006-03-08
Facility ID:	9712049
Facility Type:	ER
DER Facility ID:	141510
Site ID:	167965
DEC Region:	2
Spill Cause:	Human Error
Spill Class:	C3
SWIS:	0301
Spill Date:	1998-01-28
Investigator:	SWKRASZE
Referred To:	Not reported
Reported to Dept:	1998-01-28
CID:	233
Water Affected:	Not reported
Spill Source:	Institutional, Educational, Gov., Other
Spill Notifier:	Affected Persons
Cleanup Ceased:	Not reported

MURPHY HOUSES -NYCHA (Continued) **S102238978**

Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	False
Remediation Phase:	0
Date Entered In Computer:	1998-01-28
Spill Record Last Update:	2006-03-08
Spiller Name:	Not reported
Spiller Company:	NYC HOUSING AUTHORITY/UNK
Spiller Address:	250 BROADWAY
Spiller Company:	001
Contact Name:	ED MALONE
DEC Memo:	"12/08/05: This spill transferred from J.Kolleeny to S.Kraszewski. 03/08/06: This spill deemed no threat to the environment or public health and safety. This spill closed out. - SK"
Remarks:	"truck hit an overhead temp. fuel line 2nd time this has happened clean up is underway winston contracting on scene. See 9712189."

All Materials:

Site ID:	167965
Operable Unit ID:	1058427
Operable Unit:	01
Material ID:	326679
Material Code:	0001A
Material Name:	#2 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	40.00
Units:	G
Recovered:	20.00
Oxygenate:	Not reported

Spill Number/Closed Date:	9514061 / 1996-03-06
Facility ID:	9514061
Facility Type:	ER
DER Facility ID:	164748
Site ID:	197953
DEC Region:	2
Spill Cause:	Equipment Failure
Spill Class:	C3
SWIS:	0301
Spill Date:	1996-02-04
Investigator:	HEALY
Referred To:	Not reported
Reported to Dept:	1996-02-04
CID:	211
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Responsible Party
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	False
Remediation Phase:	0
Date Entered In Computer:	1996-02-04
Spill Record Last Update:	1996-03-27

MURPHY HOUSES -NYCHA (Continued) **S102238978**

Spiller Name:	MARIO MANDALONE
Spiller Company:	NY CITY HOUSING AUTH
Spiller Address:	250 BROADWAY
Spiller Company:	001
Contact Name:	Not reported
DEC Memo:	""
Remarks:	"burner motor on #2 filled chamber with oil which leaked out repair has been made - spill contained clean up crew on scene"

All Materials:

Site ID:	197953
Operable Unit ID:	1028603
Operable Unit:	01
Material ID:	357761
Material Code:	0002A
Material Name:	#4 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	40.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

Spill Number/Closed Date:	0410039 / 2009-07-02
Facility ID:	0410039
Facility Type:	ER
DER Facility ID:	141510
Site ID:	334917
DEC Region:	2
Spill Cause:	Other
Spill Class:	C4
SWIS:	0301
Spill Date:	2004-12-09
Investigator:	jkkann
Referred To:	Not reported
Reported to Dept:	2004-12-09
CID:	444
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Local Agency
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	False
Remediation Phase:	0
Date Entered In Computer:	2004-12-09
Spill Record Last Update:	2009-07-03
Spiller Name:	STEVEN SACCACIO
Spiller Company:	MURPHEY CONSOLIDATED
Spiller Address:	1805 CATONA
Spiller Company:	001
Contact Name:	STEVEN SACCACIO
DEC Memo:	"11/02/05: This spill transferred from J.Kolleeny to S.Kraszewski 01/26/06: This spill transferred from S.Kraszewaski to Q.Abidi 03/29/06: This spill transferred from Q. Abidi to Koon Tang. 07/03/09: Spill transferred to J.Kann. Spill was not linked properly

MURPHY HOUSES -NYCHA (Continued) **S102238978**

with related sites because of spelling. Closed 7/2/09 as per NFA letter of April 2006 for spill number 0001287."

Remarks: "DURING REPAIR TO AN UNDERGROUND FILL LINE: DETECTED ODOR IN A SMALL QUANITY OF SOIL:"

All Materials:

Site ID:	334917
Operable Unit ID:	1097027
Operable Unit:	01
Material ID:	576934
Material Code:	0001A
Material Name:	#2 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	Not reported
Units:	G
Recovered:	.00
Oxygenate:	Not reported

AN303 **JONAS BRONCK APARTMENTS** **NY LTANKS** **U000394927**
WNW **230 EAST 179TH ST** **NY UST** **N/A**
1/4-1/2 **BRONX, NY 10457**
0.361 mi.
1905 ft. **Site 2 of 2 in cluster AN**

Relative: **Higher**

Actual: **100 ft.**

LTANKS:

Spill Number/Closed Date:	9800639 / 2005-07-22
Facility ID:	9800639
Site ID:	316678
Spill Date:	1998-04-14
Spill Cause:	Tank Test Failure
Spill Source:	Institutional, Educational, Gov., Other
Spill Class:	B4
Cleanup Ceased:	Not reported
SWIS:	0301
Investigator:	JJDRUMM
Referred To:	Not reported
Reported to Dept:	1998-04-15
CID:	266
Water Affected:	Not reported
Spill Notifier:	Tank Tester
Last Inspection:	Not reported
Recommended Penalty:	False
Meets Standard:	False
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	1998-04-15
Spill Record Last Update:	2006-03-23
Spiller Name:	FATHER ERIC MATHSEN
Spiller Company:	JONAS BRONCK HOUSING
Spiller Address:	230 EAST 179TH STREET
Spiller County:	001
Spiller Contact:	FATHER ERIC MATHSEN
Spiller Phone:	(718) 299-5636
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	255327

JONAS BRONCK APARTMENTS (Continued) **U000394927**

DEC Memo: "Spill assigned to James Drumm for SCI caller should say PRO-TEST, not PROTEST 7/18/05 received results of passing tank test performed on 5/15/98"
Remarks: "TANK TO BE ISOLATED AND RETESTED."

All TTF:
Facility ID: 9800639
Spill Number: 9800639
Spill Tank Test: 1545782
Site ID: 316678
Tank Number: 1
Tank Size: 12000
Material: 0001
EPA UST: Not reported
UST: Not reported
Cause: Not reported
Source: Not reported
Test Method: 03
Test Method 2: Horner EZ Check I or II
Leak Rate: .00
Gross Fail: F
Modified By: Spills
Last Modified Date: Not reported

All Materials:
Site ID: 316678
Operable Unit ID: 1057989
Operable Unit: 01
Material ID: 322595
Material Code: 0001A
Material Name: #2 fuel oil
Case No.: Not reported
Material FA: Petroleum
Quantity: .00
Units: G
Recovered: .00
Oxygenate: Not reported

UST:
Id/Status: 2-084743 / Active
Program Type: PBS
Region: STATE
DEC Region: 2
Expiration Date: 03/24/2022
UTM X: 592448.14155
UTM Y: 4522810.26450
Site Type: Apartment Building/Office Building

Affiliation Records:
Site Id: 1986
Affiliation Type: Facility Owner
Company Name: JONAS BRONCK HOUSING CO INC
Contact Type: MANAGER
Contact Name: MICHAEL MARTINO
Address1: 230 EAST 179TH ST
Address2: Not reported

JONAS BRONCK APARTMENTS (Continued) **U000394927**

City:	BRONX
State:	NY
Zip Code:	10457
Country Code:	001
Phone:	(718) 299-5636
EMail:	HOUSING@JBSENOIRS.ORG
Fax Number:	Not reported
Modified By:	DMPOKRZY
Date Last Modified:	2017-04-07

Site Id:	1986
Affiliation Type:	Mail Contact
Company Name:	JONAS BRONCK HOUSING CO INC
Contact Type:	MANAGER
Contact Name:	MICHAEL MARTINO
Address1:	230 EAST 179TH ST
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10457
Country Code:	001
Phone:	(718) 299-5636
EMail:	HOUSING@JBSENOIRS.ORG
Fax Number:	Not reported
Modified By:	DMPOKRZY
Date Last Modified:	2017-04-07

Site Id:	1986
Affiliation Type:	Facility Operator
Company Name:	JONAS BRONCK APARTMENTS
Contact Type:	Not reported
Contact Name:	MICHAEL MARTINO
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 299-5636
EMail:	Not reported
Fax Number:	Not reported
Modified By:	DXLIVING
Date Last Modified:	2007-01-23

Site Id:	1986
Affiliation Type:	Emergency Contact
Company Name:	JONAS BRONCK HOUSING CO INC
Contact Type:	Not reported
Contact Name:	WILFREDO PEREZ
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(917) 416-3396
EMail:	Not reported

JONAS BRONCK APARTMENTS (Continued) **U000394927**

Fax Number:	Not reported
Modified By:	DXLIVING
Date Last Modified:	2007-01-23

Tank Info:

Tank Number:	001
Tank ID:	3901
Tank Status:	In Service
Material Name:	In Service
Capacity Gallons:	12000
Install Date:	06/01/1973
Date Tank Closed:	Not reported
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)
Tightness Test Method:	21
Date Test:	08/23/2018
Next Test Date:	08/23/2019
Pipe Model:	Not reported
Modified By:	BKFALVEY
Last Modified:	10/24/2018

Equipment Records:

I04 - Overfill - Product Level Gauge (A/G)
C02 - Pipe Location - Underground/On-ground
G00 - Tank Secondary Containment - None
J02 - Dispenser - Suction Dispenser
A00 - Tank Internal Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
F01 - Pipe External Protection - Painted/Asphalt Coating
K00 - Spill Prevention - None
D02 - Pipe Type - Galvanized Steel
E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None
L09 - Piping Leak Detection - Exempt Suction Piping

AO304 **APT BUILDING** **NY LTANKS** **S105995235**
North **333 E 181ST ST** **N/A**
1/4-1/2 **BRONX, NY**
0.371 mi.
1957 ft. **Site 2 of 2 in cluster AO**

Relative:
Higher

Actual:
75 ft.

LTANKS:

Spill Number/Closed Date:	0111048 / 2010-11-15
Facility ID:	0111048
Site ID:	325197
Spill Date:	2002-02-20
Spill Cause:	Tank Test Failure
Spill Source:	Institutional, Educational, Gov., Other
Spill Class:	C4
Cleanup Ceased:	Not reported
SWIS:	0301
Investigator:	RVKETANI
Referred To:	Not reported

APT BUILDING (Continued) **S105995235**

Reported to Dept:	2002-02-20
CID:	257
Water Affected:	Not reported
Spill Notifier:	Tank Tester
Last Inspection:	Not reported
Recommended Penalty:	False
Meets Standard:	False
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	2002-02-20
Spill Record Last Update:	2010-11-15
Spiller Name:	JAMES FEGARRA
Spiller Company:	DU 1ST REALTY CO, LP C/O BSR MNGMNT
Spiller Address:	495 BROADWAY, 6TH FLR
Spiller County:	999
Spiller Contact:	PAM
Spiller Phone:	(718) 220-2300
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	261964
DEC Memo:	"3/28-05 - Austin - Put under Lombardo's name from Wyne for transfer to Central Office for closure review 6/14/05 - Haggerty - Spoke with Rene Lewis from AL Eastman & Son. He will get back to me with updated documentation 1/9/2006 - Haggerty - Have corresponded with Evelyn Castro, property manager (718-220-2300), for past 2 weeks. According to her, tank test failure due to faulty man hole cover. She has located documentation confirming and is mailing 8/14/08 - Haggerty: Al Eastmond pumped out and cleaned tank the date of spill. Austin - 9/30/09 - Spill project assignment transferred from Albany staff to Vought, for further review and action. - end 6/17/10 - Raphael Ketani. The case was transfered to me this week and involves a tank test failure that took place on 2/20/2002. The site involves an apartment building at 333 East 181 Street, Bronx. The property manager is James Fregara at (212) 651-0632 at D U First Realty, c/o BSR Management Corp., 495 Broadway, 6th Floor, NY, NY, 10012. The PBS case is #2-107743. There is one 5,000 gal. tank in service with #2 oil. The original property manager, Evelyn Castro, had indicated that the TTF was due to an unsealed manway. However, the test report from A.L. Eastmond and Sons indicated that the vent pipe had failed the isolation test. I tried to contact Mr. Fregara, but could only leave a message for him to call me back. Mr. Fregara called me back. He is a newly hired Director of Operations at DU First Realty. He asked that I send him an e-mail indicating what information DEC is looking for. So, I sent him the e-mail today. 6/21/10 - Raphael Ketani. Mr. Fregara sent me an e-mail stating that he made a request to Eastmond for a copy of the original passing tightness test. He asked whether he should have another test done if Eastmond can't send a copy of the original document. I wrote that he should have another tightness test performed if the original report can't be found. 7/13/10 - Raphael Ketani. Mr. Fregara sent me an e-mail stating that the tightness test has been arranged using ATEC. 11/15/10 - Raphael Ketani. Mr. Fregara sent me a passing tank system test report dated 8/12/10. As there wasn't a release of oil, and as only the vent pipe had failed the earlier tightness test, and as the 2010 test indicated that everything was now tight, I have determined that there is no threat to the public or the environment. Therefore, I am closing the spill case. "

APT BUILDING (Continued) **S105995235**

Remarks: "super #917-807-7593 steven - tank is empty"

All Materials:

Site ID:	325197
Operable Unit ID:	848118
Operable Unit:	01
Material ID:	528649
Material Code:	0003A
Material Name:	#6 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

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305 SW 1/4-1/2 0.373 mi. 1971 ft. **SPILL NUMBER 0403100** **NY LTANKS S102149039**
1724 WEBSTER AVE **NY Spills N/A**
BRONX, NY

Relative: Lower

Actual: 34 ft.

LTANKS:

Spill Number/Closed Date:	0403100 / 2004-06-22
Facility ID:	0403100
Site ID:	313219
Spill Date:	2004-06-21
Spill Cause:	Tank Overfill
Spill Source:	Tank Truck
Spill Class:	C4
Cleanup Ceased:	Not reported
SWIS:	0301
Investigator:	WXSUN
Referred To:	Not reported
Reported to Dept:	2004-06-21
CID:	408
Water Affected:	Not reported
Spill Notifier:	Health Department
Last Inspection:	Not reported
Recommended Penalty:	False
Meets Standard:	False
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	2004-06-21
Spill Record Last Update:	2004-06-22
Spiller Name:	TODD PAINTER
Spiller Company:	Not reported
Spiller Address:	1724 WEBSTER AVE
Spiller County:	001
Spiller Contact:	TODD PAINTER
Spiller Phone:	(631) 447-6400
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	252549
DEC Memo:	"Prior to Sept, 2004 data translation this spill Lead_DEC Field was SUN 06/22/04 Also refer to Spill # 94-11303 for the same site. 06/22/04 File Update by Sun: The spill on the floor from the overfill

SPILL NUMBER 0403100 (Continued) **S102149039**

while filling UST has been cleaned up. This Spill is closed."
Remarks: "OVERFILL WHILE FILLING UST: HAS BEEN CLEANED UP:"

All Materials:
Site ID: 313219
Operable Unit ID: 885061
Operable Unit: 01
Material ID: 490703
Material Code: 0009
Material Name: gasoline
Case No.: Not reported
Material FA: Petroleum
Quantity: 10.00
Units: G
Recovered: 10.00
Oxygenate: Not reported

SPILLS:
Spill Number/Closed Date: 9411303 / 2015-07-29
Facility ID: 9411303
Facility Type: ER
DER Facility ID: 252549
Site ID: 88258
DEC Region: 2
Spill Cause: Unknown
Spill Class: C3
SWIS: 0301
Spill Date: 1994-11-22
Investigator: AXDORONO
Referred To: Not reported
Reported to Dept: 1994-11-23
CID: Not reported
Water Affected: Not reported
Spill Source: Railroad Car
Spill Notifier: Other
Cleanup Ceased: Not reported
Cleanup Meets Std: False
Last Inspection: Not reported
Recommended Penalty: False
UST Trust: False
Remediation Phase: 0
Date Entered In Computer: 1995-01-05
Spill Record Last Update: 2015-07-29
Spiller Name: Not reported
Spiller Company: SUNOCO SERVICE STATION
Spiller Address: Not reported
Spiller Company: 001
Contact Name: Not reported
DEC Memo: "Prior to Sept, 2004 data translation this spill Lead_DEC Field was SUN 10/10/95: This is additional information about material spilled from the translation of the old spill file: CONTAMINATED SOIL. 12/10/2003 Reassigned from Tipple to Sun. 06/22/04 File Update by Sun: Also refer to Spill # 0403100 for the same site. Spill #04-03100 was closed on 06/22/04. 12-7-05: Case reassigned from Sun to Andersen. Also refer to Spill # 95-13827 on the same site. Spill # 95-13827 was closed on 12/7/05. 12/16/05: Mailed assessment required

SPILL NUMBER 0403100 (Continued) **S102149039**

letter on 12/16/05. Assessment due back on 2/10/06. 2/27/06: Resent letter to Kligof Holding Corp c/o Sunoco Service Station. Assessment due back 3/27/06. 3/13/06: Letter returned to sender. Resent letter to: Mr. Slavik Goffman Kligof Holding Corp c/o 5914 Realty Inc. 54 West 39th Street New York, NY 10018 8/10/06: Sent a new letter via email and post requiring an investigation by September 15, 2006. 8/22/07: Spoke to Barry Bowman. He will perform a site inspection and submit a proposal in a week. 8/29/07: Received email from Barry Bowman. There are six wells on-site. They are silted up. I sent an email requiring the wells be redeveloped and sampled. 10/12/07: Spoke to Barry Bowman. He is waiting for payment from Slavik Goffman. Extension through 11/2/07, the refer to legal department. 10/18/07: Received cc from legal department of consent order sent to Kligof Holding Co. Due back 11/1/07. 10/24/07: Spoke to Barry Bowman. Wells will be redeveloped on 11/1/07 and sampled on 11/2/07. 11/07/2007: This spill case was temporarily transferred to A. Doronova. AD 11/09/2007: Received an email from Wann-Joe Sun forwarding correspondence from Barry Bowman of NZR Geologic (NZR). NZR went on the site to collect groundwater samples from existing monitoring wells. It was discovered that the average depth of each well is twelve feet. Wells were dry so no groundwater samples were collected. NZR proposed to collect soil vapor samples. AD 11/28/2007: Asked Wann-Joe Sun for a signed copy of the Consent Order. He forwarded the request to John Urda. AD 11/29/2007: Received email from J. Urda with attached copy of the Consent Order. According to corrective action plan, responsible party shall submit site investigation work plan due November 22, 2007. Called and spoke to B. Bowman regarding investigation work plan submission. Told him that soil vapor samples are not indicative of the actual concentrations of contamination in the soil or groundwater. Requested to submit the work plan in a week, for complete delineation of the site contamination. AD 12/12/2007: Received a brief work plan from NZR. It proposes installation of six permanent monitoring wells, followed by collection of groundwater samples. Soil will be field tested using PID and soil intervals with a positive indication will be collected as a composite sample. NZR submitted color pictures of the site with indications of the proposed well locations. A site map with locations of the existing wells and proposed wells was not presented in the work plan. Called Mr. Bowman and requested to submit missing site map. AD 12/14/2007: Received revised work plan. Now NZR proposes three wells instead of six they proposed earlier. NZR argument this change due to a high risk to drill on the pump island pads. The requested site map is submitted, but locations of the existing wells are not indicated. AD 12/17/2007: Spoke to Mr. Bowman. Asked for a revised map. AD 12/18/2007: Sent an approval letter with the following modifications: The Department requires installation of one additional monitoring well to the north or northwest of the pump islands to help establish groundwater flow direction and evaluate groundwater conditions in that area. " Soil in each boring should be sampled continuously and screened with a PID. The deepest dry soil sample and the sample with the highest PID reading should be sent to a NYSDOH certified laboratory to be analyzed for the STARS Memo #1 list of petroleum-related compounds. If no elevated PID readings are detected, then the deepest dry soil sample should be submitted for analysis. Prior to drilling, all subsurface utilities should be located and marked out. " A report summarizing the findings of the investigation, including boring logs, well installation logs, analytical results, site location map, site

SPILL NUMBER 0403100 (Continued) **S102149039**

plan, conclusions and recommendations, should be submitted to the Department. Additional borings/monitoring wells may be necessary based upon the investigation results. The site plan should be drawn to scale and should include the former and current locations of all USTs, remote fill ports, pump islands, well and boring locations and groundwater flow direction. The report should also include a diagram showing the surrounding area and any potential sensitive receptors. to Mr. S. Goffman of Kligof Holding Corporation. AD 06/24/2008: Spoke with Mr. Bowman of NZR. He said that site investigation was never implemented at the site because the owner of the site plans to sell the property. Spoke with J. Kolleeny and J. Urda regarding this site. Will send a Notice of Violation letter. AD 06/30/2008: Sent a Notice of Violation letter by certified mail to the owner. Requested submission of investigation summary report due to August 8, 2008.(cc: J. Kolleeny-DEC; J. Urda-DEC; B. Bowman-NZR). AD 08/19/2008: ISR was not submitted. Spoke with J. Urda of DEC, he asked to refer this case to Legal Department. Case was referred to the Office of General Counsel. AD 01/28/2009: J. Urda forwarded an email from Kligof's attorney, saying: Weiss, Howard S. 1/28/2009 12:28 PM John, I had a telephone conference this morning with Slavik Gofman and Barry Bowman of NZR Geologic, Inc. Barry is reviewing the proposed corrective action plan and I should have his comments, if any, later today or tomorrow. I will communicate with you later today or tomorrow, after I confer further with Mssrs. Gofman and Bowman, to resolve any issues and agree upon the terms of the consent order. Your continued courtesy in this matter is appreciated. --Howard 03/20/2009: Received an email from Sarah Carlson of DER saying: you should have received a copy of this as well Sarah Carlson Environmental Engineer NYSDEC - Region 2 Environmental Remediation 47-40 21st Street Long Island City, NY 11101 Phone: 718-482-4898 Fax: 718-482-6358 Dear Mrs. Anderson Attached is the proposed schedule of work that will be performed at the addresses indicated and in reference to the spill numbers associated with each site. Barry Bowman, MS, President NZR Geologic, Inc. P.O. Box 92 Bronx, NY 10460-0092 P: 917.497.6517 F: 801.454.7108 DL ecopy of a letter to eDocs. AD 03/24/2009: Called and spoke with B. Bowman of NZR Geo. Requested to submit any documentation and update information regarding the site investigation directly on my name. Also sent him an email, to make sure he has my information for future contacts. AD 04/22/2009: Received an email from J. Urda regarding reviewing and editing an Affirmation in support of motion for an order without hearing. AD 04/23/2009: Sent the Affirmation to J. Urda. Called and spoke with B. Bowman of NZR Geo. Asked him about status of the site investigation. On March 20th, 2009 NZR conducted Geophysical phase. The results were not submitted to DEC. Requested a submission of updated information. NZR awaits Mr. Gofman s approval for proceeding with Geoprobe phase. AD 05/07/2009: Spoke with Russell Hammond of Sunoco, Inc. Asked him if his company has any investigation reports for the site. He promised to look through old files and respond. AD 05/11/2009: Received from Mr Hammond a hard copy of the groundwater labdata from well MW-3 (January, 1998). The cover letter also states that additional off-site investigation was performed on June 3, 1998, during which groundwater grab samples and soil samples were collected. January data did not indicated any exeedances in the GW grab sample. Off-site investigation labresults indicate elevated levels of VOCs in groundwater grab samples from W-1, W-2 and W-3; and also from soil boring locations SB-1, SB-2 and SB-3. The investigation report was

SPILL NUMBER 0403100 (Continued) **S102149039**

not submitted, so the locations of the soil borings are not known. AD 06/04/2009: Received an e-mail from B. Bowman saying: Ms. Doronova, attached is a letter of preliminary findings at 1724 Webster Ave. Barry Bowman, MS, President NZR Geologic, Inc. P.O. Box 92 Bronx, NY 10460-0092 P: 917.497.6517 F: 801.454.7108 E: barry.b@nzrgeo.com DL it to eDocs. It says: Dear: Ms. Doronova On May 29th NZR preformed the task as described earlier at 1724 Webster Ave. NZR found at heavy contamination of Fuel Oil at the depth interval of 10-25 fbg with PID readings of 100+. NZR interviewed the owner of the Sunoco Franchise and Mr. Gofman and they both said there has never been diesel or fuel oil served or stored at the site. NZR believes that the fuel oil is coming from just north of the site. The analytical results will be available from the lab on or before June 16th. Sincerely, Barry E. Bowman Spoke with Mr. Bowman. Asked if sample was collected for fingerprint analysis to support his claim. The sample was collected. Told him that claim for the off-site source of contamination should be proved by conducting additional investigation at the border of the site, and work plan for such investigation should be submitted to DEC for review and approval. AD 06/09/2009: Received an e-mail from Mr. Bowman: Dear Ms. Doronova Here is what I had proposed to Mr. Gofman for the SOW at 1724 Webster Ave. Now I am in the process of authoring a combination ESA Phase 1 and 2 for the site. The analytical data for the soil samples taken should be in next week. During my investigation, a Mr. Walter T. Gorman P.E,.P.C. was the person that did the work of removing and installing USTs at the site. His contact information appears below: Claire Linehan Assistant Project Manager Walter T. Gorman, P.E., P.C. 115-14 Beach Channel Drive Rockaway Park, NY 11694 718-474-3400 Ext. 19 His company should have informed and filed the closure report with the NYSDEC. Please contact his office to get all records pertaining to the site at the time of the UST work. My investigation should be completed during the last week of this month. Barry Bowman, MS, President Spoke with Mr. Bowman. Later received an e-mail from him saying: As per our phone conversation please send me a copy of what Mr. Walter T. Gordon had sent you. Please indicate the date that he sent the NYSDEC the documents. Barry Bowman, MS, President Spoke with Mr. Bowman. Told him that I did not receive any data from Mr. Gordon yet. AD 06/15/2009: Sent an e-mail to Mr. Bowman with attached copy of the laboratory report for 1998 investigation, which was submitted to me by Mr. Russell Hammond of Sunoco, Inc. AD 06/2009: Spoke with Mr. Bowman. Request to expedite the submission of the investigation summary report. AD 07/06/2009: Received an e-mail from Mr. Bowman saying: Dear Ms. Doronova I am working on the Phase I/II report for 1724 Webster Ave. it is lengthy because I am trying to piece together the events that occurred during the UST removal/installation information. I went to the department of buildings in the Bronx and they had a microfiche that was hard to read. It is a record of what Mr. Gorman sent to them that logs findings and installation plans. You may want to request a copy (free) from the DOB of the Bronx for your records. May be you have a microfiche reader that is better than the one at the Bronx DOB! I am also trying to obtain copies of soil manifest. We all need to know what remediation was done at the site after the current spill number was opened on gasoline. Please consider, I am in business and I have other pulls on my time and mind. I had drilled as close to the sidewalk on East 174th Street as I am permitted. I don’t believe that drilling on the sidewalk five or six feet away will produce a different result. I left a message for

SPILL NUMBER 0403100 (Continued) **S102149039**

Todd Granger of Environmental Assessments & Remediation who works the Sunoco Account. This is the Company that did the removal/installation of USTs at the site (888-327-6789, http://www.enviro-asmnt.com/). EAR may have a closure report and other records. Please call him and ask for the closure report that the NYSDEC should have received. Progress is being made Ms. Doronova. Sincerely, Barry Bowman, MS, President NZR Geologic, Inc. P.O. Box 92 Bronx, NY 10460-0092 P: 917.497.6517 F: 801.454.7108 AD 08/11/2009: Received an e-mail from Mr. Bowman saying that he is busy with other projects and asking for more time for the report submission. Sent him e-mail explaing that investigation report submission schedule was defined in the CAP of the STIP, and that they should follow it, unless it is not feasible due to very seriuos curcumstances. Later received his response asking for a due date of the submission. Requested to submit the summary report before August 21, 2009. AD 08/21/2009: Received a call from Mr. Bowman. He said that size of pdf copy of the report is -200 MB and that hard copy is more than 1000 pages. Requested to downsize electronic copy and to submit only main part of the hard copy, without labdata. AD 08/26/2009: Received the investigation summary report (hard copy and CD). Will review. AD 08/28/2009: Received an e-mail from Mr. Bowman with request for a meeting, to discuss findings of investigation. Will discuss the meeting schedule with J. Kolleeny. Scheduled the meeting for September 22, 2009. AD 09/22/2009: J. Kolleeny and I met with Barry Bowman of NZR Geologic to discuss results of the performed investigation. Mr. Bowman contended that the site's contamination was caused by off-site source and recommended case closure. We discussed this contention. All available data indicate that the site former UST system released petroleum to the environment and is the source of the soil and GW contamination. It was decided that supplemental investigation should be performed and at least four permanent monitoring wells should be installed at the site. A brief work plan for such investigation was requested by DEC to be submitted by October 10, 2009. AD 09/23/2009: Received an e-mail from Mr. Bowman saying: Dear Ms. Doronova and Mr. Kolleeny It was a long time coming that I should visit the NYSDEC in Long Island City. I appreciate the chance for a cordial conversation to determine the truth of 1724 Webster Avenue's status. Attached is a following up letter recapping the meetings points. I wrote this to keep a record and to clarify tables, conclusions, and request a determination based on the report and data submitted to the NYSDEC. Thank you both for your time. Barry Bowman, MS, President NZR Geologic, Inc. P.O. Box 92 Bronx, NY 10460-0092 P: 917.497.6517 Reviewed the attached letter. In this letter, Mr. Bowman again contends that the site contamination was caused by off-site source, despite our previous discussion on this matter. DL the letter to eDocs. Discussed the letter with J. Kolleeny of DER. Prepared a response letter to Mr. Gofman of Kligof Holding Corp. AD 09/24/2009: Sent the letter to Mr. Gofman. The response is due October 10, 2009.(cc: J. Kolleeny-DEC, J. Urda-DEC, B. Bowman-NZR, file) AD 09/12/2009: Did not receive the requested work plan. AD 09/15/2009: Discussed this site with J. Kolleeny of DEC. Sent an e-mail to Mr. Gofman requesteng to submit the work plan due October 21, 2009. Later received a response from Mr. Gofman saying: Thank you for letting me know. I thought he had submitted a report, and went over it with you. I will call Mr. Bowman and find out where the report is. I will get back to you once I hear back from him. Slavik AD 10/19/2009: Received an e-mail from Mr. Bowman of NZR with attached work plan and site

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diagram with proposed monitoring wells locations. DL to eDocs. Will review. AD 10/21/2009: Reviewed the Proposed Scope of Work dated October 18, 2009, submitted by NZR Geologic, Inc. (NZR). The scope of work proposes installation of three 4-inch and two 2-inch permanent monitoring wells, with collection of soil and groundwater samples for laboratory analysis by EPA method 8260B. NZR then proposes to perform ORC and bacteria injections via the three 4-inch wells as a remedial approach for the site. Discussed this WP with J. Kolleeny of DEC. AD 10/28/2009: Sent a work plan approval letter which approves only the part of the Proposed Scope of Work concerning installation of permanent wells, with the following modifications: " Two additional permanent monitoring wells should be installed at the locations suggested on the attached site diagram (subsurface utilities permitting); " All seven wells should be completed as 2-inch diameter wells, as 4-inch wells are inappropriate for remedial injections; " Two soil samples should be collected for analysis per boring: one sample directly above the water table and the second from the sampling interval with the highest PID reading. In the absence of any field indications of contamination, a single soil sample should be collected from just above the water table; " Groundwater samples should be collected from the newly installed wells after the wells have been properly developed; " Soil and groundwater samples should be analyzed for the full STARS list of fuel oil and gasoline related compounds by EPA methods 8260 + MTBE and 8270; " All installed monitoring wells should be surveyed and a water table contour map for the site should be prepared for inclusion in an investigation summary report; " A report summarizing all findings, with conclusions and recommendations for further remedial actions, should be prepared and submitted to DEC. If, based on these findings, injection of ORC or another suitable chemical reagent will be proposed, then the site specific calculations from the product s manufacturer should be included in the proposal. 10/29/2009: Received a letter from Mr. Bowman, in which he insist on his choice of 4 wells for future injections of chemical reagent and bacteria. DL to eDocs. AD 10/30/2009: Sent the following e-mail to Mr. Bowman: Dear Mr. Bowman: NYSDEC prefers injection of ORC or any similar product(s) via temporary injection well points, rather than using monitoring wells, but if it is necessary to use monitoring wells for such injections due to site conditions, you should provide us with a letter from the product manufacturer, stating that they believe 4-inch wells would be superior to 2-inch wells for that purpose. Also, please provide the Department with a groundwater contour map and depth to groundwater data, based on which the monitoring well locations were proposed. In addition, provide DEC with a site plan which depicts all existing monitoring wells at the site, proposed well locations and historical soil borings locations at the site. Please be advised that all requested information should be submitted to the Department by no later than November 6, 2009. Later received an e-mail from Mr. Bowman saying: Thank you for your prompt reply Ms. Doronova. I will comply with your request. Let it be known that NZR chose the proposed method because Geophysical investigations are not 100% reliable and the use of groundwater flow direction to create a remediation plume is the safest thus far. NZR considers Geoprobe injections too risky at this site. The site is a gasoline station that has been there for more the sixty years. I am concerned. At this time NZR is reformulating my original plan with the manufactures of the products proposed. Barry Bowman, MS, President NZR Geologic, Inc. P.O. Box 92 Bronx, NY

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10460-0092 P: 917.497.6517 AD 11/05/2009: Received an e-mail from Mr. Bowman: Dear Ms. Doronova Attached is a file showing the existing monitoring wells and groundwater data mapped as equipotential groundwater surface. I have also included a groundwater map from the Hendex report that you provided. NZR and two other firms are still in the process of developing a remediation plan that is safe and effective. Please note the groundwater gradient is ~0.89 foot drop over the length of the site. This is a steep gradient that NZR believes is caused by the site being at a lower elevation than 174th Street and topography. It is possible that when the apartment buildings that were before the site becoming a gasoline station had basements that tabled the bedrock at the site. Refer to the Sanborn Fire Insurance Maps that NYSDEC were sent by NZR. NZR maintains that it is unadvisable to use the common method of Geoprobe grid injection of any remediation product because of the Geophysical survey information obtained at the site. DL the copy to eDocs. Will review. AD 11/06/2009: Reviewed the submitted data. NZR also submitted site plan with the revised well locations. It proposes installation of three 4-inch and one 2-inch permanent monitoring wells. Letter from the product manufacturer, stating that 4-inch wells would be superior to 2-inch wells for chemical reagent injection, is absent. Contacted Mr. Bowman and requested to submit such letter. AD 11/14/2009: Received an e-mail from Mr. Bowman with the attached letter which includes insert from Regenesis reply such as: Here is a copy/paste from Regenesis: Good Morning Barry, I would like you to review the attached injection well application instructions. In our discussion on Monday, I stated that both 2 and 4 injection wells can be used to apply RegenOx. The difference is sometimes the rate of injection and volume that the different size wells can accommodate. We use 2 wells for injection and do not find that they always clog. The instructions call for a specific well construction which may be best to use at the site since there may be issues with drilling. The discussion about well screens being clogged was regarding the use of ORC Advanced for injection into wells in a silty sand with a small well screen. That is not recommended. Also, we did discuss the potential problems regarding the use of a Geoprobe on the site due to potential obstructions, but I cannot comment on the potential dangers. As I stated in our conversation, the original idea to approach this site passively is not how we would recommend treating this site. Maybe a small injection grid can be placed around each of the problem wells and some injection wells can be placed upgradient of the pump islands and tank field to work on what is trapped beneath with multiple rounds of injection. Once you have determined how you would like to move forward, please let me know. Regards, Corinne Corinne Ketcham Technical Manager - Northeast Region REGENESIS / Advanced Technologies for Groundwater Resources Ph: 207-767-0007 " Cell:207-400-6959" Fax: 207-767-0020 email: cketcham@regenesis.com corporate: Regenesis, 1011 Calle Sombre, San Clemente, CA 92673-6244; www.regenesis.com ph 949 366 8000; fx 949 366 8090 DL the letter to eDocs. Mr. Ketcham in this letter to Mr. Bowman states that passive treatment on this site is not recommended. In fact he suggests to use temporary injection points around each of the problem well. Will discuss it with J. Kolleeny of DEC. AD 11/20/2009: Discussed this letter with J. Kolleeny. The decision was to approve only investigation part of the proposed scope of work with installation of 2 and 4 wells. Any further remedial activities at the site will be approved by DEC only based on the results of this investigation. AD

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11/25/2009: Sent the approval letter with the following modifications: " One additional permanent monitoring well should be installed at the location suggested on the attached site diagram (subsurface utilities permitting); " Two soil samples should be collected for analysis per boring: one sample directly above the water table and the second from the sampling interval with the highest PID reading. In the absence of any field indications of contamination, a single soil sample should be collected from just above the water table; " Groundwater samples should be collected from the newly installed wells after the wells have been properly developed; " Soil and groundwater samples should be analyzed for the full STARS list of fuel oil and gasoline related compounds by EPA methods 8260 + MTBE and 8270; " All installed monitoring wells should be surveyed and a water table contour map for the site should be prepared for inclusion in an investigation summary report; " A report summarizing all findings, with conclusions and recommendations for further remedial actions, should be prepared and submitted to DEC. If, based on these findings, injection of ORC or another suitable chemical reagent will be proposed, then the site specific calculations from the product s manufacturer should be included in the proposal. DL pdf copy to eDocs. AD 12/18/2009: Called and left a message to Mr. Bowman of NZR. AD 12/23/2009: Sent an e-mail to Mr. Gofman saying: Dear Mr. Gofman: The NYS Department of Environmental Conservation in its letter dated November 25, 2009 approved a Supplemental Investigation Work Plan submitted by NZR Geologic, Inc. The submission of an investigation summary report is time sensitive. In the event that the investigation summary report is not received by the Department by February 12, 2010, you will be in violation of the Consent Order and this violation will be referred to our Office of General Counsel for imposition of financial penalties. Report is due February 12, 2010. Later received an e-mail from Mr. Bowman saying: The proposal for this phase is being resubmitted to Mr. Gofman and the MW installation will be scheduled for mid January AD 05/03/2010: Called and spoke with B. Bowman ragarding the report submission. Mr. Bowman told that no investigation was performed at the site due to payment issues. To refer the case to J. Urda. AD 05/04/2010: Spoke with J. Urda of DEC, he asked to refer this case to Legal Department. Case was referred to the Office of General Counsel. AD 05/13/2010: Received an e-mail from B. Bowman saying: Dear Ms. Doronova Here is the revised monitoring well installation plan for 1724 Webster Ave., Bronx, NY 10457. Barry Bowman, MS, President NZR Geologic, Inc. P.O. Box 92 Bronx, NY 10460-0092 P: 917.497.6517 F: 801.454.7108 Will review. AD 05/18/2010: Reviewed the revised work plan. The new scope of work proposes installation of five 2-inch permanent monitoring wells, with collection of soil and groundwater samples for laboratory analysis by EPA methods 8260B and 8270C. 05/21/2010: Discussed the revised scope of work with J. Kolleeny of DEC. Issued an approval letter with the following modifications: " Two soil samples should be collected for analysis per boring: one sample from directly above the water table and the second from the vadose zone sampling interval with the highest PID reading. In the absence of any field indications of contamination, a single soil sample should be collected from just above the water table; " Groundwater samples should be collected from the newly installed wells after the wells have been properly developed and purged; " Soil and groundwater samples should be analyzed for the full STARS list of fuel oil and gasoline related compounds by EPA methods 8260B + MTBE and 8270; " All installed

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monitoring wells should be surveyed and a water table contour map for the site should be prepared for inclusion in an investigation summary report; " A report summarizing all findings, with conclusions and recommendations for further remedial actions, should be prepared and submitted to DEC. DL the pdf copy of the letter to eDocs. A summary report should be submitted to DEC by July 30, 2010. AD 06/24/2010: Received an e-mail from Mr. Bowman saying: Mr. Gofman has accepted my proposal and we are working on a start date. Barry Bowman, MS, President NZR Geologic, Inc. AD 06/25/2010: Responded to this e-mail with the following answer: Dear Mr. Bowman: Please be aware that submission of an investigation summary report for the approved by DEC proposed Scope of Work dated May 13, 2010 submitted by NZR Geologic, Inc. is time sensitive. In the event that the investigation summary report is not received by the Department by July 30, 2010, you will be in violation of the Consent Order and this violation will be referred to our Office of General Counsel for imposition of financial penalties. Feel free to contact me if you have any questions. Sincerely, Ainura Doronova Environmental Engineer Division of Environmental Remediation NYSDEC Region 2 phone: (718) 482-6453 AD 07/12/2010: Received the following e-mail from Mr. Bowman: Dear Ms. Doronova I have succeeded in getting Mr. Gofman to send the funding necessary for the commencement of the MW installation. However, I have a previous scheduled commitment during 7/25 to 8/2 and will be out of town. I request that the installation be done on 8/3/2010 at 0800hrs and the you be there. I need to know today. Thank you Barry Bowman, MS, President NZR Geologic, Inc. Called and explained to Mr. Bowman that according to DEC requirements the said investigation should have been performed in time and the report for this investigation should be submitted by July 30, 2010. Mr. Bowman said that he had other comitments. I explained him again that this site is in Stipulation Agreement, and that CAP schedule has to be followed. Required him to submit a deadline extension request with explanation of the reasons of postponement. AD Later received the deadline extension request letter by e-mail. DL to eDocs. The reason for a postponement is nonfunding of the investigation work from Mr. Gofman. Discussed this letter with J. Kolleeny of DEC. AD 07/15/2010: Called Mr. Gofman and left a message. Contact info for Mr. Gofman: phone: (212)-768-7540 ext 3. fax: (212)-768-7657 e-mail: slavikgoffman@aol.com AD 07/20/2010: Called to Mr. Gofman. His secretary told me that he is out of country and will be back in August 2010. Left a message for Mr. Slavik Gofman. Later received a phone call from Rudy Gofman. Explained him a situation with time extension request. R. Gofman told me that the investigation at the site was not implemented in time because of Mr. Bowman’s honeymoon and not a payment issues as was stated in Mr. Bowman’s letter. Told him that this it is PR’s responsibility to follow a Stipulation Agreement’s conditions. Required him to submit a Time Extention Request letter. AD 07/21/2010: Received the required letter from Mr. Gofman. Issued an approval letter. An investigation report submission is due August 31, 2010. DL the letter to eDocs. AD 07/23/2010: Called and spoke with Mr. Bowman regarding field work at the site on August 3, 2010. Requested him to confirm the date of the work, so I can schedule a site visit. Later received an e-mail from Mr. Bowman: Yes, I will be at 1724 Webster Ave. on 8/3 and probable 8/4 to install the MW’s. Please be present Ms. Doronova and on either day. My phone number is written below. Slavik, if you can make it please be there also. Barry Bowman, MS, President NZR Geologic, Inc. P.O. Box 92

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Bronx, NY 10460-0092 P: 917.497.6517 F: 801.454.7108 08/03/2010: Visited the site. Met with Mr. Bowman at the site. Zebra Env. was performing advancement of soil borings and well installation. Mr. Bowman was collecting soil samples. When I arrived at the site at 10:15 AM they were completing installation of well MW-1. According to Mr. Bowman PID reading were: 96.7ppm for 10-15' 59.2ppm for 15-20' There are three 1 wells and one 4 well at the site. The wells were not sampled for two years and should be properly re-developed. I requested Mr. Bowman to re-develop the wells and to sample them with newly installed wells. Mr. Bowman did not have ice in a cooler with soil samples. Required him to buy the ice. When Mr. Bownam proceeded with advancement of soil boring for MW-2 it became clear that he screened with PID and sampled only soil interval from 10' to 20' bgs, instead of screening and sampling the entire vadose zone sampling interval, as it was required in the DEC's work plan approval letter from May 21, 2010. When it was pointed to Mr. Bowman, he claimed that he understood the requirement differently. Required from Mr. Bowman to sample all borings as per DEC approval letter modifications. An investigation summary report is due August 31, 2010. AD 05/10/2011: Sent an e-mail to Mr. Bowman requiring to perform sitewide groundwater sampling and submit a report with conclusions and recommendations, based on the results. AD 05/16/2011: E-mail was received from Mr. Bowman saying: Ms. Doronova Since diesel fuel was never stored or served there NZR request that the SVOA be omitted and replaced with Total Petroleum Hydrocarbon (TPH) diesel/fuel oil. Barry Bowman, MS, President NZR Geologic, Inc. P.O. Box 92 Bronx, NY 10460-0092 P: 917.497.6517 F: 801.454.7108 06/22/2011: E-mail was sent by Mr. Bowman on June 4, 2011, that he will sample all wells on June 6, 2011. AD 11/2011: A summary report for GW sampling was not submitted yet. AD 01/10/2012: Sent an e-mail to Mr. Gofman with a request to submit a June 2011 Groundwater Sampling Report by January 31, 2012. AD 06/02/2015: It looks like some most recent information typed into the DEC remarks regarding this case is missing. Will contact Albany regarding this issue. Today I received a phone call from Matt Carroll of Tenen Environmnetal. Phone number is: (646)606-2332. His company was contracted two months ago. They already performed groundwater sampling and top of the wells casing survey. The summary report with conclusions and recommendations will be submitted shortly. later in the day received the following e-mail from Mr. Carrol: Ainura, It was a pleasure speaking with you this morning. Please see link below to our report summarizing the historic groundwater data and recommending that the spill record be closed. A hard copy will follow - do you need all of the historic reports in hard copy as well? https://www.dropbox.com/s/7doqqnopkny580d/9411303_1724%20Webster%20Avenue_Spill%20Closure%20Report_20150602.pdf?dl=0 Sincerely, Matthew Carroll, PE Tenen Environmental 646.606.2332 x103 Downloaded the report. Will review. AD AD 07/03/2015: Reviewed the report. It states that Tenen Environmental, LLC (Tenen) was retained by Victorian Management to summarize the historic groundwater sampling at the property located at 1724 Webster Avenue in the Bronx, New York. The report summarizes the historical results of 6 groundwater sampling and their laboratory analysis. According to the analysis, 6 rounds of groundwater samples have been collected at the site between 1994 and 2015, four of which were since 2009. The three most-recent groundwater samples (collected 8/5/2010, 6/6/2011 and 1/10-11/2015) show an overall decreasing trend of groundwater concentrations. These

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samples were collected by NZR Geologic, Inc. of the Bronx, New York. The samples collected in January 2015 only contain VOCs above the NYSDEC s TOGS standards in two wells, N-7 and N-8. With the exception of ethylbenzene at 17 ug/L and total xylenes at 17.1 ug/L, all other exceedances are butyl- or propyl-benzene compounds. Site history: In 2004, Sunoco reportedly undertook the removal of two (2) 4,000-gallon USTs and the installation of five 4,000-gallon fiberglass USTs. During the excavation of the existing tanks, supervised by Walter T. Gorman, PE, on behalf of Sunoco, eight 550-gallon USTs were discovered and subsequently removed. Salomone Brothers were the contractors that performed the excavation/installation work. On or about October 29, 2004 the NYSDEC reportedly received a UST closure report for two (2) 4,000-gallon and eight (8) 550-gallon gasoline USTs. Contaminated soil was discovered during the removal of the 550-gallon tanks. There were reportedly three (3) areas of excavation. The first area, in the southwest corner of the property, was excavated for the installation of the new USTs. This excavation was approximately 14’ wide X 32’ long X 14’ deep and had contained four of the eight 550-gallon USTs. The second area of excavation was northeast of the first area and it extended to the existing dispenser islands and to within 10’ of the existing building. This area contained the other four 550-gallon USTs. The third area of excavation was at in the area of the existing 4000-gallon USTs and was only to the tops of the tanks. In total, ten USTs were removed off-site. 521 tons of soil were reportedly removed. Since PID readings were detected in the first two areas, bottom and sidewall samples were collected. The third area did not exhibit readings by PID and was not sampled. Of the l7 samples collected, 10 reportedly exhibited at least one VOC exceeding the then-current STARS-list cleanup levels for gasoline-contaminated soils. Bottom samples, EX-5 through EX-9, EX-15 and EX-17, taken at the 550-gallon UST locations generally exhibited higher concentrations of VOCs. Groundwater is present at depths of approximately 13 to 15 ft bgs and flows to the southwest. Conclusions: Based on the results of the soil and groundwater available for review, Tenen concludes the following: " Groundwater below the site is located at depths of approximately 13 to 15 ft-bg; " Groundwater in the Bronx is not used for drinking water; " Historic groundwater results indicate that the bulk of the groundwater contamination has been addressed. Groundwater concentrations have decreased at least 98% for comparable target compounds; " More recent concentrations continue to show a decrease in residual dissolved concentrations; " Only two target VOCs, ethylbenzene at 17 ug/L and xylenes at 17.1 ug/L in one well, are present above the Class GA Standards (all other exceedances are butyl- or propylbenzene compounds). Based on the detected concentrations and overall decreasing concentrations, Tenen concludes that the petroleum impacts associated with Spill #9411303 have decreased to levels consistent with the overall remedial goals and requests that the spill case be closed. There is some missing info regarding removed USTs in 2004. There is also some discrepancies regarding site wells, which need to be clarified. Will discuss the closure request with J. Kolleeny of DEC. AD 07/10/2015: Called and spoke with Matt Carroll regarding UST Closure Report from 2004 and Sunborn maps reports. He will look if they have these reports. AD 07/14/2015: Received the following e-mail from Mr. Carroll: A file has been made available for you to download by a NYS DEC employee. Filename: 9411303_1724 Webster Avenue_Sanborn Maps.pdf Size: 19.9 MB

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Duration Available: 3 Weeks Description: Spill 9411303, Sanborn maps Download Code: e2478454 By using the following link or by copy/pasting the address into a web browser, you will be prompted to save or open the file: https://fts.dec.state.ny.us/fts/sendfile.php?fid=16330&vercode= e2478454 DL the Sunborn maps. Spoke with Mr. Carroll. He confirmed that they don't have UST Closure Report 2004. AD 07/27/2015: Called and spoke with Matt Carroll regarding site wells. He will find info on well H-2, and info on why well N-1 was not sampled in January of 2015. Also requested to submit wells gauging data with depth to GW summary table. Later in the day received the following e-mail from Mr. Carroll: It was a pleasure speaking with you today. Please see requested responses below. - Were wells H1 and H2 decommissioned? If so, when? Both H1 and H2 appear to be decommissioned, likely during the installation of new tanks in 2004. - Why was well N1 not sampled in the most recent sampling event? Based on information from NZR Geologic, well N1 was not sampled in January as it was inaccessible due to ice. In the prior two sampling events, only benzene (max: 1.2 ppb, ND in most recent round) and chloroform (max: 14 ppb) were detected above the Class GA standards in well N1. - Confirm that wells were gauged by Tenen and include dtw on figure. Tenen gauged the wells on April 2, 2015. The dtw measurements are included in the attached, revised Figure 3. Please note that the surveyor was not able to access well N7 and, therefore, the top of casing elevation was not obtained. The groundwater flow direction is consistent with expected regional groundwater flow direction. You had previously requested any information about the previous tank closure activities. Our information came from NZR s notes, which were reportedly culled from DEC s files, as well as conversations with Russell Hammond of Sunoco s environmental section; Walter T. Gorman P.E., who was the engineer who reportedly supervised the removal of the 550 gallon tanks and the installation of the five 4,000 gallon fiberglass USTs; Salomone Brothers, the contractors who performed the excavation/installation work; Todd Painter of Environmental Assessments & Remediation whose company performed the installations of monitoring wells/sample-borings and with yourself. Let me know if you need any additional information in order to close out this spill record. Sincerely, Matthew Carroll, PE Tenen Environmental 646.606.2332 x103 Will look at the attached figure. AD 07/28/2015: Reviewed the submitted table. Discussed the closure request with J. Kolleeny. Based on the following activities performed at the site: 1. Removal of the source of contamination - 8 550-gallon USTs and 2 4000-gallon USTs were excavated and removed off-site in 2004; 2. Approximately 520 tons of contaminated soil were removed off-site in 2004; 3. Several subsurface site investigations were performed to delineate the contamination plume; 4. Eight groundwater monitoring wells were installed at the site and six sampling rounds were performed for groundwater quality analysis, and taking into consideration that: 1. Historical GW results indicate that the concentration of GW contamination have decreased around 98%; 2. Low numbers of TVOCs were detected in only two site wells. Only two target VOCs, ethylbenzene at 17 ug/L and xylenes at 17.1 ug/L in one well, are present above the Class GA Standards (all other exceedances are butyl- or propylbenzene compounds); 3. Groundwater in the Bronx is not used for drinking water; 4. Recent concentrations continue to show a decrease in residual dissolved concentrations, it was decided to approve the spill closure request made by the consultant. Called

SPILL NUMBER 0403100 (Continued) **S102149039**

and asked Mr. Carroll to verify RP's contact information. AD 07/29/2015: Received the requested info. Issued and sent a closure letter. Copied to J. Urda of DEC. Case closed. AD"

Remarks: "ENV. CONSULTANT WHILE INSTALLING MONITORING WELLS, CONTAMINATION DISCOVERED. WILL NOTIFY SUN OIL CO, TINA SMITH (212) 977-6145."

All Materials:

Site ID:	88258
Operable Unit ID:	1009186
Operable Unit:	01
Material ID:	556763
Material Code:	0009
Material Name:	gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1.00
Units:	L
Recovered:	.00
Oxygenate:	Not reported

Spill Number/Closed Date:	9513827 / 2005-12-07
Facility ID:	9513827
Facility Type:	ER
DER Facility ID:	252549
Site ID:	313220
DEC Region:	2
Spill Cause:	Unknown
Spill Class:	C3
SWIS:	0301
Spill Date:	1996-01-30
Investigator:	SKCARLSO
Referred To:	Not reported
Reported to Dept:	1996-01-31
CID:	257
Water Affected:	Not reported
Spill Source:	Gasoline Station or other PBS Facility
Spill Notifier:	Other
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	False
Remediation Phase:	0
Date Entered In Computer:	1996-01-31
Spill Record Last Update:	2006-02-17
Spiller Name:	NONE
Spiller Company:	SUNOCO STATION
Spiller Address:	1724 WEBSTER AVE
Spiller Company:	001
Contact Name:	NONE
DEC Memo:	"Prior to Sept, 2004 data translation this spill Lead_DEC Field was SUN consolidated with case 94-11303. "
Remarks:	"caller is removing tanks and found contaminated soil"

All Materials:

Site ID:	313220
Operable Unit ID:	1028312

SPILL NUMBER 0403100 (Continued) **S102149039**

Operable Unit:	01
Material ID:	357533
Material Code:	0066A
Material Name:	unknown petroleum
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

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306 **4422 THIRD AVE/BX/ST.BARN** **NY LTANKS** **S100146533**
NE **4422 THIRD AVENUE** **N/A**
1/4-1/2 **NEW YORK CITY, NY**
0.377 mi.
1993 ft.

Relative:
Higher

Actual:
97 ft.

LTANKS:

Spill Number/Closed Date:	9009146 / 1991-01-03
Facility ID:	9009146
Site ID:	155167
Spill Date:	1990-11-20
Spill Cause:	Tank Test Failure
Spill Source:	Commercial/Industrial
Spill Class:	Not reported
Cleanup Ceased:	1991-01-03
SWIS:	0301
Investigator:	SULLIVAN
Referred To:	Not reported
Reported to Dept:	1990-11-20
CID:	Not reported
Water Affected:	Not reported
Spill Notifier:	Tank Tester
Last Inspection:	Not reported
Recommended Penalty:	False
Meets Standard:	True
UST Involvement:	True
Remediation Phase:	0
Date Entered In Computer:	1990-12-12
Spill Record Last Update:	1991-01-07
Spiller Name:	Not reported
Spiller Company:	ST. BARNABUS HOSPITAL
Spiller Address:	4422 THIRD AVENUE
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	131513
DEC Memo:	""
Remarks:	"2K TANK FAILED HORNER EZY CHECK, WILL EXCAVATE, ISOLATE & RETEST,TANK RETESTED & PASSED."

All TTF:

Facility ID:	9009146
Spill Number:	9009146
Spill Tank Test:	1537908

4422 THIRD AVE/BX/ST.BARN (Continued) **S100146533**

Site ID:	155167
Tank Number:	Not reported
Tank Size:	0
Material:	0008
EPA UST:	Not reported
UST:	Not reported
Cause:	Not reported
Source:	Not reported
Test Method:	00
Test Method 2:	Unknown
Leak Rate:	.00
Gross Fail:	Not reported
Modified By:	Spills
Last Modified Date:	Not reported

All Materials:

Site ID:	155167
Operable Unit ID:	946334
Operable Unit:	01
Material ID:	432913
Material Code:	0008
Material Name:	diesel
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1.00
Units:	Not reported
Recovered:	.00
Oxygenate:	Not reported

307
WNW
1/4-1/2
0.380 mi.
2005 ft.

ST THOMAS LUTHERAN CHURCH **NY LTANKS** **S105055160**
222 E 178TH ST **N/A**
BRONX, NY

Relative:
Higher

Actual:
102 ft.

LTANKS:

Spill Number/Closed Date:	0103200 / 2005-07-12
Facility ID:	0103200
Site ID:	300252
Spill Date:	2001-06-22
Spill Cause:	Tank Test Failure
Spill Source:	Institutional, Educational, Gov., Other
Spill Class:	B3
Cleanup Ceased:	Not reported
SWIS:	0301
Investigator:	TXSMITH
Referred To:	Not reported
Reported to Dept:	2001-06-22
CID:	389
Water Affected:	Not reported
Spill Notifier:	Tank Tester
Last Inspection:	Not reported
Recommended Penalty:	False
Meets Standard:	False
UST Involvement:	False
Remediation Phase:	0

ST THOMAS LUTHERAN CHURCH (Continued) **S105055160**

Date Entered In Computer:	2001-06-22
Spill Record Last Update:	2006-01-17
Spiller Name:	Not reported
Spiller Company:	ST THOMAS LUTHERAN CHURCH
Spiller Address:	222 E 178TH ST
Spiller County:	001
Spiller Contact:	REV ERIC MATSEN
Spiller Phone:	(718) 583-8576
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	242878
DEC Memo:	"Prior to Sept, 2004 data translation this spill Lead_DEC Field was DEMEO 7/12/05 TAS As stated in the remarks, tank test failure with no spillage and no callback necessary. Therefore the spill is closed."
Remarks:	"TANK TEST FAILURE NO SPILLAGE NO CALLBACK NECESSARY"

All TTF:

Facility ID:	0103200
Spill Number:	0103200
Spill Tank Test:	1526415
Site ID:	300252
Tank Number:	1
Tank Size:	2000
Material:	0001
EPA UST:	Not reported
UST:	Not reported
Cause:	Not reported
Source:	Not reported
Test Method:	03
Test Method 2:	Horner EZ Check I or II
Leak Rate:	.00
Gross Fail:	F
Modified By:	Spills
Last Modified Date:	Not reported

All Materials:

Site ID:	300252
Operable Unit ID:	839955
Operable Unit:	01
Material ID:	535293
Material Code:	0001A
Material Name:	#2 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

308
East
1/4-1/2
0.386 mi.
2040 ft.

700 OAKLAND PL
700 OAKLAND PL
BRONX, NY

NY LTANKS **S105999535**
N/A

Relative:
Higher

Actual:
69 ft.

LTANKS:

Spill Number/Closed Date:	0304733 / 2006-01-06
Facility ID:	0304733
Site ID:	181115
Spill Date:	2003-08-04
Spill Cause:	Tank Failure
Spill Source:	Private Dwelling
Spill Class:	B3
Cleanup Ceased:	Not reported
SWIS:	0301
Investigator:	RSLEE
Referred To:	Not reported
Reported to Dept:	2003-08-04
CID:	207
Water Affected:	Not reported
Spill Notifier:	Other
Last Inspection:	Not reported
Recommended Penalty:	False
Meets Standard:	False
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	2003-08-04
Spill Record Last Update:	2006-01-11
Spiller Name:	SHAPIRO
Spiller Company:	Not reported
Spiller Address:	700 OAKLAND PL
Spiller County:	001
Spiller Contact:	GABE RICCI
Spiller Phone:	(718) 401-2500
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	151908
DEC Memo:	"1/6/06 - Rec'd documentation from the current management agent (Interboro Holding Corp.) indicating that the spill had been cleaned up in August 2003 by Eastmond & Sons Boiler Repair. Based on this information the spill was closed on 1/6/06. 11/28/05 - Left message for Gabe Ricci. Mr. Cepeda is no longer working at this bldg. Prior to Sept, 2004 data translation this spill Lead_DEC Field was SAWYER 8/4/03 SAWYER & TIPPLE RESPONDED TO A 1630 SPILL CALL. PARK AVE ASSOC. OIL HAD FILLED A 2000 GALLON TANK TOO FULL AND RUPTURED THE TANK IN TWO PLACES. THE #4 FUEL OIL SPILLED ALL OVER THE BASEMENT. PARK AVE CONTRACTED EASTMAN TO REMOVE THE LEAKING TANK AND INSTALL A TEMPORARY TANK. THEY WILL ALSO STEAM CLEAN THE BASEMENT AND REPLACE THINGS TOO CONTAMINATED TO SAVE INCLUDING THE PLYWOOD WITH ALL THE GAS AND ELECTRIC METERS, WHICH WAS SOAKED. MR. CEPEDA WILL NOTIFY DEC WHEN THE SPILL IS CLEAN. NAME ON PBS REGISTRATION IS MR. CEPEDA (718)294-2130 CELL (917)721-5652 PARK AVE ASSOC. 431 E 165TH ST. BRONX, NY 8/27/03 1430 Hrs Sawyer went to make sure the spill had been cleaned up properly and preventive measures had been instituted. The clean up was good everywhere, except where the ruptured tank still sits. The super said Mr. Cepeda is working on replacing the old tank through his insurance. I also reminded them to epoxy the basment floor. "

700 OAKLAND PL (Continued) **S105999535**

Remarks: "cleanup crew on scene"

All Materials:

Site ID:	181115
Operable Unit ID:	871546
Operable Unit:	01
Material ID:	505588
Material Code:	0002A
Material Name:	#4 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

Spill Number/Closed Date:	0711322 / 2008-11-05
Facility ID:	0711322
Site ID:	392783
Spill Date:	2008-01-28
Spill Cause:	Tank Test Failure
Spill Source:	Commercial/Industrial
Spill Class:	C4
Cleanup Ceased:	Not reported
SWIS:	0301
Investigator:	vszhune
Referred To:	Not reported
Reported to Dept:	2008-01-28
CID:	444
Water Affected:	Not reported
Spill Notifier:	Tank Tester
Last Inspection:	Not reported
Recommended Penalty:	False
Meets Standard:	False
UST Involvement:	Not reported
Remediation Phase:	0
Date Entered In Computer:	2008-01-28
Spill Record Last Update:	2008-11-19
Spiller Name:	Not reported
Spiller Company:	APART
Spiller Address:	700 OAKLAND PLACE
Spiller County:	001
Spiller Contact:	JERRY SIBBIO
Spiller Phone:	(718) 981-5710
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	342374
DEC Memo:	" Sangesland spoke to Jerry Sibbio - Site requires a PBS inspection Jerry says there is Tank Leaking - tremendous amount of contamination and illegal temporary tanks . 08/27/08-Vought-PBS Inspection by DEC Ajoku on 8/27/08. Numerous violations found including unregistered tanks, tank not properly closed, failure to color code fill port, failure to renew registration, registration not current/valid, DEC not notified of substantial modification, failure to inspect monthly or maintain inspection records. Hearing for Violations scheduled for 9/10 at 1:30pm. Danny Medina signed for Violation. DEC requires: 1)investigation of original tank failure via collection of soil

700 OAKLAND PL (Continued) **S105999535**

samples (aka delineation of soil and groundwater contamination). 09/04/08-Vought-Received email from HPD Gearrity that Luz Carrasquillo represents the building and may be contacted at 917-846-0755 or at 718-365-5321 . Email also indicated that building has 8A loan from HPD in construction. Gearrity requested copy of violation issued. 09/05/08-Vought-DEC Zhune contacted Carrasquillo and she is no longer involved with site. Teleconference with DEC Ajoku, DEC Zhune, DEC Vought and HPD Gearrity. As per Gearrity HPD issued loan to co-op board for 467,000 to do burner and tank replacement. As per DEC Ajoku new tank was constructed with notification to DEC, Temp tank was not registered, current registration is incorrect, failure to renew registration, and current tank is unregistered, DEC never received initial tank closure, fill port was not color coded, also signs of initial tank show excessive wear indicated possible subsuface release and as such soil borings are required. HPD attorney for site is Carol Steinberg. Hearing date set for 9/10 at 1:30pm with DEC Legal John Urda. Vought faxed copy of Spill report, violation and PBS registration to HPD Gearrity (fax:212-863-6386). 09/05/08- Luz Carrasquillo spoke to Zhune and said there was a confusion she is still involved with site. She said in 2002 the #4 fuel oil tank had a crack. Eastmond came and told then that this tank have to be replaced. Becouse the building have no money they did not replace the tank instead ALEX put 2(275) gallons temporary tanks and they had these 2 tanks for 5 years until the inspector came and told them that these tanks need to be replaced becouse they were too old tanks. These two tanks were not in used by the time DEC did the PBS inspection. The men from the boiler installed a water tank to supply hot water to the building. This tank use gas. They are still using gas until boiler is going to be functional then they will use a new 2000 gallons AST installed same place where the old tank was. She also said in the back of the building there was three tanks not in used 11/05/08 Petroleum Tank Cleaners sent the soil samples results. "

Remarks: "TANK WAS BUSTED OPEN ON TANK: THERE WERE4 TEMP TANKS AND TWO ARE ILLEGAL"

All Materials:

Site ID:	392783
Operable Unit ID:	1149770
Operable Unit:	01
Material ID:	2140322
Material Code:	0001A
Material Name:	#2 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	Not reported
Units:	G
Recovered:	.00
Oxygenate:	Not reported

AP309 **CLOSED-LACKOF RECENT INFO** **NY LTANKS** **S100144930**
WNW **230 EAST 179TH ST** **N/A**
1/4-1/2 **NEW YORK CITY, NY**
0.398 mi.
2100 ft. **Site 1 of 2 in cluster AP**

Relative:
Higher

Actual:
102 ft.

LTANKS:

Spill Number/Closed Date:	8708460 / 2003-02-18
Facility ID:	8708460
Site ID:	117138
Spill Date:	1987-12-29
Spill Cause:	Tank Test Failure
Spill Source:	Private Dwelling
Spill Class:	C4
Cleanup Ceased:	Not reported
SWIS:	0301
Investigator:	ADMIN. CLOSED
Referred To:	Not reported
Reported to Dept:	1988-01-04
CID:	Not reported
Water Affected:	Not reported
Spill Notifier:	Tank Tester
Last Inspection:	Not reported
Recommended Penalty:	False
Meets Standard:	False
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	1988-01-15
Spill Record Last Update:	2003-02-21
Spiller Name:	Not reported
Spiller Company:	JOANAS BRONCK HOUSING
Spiller Address:	230 EAST 179TH ST
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	101906
DEC Memo:	""
Remarks:	"12K TANK FAILED WITH A LEAK RATE OF -1.37GPH, TANK REPAIRED AFTER PUMPING TO FIND LEAK. CONTACT: FR. MATHESON (212) 299-5636. CLOSED DUE TO LACK OF ANY RECENT INFO - DOES NOT MEET ANY CLEANUP REQUIREMENTS."

All TTF:

Facility ID:	8708460
Spill Number:	8708460
Spill Tank Test:	1532887
Site ID:	117138
Tank Number:	Not reported
Tank Size:	0
Material:	0001
EPA UST:	Not reported
UST:	Not reported
Cause:	Not reported
Source:	Not reported
Test Method:	00
Test Method 2:	Unknown
Leak Rate:	.00
Gross Fail:	Not reported

CLOSED-LACKOF RECENT INFO (Continued) **S100144930**

Modified By: Spills
Last Modified Date: Not reported

All Materials:
Site ID: 117138
Operable Unit ID: 913872
Operable Unit: 01
Material ID: 463849
Material Code: 0001A
Material Name: #2 fuel oil
Case No.: Not reported
Material FA: Petroleum
Quantity: -1.00
Units: L
Recovered: .00
Oxygenate: Not reported

Spill Number/Closed Date: 8708931 / 2003-03-13
Facility ID: 8708931
Site ID: 117139
Spill Date: 1987-12-29
Spill Cause: Tank Test Failure
Spill Source: Institutional, Educational, Gov., Other
Spill Class: C4
Cleanup Ceased: Not reported
SWIS: 0301
Investigator: ADMIN. CLOSED
Referred To: Not reported
Reported to Dept: 1988-01-20
CID: Not reported
Water Affected: Not reported
Spill Notifier: Tank Tester
Last Inspection: Not reported
Recommended Penalty: False
Meets Standard: False
UST Involvement: False
Remediation Phase: 0
Date Entered In Computer: 1988-01-26
Spill Record Last Update: 2003-03-13
Spiller Name: Not reported
Spiller Company: OWNER(JONAS BRONCK HSG CO
Spiller Address: Not reported
Spiller County: 001
Spiller Contact: Not reported
Spiller Phone: Not reported
Spiller Extention: Not reported
DEC Region: 2
DER Facility ID: 101906
DEC Memo: ""
Remarks: "12K TANK SYSTEM FAILED TEST, AT PRESENT SUSPECT FUEL PIPE LEAK. CLOSED DUE TO LACK OF ANY RECENT INFO - DOES NOT MEET ANY CLEANUP REQUIREMENTS"

All TTF:
Facility ID: 8708931
Spill Number: 8708931

CLOSED-LACKOF RECENT INFO (Continued) **S100144930**

Spill Tank Test:	1533041
Site ID:	117139
Tank Number:	Not reported
Tank Size:	0
Material:	0001
EPA UST:	Not reported
UST:	Not reported
Cause:	Not reported
Source:	Not reported
Test Method:	00
Test Method 2:	Unknown
Leak Rate:	.00
Gross Fail:	Not reported
Modified By:	Spills
Last Modified Date:	Not reported

All Materials:

Site ID:	117139
Operable Unit ID:	914183
Operable Unit:	01
Material ID:	464284
Material Code:	0001A
Material Name:	#2 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1.00
Units:	L
Recovered:	.00
Oxygenate:	Not reported

310
NW
1/4-1/2
0.403 mi.
2127 ft.

SEMI UNDERGROUND TANK - TTF **NY LTANKS** **S111063877**
2055 ANTHONY AVE **N/A**
BRONX, NY

Relative:
Higher

Actual:
94 ft.

LTANKS:

Spill Number/Closed Date:	1103070 / 2015-10-23
Facility ID:	1103070
Site ID:	450619
Spill Date:	2011-06-17
Spill Cause:	Tank Test Failure
Spill Source:	Private Dwelling
Spill Class:	C4
Cleanup Ceased:	Not reported
SWIS:	0301
Investigator:	TJDEMEO
Referred To:	Not reported
Reported to Dept:	2011-06-17
CID:	Not reported
Water Affected:	Not reported
Spill Notifier:	Other
Last Inspection:	Not reported
Recommended Penalty:	False
Meets Standard:	False
UST Involvement:	False

SEMI UNDERGROUND TANK - TTF (Continued) **S111063877**

Remediation Phase:	0
Date Entered In Computer:	2011-06-17
Spill Record Last Update:	2015-10-23
Spiller Name:	CALLER
Spiller Company:	UNKNOWN
Spiller Address:	2055 ANTHONY AVE
Spiller County:	999
Spiller Contact:	CALLER
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	405181
DEC Memo:	"8/15/2012 TTF Spill Case transferred to DEC Tim DeMeo. 3/6/13 AFrischeisen intern Report received 2/10/13 from Donna at ABC Tank repair. Includes -letter response detailing scope of work undertaken at site -non-hazardous waste manifest (10 drums) -lab sample analyticals (4 samples) -passing tightness test from 1/18/13 10/23/15 TJD File review. As per above, all required closure documents have been received and uploaded to EDOCS. Laboratory report reveals all sample results are within acceptable limits. No further action is required. Spill closed."
Remarks:	"20 % barried 80 % not. Unknown resources affected"

All Materials:

Site ID:	450619
Operable Unit ID:	1200823
Operable Unit:	01
Material ID:	2197245
Material Code:	0002A
Material Name:	#4 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	Not reported
Units:	Not reported
Recovered:	Not reported
Oxygenate:	Not reported

AP311 **ROYAL TERRACE ASSOCIATES LP** **NY LTANKS** **U003107180**
NW **2020 GRAND CONCOURSE** **NY UST** **N/A**
1/4-1/2 **BRONX, NY 10457** **NY Spills**
0.408 mi.
2155 ft. **Site 2 of 2 in cluster AP**

Relative:
Higher

Actual:
102 ft.

LTANKS:

Spill Number/Closed Date:	0911919 / 2010-05-05
Facility ID:	0911919
Site ID:	424773
Spill Date:	2010-02-10
Spill Cause:	Tank Test Failure
Spill Source:	Commercial/Industrial
Spill Class:	C4
Cleanup Ceased:	Not reported
SWIS:	0301
Investigator:	smsanges
Referred To:	Not reported
Reported to Dept:	2010-02-10
CID:	Not reported

ROYAL TERRACE ASSOCIATES LP (Continued) **U003107180**

Water Affected:	Not reported
Spill Notifier:	Other
Last Inspection:	Not reported
Recommended Penalty:	False
Meets Standard:	False
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	2010-02-10
Spill Record Last Update:	2010-05-06
Spiller Name:	LIZETTE HERNANDEZ
Spiller Company:	CONTROL COMBUSTION
Spiller Address:	2020 GRAND CONCOURSE
Spiller County:	999
Spiller Contact:	LIZETTE HERNANDEZ
Spiller Phone:	(718) 378-3000
Spiller Extention:	202
DEC Region:	2
DER Facility ID:	373701
DEC Memo:	"Sangesland reviewed a submittal dated 4/23/10. 7500 gal UST was cleaned and several 1/8 holes were found. Three soil samples from below the tank were taken and tested - all clean (see eDocs). Holes were welded shut and tank was relined. Spill case closed"
Remarks:	"TANK TEST FAILURE ON A 7500 GALLON UST."

All Materials:

Site ID:	424773
Operable Unit ID:	1180523
Operable Unit:	01
Material ID:	2174442
Material Code:	0002A
Material Name:	#4 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	Not reported
Units:	G
Recovered:	Not reported
Oxygenate:	Not reported

UST:

Id/Status:	2-602690 / Active
Program Type:	PBS
Region:	STATE
DEC Region:	2
Expiration Date:	05/20/2021
UTM X:	592378.04590
UTM Y:	4522886.19714
Site Type:	Apartment Building/Office Building

Affiliation Records:

Site Id:	24646
Affiliation Type:	Facility Owner
Company Name:	ROYAL TERRACE ASSOCIATES LP
Contact Type:	PROPERTY MANAGER/PARTNER
Contact Name:	ELYSA HALPERN
Address1:	150 WHITE PLAINS ROAD, STE 111
Address2:	Not reported
City:	TARRYTOWN

ROYAL TERRACE ASSOCIATES LP (Continued) **U003107180**

State: NY
Zip Code: 10591
Country Code: 001
Phone: (914) 332-0080
EMail: Not reported
Fax Number: Not reported
Modified By: MRBARROW
Date Last Modified: 2016-05-03

Site Id: 24646
Affiliation Type: Mail Contact
Company Name: HALPERN & PINTEL INC.
Contact Type: Not reported
Contact Name: ELYSA HALPERN
Address1: 150 WHITE PLAINS ROAD
Address2: SUITE 111
City: TARRYTOWN
State: NY
Zip Code: 10591
Country Code: 001
Phone: (914) 332-0080
EMail: SUPERLANDLADY@AOL.COM
Fax Number: Not reported
Modified By: MRBARROW
Date Last Modified: 2016-05-03

Site Id: 24646
Affiliation Type: Facility Operator
Company Name: ROYAL TERRACE ASSOCIATES LP
Contact Type: Not reported
Contact Name: LEWIS MARTINEZ
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 001
Phone: (917) 626-6913
EMail: Not reported
Fax Number: Not reported
Modified By: NRLOMBAR
Date Last Modified: 2015-05-15

Site Id: 24646
Affiliation Type: Emergency Contact
Company Name: ROYAL TERRACE ASSOCIATES LP
Contact Type: Not reported
Contact Name: ELYSA HALPERN
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 999
Phone: (914) 332-0080
EMail: Not reported
Fax Number: Not reported

ROYAL TERRACE ASSOCIATES LP (Continued) **U003107180**

Modified By: NRLOMBAR
Date Last Modified: 2015-05-15

Tank Info:

Tank Number: 001
Tank ID: 51147
Tank Status: In Service
Material Name: In Service
Capacity Gallons: 7500
Install Date: 12/01/1960
Date Tank Closed: Not reported
Registered: True
Tank Location: Underground
Tank Type: Steel/carbon steel
Material Code: 0003
Common Name of Substance: #6 Fuel Oil (On-Site Consumption)

Tightness Test Method: NN
Date Test: Not reported
Next Test Date: 10/11/2016
Pipe Model: Not reported
Modified By: MRBARROW
Last Modified: 02/01/2018

Equipment Records:

L02 - Piping Leak Detection - Interstitial - Manual Monitoring
I04 - Overfill - Product Level Gauge (A/G)
A99 - Tank Internal Protection - Other
J02 - Dispenser - Suction Dispenser
C03 - Pipe Location - Aboveground/Underground Combination
E12 - Piping Secondary Containment - Double-Walled (AG only)
B07 - Tank External Protection - Retrofitted Sacrificial Anode
H00 - Tank Leak Detection - None
K01 - Spill Prevention - Catch Basin
I05 - Overfill - Vent Whistle
F07 - Pipe External Protection - Retrofitted Sacrificial Anode
D01 - Pipe Type - Steel/Carbon Steel/Iron
F01 - Pipe External Protection - Painted/Asphalt Coating
G10 - Tank Secondary Containment - Impervious Underlayment
B01 - Tank External Protection - Painted/Asphalt Coating

SPILLS:

Spill Number/Closed Date: 1002995 / 2010-12-08
Facility ID: 1002995
Facility Type: ER
DER Facility ID: 391116
Site ID: 436193
DEC Region: 2
Spill Cause: Equipment Failure
Spill Class: C4
SWIS: 2401
Spill Date: 2010-06-16
Investigator: SFRAHMAN
Referred To: Not reported
Reported to Dept: 2010-06-16
CID: Not reported

ROYAL TERRACE ASSOCIATES LP (Continued) **U003107180**

Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Other
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	False
Remediation Phase:	0
Date Entered In Computer:	2010-06-16
Spill Record Last Update:	2010-12-08
Spiller Name:	Not reported
Spiller Company:	UNKNOWN
Spiller Address:	Not reported
Spiller Company:	999
Contact Name:	NEIL TOMASETTI
DEC Memo:	"Tank tested OK. Above ground tank in a vault under the sidewalk. vault is filled with dirt. Pipe comes out of the vault runs under the sidewalk then goes into the basement boiler room. Contamination is all under the sidewalk because of a break in this pipe. Eastmond is digging out the contaminated soil and replacing the pipe. 11/02/10 Called Eastmond & Sons- Lezzet Harnandez.Closure report will be sent to DEC by Friday, 11/05/10.(sr) 12/08/10 Rec'd closure report.Spill came from piping under the sidewalk.Eastmond excavated the sidewalk and removed contaminated soil, replaced old suction and return lines.Tank tightness testing was performed and it passed.End point samples were taken from the sidewalls.Results show residual contamination within acceptable limit.Case closed.(sr)"
Remarks:	"old spill - coagulated & hard oil - Cleanup in progress"

All Materials:

Site ID:	436193
Operable Unit ID:	1186898
Operable Unit:	01
Material ID:	2181760
Material Code:	0003A
Material Name:	#6 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	Not reported
Units:	Not reported
Recovered:	Not reported
Oxygenate:	Not reported

312
NNW
1/4-1/2
0.409 mi.
2158 ft.

SPILL NUMBER 0212638 **NY LTANKS** **S106719027**
2108 RYER AVE **N/A**
BRONX, NY

Relative: Higher
Actual: 101 ft.

LTANKS:

Spill Number/Closed Date:	0212638 / 2003-03-24
Facility ID:	0212638
Site ID:	247930
Spill Date:	2003-03-22
Spill Cause:	Tank Overfill
Spill Source:	Private Dwelling

SPILL NUMBER 0212638 (Continued) **S106719027**

Spill Class:	C3
Cleanup Ceased:	Not reported
SWIS:	0301
Investigator:	JXZHAO
Referred To:	Not reported
Reported to Dept:	2003-03-22
CID:	199
Water Affected:	Not reported
Spill Notifier:	Fire Department
Last Inspection:	Not reported
Recommended Penalty:	False
Meets Standard:	False
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	2003-03-22
Spill Record Last Update:	2003-03-24
Spiller Name:	Not reported
Spiller Company:	I BUY RITE
Spiller Address:	1218 LINCOLN TERR
Spiller County:	001
Spiller Contact:	FF CASSIDY
Spiller Phone:	(917) 769-0483
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	203568
DEC Memo:	"Prior to Sept, 2004 data translation this spill Lead_DEC Field was ZHAO 3/24/2003-Vought-Vought spoke with Zhao: Zhao spoke with Battalion 19. According to Battalion no spill occurred inside building. Spill came out of vent on concrete and flowed directly to drain. No spill on soil. DEP notifed by Zhao. Spill closed by Vought as per Zhao."
Remarks:	"caller states fuel co overfilled the tank - when fdny arrived the fuel co. was washing it into the sewer system"

All Materials:

Site ID:	247930
Operable Unit ID:	863589
Operable Unit:	01
Material ID:	512366
Material Code:	0001A
Material Name:	#2 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	35.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

AQ313 **1916 GRAND CONCOURSE/BX** **NY LTANKS** **S100145814**
WNW **1916 GRAND CONCOURSE** **NY AST** **N/A**
1/4-1/2 **NEW YORK CITY, NY**
0.423 mi.
2232 ft. **Site 1 of 2 in cluster AQ**

Relative:
Higher

Actual:
101 ft.

LTANKS:

Spill Number/Closed Date:	8910174 / 2003-02-12
Facility ID:	8910174
Site ID:	312355
Spill Date:	1990-01-23
Spill Cause:	Tank Failure
Spill Source:	Commercial/Industrial
Spill Class:	C4
Cleanup Ceased:	Not reported
SWIS:	0301
Investigator:	SULLIVAN
Referred To:	Not reported
Reported to Dept:	1990-01-24
CID:	Not reported
Water Affected:	Not reported
Spill Notifier:	Other
Last Inspection:	Not reported
Recommended Penalty:	False
Meets Standard:	False
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	1990-01-24
Spill Record Last Update:	2003-02-12
Spiller Name:	Not reported
Spiller Company:	Not reported
Spiller Address:	Not reported
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	251865
DEC Memo:	""
Remarks:	"SEAM TO 5K TANK OPENED DURING DELIVERY OF FUEL, MAJORITY OF FUEL ON BASEMENT FLOOR, SMALL QUANTITY ON SIDEWALK, WILL USE VAC TRUCK TO PICKUP FREE PRODUCT & PUMP OUT TANK, APPLIED SPEEDY DRY."

All Materials:

Site ID:	312355
Operable Unit ID:	935254
Operable Unit:	01
Material ID:	443292
Material Code:	0002A
Material Name:	#4 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	500.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

AST:

1916 GRAND CONCOURSE/BX (Continued) **S100145814**

Region: STATE
DEC Region: 2
Site Status: Active
Facility Id: 2-338982
Program Type: PBS
UTM X: 592273.28369
UTM Y: 4522640.50361
Expiration Date: 12/27/2022
Site Type: Apartment Building/Office Building

Affiliation Records:

Site Id: 16313
Affiliation Type: Facility Owner
Company Name: RACHEL-OLIVER ASSOCIATES LLC
Contact Type: MEMBER
Contact Name: STUART MORGAN
Address1: 41 WEST PUTNAM AVE
Address2: Not reported
City: GREENWICH
State: CT
Zip Code: 06830
Country Code: 001
Phone: (914) 472-4900
EMail: Not reported
Fax Number: Not reported
Modified By: KAKYER
Date Last Modified: 2013-04-24

Site Id: 16313
Affiliation Type: Mail Contact
Company Name: THE MORGAN GROUP
Contact Type: Not reported
Contact Name: STUART MORGAN
Address1: 41 WEST PUTNAM AVE
Address2: Not reported
City: GREENWICH
State: CT
Zip Code: 06830
Country Code: 001
Phone: (914) 574-5400
EMail: BROOKE@THEMORGANGROUPRE.COM
Fax Number: Not reported
Modified By: MFLEONAR
Date Last Modified: 2017-09-12

Site Id: 16313
Affiliation Type: Facility Operator
Company Name: 1916 GRAND CONCOURSE
Contact Type: Not reported
Contact Name: JOSE BRITO
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 001
Phone: (917) 847-8052
EMail: Not reported

1916 GRAND CONCOURSE/BX (Continued) **S100145814**

Fax Number:	Not reported
Modified By:	KAKYER
Date Last Modified:	2013-04-24
Site Id:	16313
Affiliation Type:	Emergency Contact
Company Name:	RACHEL-OLIVER ASSOCIATES LLC
Contact Type:	Not reported
Contact Name:	STUART MORGAN
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(914) 574-5400
EMail:	Not reported
Fax Number:	Not reported
Modified By:	ACDANIEL
Date Last Modified:	2017-11-08

Tank Info:

Tank Number:	001
Tank Id:	27961
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

Equipment Records:

	E00 - Piping Secondary Containment - None
	G03 - Tank Secondary Containment - Vault (w/o access)
	H00 - Tank Leak Detection - None
	L09 - Piping Leak Detection - Exempt Suction Piping
	A00 - Tank Internal Protection - None
	D01 - Pipe Type - Steel/Carbon Steel/Iron
	K00 - Spill Prevention - None
	B00 - Tank External Protection - None
	C00 - Pipe Location - No Piping
	F00 - Pipe External Protection - None
	J02 - Dispenser - Suction Dispenser
	I04 - Overfill - Product Level Gauge (A/G)
Tank Location:	Aboveground - contact with soil.... Tank bottom rests on soil, allowing no visual inspection.
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Pipe Model:	Not reported
Install Date:	01/01/1922
Capacity Gallons:	5000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	KAKYER
Last Modified:	04/14/2017
Material Name:	#2 fuel oil (on-site consumption)

AQ314 **DEEGAN ENTERPRISES INC** **NY SWF/LF** **S105995566**
WNW **1930 GRAND CONCOURSE** **NY LTANKS** **N/A**
1/4-1/2 **BRONX, NY 10451**
0.424 mi.
2238 ft. **Site 2 of 2 in cluster AQ**

Relative:
Higher

Actual:
103 ft.

SWF/LF:

Flag:	INACTIVE
Region Code:	2
Phone Number:	2122957777
Owner Name:	Not reported
Owner Type:	Not reported
Owner Address:	Not reported
Owner Addr2:	Not reported
Owner City,St,Zip:	Not reported
Owner Email:	Not reported
Owner Phone:	Not reported
Contact Name:	THOMAS GIBSON;ARCHITECT
Contact Address:	Not reported
Contact Addr2:	Not reported
Contact City,St,Zip:	Not reported
Contact Email:	Not reported
Contact Phone:	Not reported
Activity Desc:	z Retired - Transfer station - permit
Activity Number:	[03T15]
Active:	No
East Coordinate:	592307
North Coordinate:	4522714
Accuracy Code:	Not reported
Regulatory Status:	Not reported
Waste Type:	Not reported
Authorization #:	Not reported
Authorization Date:	Not reported
Expiration Date:	Not reported
Operator Name:	Not reported
Operator Type:	Not reported
Laste Date:	Not reported

LTANKS:

Spill Number/Closed Date:	0200210 / 2004-03-23
Facility ID:	0200210
Site ID:	214320
Spill Date:	2002-04-06
Spill Cause:	Tank Overfill
Spill Source:	Private Dwelling
Spill Class:	C3
Cleanup Ceased:	Not reported
SWIS:	0301
Investigator:	CESAWYER
Referred To:	Not reported
Reported to Dept:	2002-04-06
CID:	199
Water Affected:	Not reported
Spill Notifier:	Responsible Party
Last Inspection:	Not reported
Recommended Penalty:	False
Meets Standard:	False
UST Involvement:	False
Remediation Phase:	0

DEEGAN ENTERPRISES INC (Continued) **S105995566**

Date Entered In Computer:	2002-04-06
Spill Record Last Update:	2004-03-23
Spiller Name:	CALLER
Spiller Company:	CASTLE OIL
Spiller Address:	290 LOCUST AVE
Spiller County:	001
Spiller Contact:	ROBERT HILL
Spiller Phone:	(718) 579-3414
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	177572
DEC Memo:	"Prior to Sept, 2004 data translation this spill Lead_DEC Field was SAWYER 1/5/04-Vought-Spill transferred from Vought to Austin. 01/27/04 - Sawyer - Spill transferred from Austin to Sawyer. 03/23/04 - Sawyer - Minor spill and Castle Oil deployed own clean up crew. Closed."
Remarks:	"SUPERINTENDENT CALLED FOR A DELIVERY AND APPARENTLY HAD MORE OIL IN THE TANK THAN HE THOUGHT - OVERFILL OF APPROX 30GAL - CREW ON THE SCENE CLEANING UP N OW "

All Materials:

Site ID:	214320
Operable Unit ID:	851218
Operable Unit:	01
Material ID:	525206
Material Code:	0003A
Material Name:	#6 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	30.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

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315 West 1/4-1/2 0.424 mi. 2241 ft.

217 E. 176TH ST
217 E. 176TH ST
BRONX, NY

NY LTANKS **S102672960**
N/A

Relative: Higher

Actual: 121 ft.

LTANKS:

Spill Number/Closed Date:	9503959 / 1995-07-15
Facility ID:	9503959
Site ID:	290424
Spill Date:	1995-06-30
Spill Cause:	Tank Overfill
Spill Source:	Private Dwelling
Spill Class:	C4
Cleanup Ceased:	Not reported
SWIS:	0301
Investigator:	MMMULQUE
Referred To:	Not reported
Reported to Dept:	1995-06-30
CID:	Not reported
Water Affected:	Not reported
Spill Notifier:	Local Agency
Last Inspection:	Not reported

217 E. 176TH ST (Continued) **S102672960**

Recommended Penalty:	False
Meets Standard:	False
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	1995-08-01
Spill Record Last Update:	1996-03-26
Spiller Name:	Not reported
Spiller Company:	THE OIL COMPANY
Spiller Address:	4416 18TH AVENUE
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	235170
DEC Memo:	"Prior to Sept, 2004 data translation this spill Lead_DEC Field was MULQUEEN DEC found tank overfill, driver left scene & did not come back, did track down oil company and read them the riot act. Spill cleaned up by Super & friends."
Remarks:	"UNK AMOUNT - HAZMAT DEP NOTIFIED - OIL CO. VERFILLED TANK 100 GALS OF #6 F/O SPILLED ONTO SIDEWALK DOWN STREET & INTO SEWER - DRIVER LEFT SCENE OF SPILL AND DID NOT NOTIFY OR CLEAN UP. SUPER CONTAIN"

All Materials:

Site ID:	290424
Operable Unit ID:	1018410
Operable Unit:	01
Material ID:	365471
Material Code:	0066A
Material Name:	unknown petroleum
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

316
NNW
1/4-1/2
0.427 mi.
2252 ft.

LSL SERVICE INC APTS
2162 VALENTINE AVE
BRONX, NY

NY LTANKS **S103238967**
N/A

Relative:
Higher

Actual:
95 ft.

LTANKS:

Spill Number/Closed Date:	9507840 / 1995-09-26
Facility ID:	9507840
Site ID:	104445
Spill Date:	1995-09-26
Spill Cause:	Tank Overfill
Spill Source:	Commercial/Industrial
Spill Class:	C4
Cleanup Ceased:	Not reported
SWIS:	0301
Investigator:	SMMARTIN
Referred To:	Not reported
Reported to Dept:	1995-09-26
CID:	275

LSL SERVICE INC APTS (Continued) **S103238967**

Water Affected:	Not reported
Spill Notifier:	Other
Last Inspection:	Not reported
Recommended Penalty:	False
Meets Standard:	True
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	1995-09-26
Spill Record Last Update:	1999-10-04
Spiller Name:	Not reported
Spiller Company:	LSL SERVICE INC APTS
Spiller Address:	2162 VALENTINE AVE
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	(718) 295-1719
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	92270
DEC Memo:	"Prior to Sept, 2004 data translation this spill Lead_DEC Field was MARTINKAT "
Remarks:	"DEFECTIVE GAUGE ON CUSTOMER TANK CAUSED OVERFILL - BLDG SUPER ORDERED TOO MUCH OIL - SMALL SPILL ON SIDEWALK - ALL CLEANED"

All Materials:

Site ID:	104445
Operable Unit ID:	1018709
Operable Unit:	01
Material ID:	362285
Material Code:	0003A
Material Name:	#6 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	2.00
Units:	G
Recovered:	2.00
Oxygenate:	Not reported

317
NNW
1/4-1/2
0.438 mi.
2314 ft.

2100 ANTHONY AVENUE **NY LTANKS** **S104781901**
2100 ANTHONY AVE **N/A**
BRONX, NY

Relative:
Higher

Actual:
104 ft.

LTANKS:

Spill Number/Closed Date:	0004591 / 2003-12-15
Facility ID:	0004591
Site ID:	285570
Spill Date:	2000-07-12
Spill Cause:	Tank Overfill
Spill Source:	Non Major Facility > 1,100 gal
Spill Class:	B3
Cleanup Ceased:	Not reported
SWIS:	0301
Investigator:	SIGONA
Referred To:	Not reported
Reported to Dept:	2000-07-17
CID:	281

2100 ANTHONY AVENUE (Continued) **S104781901**

Water Affected:	Not reported
Spill Notifier:	Health Department
Last Inspection:	Not reported
Recommended Penalty:	False
Meets Standard:	False
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	2000-07-17
Spill Record Last Update:	2003-12-15
Spiller Name:	MARIA
Spiller Company:	HOLOBE REALITY
Spiller Address:	1060 WASHINGTON AVE
Spiller County:	001
Spiller Contact:	MARIA
Spiller Phone:	(718) 401-2110
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	231566
DEC Memo:	""
Remarks:	"CALLER RESPONDED TO ABOVE ADDRESS FOR AIR QUALITY COMPLAINT. UPON INVESTIGATION AN ACTIVE LEAK WAS DISCOVERED IN OIL TANK. ABSORBANT MATERIAL HAS BEEN PLACED DOWN. NO CALL BACK BEING REQUESTED. BUILDING OWNER HAS BEEN ADVISED AND HAS YET TAKEN ANY ACTION TO CORRECT PROBLEM."

All Materials:

Site ID:	285570
Operable Unit ID:	827114
Operable Unit:	01
Material ID:	549330
Material Code:	0001A
Material Name:	#2 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	10.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

318
SW
1/4-1/2
0.448 mi.
2366 ft.

CON EDISON
1688 WEBSTER AVE FRONT OF
BRONX, NY 10456

NY LTANKS **S100177865**
NY MANIFEST **N/A**

Relative:
Lower

Actual:
30 ft.

LTANKS:

Spill Number/Closed Date:	9111496 / 1995-03-30
Facility ID:	9111496
Site ID:	164209
Spill Date:	1992-02-07
Spill Cause:	Tank Failure
Spill Source:	Institutional, Educational, Gov., Other
Spill Class:	C4
Cleanup Ceased:	1995-03-30
SWIS:	0301
Investigator:	KSTANG
Referred To:	Not reported

CON EDISON (Continued) **S100177865**

Reported to Dept:	1992-02-07
CID:	Not reported
Water Affected:	Not reported
Spill Notifier:	Other
Last Inspection:	Not reported
Recommended Penalty:	False
Meets Standard:	True
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	1992-02-10
Spill Record Last Update:	1998-06-08
Spiller Name:	JOSEPH SANTINO
Spiller Company:	N.Y.C. HOUSING
Spiller Address:	Not reported
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	(212) 806-8212
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	138465
DEC Memo:	"Prior to Sept, 2004 data translation this spill Lead_DEC Field was TANG - MR.RON NONA, BORO - SUPER (212) 806-8052 - A.L ZASTMOND (212) 318-3000 OIL/WATER SEPERATORIN PLACE ON 2/15/92 - (212) 344-0840 - FAX - MIKE PROTO, HPD - (212) 806-8470 - PHONE - NIC HPD DIVISION OF MAINTENANCE 75 MAIDEN LANE ROOM 427 N.Y., N.Y. 10038"
Remarks:	"CONTAINED IN BASEMENT. PETRO TANK CLEANERS HIRE TO DO CLEANUO."

All Materials:

Site ID:	164209
Operable Unit ID:	965222
Operable Unit:	01
Material ID:	416530
Material Code:	0001A
Material Name:	#2 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1.00
Units:	L
Recovered:	.00
Oxygenate:	Not reported

NY MANIFEST:

Country:	USA
EPA ID:	NYP004542387
Facility Status:	Not reported
Location Address 1:	1688 WEBSTER AVE
Code:	BP
Location Address 2:	SB 10426
Total Tanks:	Not reported
Location City:	BRONX
Location State:	NY
Location Zip:	10457
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	NYP004542387
Mailing Name:	CON EDISON

CON EDISON (Continued) **S100177865**

Mailing Contact:	TOM TEELING
Mailing Address 1:	4 IRVING PLACE 15TH FLOOR
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	10003
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	Not reported

NY MANIFEST:

Document ID:	Not reported
Manifest Status:	Not reported
seq:	Not reported
Year:	2014
Trans1 State ID:	NJD003812047
Trans2 State ID:	Not reported
Generator Ship Date:	05/23/2014
Trans1 Recv Date:	05/23/2014
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	05/27/2014
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004542387
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID 1:	NJD991291105
TSDF ID 2:	Not reported
Manifest Tracking Number:	002422930GBF
Import Indicator:	N
Export Indicator:	N
Discr Quantity Indicator:	N
Discr Type Indicator:	N
Discr Residue Indicator:	N
Discr Partial Reject Indicator:	N
Discr Full Reject Indicator:	N
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H110
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	85
Units:	P - Pounds
Number of Containers:	1
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Waste Code:	D008
Waste Code 1_2:	Not reported
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported

CON EDISON (Continued) **S100177865**

Waste Code 1_6: Not reported

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

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319 **RESIDENCE** **NY LTANKS** **S102150509**
East **716 EAST 181ST ST** **N/A**
1/4-1/2 **BRONX, NY**
0.467 mi.
2467 ft.

Relative:
Higher

Actual:
74 ft.

LTANKS:

Spill Number/Closed Date:	9600962 / 1996-04-19
Facility ID:	9600962
Site ID:	205484
Spill Date:	1996-04-19
Spill Cause:	Tank Overfill
Spill Source:	Private Dwelling
Spill Class:	C4
Cleanup Ceased:	Not reported
SWIS:	0301
Investigator:	KSTANG
Referred To:	Not reported
Reported to Dept:	1996-04-19
CID:	282
Water Affected:	Not reported
Spill Notifier:	Other
Last Inspection:	Not reported
Recommended Penalty:	False
Meets Standard:	False
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	1996-04-19
Spill Record Last Update:	2003-10-01
Spiller Name:	SAME
Spiller Company:	SAME
Spiller Address:	Not reported
Spiller County:	001
Spiller Contact:	RALPH HERPIA
Spiller Phone:	(718) 653-9981
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	170623
DEC Memo:	"Prior to Sept, 2004 data translation this spill Lead_DEC Field was TANG "
Remarks:	"tank overfill due to a guage not working "

All Materials:

Site ID:	205484
Operable Unit ID:	1032406
Operable Unit:	01
Material ID:	350794
Material Code:	0001A
Material Name:	#2 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	1.00

RESIDENCE (Continued) **S102150509**

Units: G
Recovered: .00
Oxygenate: Not reported

320
ENE
1/4-1/2
0.469 mi.
2476 ft.

SPILL NUMBER 0313265
182ND ST/ HUGHES AVE
BRONX, NY

NY LTANKS **S106385475**
N/A

Relative:
Higher

Actual:
96 ft.

LTANKS:

Spill Number/Closed Date:	0313265 / 2004-03-04
Facility ID:	0313265
Site ID:	165162
Spill Date:	2004-03-03
Spill Cause:	Tank Failure
Spill Source:	Tank Truck
Spill Class:	D3
Cleanup Ceased:	Not reported
SWIS:	0301
Investigator:	CESAWYER
Referred To:	Not reported
Reported to Dept:	2004-03-03
CID:	407
Water Affected:	Not reported
Spill Notifier:	Citizen
Last Inspection:	Not reported
Recommended Penalty:	False
Meets Standard:	False
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	2004-03-03
Spill Record Last Update:	2004-04-21
Spiller Name:	Not reported
Spiller Company:	UNKNOWN
Spiller Address:	Not reported
Spiller County:	999
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	139228
DEC Memo:	"Prior to Sept, 2004 data translation this spill Lead_DEC Field was SAWYER 3/3/04 TIPPLE Updating// hotline stated that the caller had called 911 first and was referred to the hotline #, caller stated to the hotline that he had no home phone and had called from a pay phone. Bronx FDNY dispatch had no notification of any release of petroleum at this location. DEP was notified of this report Mr. Sawyer conducting a site visit. 3/4/04 tipple updating//sawyer responded, no spill found at or near specified location"
Remarks:	"caller was shaken, has no phone #, truck spilled oil and is running into sewer. no further info. caller was not cooperative. "

All Materials:

Site ID:	165162
Operable Unit ID:	878499
Operable Unit:	01

SPILL NUMBER 0313265 (Continued) **S106385475**

Material ID:	498423
Material Code:	0001A
Material Name:	#2 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	.00
Units:	L
Recovered:	.00
Oxygenate:	Not reported

321
ESE
1/4-1/2
0.473 mi.
2495 ft.

Relative:
Higher

Actual:
71 ft.

PROSPECT CLEANERS
1976 PROSPECT AVE
BRONX, NY 10457

RCRA-SQG **1004756902**
NY LTANKS **NYD982538217**
ICIS
US AIRS
NY DRYCLEANERS
NY MANIFEST

RCRA-SQG:

Date form received by agency:	01/01/2007
Facility name:	PROSPECT CLEANERS
Facility address:	1976 PROSPECT AVE OFF TREMONT AVE BRONX, NY 10457
EPA ID:	NYD982538217
Mailing address:	PROSPECT AVE OFF TREMONT AVE BRONX, NY 10457
Contact:	RAMON JEREZ
Contact address:	PROSPECT AVE OFF TREMONT AVE BRONX, NY 10457
Contact country:	US
Contact telephone:	718-716-9322
Contact email:	Not reported
EPA Region:	02
Classification:	Small Small Quantity Generator
Description:	Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:

Owner/operator name:	RAMON JEREZ
Owner/operator address:	719 W 180TH ST NEW YORK, NY 10033
Owner/operator country:	US
Owner/operator telephone:	212-781-1713
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	RAMON JEREZ

PROSPECT CLEANERS (Continued) **1004756902**

Owner/operator address: 719 W 180TH ST
NEW YORK, NY 10033
Owner/operator country: US
Owner/operator telephone: 212-781-1713
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 01/01/2006
Site name: PROSPECT CLEANERS
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 02/06/1996
Site name: PROSPECT CLEANERS
Classification: Conditionally Exempt Small Quantity Generator

. Waste code: D000
. Waste name: Not Defined

. Waste code: D001
. Waste name: IGNITABLE WASTE

. Waste code: F002
. Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE, TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2, TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Violation Status: No violations found

PROSPECT CLEANERS (Continued) **1004756902**

LTANKS:

Spill Number/Closed Date:	0312947 / 2004-03-08
Facility ID:	0312947
Site ID:	231696
Spill Date:	2004-02-24
Spill Cause:	Tank Failure
Spill Source:	Institutional, Educational, Gov., Other
Spill Class:	C4
Cleanup Ceased:	Not reported
SWIS:	0301
Investigator:	TJDEMEO
Referred To:	Not reported
Reported to Dept:	2004-02-24
CID:	444
Water Affected:	Not reported
Spill Notifier:	Other
Last Inspection:	Not reported
Recommended Penalty:	False
Meets Standard:	False
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	2004-02-24
Spill Record Last Update:	2004-03-08
Spiller Name:	PROSPECT CLEANERS
Spiller Company:	PROSPECT CLEANERS
Spiller Address:	1976 PROSPECT AVE
Spiller County:	001
Spiller Contact:	PROSPECT CLEANERS
Spiller Phone:	(718) 716-9322
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	190947
DEC Memo:	"Prior to Sept, 2004 data translation this spill Lead_DEC Field was DEMEO 3/8/04 TJD Demeo inspected site on 2/24/04. Eastmond on site for cleanup using absorbents/vac truck. Concrete floor pressure washed and wash water removed with vacuum truck. 275 AST emptied and taken out of service, eastmond to replace tank. Minor impacts to wood structural support left in place. No further action required. Spill closed."
Remarks:	"OIL TANK HAD A HOLE IN BOTTOM AND THE OIL CO. JUST FILLED UP TANK AND ALL 150 GALLONS RAN INTO SEWER DUE TO OPEN SEWER DRAINS IN THE BASEMENT OF CLEANERS: NOTHING REALLY LEFT TO CLEAN UP: THEY WILL BE CONTACTING CLEAN UP CREW TO LOOK INTO IT: CELL # FOR OIL CO. IS 917-468-4181"

All Materials:

Site ID:	231696
Operable Unit ID:	880153
Operable Unit:	01
Material ID:	498120
Material Code:	0001A
Material Name:	#2 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	150.00
Units:	G
Recovered:	.00

PROSPECT CLEANERS (Continued) **1004756902**

Oxygenate: Not reported

ICIS:

Enforcement Action ID: NY000A0000260050087000325
FRS ID: 110004423749
Action Name: PROSPECT DRY CLEANERS 36005R291100325
Facility Name: PROSPECT DRY CLEANERS
Facility Address: 1976 PROSPECT AVE
BRONX, NY 104575139
Enforcement Action Type: Notice of Violation
Facility County: BRONX
Program System Acronym: AIR
Enforcement Action Forum Desc: Administrative - Informal
EA Type Code: NOV
Facility SIC Code: 7216
Federal Facility ID: Not reported
Latitude in Decimal Degrees: 40.844837
Longitude in Decimal Degrees: -73.888624
Permit Type Desc: Not reported
Program System Acronym: NY0000002600500870
Facility NAICS Code: 812320
Tribal Land Code: Not reported

Enforcement Action ID: NY000A0000260050087000311
FRS ID: 110004423749
Action Name: PROSPECT DRY CLEANERS 36005R291100311
Facility Name: PROSPECT DRY CLEANERS
Facility Address: 1976 PROSPECT AVE
BRONX, NY 104575139
Enforcement Action Type: Administrative Order
Facility County: BRONX
Program System Acronym: AIR
Enforcement Action Forum Desc: Administrative - Formal
EA Type Code: SCAAAO
Facility SIC Code: 7216
Federal Facility ID: Not reported
Latitude in Decimal Degrees: 40.844837
Longitude in Decimal Degrees: -73.888624
Permit Type Desc: Not reported
Program System Acronym: NY0000002600500870
Facility NAICS Code: 812320
Tribal Land Code: Not reported

Enforcement Action ID: NY000A0000260050087000301
FRS ID: 110004423749
Action Name: PROSPECT DRY CLEANERS 36005R291100301
Facility Name: PROSPECT DRY CLEANERS
Facility Address: 1976 PROSPECT AVE
BRONX, NY 104575139
Enforcement Action Type: Notice of Violation
Facility County: BRONX
Program System Acronym: AIR
Enforcement Action Forum Desc: Administrative - Informal
EA Type Code: NOV
Facility SIC Code: 7216
Federal Facility ID: Not reported

PROSPECT CLEANERS (Continued) **1004756902**

Latitude in Decimal Degrees: 40.844837
Longitude in Decimal Degrees: -73.888624
Permit Type Desc: Not reported
Program System Acronym: NY0000002600500870
Facility NAICS Code: 812320
Tribal Land Code: Not reported

US AIRS MINOR:
Envid: 1004756902
Region Code: 02
Programmatic ID: AIR NY0000002600500870
Facility Registry ID: 110004423749
D and B Number: Not reported
Primary SIC Code: 7216
NAICS Code: 812320
Default Air Classification Code: MIN
Facility Type of Ownership Code: POF
Air CMS Category Code: Not reported
HPV Status: Not reported

US AIRS MINOR:
Region Code: 02
Programmatic ID: AIR NY0000002600500870
Facility Registry ID: 110004423749
Air Operating Status Code: OPR
Default Air Classification Code: MIN
Air Program: MACT Standards (40 CFR Part 63)
Activity Date: Not reported
Activity Status Date: 2014-10-19 00:00:00
Activity Group: Case File
Activity Type: Case File
Activity Status: Case File Data Entered

Region Code: 02
Programmatic ID: AIR NY0000002600500870
Facility Registry ID: 110004423749
Air Operating Status Code: OPR
Default Air Classification Code: MIN
Air Program: MACT Standards (40 CFR Part 63)
Activity Date: 2003-08-08 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 02
Programmatic ID: AIR NY0000002600500870
Facility Registry ID: 110004423749
Air Operating Status Code: OPR
Default Air Classification Code: MIN
Air Program: MACT Standards (40 CFR Part 63)
Activity Date: 2010-05-18 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

PROSPECT CLEANERS (Continued) **1004756902**

Region Code: 02
Programmatic ID: AIR NY0000002600500870
Facility Registry ID: 110004423749
Air Operating Status Code: OPR
Default Air Classification Code: MIN
Air Program: MACT Standards (40 CFR Part 63)
Activity Date: 2010-01-06 00:00:00
Activity Status Date: 2010-01-06 00:00:00
Activity Group: Enforcement Action
Activity Type: Administrative - Formal
Activity Status: Final Order Issued

Region Code: 02
Programmatic ID: AIR NY0000002600500870
Facility Registry ID: 110004423749
Air Operating Status Code: OPR
Default Air Classification Code: MIN
Air Program: MACT Standards (40 CFR Part 63)
Activity Date: 2003-08-28 00:00:00
Activity Status Date: 2003-08-28 00:00:00
Activity Group: Enforcement Action
Activity Type: Administrative - Informal
Activity Status: Achieved

Region Code: 02
Programmatic ID: AIR NY0000002600500870
Facility Registry ID: 110004423749
Air Operating Status Code: OPR
Default Air Classification Code: MIN
Air Program: MACT Standards (40 CFR Part 63)
Activity Date: 2012-04-03 00:00:00
Activity Status Date: 2012-04-03 00:00:00
Activity Group: Enforcement Action
Activity Type: Administrative - Informal
Activity Status: Achieved

Region Code: 02
Programmatic ID: AIR NY0000002600500870
Facility Registry ID: 110004423749
Air Operating Status Code: OPR
Default Air Classification Code: MIN
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2003-08-08 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 02
Programmatic ID: AIR NY0000002600500870
Facility Registry ID: 110004423749
Air Operating Status Code: OPR
Default Air Classification Code: MIN
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2010-05-18 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring

PROSPECT CLEANERS (Continued) **1004756902**

Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 02
Programmatic ID: AIR NY0000002600500870
Facility Registry ID: 110004423749
Air Operating Status Code: OPR
Default Air Classification Code: MIN
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2010-01-06 00:00:00
Activity Status Date: 2010-01-06 00:00:00
Activity Group: Enforcement Action
Activity Type: Administrative - Formal
Activity Status: Final Order Issued

Region Code: 02
Programmatic ID: AIR NY0000002600500870
Facility Registry ID: 110004423749
Air Operating Status Code: OPR
Default Air Classification Code: MIN
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2003-08-28 00:00:00
Activity Status Date: 2003-08-28 00:00:00
Activity Group: Enforcement Action
Activity Type: Administrative - Informal
Activity Status: Achieved

US AIRS MINOR:
Envid: 1004756902
Region Code: 02
Programmatic ID: AIR NY0000002600500870
Facility Registry ID: 110004423749
D and B Number: Not reported
Primary SIC Code: 7216
NAICS Code: 812320
Default Air Classification Code: MIN
Facility Type of Ownership Code: POF
Air CMS Category Code: Not reported
HPV Status: Not reported

US AIRS MINOR:
Region Code: 02
Programmatic ID: AIR NY0000002600500870
Facility Registry ID: 110004423749
Air Operating Status Code: OPR
Default Air Classification Code: MIN
Air Program: MACT Standards (40 CFR Part 63)
Activity Date: Not reported
Activity Status Date: 2014-10-19 00:00:00
Activity Group: Case File
Activity Type: Case File
Activity Status: Case File Data Entered

Region Code: 02
Programmatic ID: AIR NY0000002600500870
Facility Registry ID: 110004423749

PROSPECT CLEANERS (Continued) **1004756902**

Air Operating Status Code: OPR
Default Air Classification Code: MIN
Air Program: MACT Standards (40 CFR Part 63)
Activity Date: 2003-08-08 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 02
Programmatic ID: AIR NY0000002600500870
Facility Registry ID: 110004423749
Air Operating Status Code: OPR
Default Air Classification Code: MIN
Air Program: MACT Standards (40 CFR Part 63)
Activity Date: 2010-05-18 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 02
Programmatic ID: AIR NY0000002600500870
Facility Registry ID: 110004423749
Air Operating Status Code: OPR
Default Air Classification Code: MIN
Air Program: MACT Standards (40 CFR Part 63)
Activity Date: 2010-01-06 00:00:00
Activity Status Date: 2010-01-06 00:00:00
Activity Group: Enforcement Action
Activity Type: Administrative - Formal
Activity Status: Final Order Issued

Region Code: 02
Programmatic ID: AIR NY0000002600500870
Facility Registry ID: 110004423749
Air Operating Status Code: OPR
Default Air Classification Code: MIN
Air Program: MACT Standards (40 CFR Part 63)
Activity Date: 2003-08-28 00:00:00
Activity Status Date: 2003-08-28 00:00:00
Activity Group: Enforcement Action
Activity Type: Administrative - Informal
Activity Status: Achieved

Region Code: 02
Programmatic ID: AIR NY0000002600500870
Facility Registry ID: 110004423749
Air Operating Status Code: OPR
Default Air Classification Code: MIN
Air Program: MACT Standards (40 CFR Part 63)
Activity Date: 2012-04-03 00:00:00
Activity Status Date: 2012-04-03 00:00:00
Activity Group: Enforcement Action
Activity Type: Administrative - Informal
Activity Status: Achieved

PROSPECT CLEANERS (Continued) **1004756902**

Region Code: 02
Programmatic ID: AIR NY0000002600500870
Facility Registry ID: 110004423749
Air Operating Status Code: OPR
Default Air Classification Code: MIN
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2003-08-08 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 02
Programmatic ID: AIR NY0000002600500870
Facility Registry ID: 110004423749
Air Operating Status Code: OPR
Default Air Classification Code: MIN
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2010-05-18 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 02
Programmatic ID: AIR NY0000002600500870
Facility Registry ID: 110004423749
Air Operating Status Code: OPR
Default Air Classification Code: MIN
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2010-01-06 00:00:00
Activity Status Date: 2010-01-06 00:00:00
Activity Group: Enforcement Action
Activity Type: Administrative - Formal
Activity Status: Final Order Issued

Region Code: 02
Programmatic ID: AIR NY0000002600500870
Facility Registry ID: 110004423749
Air Operating Status Code: OPR
Default Air Classification Code: MIN
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2003-08-28 00:00:00
Activity Status Date: 2003-08-28 00:00:00
Activity Group: Enforcement Action
Activity Type: Administrative - Informal
Activity Status: Achieved

DRYCLEANERS:
Facility ID: 2-6005-00870
Phone Number: 718-716-9322
Region: Not reported
Registration Effective Date: 10/29/2003
Inspection Date: 11NOV10
Install Date: 03/11
Drop Shop: Y

PROSPECT CLEANERS (Continued) **1004756902**

Shutdown: Not reported
Alternate Solvent: Not reported
Current Business: Not reported

NY MANIFEST:
Country: USA
EPA ID: NYD982538217
Facility Status: Not reported
Location Address 1: 1976 PROSPECT AVE
Code: BP
Location Address 2: Not reported
Total Tanks: Not reported
Location City: BRONX
Location State: NY
Location Zip: 10457
Location Zip 4: Not reported

NY MANIFEST:
EPAID: NYD982538217
Mailing Name: PROSPECT CLEANERS
Mailing Contact: RAMON JEREZ
Mailing Address 1: 1976 PROSPECT AVE
Mailing Address 2: Not reported
Mailing City: BRONX
Mailing State: NY
Mailing Zip: 10457
Mailing Zip 4: Not reported
Mailing Country: USA
Mailing Phone: 7187169322

NY MANIFEST:
Document ID: Not reported
Manifest Status: Not reported
seq: Not reported
Year: 2018
Trans1 State ID: NJD000564908
Trans2 State ID: MIT270012321
Generator Ship Date: 06/25/2018
Trans1 Recv Date: 06/25/2018
Trans2 Recv Date: 07/05/2018
TSD Site Recv Date: 07/06/2018
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: NYD982538217
Trans1 EPA ID: Not reported
Trans2 EPA ID: Not reported
TSDF ID 1: CDX107000000
TSDF ID 2: Not reported
Manifest Tracking Number: 017160960JJK
Import Indicator: N
Export Indicator: Y
Discr Quantity Indicator: N
Discr Type Indicator: N
Discr Residue Indicator: N
Discr Partial Reject Indicator: N
Discr Full Reject Indicator: N
Manifest Ref Number: Not reported

PROSPECT CLEANERS (Continued) **1004756902**

Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	H020
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	390
Units:	P - Pounds
Number of Containers:	3
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	1
Waste Code:	F002
Waste Code 1_2:	D039
Waste Code 1_3:	Not reported
Waste Code 1_4:	Not reported
Waste Code 1_5:	Not reported
Waste Code 1_6:	Not reported

Click this hyperlink while viewing on your computer to access
6 additional NY MANIFEST: record(s) in the EDR Site Report.

322
NW
1/4-1/2
0.474 mi.
2503 ft.

SPILL NUMBER 0204378 **NY LTANKS** **S105996377**
2065 GRAND CONCOURSE **N/A**
BRONX, NY

Relative:
Higher

Actual:
101 ft.

LTANKS:

Spill Number/Closed Date:	0204378 / 2004-08-17
Facility ID:	0204378
Site ID:	253235
Spill Date:	2002-07-25
Spill Cause:	Tank Test Failure
Spill Source:	Private Dwelling
Spill Class:	B3
Cleanup Ceased:	Not reported
SWIS:	0301
Investigator:	MXTIPPLE
Referred To:	Not reported
Reported to Dept:	2002-07-26
CID:	Not reported
Water Affected:	Not reported
Spill Notifier:	Tank Tester
Last Inspection:	Not reported
Recommended Penalty:	False
Meets Standard:	False
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	2002-07-26
Spill Record Last Update:	2004-08-17
Spiller Name:	Not reported
Spiller Company:	SAME
Spiller Address:	Not reported

SPILL NUMBER 0204378 (Continued) **S105996377**

Spiller County:	999
Spiller Contact:	CONTROLLED COMBUSTION CO
Spiller Phone:	(718) 367-9800
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	207451
DEC Memo:	"Prior to Sept, 2004 data translation this spill Lead_DEC Field was TIPPLE 7/29/2002 ttf letter sent to Orsid Realty Corp. 1740 Broadway as per PBS registration 2-046531 12/16/03 Tipple sent request for documentation 8/17/04 documentation arrives/ noterized letter //nfa"
Remarks:	" "

All Materials:

Site ID:	253235
Operable Unit ID:	855529
Operable Unit:	01
Material ID:	518630
Material Code:	0001A
Material Name:	#2 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

323
NW
1/4-1/2
0.490 mi.
2588 ft.

SPILL NUMBER 9804267 **NY LTANKS** **S104619593**
2095 GRAND CONCOURSE **N/A**
BRONX, NY

Relative: Higher

Actual: 106 ft.

LTANKS:

Spill Number/Closed Date:	9311552 / 1993-12-27
Facility ID:	9311552
Site ID:	267486
Spill Date:	1993-12-27
Spill Cause:	Tank Overfill
Spill Source:	Commercial/Industrial
Spill Class:	C3
Cleanup Ceased:	1993-12-27
SWIS:	0301
Investigator:	SIGONA
Referred To:	Not reported
Reported to Dept:	1993-12-23
CID:	Not reported
Water Affected:	Not reported
Spill Notifier:	Responsible Party
Last Inspection:	Not reported
Recommended Penalty:	False
Meets Standard:	True
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	1993-12-30
Spill Record Last Update:	2004-09-30
Spiller Name:	Not reported
Spiller Company:	CRYSTAL TRANS.

SPILL NUMBER 9804267 (Continued) **S104619593**

Spiller Address:	2010 WHITE PLAINS ROAD
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	217909
DEC Memo:	""
Remarks:	"OUTSIDE TANK WENT ONTO SIDEWALK THEY WILL CLEAN IT UP."

All Materials:

Site ID:	267486
Operable Unit ID:	990176
Operable Unit:	01
Material ID:	390586
Material Code:	0003A
Material Name:	#6 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	12.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

Spill Number/Closed Date:	9804267 / 1998-07-06
Facility ID:	9804267
Site ID:	267487
Spill Date:	1998-07-06
Spill Cause:	Tank Overfill
Spill Source:	Commercial/Industrial
Spill Class:	C4
Cleanup Ceased:	Not reported
SWIS:	0301
Investigator:	SMMARTIN
Referred To:	Not reported
Reported to Dept:	1998-07-06
CID:	351
Water Affected:	Not reported
Spill Notifier:	Other
Last Inspection:	Not reported
Recommended Penalty:	False
Meets Standard:	False
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	1998-07-06
Spill Record Last Update:	1998-07-08
Spiller Name:	Not reported
Spiller Company:	WESTCHESTER REALITY
Spiller Address:	2095 GRAND CONCOURSE
Spiller County:	001
Spiller Contact:	JANET MATOS
Spiller Phone:	(718) 579-3413
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	217909
DEC Memo:	"Prior to Sept, 2004 data translation this spill Lead_DEC Field was MARTINKAT "

SPILL NUMBER 9804267 (Continued) **S104619593**

Remarks: "SPILLER ORDERED TOO MUCH OIL FOR TANK - OIL SPILLED TO SIDEWALK - OIL CONTAINED - SPILL CREW ON SCENE"

All Materials:

Site ID:	267487
Operable Unit ID:	1065133
Operable Unit:	01
Material ID:	318989
Material Code:	0002A
Material Name:	#4 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	15.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

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324 **EAST 182 ST & BELMONT AVE** **NY LTANKS** **1000548777**
ENE **BELMONT AVE & E 182 ST** **N/A**
1/4-1/2 **NEW YORK CITY, NY**
0.496 mi.
2621 ft.

Relative: **Higher**

Actual: **103 ft.**

LTANKS:

Spill Number/Closed Date:	8801373 / 1993-02-23
Facility ID:	8801373
Site ID:	257045
Spill Date:	1988-05-13
Spill Cause:	Tank Test Failure
Spill Source:	Institutional, Educational, Gov., Other
Spill Class:	C4
Cleanup Ceased:	1993-02-23
SWIS:	0301
Investigator:	BATTISTA
Referred To:	Not reported
Reported to Dept:	1988-05-13
CID:	Not reported
Water Affected:	Not reported
Spill Notifier:	Tank Tester
Last Inspection:	Not reported
Recommended Penalty:	False
Meets Standard:	False
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	1988-05-16
Spill Record Last Update:	1994-05-12
Spiller Name:	Not reported
Spiller Company:	AQUINAS H S
Spiller Address:	BELMONT AV & E 182 ST
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	210477
DEC Memo:	""
Remarks:	"5K TANK, VISIBLE LEAK IN MAN HOLE COVER. SUSPECT BAD GASKET."

EAST 182 ST & BELMONT AVE (Continued) **1000548777**

All TTF:

Facility ID:	8801373
Spill Number:	8801373
Spill Tank Test:	1533899
Site ID:	257045
Tank Number:	Not reported
Tank Size:	0
Material:	0002
EPA UST:	Not reported
UST:	Not reported
Cause:	Not reported
Source:	Not reported
Test Method:	00
Test Method 2:	Unknown
Leak Rate:	.00
Gross Fail:	Not reported
Modified By:	Spills
Last Modified Date:	Not reported

All Materials:

Site ID:	257045
Operable Unit ID:	916865
Operable Unit:	01
Material ID:	460518
Material Code:	0002A
Material Name:	#4 fuel oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1.00
Units:	G
Recovered:	.00
Oxygenate:	Not reported

325
SSW
1/2-1
0.541 mi.
2855 ft.

KLEENER KING **NY SHWS S110247062**
1610 BATHGATE AVENUE **NY DRYCLEANERS N/A**
BRONX, NY 10457

Relative:
Lower

Actual:
46 ft.

SHWS:

Program:	HW
Site Code:	434792
Classification:	C
Region:	2
Acres:	0.75
HW Code:	203049
Record Add:	05/13/2010
Record Upd:	11/14/2018
Updated By:	JHOCONNE

Site Description: Location: The site is located at 1610 Bathgate Avenue in the borough of the Bronx, City of New York, and is identified on the local Tax Maps as block 2919, Lot 5. Site Features: The site is about 0.75 acres in size and is bounded to the north by East 172nd Street, to the east by Third Avenue, to the south by a day care facility and to the west by Bathgate Avenue. The site is located within the Port Authority?s Bathgate Industrial Park which encompasses 21.5 acres of

KLEENER KING (Continued) **S110247062**

light manufacturing zoned property. The Kleener King facility was constructed in 2000 and operated as a dry cleaning facility until September 2005. The property comprises 17,802 square feet ground floor level area and a 5,260 square foot mezzanine level. The building is constructed over a foundation slab of reinforced concrete. The property is almost entirely covered by an asphalt parking area, concrete sidewalks or the building itself. Current Zone/Use: The site is owned by New York City. It is zoned for (M1-4, R6). The site is currently occupied by Terrafina LLC, since January 2012. Terrafina packs, warehouses, and distributes nuts, dried fruit and other confectionaries at this location. Historical Use: The former Kleener King dry cleaner and laundromat facility was constructed in 2000 and operated as a dry cleaning facility until September 2005. Following closure of the dry cleaning business and abandonment of the facility by the owner/operator, hazardous waste was found consisting of chlorinated solvents in groundwater and soil vapor. Site Geology and Hydrogeology: The subsurface beneath the site consist of fill material with construction and demolition debris to depths ranging from 4 feet to 14 feet below ground surface (bgs). The fill material is underlain by coarse to fine sand with gravel and trace of silt to depth ranging from 7 feet to 69 feet bgs. Groundwater is encountered at depths ranging from 6.8 feet bgs to 12.9 feet bgs. Groundwater has been determined to flow in a northwesterly direction across the site.

Env Problem: Nature and Extent of Contamination: Based on the investigations conducted to date, the primary contaminants of concern at the site are tetrchloroethylene (PCE) and its decomposition products. Chlorinated solvent were detected in groundwater and soil vapor above applicable standards and guidance values. Soil: Low levels of PCE and its degradation compounds were detected in subsurface soil with a maximum concentration of 0.18 ppm, which is below the unrestricted soil cleanup objective. Groundwater: Contaminants detected in groundwater include PCE at a maximum concentration of 9.1 ppb; cis-1,2-dichloroethene at a maximum concentration of 17 ppb; and trichloroethene at a maximum concentration of 38 ppb. The groundwater standard for each of these compounds is 5 ppb. Soil Vapor: Vapor intrusion investigation completed at the site identified elevated concentrations of chlorinated solvents in soil vapor below the building. The maximum concentration for PCE was detected at 120,000 ug/m3, which is above the NYSDOH guidance value. The indoor air sample result indicated that contaminant concentrations were below the NYSDOH guidance. As a result of the soil vapor intrusion investigation, the Port Authority installed a sub-slab depressurization system (SSDS) at the site to mitigate the elevated soil vapor concentrations beneath the building slab.

Health Problem: Not reported
Dump: Not reported
Structure: Not reported
Lagoon: Not reported
Landfill: Not reported
Pond: Not reported
Disp Start: Not reported
Disp Term: Not reported
Lat/Long: Not reported
Dell: Not reported
Record Add: Not reported
Record Upd: Not reported

KLEENER KING (Continued) **S110247062**

Updated By:	Not reported
Own Op:	On-Site Operator
Sub Type:	NNN
Owner Name:	William Glynn
Owner Company:	The Port Authority of NY & NJ
Owner Address:	Two Gateway Center
Owner Addr2:	Not reported
Owner City,St,Zip:	Newark, NJ 07102
Owner Country:	United States of America
Own Op:	Owner
Sub Type:	NNN
Owner Name:	Department of General Services
Owner Company:	New York City
Owner Address:	2 Lafayette Street
Owner Addr2:	Not reported
Owner City,St,Zip:	New York, NY 10007
Owner Country:	United States of America
HW Code:	Not reported
Waste Type:	Not reported
Waste Quantity:	Not reported
Waste Code:	Not reported
Crossref ID:	Not reported
Cross Ref Type Code:	Not reported
Cross Ref Type:	Not reported
Record Added Date:	Not reported
Record Updated:	Not reported
Updated By:	Not reported

DRYCLEANERS:

Facility ID:	2-6005-00788
Phone Number:	718-466-0099
Region:	Not reported
Registration Effective Date:	N/A
Inspection Date:	07MAY20
Install Date:	99/07
Drop Shop:	Not reported
Shutdown:	Y
Alternate Solvent:	Not reported
Current Business:	Not reported

Count: 3 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
BRONX	S118462465	AT WEBSTER AVE	EB CROSS BRONX EXPRESSWAY		NY LTANKS
BRONX	S113916993	NORTH OF BRUSH AVENUE LOT	NORTH OF BRUSH AVENUE LOT	10456	NY SHWS
BRONX	S118953677	FORDHAM U PHYS PLANT	441 WEBSTER AVE		NY LTANKS

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 03/11/2019
Date Data Arrived at EDR: 03/14/2019
Date Made Active in Reports: 04/01/2019
Number of Days to Update: 18

Source: EPA
Telephone: N/A
Last EDR Contact: 04/18/2019
Next Scheduled EDR Contact: 07/15/2019
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 3
Telephone 215-814-5418

EPA Region 4
Telephone 404-562-8033

EPA Region 5
Telephone 312-886-6686

EPA Region 10
Telephone 206-553-8665

EPA Region 6
Telephone: 214-655-6659

EPA Region 7
Telephone: 913-551-7247

EPA Region 8
Telephone: 303-312-6774

EPA Region 9
Telephone: 415-947-4246

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 03/11/2019
Date Data Arrived at EDR: 03/14/2019
Date Made Active in Reports: 04/01/2019
Number of Days to Update: 18

Source: EPA
Telephone: N/A
Last EDR Contact: 04/18/2019
Next Scheduled EDR Contact: 07/15/2019
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Federal Delisted NPL site list

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 03/11/2019
Date Data Arrived at EDR: 03/14/2019
Date Made Active in Reports: 04/01/2019
Number of Days to Update: 18

Source: EPA
Telephone: N/A
Last EDR Contact: 04/18/2019
Next Scheduled EDR Contact: 07/15/2019
Data Release Frequency: Quarterly

Federal CERCLIS list

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 11/07/2016
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 92

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 04/05/2019
Next Scheduled EDR Contact: 07/15/2019
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 03/11/2019
Date Data Arrived at EDR: 03/14/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 34

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 04/18/2019
Next Scheduled EDR Contact: 07/29/2019
Data Release Frequency: Quarterly

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 03/11/2019
Date Data Arrived at EDR: 03/14/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 34

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 04/18/2019
Next Scheduled EDR Contact: 07/29/2019
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/25/2019
Date Data Arrived at EDR: 03/27/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 21

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 03/27/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 03/25/2019
Date Data Arrived at EDR: 03/27/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 21

Source: Environmental Protection Agency
Telephone: (212) 637-3660
Last EDR Contact: 03/27/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/25/2019
Date Data Arrived at EDR: 03/27/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 21

Source: Environmental Protection Agency
Telephone: (212) 637-3660
Last EDR Contact: 03/27/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 03/25/2019
Date Data Arrived at EDR: 03/27/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 21

Source: Environmental Protection Agency
Telephone: (212) 637-3660
Last EDR Contact: 03/27/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/25/2019
Date Data Arrived at EDR: 03/27/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 21

Source: Environmental Protection Agency
Telephone: (212) 637-3660
Last EDR Contact: 03/27/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 02/22/2019
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 41

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 02/07/2019
Next Scheduled EDR Contact: 05/27/2019
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 01/31/2019
Date Data Arrived at EDR: 02/04/2019
Date Made Active in Reports: 03/08/2019
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/04/2019
Next Scheduled EDR Contact: 06/10/2019
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 01/31/2019
Date Data Arrived at EDR: 02/04/2019
Date Made Active in Reports: 03/08/2019
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/04/2019
Next Scheduled EDR Contact: 06/10/2019
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 02/04/2019
Date Data Arrived at EDR: 02/08/2019
Date Made Active in Reports: 03/08/2019
Number of Days to Update: 28

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 03/26/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

SHWS: Inactive Hazardous Waste Disposal Sites in New York State

Referred to as the State Superfund Program, the Inactive Hazardous Waste Disposal Site Remedial Program is the cleanup program for inactive hazardous waste sites and now includes hazardous substance sites

Date of Government Version: 11/12/2018
Date Data Arrived at EDR: 11/14/2018
Date Made Active in Reports: 12/19/2018
Number of Days to Update: 35

Source: Department of Environmental Conservation
Telephone: 518-402-9622
Last EDR Contact: 02/13/2019
Next Scheduled EDR Contact: 05/27/2019
Data Release Frequency: Annually

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: Facility Register

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 01/04/2019
Date Made Active in Reports: 02/14/2019
Number of Days to Update: 41

Source: Department of Environmental Conservation
Telephone: 518-457-2051
Last EDR Contact: 04/01/2019
Next Scheduled EDR Contact: 07/15/2019
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 05/08/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 03/05/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 04/12/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 03/07/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 04/10/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 03/07/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 04/01/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 03/07/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 04/24/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 03/07/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 04/25/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 03/07/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 04/12/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 03/07/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 04/13/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 03/07/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

LTANKS: Spills Information Database
Leaking Storage Tank Incident Reports. These records contain an inventory of reported leaking storage tank incidents reported from 4/1/86 through the most recent update. They can be either leaking underground storage tanks or leaking aboveground storage tanks. The causes of the incidents are tank test failures, tank failures or tank overfills.

Date of Government Version: 11/12/2018
Date Data Arrived at EDR: 11/14/2018
Date Made Active in Reports: 12/20/2018
Number of Days to Update: 36

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 02/13/2019
Next Scheduled EDR Contact: 05/27/2019
Data Release Frequency: Varies

HIST LTANKS: Listing of Leaking Storage Tanks

A listing of leaking underground and aboveground storage tanks. The causes of the incidents are tank test failures, tank failures or tank overfills. In 2002, the Department of Environmental Conservation stopped providing updates to its original Spills Information Database. This database includes fields that are no longer available from the NYDEC as of January 1, 2002. Current information may be found in the NY LTANKS database. Department of Environmental Conservation.

Date of Government Version: 01/01/2002
Date Data Arrived at EDR: 07/08/2005
Date Made Active in Reports: 07/14/2005
Number of Days to Update: 6

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 07/07/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

State and tribal registered storage tank lists

FEMA UST: Underground Storage Tank Listing

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 05/15/2017
Date Data Arrived at EDR: 05/30/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 136

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 04/12/2019
Next Scheduled EDR Contact: 07/22/2019
Data Release Frequency: Varies

UST: Petroleum Bulk Storage (PBS) Database

Facilities that have petroleum storage capacities in excess of 1,100 gallons and less than 400,000 gallons.

Date of Government Version: 02/11/2019
Date Data Arrived at EDR: 02/11/2019
Date Made Active in Reports: 02/14/2019
Number of Days to Update: 3

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 03/27/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: No Update Planned

CBS UST: Chemical Bulk Storage Database

Facilities that store regulated hazardous substances in underground tanks of any size

Date of Government Version: 01/01/2002
Date Data Arrived at EDR: 02/20/2002
Date Made Active in Reports: 03/22/2002
Number of Days to Update: 30

Source: NYSDEC
Telephone: 518-402-9549
Last EDR Contact: 10/24/2005
Next Scheduled EDR Contact: 01/23/2006
Data Release Frequency: No Update Planned

MOSF UST: Major Oil Storage Facilities Database

Facilities that may be onshore facilities or vessels, with petroleum storage capacities of 400,000 gallons or greater.

Date of Government Version: 01/01/2002
Date Data Arrived at EDR: 02/20/2002
Date Made Active in Reports: 03/22/2002
Number of Days to Update: 30

Source: NYSDEC
Telephone: 518-402-9549
Last EDR Contact: 07/25/2005
Next Scheduled EDR Contact: 10/24/2005
Data Release Frequency: No Update Planned

MOSF: Major Oil Storage Facility Site Listing

These facilities may be onshore facilities or vessels, with petroleum storage capacities of 400,000 gallons or greater.

Date of Government Version: 02/11/2019
Date Data Arrived at EDR: 02/11/2019
Date Made Active in Reports: 02/14/2019
Number of Days to Update: 3

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 03/27/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CBS: Chemical Bulk Storage Site Listing

These facilities store regulated hazardous substances in aboveground tanks with capacities of 185 gallons or greater, and/or in underground tanks of any size

Date of Government Version: 02/11/2019
Date Data Arrived at EDR: 02/11/2019
Date Made Active in Reports: 02/13/2019
Number of Days to Update: 2

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 03/27/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Quarterly

AST: Petroleum Bulk Storage

Registered Aboveground Storage Tanks.

Date of Government Version: 02/11/2019
Date Data Arrived at EDR: 02/11/2019
Date Made Active in Reports: 02/14/2019
Number of Days to Update: 3

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 03/27/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: No Update Planned

CBS AST: Chemical Bulk Storage Database

Facilities that store regulated hazardous substances in aboveground tanks with capacities of 185 gallons or greater, and/or in underground tanks of any size.

Date of Government Version: 01/01/2002
Date Data Arrived at EDR: 02/20/2002
Date Made Active in Reports: 03/22/2002
Number of Days to Update: 30

Source: NYSDEC
Telephone: 518-402-9549
Last EDR Contact: 07/25/2005
Next Scheduled EDR Contact: 10/24/2005
Data Release Frequency: No Update Planned

MOSF AST: Major Oil Storage Facilities Database

Facilities that may be onshore facilities or vessels, with petroleum storage capacities of 400,000 gallons or greater.

Date of Government Version: 01/01/2002
Date Data Arrived at EDR: 02/20/2002
Date Made Active in Reports: 03/22/2002
Number of Days to Update: 30

Source: NYSDEC
Telephone: 518-402-9549
Last EDR Contact: 07/25/2005
Next Scheduled EDR Contact: 10/24/2005
Data Release Frequency: No Update Planned

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 04/01/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 03/07/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 04/10/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 03/07/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 04/25/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 03/07/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 04/12/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 03/07/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 04/12/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 03/07/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 04/13/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 03/07/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 05/08/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 03/05/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 04/24/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 03/07/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

TANKS: Storage Tank Faciliy Listing
This database contains records of facilities that are or have been regulated under Bulk Storage Program. Tank information for these facilities may not be releasable by the state agency.

Date of Government Version: 02/11/2019
Date Data Arrived at EDR: 02/11/2019
Date Made Active in Reports: 02/13/2019
Number of Days to Update: 2
Source: Department of Environmental Conservation
Telephone: 518-402-9543
Last EDR Contact: 03/27/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Quarterly

State and tribal institutional control / engineering control registries

ENV RES DECL: Environmental Restrictive Declarations
The Environmental Restrictive Declarations (ERD) listed were recorded in connection with a zoning action against the noted Tax Blocks and Tax Lots, or portion thereof, and are available in the property records on file at the Office of the City Register for Bronx, Kings, New York and Queens counties or at the Richmond County Clerk's office. They contain environmental requirements with respect to hazardous materials, air quality and/or noise in accordance with Section 11-15 of this Resolution.

Date of Government Version: 10/17/2018
Date Data Arrived at EDR: 12/19/2018
Date Made Active in Reports: 02/14/2019
Number of Days to Update: 57
Source: New York City Department of City Planning
Telephone: 212-720-3300
Last EDR Contact: 03/19/2019
Next Scheduled EDR Contact: 07/01/2019
Data Release Frequency: Varies

RES DECL: Restrictive Declarations Listing
A restrictive declaration is a covenant running with the land which binds the present and future owners of the property. As a condition of certain special permits, the City Planning Commission may require an applicant to sign and record a restrictive declaration that places specified conditions on the future use and development of the property. Certain restrictive declarations are indicated by a D on zoning maps.

Date of Government Version: 11/18/2010
Date Data Arrived at EDR: 06/30/2014
Date Made Active in Reports: 07/21/2014
Number of Days to Update: 21
Source: NYC Department of City Planning
Telephone: 212-720-3401
Last EDR Contact: 03/22/2019
Next Scheduled EDR Contact: 07/01/2019
Data Release Frequency: Varies

ENG CONTROLS: Registry of Engineering Controls
Environmental Remediation sites that have engineering controls in place.

Date of Government Version: 11/12/2018
Date Data Arrived at EDR: 11/14/2018
Date Made Active in Reports: 12/19/2018
Number of Days to Update: 35
Source: Department of Environmental Conservation
Telephone: 518-402-9553
Last EDR Contact: 02/13/2019
Next Scheduled EDR Contact: 05/27/2019
Data Release Frequency: Quarterly

INST CONTROL: Registry of Institutional Controls
Environmental Remediation sites that have institutional controls in place.

Date of Government Version: 11/12/2018
Date Data Arrived at EDR: 11/14/2018
Date Made Active in Reports: 12/19/2018
Number of Days to Update: 35
Source: Department of Environmental Conservation
Telephone: 518-402-9553
Last EDR Contact: 02/13/2019
Next Scheduled EDR Contact: 05/27/2019
Data Release Frequency: Quarterly

State and tribal voluntary cleanup sites

VCP NYC: Voluntary Cleanup Program Listing NYC
New York City voluntary cleanup program sites.

Date of Government Version: 12/14/2018
Date Data Arrived at EDR: 12/19/2018
Date Made Active in Reports: 02/13/2019
Number of Days to Update: 56

Source: New York City Office of Environmental Protection
Telephone: 212-788-8841
Last EDR Contact: 03/18/2019
Next Scheduled EDR Contact: 07/01/2019
Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

VCP: Voluntary Cleanup Agreements

New York established its Voluntary Cleanup Program (VCP) to address the environmental, legal and financial barriers that often hinder the redevelopment and reuse of contaminated properties. The Voluntary Cleanup Program was developed to enhance private sector cleanup of brownfields by enabling parties to remediate sites using private rather than public funds and to reduce the development pressures on "greenfield" sites.

Date of Government Version: 11/12/2018
Date Data Arrived at EDR: 11/14/2018
Date Made Active in Reports: 12/19/2018
Number of Days to Update: 35

Source: Department of Environmental Conservation
Telephone: 518-402-9711
Last EDR Contact: 02/13/2019
Next Scheduled EDR Contact: 05/27/2019
Data Release Frequency: Semi-Annually

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 03/25/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Varies

State and tribal Brownfields sites

BROWNFIELDS: Brownfields Site List

A Brownfield is any real property where redevelopment or re-use may be complicated by the presence or potential presence of a hazardous waste, petroleum, pollutant, or contaminant.

Date of Government Version: 11/12/2018
Date Data Arrived at EDR: 11/14/2018
Date Made Active in Reports: 12/19/2018
Number of Days to Update: 35

Source: Department of Environmental Conservation
Telephone: 518-402-9764
Last EDR Contact: 02/13/2019
Next Scheduled EDR Contact: 05/27/2019
Data Release Frequency: Semi-Annually

ERP: Environmental Restoration Program Listing

In an effort to spur the cleanup and redevelopment of brownfields, New Yorkers approved a $200 million Environmental Restoration or Brownfields Fund as part of the $1.75 billion Clean Water/Clean Air Bond Act of 1996 (1996 Bond Act). Enhancements to the program were enacted on October 7, 2003. Under the Environmental Restoration Program, the State provides grants to municipalities to reimburse up to 90 percent of on-site eligible costs and 100% of off-site eligible costs for site investigation and remediation activities. Once remediated, the property may then be reused for commercial, industrial, residential or public use.

Date of Government Version: 11/12/2018
Date Data Arrived at EDR: 11/14/2018
Date Made Active in Reports: 12/19/2018
Number of Days to Update: 35

Source: Department of Environmental Conservation
Telephone: 518-402-9622
Last EDR Contact: 02/13/2019
Next Scheduled EDR Contact: 05/27/2019
Data Release Frequency: Quarterly

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 12/17/2018
Date Data Arrived at EDR: 12/18/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 24

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 03/19/2019
Next Scheduled EDR Contact: 07/01/2019
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

SWTIRE: Registered Waste Tire Storage & Facility List

A listing of facilities registered to accept waste tires.

Date of Government Version: 02/27/2018
Date Data Arrived at EDR: 04/06/2018
Date Made Active in Reports: 06/08/2018
Number of Days to Update: 63

Source: Department of Environmental Conservation
Telephone: 518-402-8694
Last EDR Contact: 03/11/2019
Next Scheduled EDR Contact: 06/24/2019
Data Release Frequency: No Update Planned

SWRCY: Registered Recycling Facility List

A listing of recycling facilities.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 01/04/2019
Date Made Active in Reports: 02/14/2019
Number of Days to Update: 41

Source: Department of Environmental Conservation
Telephone: 518-402-8705
Last EDR Contact: 04/01/2019
Next Scheduled EDR Contact: 07/15/2019
Data Release Frequency: Quarterly

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 01/29/2019
Next Scheduled EDR Contact: 05/13/2019
Data Release Frequency: Varies

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 01/17/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: No Update Planned

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land

A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 02/01/2019
Next Scheduled EDR Contact: 05/13/2019
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 02/24/2019
Date Data Arrived at EDR: 02/26/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 50

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 02/21/2019
Next Scheduled EDR Contact: 06/10/2019
Data Release Frequency: No Update Planned

DEL SHWS: Delisted Registry Sites

A database listing of sites delisted from the Registry of Inactive Hazardous Waste Disposal Sites.

Date of Government Version: 11/12/2018
Date Data Arrived at EDR: 11/14/2018
Date Made Active in Reports: 12/19/2018
Number of Days to Update: 35

Source: Department of Environmental Conservation
Telephone: 518-402-9622
Last EDR Contact: 02/13/2019
Next Scheduled EDR Contact: 05/27/2019
Data Release Frequency: Quarterly

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 02/24/2019
Date Data Arrived at EDR: 02/26/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 50

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 02/21/2019
Next Scheduled EDR Contact: 06/10/2019
Data Release Frequency: Quarterly

PFAS: PFAS Contamination Site Location Listing

DEC surveyed select businesses, fire departments, fire training centers, bulk storage facilities, airports, and Department of Defense (DoD) facilities. The responses to the survey have helped to determine if these entities used or stored materials containing PFOA/PFOS including AFFF and dispersants used in Teflon coating operations. The results of this survey will be updated periodically as additional responses are received..

Date of Government Version: 09/01/2016
Date Data Arrived at EDR: 02/08/2019
Date Made Active in Reports: 03/22/2019
Number of Days to Update: 42

Source: Department of Environmental Conservation
Telephone: 518-402-9020
Last EDR Contact: 02/08/2019
Next Scheduled EDR Contact: 04/22/2019
Data Release Frequency: Varies

Local Lists of Registered Storage Tanks

SUFFOLK CO TANKS: Storage Tank Database
Facilities that have no tank information

Date of Government Version: 06/28/2018
Date Data Arrived at EDR: 02/05/2019
Date Made Active in Reports: 03/08/2019
Number of Days to Update: 31

Source: Department of Health Services
Telephone: 631-854-2516
Last EDR Contact: 01/28/2019
Next Scheduled EDR Contact: 05/13/2019
Data Release Frequency: Varies

HIST UST: Historical Petroleum Bulk Storage Database
These facilities have petroleum storage capacities in excess of 1,100 gallons and less than 400,000 gallons. This database contains detailed information per site. It is no longer updated due to the sensitive nature of the information involved. See UST for more current data.

Date of Government Version: 01/01/2002
Date Data Arrived at EDR: 06/02/2006
Date Made Active in Reports: 07/20/2006
Number of Days to Update: 48

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 10/23/2006
Next Scheduled EDR Contact: 01/22/2007
Data Release Frequency: Varies

HIST AST: Historical Petroleum Bulk Storage Database
These facilities have petroleum storage capabilities in excess of 1,100 gallons and less than 400,000 gallons. This database contains detailed information per site. No longer updated due to the sensitive nature of the information involved. See AST for more current data.

Date of Government Version: 01/01/2002
Date Data Arrived at EDR: 06/02/2006
Date Made Active in Reports: 07/20/2006
Number of Days to Update: 48

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 10/23/2006
Next Scheduled EDR Contact: 01/22/2007
Data Release Frequency: No Update Planned

Local Land Records

LIENS: Spill Liens Information
Lien information from the Oil Spill Fund.

Date of Government Version: 02/04/2019
Date Data Arrived at EDR: 02/07/2019
Date Made Active in Reports: 02/14/2019
Number of Days to Update: 7

Source: Office of the State Comptroller
Telephone: 518-474-9034
Last EDR Contact: 02/04/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Quarterly

LIENS 2: CERCLA Lien Information
A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 03/11/2019
Date Data Arrived at EDR: 03/14/2019
Date Made Active in Reports: 03/21/2019
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 04/18/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 02/08/2019
Date Data Arrived at EDR: 02/08/2019
Date Made Active in Reports: 03/21/2019
Number of Days to Update: 41

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 03/26/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Quarterly

SPILLS: Spills Information Database

Data collected on spills reported to NYSDEC as required by one or more of the following: Article 12 of the Navigation Law, 6 NYCRR Section 613.8 (from PBS regs), or 6 NYCRR Section 595.2 (from CBS regs). It includes spills active as of April 1, 1986, as well as spills occurring since this date.

Date of Government Version: 11/12/2018
Date Data Arrived at EDR: 11/14/2018
Date Made Active in Reports: 12/20/2018
Number of Days to Update: 36

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 02/13/2019
Next Scheduled EDR Contact: 05/27/2019
Data Release Frequency: Varies

HIST SPILLS: SPILLS Database

This database contains records of chemical and petroleum spill incidents. Under State law, petroleum and hazardous chemical spills that can impact the waters of the state must be reported by the spiller (and, in some cases, by anyone who has knowledge of the spills). In 2002, the Department of Environmental Conservation stopped providing updates to its original Spills Information Database. This database includes fields that are no longer available from the NYDEC as of January 1, 2002. Current information may be found in the NY SPILLS database. Department of Environmental Conservation.

Date of Government Version: 01/01/2002
Date Data Arrived at EDR: 07/08/2005
Date Made Active in Reports: 07/14/2005
Number of Days to Update: 6

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 07/07/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 12/14/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/12/2013
Number of Days to Update: 40

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SPILLS 80: SPILLS80 data from FirstSearch

Spills 80 includes those spill and release records available from FirstSearch databases prior to 1990. Typically, they may include chemical, oil and/or hazardous substance spills recorded before 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 80.

Date of Government Version: 11/02/2010
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 03/07/2013
Number of Days to Update: 63

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 03/25/2019
Date Data Arrived at EDR: 03/27/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 21

Source: Environmental Protection Agency
Telephone: (212) 637-3660
Last EDR Contact: 03/27/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 01/31/2015
Date Data Arrived at EDR: 07/08/2015
Date Made Active in Reports: 10/13/2015
Number of Days to Update: 97

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 04/03/2019
Next Scheduled EDR Contact: 06/03/2019
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 04/12/2019
Next Scheduled EDR Contact: 07/22/2019
Data Release Frequency: Semi-Annually

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 04/12/2019
Next Scheduled EDR Contact: 07/22/2019
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 01/01/2017
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 02/15/2019
Next Scheduled EDR Contact: 05/27/2019
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 01/31/2019
Date Data Arrived at EDR: 02/04/2019
Date Made Active in Reports: 03/08/2019
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 03/26/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 02/08/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 02/08/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 06/21/2017
Date Made Active in Reports: 01/05/2018
Number of Days to Update: 198

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 03/22/2019
Next Scheduled EDR Contact: 07/01/2019
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 01/10/2018
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 2

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 02/20/2019
Next Scheduled EDR Contact: 06/03/2019
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 03/25/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 03/11/2019
Date Data Arrived at EDR: 03/14/2019
Date Made Active in Reports: 04/01/2019
Number of Days to Update: 18

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 04/18/2019
Next Scheduled EDR Contact: 06/17/2019
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 02/01/2019
Date Data Arrived at EDR: 02/14/2019
Date Made Active in Reports: 03/21/2019
Number of Days to Update: 35

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 01/22/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 03/11/2019
Date Data Arrived at EDR: 03/14/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 34

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 04/18/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 09/14/2018
Date Data Arrived at EDR: 10/11/2018
Date Made Active in Reports: 12/07/2018
Number of Days to Update: 57

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 04/10/2019
Next Scheduled EDR Contact: 07/22/2019
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 04/08/2019
Next Scheduled EDR Contact: 07/22/2019
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Quarterly

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 08/30/2016
Date Data Arrived at EDR: 09/08/2016
Date Made Active in Reports: 10/21/2016
Number of Days to Update: 43

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 01/22/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Quarterly

COAL ASH DOE: Steam-Electric Plant Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 03/07/2019
Next Scheduled EDR Contact: 06/17/2019
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 03/05/2019
Next Scheduled EDR Contact: 06/17/2019
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 05/24/2017
Date Data Arrived at EDR: 11/30/2017
Date Made Active in Reports: 12/15/2017
Number of Days to Update: 15
Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 01/02/2019
Date Data Arrived at EDR: 01/03/2019
Date Made Active in Reports: 03/15/2019
Number of Days to Update: 71
Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 04/02/2019
Next Scheduled EDR Contact: 07/15/2019
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data
Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 12/03/2018
Date Data Arrived at EDR: 01/29/2019
Date Made Active in Reports: 03/21/2019
Number of Days to Update: 51
Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 01/29/2019
Next Scheduled EDR Contact: 05/11/2019
Data Release Frequency: Quarterly

CONSENT: Superfund (CERCLA) Consent Decrees
Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 02/11/2019
Date Made Active in Reports: 03/21/2019
Number of Days to Update: 38

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 04/05/2019
Next Scheduled EDR Contact: 07/22/2019
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 09/28/2017
Number of Days to Update: 218

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 02/13/2019
Next Scheduled EDR Contact: 06/03/2019
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 04/11/2019
Next Scheduled EDR Contact: 07/22/2019
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 08/08/2017
Date Data Arrived at EDR: 09/11/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 3

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 01/31/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 06/23/2017
Date Data Arrived at EDR: 10/11/2017
Date Made Active in Reports: 11/03/2017
Number of Days to Update: 23

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 02/22/2019
Next Scheduled EDR Contact: 06/03/2019
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 03/11/2019
Date Data Arrived at EDR: 03/14/2019
Date Made Active in Reports: 03/21/2019
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 04/18/2019
Next Scheduled EDR Contact: 07/15/2019
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 11/27/2018
Date Data Arrived at EDR: 02/27/2019
Date Made Active in Reports: 04/01/2019
Number of Days to Update: 33

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 02/27/2019
Next Scheduled EDR Contact: 06/10/2019
Data Release Frequency: Semi-Annually

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 12/05/2005
Date Data Arrived at EDR: 02/29/2008
Date Made Active in Reports: 04/18/2008
Number of Days to Update: 49

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 03/01/2019
Next Scheduled EDR Contact: 06/10/2019
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 03/01/2019
Next Scheduled EDR Contact: 06/10/2019
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 09/10/2018
Date Data Arrived at EDR: 09/11/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 3

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 03/21/2019
Next Scheduled EDR Contact: 06/24/2019
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 02/15/2019
Date Data Arrived at EDR: 03/05/2019
Date Made Active in Reports: 03/15/2019
Number of Days to Update: 10

Source: EPA
Telephone: (212) 637-3000
Last EDR Contact: 03/05/2019
Next Scheduled EDR Contact: 06/17/2019
Data Release Frequency: Quarterly

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 01/17/2019
Date Made Active in Reports: 04/01/2019
Number of Days to Update: 74

Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 04/15/2019
Next Scheduled EDR Contact: 07/29/2019
Data Release Frequency: Varies

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 03/03/2019
Date Data Arrived at EDR: 03/05/2019
Date Made Active in Reports: 04/01/2019
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 04/09/2019
Next Scheduled EDR Contact: 07/22/2019
Data Release Frequency: Quarterly

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 07/26/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 71

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 03/01/2019
Next Scheduled EDR Contact: 06/10/2019
Data Release Frequency: Varies

FUELS PROGRAM: EPA Fuels Program Registered Listing

This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 02/19/2019
Date Data Arrived at EDR: 02/21/2019
Date Made Active in Reports: 04/01/2019
Number of Days to Update: 39

Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 02/21/2019
Next Scheduled EDR Contact: 06/03/2019
Data Release Frequency: Quarterly

AIRS: Air Emissions Data
Point source emissions inventory data.

Date of Government Version: 01/22/2019
Date Data Arrived at EDR: 02/01/2019
Date Made Active in Reports: 02/14/2019
Number of Days to Update: 13

Source: Department of Environmental Conservation
Telephone: 518-402-8452
Last EDR Contact: 01/22/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Annually

COAL ASH: Coal Ash Disposal Site Listing
A listing of coal ash disposal site locations.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 01/04/2019
Date Made Active in Reports: 02/13/2019
Number of Days to Update: 40

Source: Department of Environmental Conservation
Telephone: 518-402-8660
Last EDR Contact: 04/01/2019
Next Scheduled EDR Contact: 07/15/2019
Data Release Frequency: Quarterly

DRYCLEANERS: Registered Drycleaners
A listing of all registered drycleaning facilities.

Date of Government Version: 03/07/2018
Date Data Arrived at EDR: 03/30/2018
Date Made Active in Reports: 06/05/2018
Number of Days to Update: 67

Source: Department of Environmental Conservation
Telephone: 518-402-8403
Last EDR Contact: 03/11/2019
Next Scheduled EDR Contact: 06/24/2019
Data Release Frequency: Annually

E DESIGNATION: E DESIGNATION SITE LISTING
The (E (Environmental)) designation would ensure that sampling and remediation take place on the subject properties, and would avoid any significant impacts related to hazardous materials at these locations. The (E) designations would require that the fee owner of the sites conduct a testing and sampling protocol, and remediation where appropriate, to the satisfaction of the NYCDEP before the issuance of a building permit by the Department of Buildings pursuant to the provisions of Section 11-15 of the Zoning Resolution (Environmental Requirements). The (E) designations also include a mandatory construction-related health and safety plan which must be approved by NYCDEP.

Date of Government Version: 10/31/2018
Date Data Arrived at EDR: 12/19/2018
Date Made Active in Reports: 02/13/2019
Number of Days to Update: 56

Source: New York City Department of City Planning
Telephone: 718-595-6658
Last EDR Contact: 03/19/2019
Next Scheduled EDR Contact: 07/01/2019
Data Release Frequency: Semi-Annually

Financial Assurance 1: Financial Assurance Information Listing
Financial assurance information.

Date of Government Version: 01/15/2019
Date Data Arrived at EDR: 01/17/2019
Date Made Active in Reports: 02/14/2019
Number of Days to Update: 28

Source: Department of Environmental Conservation
Telephone: 518-402-8660
Last EDR Contact: 04/01/2019
Next Scheduled EDR Contact: 07/15/2019
Data Release Frequency: Quarterly

Financial Assurance 2: Financial Assurance Information Listing
A listing of financial assurance information for hazardous waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 12/29/2017
Date Data Arrived at EDR: 04/06/2018
Date Made Active in Reports: 06/05/2018
Number of Days to Update: 60

Source: Department of Environmental Conservation
Telephone: 518-402-8712
Last EDR Contact: 03/11/2019
Next Scheduled EDR Contact: 06/24/2019
Data Release Frequency: Varies

HSWDS: Hazardous Substance Waste Disposal Site Inventory

The list includes any known or suspected hazardous substance waste disposal sites. Also included are sites delisted from the Registry of Inactive Hazardous Waste Disposal Sites and non-Registry sites that U.S. EPA Preliminary Assessment (PA) reports or Site Investigation (SI) reports were prepared. Hazardous Substance Waste Disposal Sites are eligible to be Superfund sites now that the New York State Superfund has been refinanced and changed. This means that the study inventory has served its purpose and will no longer be maintained as a separate entity. The last version of the study inventory is frozen in time. The sites on the study will not automatically be made Superfund sites, rather each site will be further evaluated for listing on the Registry. So overtime they will be added to the registry or not.

Date of Government Version: 01/01/2003
Date Data Arrived at EDR: 10/20/2006
Date Made Active in Reports: 11/30/2006
Number of Days to Update: 41

Source: Department of Environmental Conservation
Telephone: 518-402-9564
Last EDR Contact: 05/26/2009
Next Scheduled EDR Contact: 08/24/2009
Data Release Frequency: No Update Planned

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/01/2019
Date Data Arrived at EDR: 01/30/2019
Date Made Active in Reports: 02/14/2019
Number of Days to Update: 15

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 01/30/2019
Next Scheduled EDR Contact: 05/11/2019
Data Release Frequency: Quarterly

SPDES: State Pollutant Discharge Elimination System

New York State has a state program which has been approved by the United States Environmental Protection Agency for the control of wastewater and stormwater discharges in accordance with the Clean Water Act. Under New York State law the program is known as the State Pollutant Discharge Elimination System (SPDES) and is broader in scope than that required by the Clean Water Act in that it controls point source discharges to groundwaters as well as surface waters.

Date of Government Version: 01/30/2019
Date Data Arrived at EDR: 02/07/2019
Date Made Active in Reports: 02/14/2019
Number of Days to Update: 7

Source: Department of Environmental Conservation
Telephone: 518-402-8233
Last EDR Contact: 01/22/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: No Update Planned

VAPOR REOPENED: Vapor Intrusion Legacy Site List

New York is currently re-evaluating previous assumptions and decisions regarding the potential for soil vapor intrusion exposures at sites. As a result, all past, current, and future contaminated sites will be evaluated to determine whether these sites have the potential for exposures related to soil vapor intrusion.

Date of Government Version: 01/01/2018
Date Data Arrived at EDR: 02/15/2018
Date Made Active in Reports: 03/27/2018
Number of Days to Update: 40

Source: Department of Environmenal Conservation
Telephone: 518-402-9814
Last EDR Contact: 02/13/2019
Next Scheduled EDR Contact: 05/27/2019
Data Release Frequency: Varies

UIC: Underground Injection Control Wells

A listing of enhanced oil recovery underground injection wells.

Date of Government Version: 12/03/2018
Date Data Arrived at EDR: 12/06/2018
Date Made Active in Reports: 12/20/2018
Number of Days to Update: 14

Source: Department of Environmental Conservation
Telephone: 518-402-8056
Last EDR Contact: 03/06/2019
Next Scheduled EDR Contact: 06/17/2019
Data Release Frequency: Quarterly

COOLING TOWERS: Registered Cooling Towers

This data includes the location of cooling towers registered with New York State. The data is self-reported by owners/property managers of cooling towers in service in New York State. In August 2015, the New York State Department of Health released emergency regulations requiring the owners of cooling towers to register them with New York State.

Date of Government Version: 01/08/2019
Date Data Arrived at EDR: 01/16/2019
Date Made Active in Reports: 02/13/2019
Number of Days to Update: 28

Source: Department of Health
Telephone: 518-402-7650
Last EDR Contact: 04/17/2019
Next Scheduled EDR Contact: 07/29/2019
Data Release Frequency: Varies

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA HWS: Recovered Government Archive State Hazardous Waste Facilities List
The EDR Recovered Government Archive State Hazardous Waste database provides a list of SHWS incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Environmental Conservation in New York.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: Department of Environmental Conservation
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LF: Recovered Government Archive Solid Waste Facilities List
The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Environmental Conservation in New York.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/10/2014
Number of Days to Update: 193

Source: Department of Environmental Conservation
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

CORTLAND COUNTY:

AST - CORTLAND: Cortland County Storage Tank Listing
A listing of aboveground storage tank sites located in Cortland County.

Date of Government Version: 11/16/2018
Date Data Arrived at EDR: 11/16/2018
Date Made Active in Reports: 12/18/2018
Number of Days to Update: 32

Source: Cortland County Health Department
Telephone: 607-753-5035
Last EDR Contact: 01/28/2019
Next Scheduled EDR Contact: 05/11/2019
Data Release Frequency: Quarterly

UST - CORTLAND: Cortland County Storage Tank Listing
A listing of underground storage tank sites located in Cortland County.

Date of Government Version: 11/16/2018
Date Data Arrived at EDR: 11/16/2018
Date Made Active in Reports: 12/18/2018
Number of Days to Update: 32

Source: Cortland County Health Department
Telephone: 607-753-5035
Last EDR Contact: 01/28/2019
Next Scheduled EDR Contact: 05/11/2019
Data Release Frequency: Quarterly

NASSAU COUNTY:

AST - NASSAU: Registered Tank Database
A listing of aboveground storage tank sites located in Nassau County.

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 02/15/2017
Number of Days to Update: 35

Source: Nassau County Health Department
Telephone: 516-571-3314
Last EDR Contact: 01/28/2019
Next Scheduled EDR Contact: 05/11/2019
Data Release Frequency: No Update Planned

AST NCFM: Storage Tank Database
A listing of aboveground storage tank sites located in Nassau County.

Date of Government Version: 02/15/2011
Date Data Arrived at EDR: 02/23/2011
Date Made Active in Reports: 03/29/2011
Number of Days to Update: 34

Source: Nassau County Office of the Fire Marshal
Telephone: 516-572-1000
Last EDR Contact: 01/28/2019
Next Scheduled EDR Contact: 05/11/2019
Data Release Frequency: Varies

TANKS NASSAU: Registered Tank Database in Nassau County
A listing of facilities in Nassau County with storage tanks.

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 02/15/2017
Number of Days to Update: 35

Source: Nassau County Department of Health
Telephone: 516-227-9691
Last EDR Contact: 01/28/2019
Next Scheduled EDR Contact: 05/11/2019
Data Release Frequency: Varies

UST - NASSAU: Registered Tank Database
A listing of underground storage tank sites located in Nassau County.

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 02/15/2017
Number of Days to Update: 35

Source: Nassau County Health Department
Telephone: 516-571-3314
Last EDR Contact: 01/28/2019
Next Scheduled EDR Contact: 05/11/2019
Data Release Frequency: No Update Planned

UST NCFM: Storage Tank Database
A listing of underground storage tank sites located in Nassau County.

Date of Government Version: 02/15/2011
Date Data Arrived at EDR: 02/23/2011
Date Made Active in Reports: 03/29/2011
Number of Days to Update: 34

Source: Nassau County Office of the Fire Marshal
Telephone: 516-572-1000
Last EDR Contact: 01/28/2019
Next Scheduled EDR Contact: 05/11/2019
Data Release Frequency: Varies

ROCKLAND COUNTY:

AST - ROCKLAND: Petroleum Bulk Storage Database
A listing of aboveground storage tank sites located in Rockland County. Rockland County?s Petroleum Bulk Storage (PBS) program is no longer in service. All related operations/duties are now wholly overseen by the New York State Dept. of Environmental Conservation (NYSDEC).

Date of Government Version: 02/02/2017
Date Data Arrived at EDR: 03/17/2017
Date Made Active in Reports: 09/22/2017
Number of Days to Update: 189

Source: Rockland County Health Department
Telephone: 914-364-2605
Last EDR Contact: 03/04/2019
Next Scheduled EDR Contact: 06/17/2019
Data Release Frequency: No Update Planned

UST - ROCKLAND: Petroleum Bulk Storage Database
A listing of underground storage tank sites located in Rockland County. Rockland County?s Petroleum Bulk Storage (PBS) program is no longer in service. All related operations/duties are now wholly overseen by the New York State Dept. of Environmental Conservation (NYSDEC).

Date of Government Version: 02/02/2017
Date Data Arrived at EDR: 03/17/2017
Date Made Active in Reports: 09/22/2017
Number of Days to Update: 189

Source: Rockland County Health Department
Telephone: 914-364-2605
Last EDR Contact: 03/04/2019
Next Scheduled EDR Contact: 06/17/2019
Data Release Frequency: No Update Planned

SUFFOLK COUNTY:

AST - SUFFOLK: Storage Tank Database
A listing of aboveground storage tank sites located in Suffolk County.

Date of Government Version: 06/28/2018
Date Data Arrived at EDR: 12/06/2018
Date Made Active in Reports: 02/07/2019
Number of Days to Update: 63

Source: Suffolk County Department of Health Services
Telephone: 631-854-2521
Last EDR Contact: 01/28/2019
Next Scheduled EDR Contact: 05/11/2019
Data Release Frequency: No Update Planned

UST - SUFFOLK: Storage Tank Database
A listing of underground storage tank sites located in Suffolk County.

Date of Government Version: 06/28/2018
Date Data Arrived at EDR: 12/06/2018
Date Made Active in Reports: 02/07/2019
Number of Days to Update: 63

Source: Suffolk County Department of Health Services
Telephone: 631-854-2521
Last EDR Contact: 01/28/2019
Next Scheduled EDR Contact: 05/11/2019
Data Release Frequency: No Update Planned

WESTCHESTER COUNTY:

AST - WESTCHESTER: Listing of Storage Tanks
A listing of aboveground storage tank sites located in Westchester County.

Date of Government Version: 01/02/2019
Date Data Arrived at EDR: 02/08/2019
Date Made Active in Reports: 02/14/2019
Number of Days to Update: 6

Source: Westchester County Department of Health
Telephone: 914-813-5161
Last EDR Contact: 01/28/2019
Next Scheduled EDR Contact: 05/11/2019
Data Release Frequency: Semi-Annually

UST - WESTCHESTER: Listing of Storage Tanks
A listing of underground storage tank sites located in Westchester County.

Date of Government Version: 01/02/2019
Date Data Arrived at EDR: 02/08/2019
Date Made Active in Reports: 02/14/2019
Number of Days to Update: 6

Source: Westchester County Department of Health
Telephone: 914-813-5161
Last EDR Contact: 01/28/2019
Next Scheduled EDR Contact: 05/11/2019
Data Release Frequency: Semi-Annually

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 02/11/2019
Date Data Arrived at EDR: 02/12/2019
Date Made Active in Reports: 03/04/2019
Number of Days to Update: 20

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 02/12/2019
Next Scheduled EDR Contact: 05/27/2019
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 07/13/2018
Date Made Active in Reports: 08/01/2018
Number of Days to Update: 19

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 04/10/2019
Next Scheduled EDR Contact: 07/22/2019
Data Release Frequency: Annually

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 10/23/2018
Date Made Active in Reports: 11/27/2018
Number of Days to Update: 35

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 04/15/2019
Next Scheduled EDR Contact: 07/29/2019
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 02/23/2018
Date Made Active in Reports: 04/09/2018
Number of Days to Update: 45

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 02/19/2019
Next Scheduled EDR Contact: 06/03/2019
Data Release Frequency: Annually

VT MANIFEST: Hazardous Waste Manifest Data
Hazardous waste manifest information.

Date of Government Version: 01/16/2019
Date Data Arrived at EDR: 01/17/2019
Date Made Active in Reports: 02/19/2019
Number of Days to Update: 33

Source: Department of Environmental Conservation
Telephone: 802-241-3443
Last EDR Contact: 04/15/2019
Next Scheduled EDR Contact: 07/29/2019
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 06/15/2018
Date Made Active in Reports: 07/09/2018
Number of Days to Update: 24

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 03/11/2019
Next Scheduled EDR Contact: 06/24/2019
Data Release Frequency: Annually

Oil/Gas Pipelines
Source: PennWell Corporation
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Electric Power Transmission Line Data
Source: PennWell Corporation
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GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Day Care Providers
Source: Department of Health
Telephone: 212-676-2444

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Freshwater Wetlands
Source: Department of Environmental Conservation
Telephone: 518-402-8961

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

CATHOLIC HOMES ST. JOSEPH
1940 WASHINGTON AVENUE
BRONX, NY 10457

TARGET PROPERTY COORDINATES

Latitude (North):	40.847703 - 40° 50' 51.73''
Longitude (West):	73.897173 - 73° 53' 49.82''
Universal Tranverse Mercator:	Zone 18
UTM X (Meters):	592965.9
UTM Y (Meters):	4522224.5
Elevation:	69 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	5940599 CENTRAL PARK, NY
Version Date:	2013

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

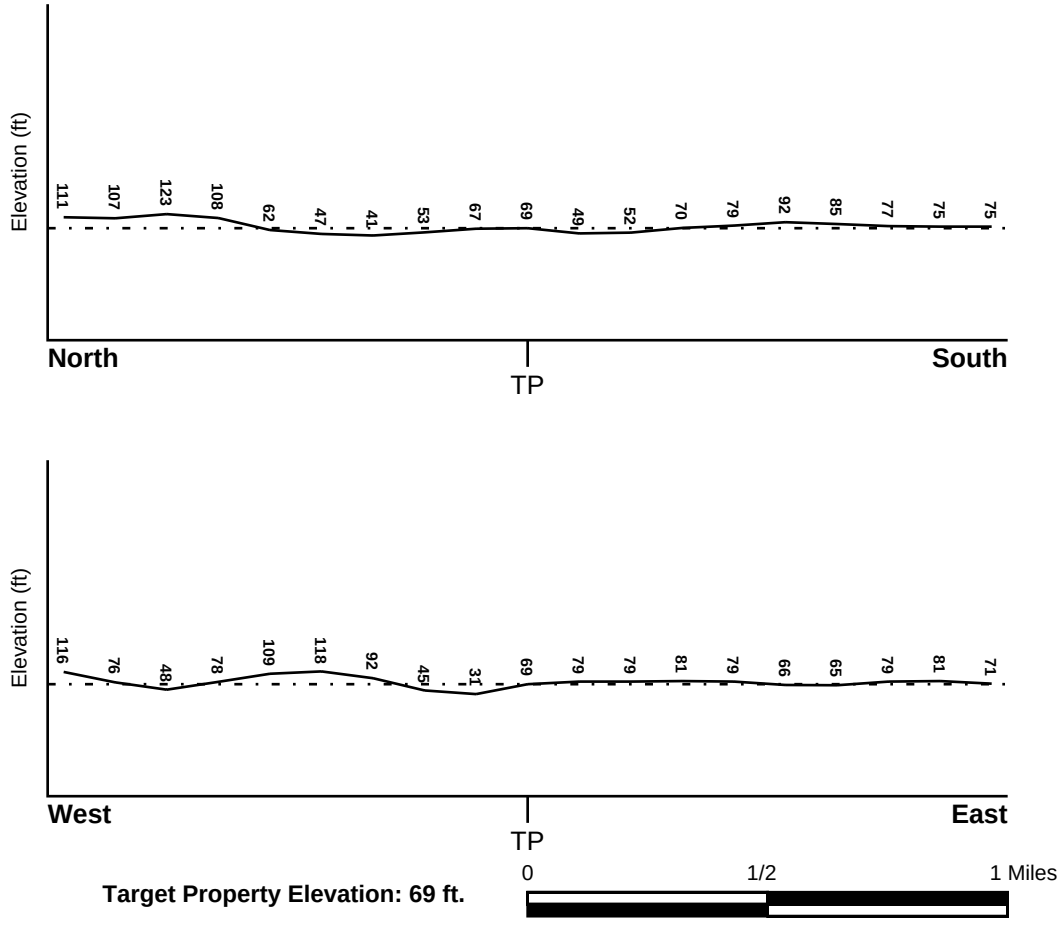
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General West

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Target Property Elevation: 69 ft.

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
3604970082F	FEMA FIRM Flood data

Additional Panels in search area:	FEMA Source Type
3604970081F	FEMA FIRM Flood data
3604970083F	FEMA FIRM Flood data
3604970084F	FEMA FIRM Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
CENTRAL PARK	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

* ©1996 Site−specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

Era:	Paleozoic
System:	Ordovician
Series:	Middle Ordovician (Mohawkian)
Code:	O2 *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratified Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps. The following information is based on Soil Conservation Service STATSGO data.

Soil Component Name: URBAN LAND

Soil Surface Texture: variable

Hydrologic Group: Not reported

Soil Drainage Class: Not reported

Hydric Status: Soil does not meet the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 10 inches

Depth to Bedrock Max: > 10 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification			
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	Permeability Rate (in/hr)	Soil Reaction (pH)
1	0 inches	6 inches	variable	Not reported	Not reported	Max: 0.00 Min: 0.00	Max: 0.00 Min: 0.00

OTHER SOIL TYPES IN AREA

Based on Soil Conservation Service STATSGO data, the following additional subordinant soil types may appear within the general area of target property.

Soil Surface Textures: silt loam
loamy sand
sandy loam
fine sandy loam

Surficial Soil Types: silt loam
loamy sand
sandy loam
fine sandy loam

Shallow Soil Types: sandy loam

Deeper Soil Types: unweathered bedrock
very gravelly - loamy sand
stratified
sandy loam

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	USGS40000834384	1/4 - 1/2 Mile SW
2	USGS40000834334	1/4 - 1/2 Mile SW
3	USGS40000834605	1/2 - 1 Mile NE
4	USGS40000834270	1/2 - 1 Mile SSW
A5	USGS40000834787	1/2 - 1 Mile NNE
A6	USGS40000834804	1/2 - 1 Mile NNE

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

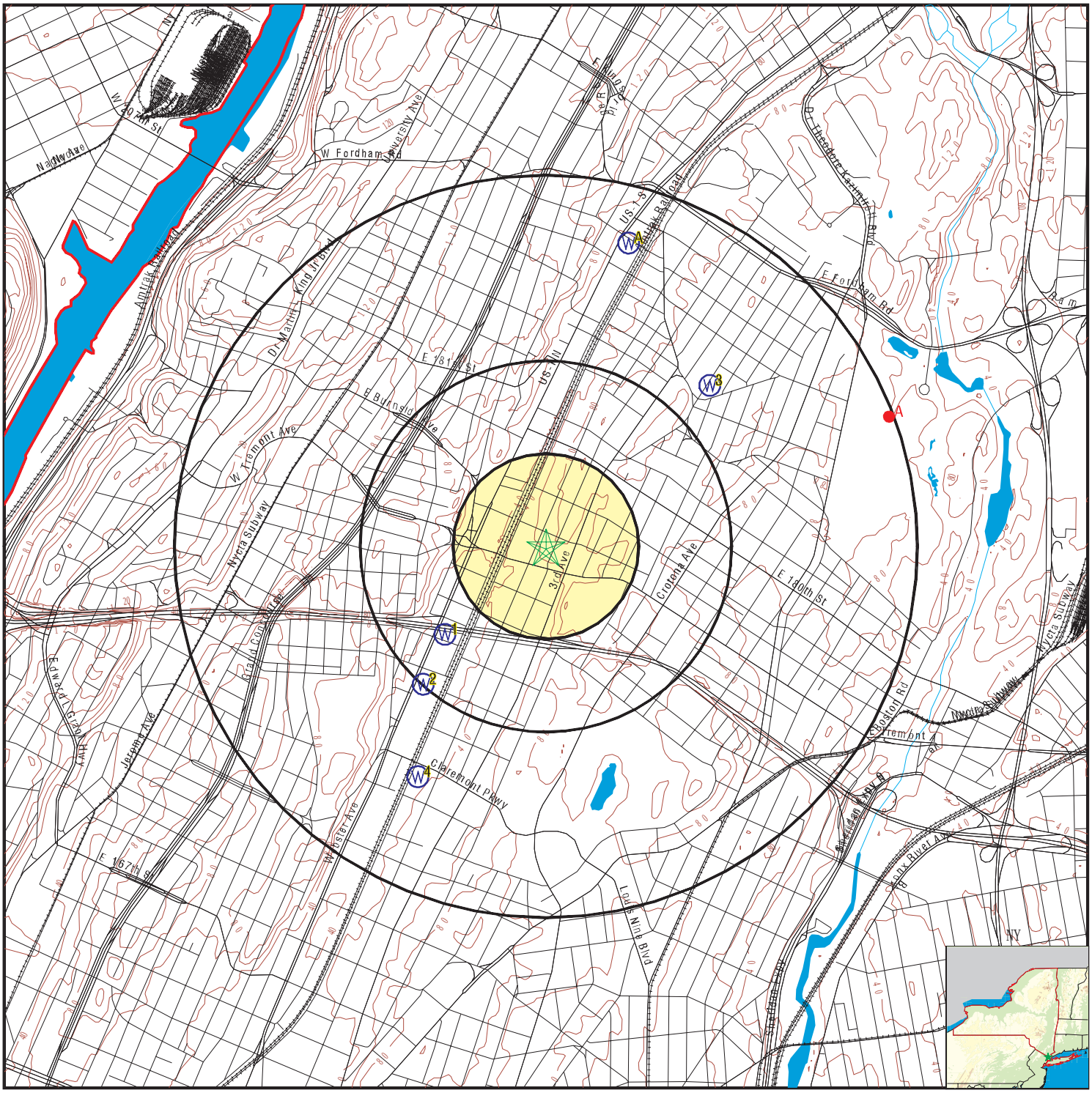
MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

OTHER STATE DATABASE INFORMATION

STATE OIL/GAS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A1	NYOG90000013119	1/2 - 1 Mile ENE
A2	NYOG90000013120	1/2 - 1 Mile ENE
A3	NYOG90000013118	1/2 - 1 Mile ENE
A5	NYOG90000013126	1/2 - 1 Mile ENE
A6	NYOG90000013127	1/2 - 1 Mile ENE
A4	NYOG90000013125	1/2 - 1 Mile ENE
A7	NYOG90000013117	1/2 - 1 Mile ENE
A8	NYOG90000013122	1/2 - 1 Mile ENE
A11	NYOG90000013123	1/2 - 1 Mile ENE
A10	NYOG90000013124	1/2 - 1 Mile ENE
A9	NYOG90000013121	1/2 - 1 Mile ENE
A12	NYOG90000013128	1/2 - 1 Mile ENE
A13	NYOG90000013129	1/2 - 1 Mile ENE
A14	NYOG90000013130	1/2 - 1 Mile ENE

PHYSICAL SETTING SOURCE MAP - 5628113.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons

- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME:	Catholic Homes St. Joseph	CLIENT:	Vanasse Hangen Brustlin, Inc.
ADDRESS:	1940 Washington Avenue Bronx NY 10457	CONTACT:	Ashley Monti
LAT/LONG:	40.847703 / 73.897173	INQUIRY #:	5628113.2s
		DATE:	April 22, 2019 10:30 am

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

1
SW
1/4 - 1/2 Mile
Lower

FED USGS **USGS40000834384**

Organization ID:	USGS-NY	Organization Name:	USGS New York Water Science Center
Monitor Location:	B 21	Type:	Well
Description:	Not Reported	HUC:	Not Reported
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	Not Reported
Well Depth:	225	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

---

2
SW
1/4 - 1/2 Mile
Lower

FED USGS **USGS40000834334**

Organization ID:	USGS-NY	Organization Name:	USGS New York Water Science Center
Monitor Location:	B 11	Type:	Well
Description:	Not Reported	HUC:	Not Reported
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	Not Reported
Well Depth:	387	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Ground water levels,Number of Measurements:	1	Level reading date:	1949-05-12
Feet below surface:	10	Feet to sea level:	Not Reported
Note:	Not Reported		

3
NE
1/2 - 1 Mile
Higher

FED USGS **USGS40000834605**

Organization ID:	USGS-NY	Organization Name:	USGS New York Water Science Center
Monitor Location:	B 63	Type:	Well
Description:	Not Reported	HUC:	Not Reported
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	Not Reported
Well Depth:	38	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

4
SSW
1/2 - 1 Mile
Lower

FED USGS **USGS40000834270**

Organization ID:	USGS-NY	Organization Name:	USGS New York Water Science Center
Monitor Location:	B 52	Type:	Well
Description:	Not Reported	HUC:	Not Reported
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	Not Reported
Well Depth:	258	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

---

A5
NNE
1/2 - 1 Mile
Lower

FED USGS **USGS40000834787**

Organization ID:	USGS-NY	Organization Name:	USGS New York Water Science Center
Monitor Location:	B 38	Type:	Well
Description:	Not Reported	HUC:	Not Reported
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	Not Reported
Well Depth:	Not Reported	Well Depth Units:	Not Reported
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

---

A6
NNE
1/2 - 1 Mile
Lower

FED USGS **USGS40000834804**

Organization ID:	USGS-NY	Organization Name:	USGS New York Water Science Center
Monitor Location:	B 64	Type:	Well
Description:	Not Reported	HUC:	Not Reported
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	Not Reported
Well Depth:	44	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

A1
ENE
1/2 - 1 Mile

OIL_GAS **NYOG90000013119**

API Well #:	31005236070000	Well Name:	W-2
Owner:	New York City Dept. of Design and Construction		
Operator:	2194	Well Type:	Geothermal
Well Status:	Expired Permit	Permit Date:	0
Drill Date:	0	Completion Date:	0
Plug Date:	0	Field Name:	Not Applicable
Formation:	Not Applicable	Borehole Slant:	Vertical
State Owned Lease:	NA	Proposed Depth:	1500
True Depth:	0	Measured Length:	0

A2
ENE
1/2 - 1 Mile

OIL_GAS **NYOG90000013120**

API Well #:	31005236070000	Well Name:	W-2
Owner:	New York City Dept. of Design and Construction		
Operator:	2194	Well Type:	Geothermal
Well Status:	Active	Permit Date:	0
Drill Date:	0	Completion Date:	2008 225
Plug Date:	0	Field Name:	Not Applicable
Formation:	Not Applicable	Borehole Slant:	Vertical
State Owned Lease:	NA	Proposed Depth:	1500
True Depth:	1500	Measured Length:	1500

A3
ENE
1/2 - 1 Mile

OIL_GAS **NYOG90000013118**

API Well #:	31005236070000	Well Name:	W-2
Owner:	New York City Dept. of Design and Construction		
Operator:	2194	Well Type:	Geothermal
Well Status:	Expired Permit	Permit Date:	0
Drill Date:	0	Completion Date:	0
Plug Date:	0	Field Name:	Not Applicable
Formation:	Not Applicable	Borehole Slant:	Vertical
State Owned Lease:	NA	Proposed Depth:	1500
True Depth:	0	Measured Length:	0

A5
ENE
1/2 - 1 Mile

OIL_GAS **NYOG90000013126**

API Well #:	31005236090000	Well Name:	W-4
Owner:	New York City Dept. of Design and Construction		
Operator:	2194	Well Type:	Geothermal
Well Status:	Expired Permit	Permit Date:	0
Drill Date:	0	Completion Date:	0

Plug Date:	0	Field Name:	Not Applicable
Formation:	Not Applicable	Borehole Slant:	Vertical
State Owned Lease:	NA	Proposed Depth:	1500
True Depth:	0	Measured Length:	0

A6
ENE **OIL_GAS** **NYOG90000013127**
1/2 - 1 Mile

API Well #:	31005236090000	Well Name:	W-4
Owner:	New York City Dept. of Design and Construction		
Operator:	2194	Well Type:	Geothermal
Well Status:	Active	Permit Date:	0
Drill Date:	0	Completion Date:	2008 226
Plug Date:	0	Field Name:	Not Applicable
Formation:	Not Applicable	Borehole Slant:	Vertical
State Owned Lease:	NA	Proposed Depth:	1500
True Depth:	1500	Measured Length:	1500

A4
ENE **OIL_GAS** **NYOG90000013125**
1/2 - 1 Mile

API Well #:	31005236090000	Well Name:	W-4
Owner:	New York City Dept. of Design and Construction		
Operator:	2194	Well Type:	Geothermal
Well Status:	Expired Permit	Permit Date:	0
Drill Date:	0	Completion Date:	0
Plug Date:	0	Field Name:	Not Applicable
Formation:	Not Applicable	Borehole Slant:	Vertical
State Owned Lease:	NA	Proposed Depth:	1500
True Depth:	0	Measured Length:	0

A7
ENE **OIL_GAS** **NYOG90000013117**
1/2 - 1 Mile

API Well #:	31005210770000	Well Name:	W-1
Owner:	New York City Dept. of Design and Construction		
Operator:	2194	Well Type:	Geothermal
Well Status:	Active	Permit Date:	0
Drill Date:	0	Completion Date:	2008 225
Plug Date:	0	Field Name:	Not Applicable
Formation:	NA - Geoexchange	Borehole Slant:	Vertical
State Owned Lease:	NA	Proposed Depth:	1500
True Depth:	1300	Measured Length:	1300

Map ID
Direction
Distance

Database EDR ID Number

A8
ENE
1/2 - 1 Mile

OIL_GAS **NYOG90000013122**

API Well #:	31005236080000	Well Name:	W-3
Owner:	New York City Dept. of Design and Construction		
Operator:	2194	Well Type:	Geothermal
Well Status:	Expired Permit	Permit Date:	0
Drill Date:	0	Completion Date:	0
Plug Date:	0	Field Name:	Not Applicable
Formation:	Not Applicable	Borehole Slant:	Vertical
State Owned Lease:	NA	Proposed Depth:	1500
True Depth:	0	Measured Length:	0

A11
ENE
1/2 - 1 Mile

OIL_GAS **NYOG90000013123**

API Well #:	31005236080000	Well Name:	W-3
Owner:	New York City Dept. of Design and Construction		
Operator:	2194	Well Type:	Geothermal
Well Status:	Expired Permit	Permit Date:	0
Drill Date:	0	Completion Date:	0
Plug Date:	0	Field Name:	Not Applicable
Formation:	Not Applicable	Borehole Slant:	Vertical
State Owned Lease:	NA	Proposed Depth:	1500
True Depth:	0	Measured Length:	0

A10
ENE
1/2 - 1 Mile

OIL_GAS **NYOG90000013124**

API Well #:	31005236080000	Well Name:	W-3
Owner:	New York City Dept. of Design and Construction		
Operator:	2194	Well Type:	Geothermal
Well Status:	Active	Permit Date:	0
Drill Date:	0	Completion Date:	2008 225
Plug Date:	0	Field Name:	Not Applicable
Formation:	Not Applicable	Borehole Slant:	Vertical
State Owned Lease:	NA	Proposed Depth:	1500
True Depth:	1480	Measured Length:	1480

A9
ENE
1/2 - 1 Mile

OIL_GAS **NYOG90000013121**

API Well #:	31005236080000	Well Name:	W-3
Owner:	New York City Dept. of Design and Construction		
Operator:	2194	Well Type:	Geothermal
Well Status:	Expired Permit	Permit Date:	0
Drill Date:	0	Completion Date:	0

Plug Date:	0	Field Name:	Not Applicable
Formation:	Not Applicable	Borehole Slant:	Vertical
State Owned Lease:	NA	Proposed Depth:	1500
True Depth:	0	Measured Length:	0

A12
ENE
1/2 - 1 Mile

OIL_GAS **NYOG90000013128**

API Well #:	31005236100000	Well Name:	W-5
Owner:	New York City Dept. of Design and Construction		
Operator:	2194	Well Type:	Geothermal
Well Status:	Expired Permit	Permit Date:	0
Drill Date:	0	Completion Date:	0
Plug Date:	0	Field Name:	Not Applicable
Formation:	Not Applicable	Borehole Slant:	Vertical
State Owned Lease:	NA	Proposed Depth:	1500
True Depth:	0	Measured Length:	0

A13
ENE
1/2 - 1 Mile

OIL_GAS **NYOG90000013129**

API Well #:	31005236100000	Well Name:	W-5
Owner:	New York City Dept. of Design and Construction		
Operator:	2194	Well Type:	Geothermal
Well Status:	Expired Permit	Permit Date:	0
Drill Date:	0	Completion Date:	0
Plug Date:	0	Field Name:	Not Applicable
Formation:	Not Applicable	Borehole Slant:	Vertical
State Owned Lease:	NA	Proposed Depth:	1500
True Depth:	0	Measured Length:	0

A14
ENE
1/2 - 1 Mile

OIL_GAS **NYOG90000013130**

API Well #:	31005236100000	Well Name:	W-5
Owner:	New York City Dept. of Design and Construction		
Operator:	2194	Well Type:	Geothermal
Well Status:	Active	Permit Date:	0
Drill Date:	0	Completion Date:	2008 226
Plug Date:	0	Field Name:	Not Applicable
Formation:	Not Applicable	Borehole Slant:	Vertical
State Owned Lease:	NA	Proposed Depth:	1500
True Depth:	1500	Measured Length:	1500

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

Federal EPA Radon Zone for BRONX County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for BRONX COUNTY, NY

Number of sites tested: 31

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area	0.670 pCi/L	96%	4%	0%
Basement	1.110 pCi/L	42%	58%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Freshwater Wetlands
Source: Department of Environmental Conservation
Telephone: 518-402-8961

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

New York Public Water Wells
Source: New York Department of Health
Telephone: 518-458-6731

OTHER STATE DATABASE INFORMATION

Oil and Gas Well Database
Source: Department of Environmental Conservation
Telephone: 518-402-8072
These files contain records, in the database, of wells that have been drilled.

RADON

State Database: NY Radon
Source: Department of Health
Telephone: 518-402-7556
Radon Test Results

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary faultlines, prepared in 1975 by the United State Geological Survey

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STREET AND ADDRESS INFORMATION

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Appendix G
Supplemental Documentation

Environmental Protection

NYC DEPARTMENT OF ENVIRONMENTAL PROTECTION

Asbestos Control Program
59-17 Junction Boulevard, 8th Floor, Flushing, NY 11373

ASBESTOS ASSESSMENT REPORT

RECEIVED
1/7/2019
DEP
ASBESTOS CONTROL
PROGRAM
FEE PAID

1. NYC DOB Job # (if applicable) _____ **Control Number: 2525079**

2. Premise No. 1947 Street Name Bathgate Borough Bronx Zip 10457

3. AKA _____ Type of Facility Commercial BIN 2011423 Block 03043 Lot 0010

4. Building Owner Fr. Nelson Belizario Address 2191 Valentine Avenue

5. City Bronx State NY Zip 10457 Contact Person Fr. Nelson Belizario

6. Tel. # (718) 367-1251 Fax # _____ Email _____

7. Work Type Full Demolition

Description of the Entire Scope of Work
Full demolition of the building

8. I, JASON FULLUM , have conducted an asbestos investigation on
Name of Certified Asbestos Investigator

01/04/2019 9:00AM-10:00AM in accordance
Date(s)

with Sections 1-16 and 1-28 of the NYC DEP Asbestos Control Program Rules and declare that at said facility address, the

☐ a. the premises or the portion(s) of the premises, included in the scope of renovations was/were determined that there was no asbestos-containing materials (ACM) present

☐ b. premise (or portions thereof) affected by the work contains 10 square feet or less or 25 linear feet or less of ACM. Specify locations in section 9: Note: This material must be abated as a minor project in accordance with relevant provisions of the DEP Asbestos Rules.

☐ c. asbestos is present and will not be disturbed during construction activity. Specify the quantity and area where asbestos is present. Specify amount: _____ sq. ft _____ linear ft.

☒ d. entire building is free of asbestos containing material (ACM).

9. RESULTS OF ASBESTOS BUILDING SURVEY:

Floor	Section of Floor(s) Surveyed	Material Assumed to Contain ACM and/or Sampled	Number of Samples Analyzed	Asbestos Present	Assumed ACM	Square Feet	Linear Feet	Abated	Scope of Work Applied
Building Floors-1 to 3	Entire building has been abated	All asbestos has been abated and an ACP 21 has been generated.	0	No	No				

I hereby declare the information provided herein is true and complete

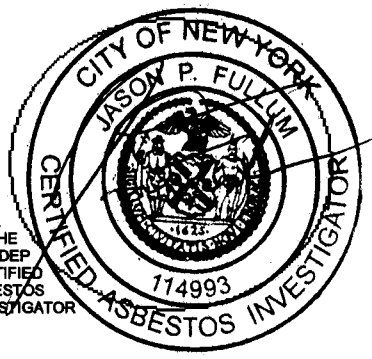
JASON FULLUM — *DEP Certified Asbestos Investigator's Signature*
1/7/2019 — *Date*
114993 — *Certificate Number*
2/26/2020 — *Expiration Date*

Tel. # (845) 278-7710 Fax # _____

Email jfullum@adelaidellc.com

The investigator shall assume that some or all of the areas investigated contain ACM, and for each area that is not assumed to contain ACM, collect and submit for analysis bulk samples in accordance with §§ 1-36, 1-37, and 1-44 of the DEP Asbestos Rules and EPA publications 560/5-85-024 and 560/5-85-030a and 40 CFR 763.86.

SEAL OF THE NYC DEP CERTIFIED ASBESTOS INVESTIGATOR



Is it a Build-It-Back project? ☐ Yes, App ID # _____ ☒ No

25537389

NYC Environmental Protection

NYC DEPARTMENT OF ENVIRONMENTAL PROTECTION
Asbestos Control Program
59-17 Junction Boulevard, 8th Floor, Flushing, NY 11373
ASBESTOS ASSESSMENT REPORT

RECEIVED
1/7/2019
DEP
ASBESTOS CONTROL
PROGRAM
FEE PAID

10. ANALYTICAL LABORATORY:

NAME	ELAP # (NYS DOH CERTIFICATION)	DATE(S) SAMPLES ANALYZED

11. NYS DOL Asbestos Handling license # 29305 Company Name Adelaide Environmental Health Associates, Inc.

12.Comment

I hereby declare the information provided herein is true and complete

JASON FULLUM	1/7/2019	114993	2/26/2020
DEP Certified Asbestos Investigator's Signature	*Date*	*Certificate Number*	*Expiration Date*

Tel. # (845) 278-7710 Fax # _____

Email jfullum@adelaidellc.com

The investigator shall assume that some or all of the areas investigated contain ACM, and for each area that is not assumed to contain ACM, collect and submit for analysis bulk samples in accordance with §§ 1-36, 1-37, and 1-44 of the DEP Asbestos Rules and EPA publications 560/5-85-024 and 560/5-85-030a and 40 CFR 763.86.

SEAL OF THE NYC DEP CERTIFIED ASBESTOS INVESTIGATOR

Is it a Build-It-Back project? ☐ Yes, App ID # _____ ☒ No

25537389

Appendix H
Preparer Information

Christopher Rooney

Environmental Scientist

Christopher Rooney is an Environmental Scientist in VHB's Oil and Hazardous Materials Group. He conducts Phase I and Phase II Environmental Site Assessments. In addition, Christopher performs various environmental services including remediation oversight as well as groundwater, air and soil sampling.

5 years of professional experience

Education

B.S., Environmental Chemistry, Stony Brook University

Certifications

Hazardous Waste Operations and Emergency Response Standard, OSHA

Mold Assessor, NYSDOL

Construction Safety and Health, OSHA

Asbestos Inspector, EPA/NYSDOL

Storage Tank Installation and Maintenance, NORA

Roadway Worker Protection, FRA/LIRR

Various Phase I & Phase II Environmental Site Assessments

Christopher prepares Phase I Environmental Site Assessments for municipal and institutional clients, private developers and Verizon Wireless service expansion. He also supports Phase II ESAs by performing soil sampling, groundwater investigations/monitoring, overseeing geophysical surveys and soil vapor monitoring as well as providing remedial investigation support.

Verizon Wireless Soil Management Plan Implementation

Christopher assisted with Soil Management Plan implementation for Verizon Wireless service expansion at North Patchogue Fire Department, Queens of All Saints Cemetery and Cutchogue Verizon Landline locations.

Self Storage Underground Injection Control Investigation and Closure

Christopher assisted with investigation and remediation of storm drain and sanitary structures at properties identified for potential redevelopment by Simply Self Storage

Environmental Scientist II, H2M architects + engineers

Christopher project managed numerous fuel oil and gasoline spill claims. His responsibilities included evaluation inspections of residential petroleum spill sites for insurance clients to delineate subsurface soil and groundwater impacts, coverage and subrogation potential, review and revision of contractor work proposals and provide consultation during remediation to ensure both cost effectiveness and compliance with regulatory protocols. Christopher worked closely with adjustors, contractors, state and local regulatory agencies and homeowners throughout the entire remedial process to attain spill closure. This work was complete prior to joining VHB.

Staff Scientist I, H2M architects + engineers

Christopher conducted site inspections on behalf of energy distribution clients, water districts, builders and multiple national insurance companies with a focus on determining cause and origin and environmental impact with respect to potential petroleum releases and mold growth. He also conducted environmental reviews required by the Department of Housing and Urban Development. This work was completed prior to joining VHB.

Occupational and Environmental Safety Intern, Long Island Rail Road

Christopher's internship was focused on environmental plans, regulatory compliance and hazard abatement. He helped determine compliance with Chemical Facility Anti-Terrorism Standards and was involved in field work inspecting tanks, engineering controls, hazardous and universal waste. In support of a MS4 permit, he created a geodatabase to map stormwater structures and reviewed contractor reports.

Bryan Murty

Senior Project Manager

Bryan Murty manages and conducts Phase I and Phase II Environmental Site Assessments. In addition, Bryan performs various environmental services including soil vapor sampling/ambient air quality analysis, design, oversight and technical support of small and large-scale remediation projects, as well as noise studies. Bryan also participates in various environmental planning activities, including preparation of Draft and Final Environmental Impact Statements.

Education

BA, Environmental Sciences, State University of New York at Binghamton, 2005

Registrations/ Certifications

New York City Office of Environmental Remediation Gold Certified Professional (Brownfield Industry), 2015

OSHA Certified Hazardous Waste Health and Safety Operator (OSHA 1910.120), 2006

OSHA Construction Safety and Health Certificate (10-Hour), 2012

11 years of professional experience

United States Armed Forces Reserve Center/Nike Missile Base, Amityville, NY
Bryan performed Phase I and Phase II Environmental Site Assessments for the closure and redevelopment of the former United States Armed Forces Reserve Center and Nike Missile Base located in Amityville, New York. He evaluated all environmental conditions at the property including sub-slab soil vapor and ambient air quality analyses, multi-depth soil sampling, underground injection control (UIC), as well as groundwater and wastewater sampling within abandoned missile silos. ($50K)

Polytechnic Institute of New York University, Brooklyn, NY
Bryan assisted in the design and implementation of a large-scale groundwater remediation system associated with a former leaking underground storage tank located at the Polytechnic Institute in Brooklyn. The groundwater remediation system is designed to collect and capture contaminated groundwater and recover product floating on the groundwater table. In order to achieve this, Bryan coordinated with various additional team consultants in order to gather information needed to produce a New York State Department of Environmental Conservation-approved remedial action work plan. ($50K)

Nassau Board of Cooperative Educational Services (BOCES) Career Preparatory High School, Westbury, NY
Bryan provided consulting services including a review of adjacent industrial and former Superfund sites within the surrounding properties. Bryan also conducts sub-slab soil vapor and indoor air monitoring in accordance with New York State Department of Health (NYSDOH) protocols in order to ensure surrounding industrial properties are not adversely affecting the school. ($25K)

Taystee Bakery, West Harlem, NY
Bryan performed Phase I and Phase II ESAs for the redevelopment of a block of vacant buildings located in West Harlem that were formerly utilized as a commercial bakery. Bryan also corresponded with the NYSDEC for closure of an on-site spill, and created a New York City Office of Environmental Remediation (NYCOER)-approved Work Plan for the remediation of the property that is scheduled to be implemented in the coming year. ($12K)

The Riverwalk Redevelopment, Patchogue, NY
Bryan assisted in the preparation of Phase I and Phase II Environmental Site Assessments, as well as the facility closure (including soil, groundwater, UIC analysis and

underground storage tank removal) of the former Clare Rose beverage distribution center in Patchogue, New York for redevelopment into market rate condominiums.

Costco Redevelopment, Hicksville, NY
Bryan prepared Phase I and Phase II Environmental Site Assessments and assisted in preparation of the revised FEIS for the redevelopment of the property at West John Street and Charlotte Avenue.

New York City Phase I ESA Experience, New York, NY
Bryan has prepared numerous Phase I Environmental Site Assessments throughout the five boroughs for such projects as the Tastyee Bakery Site near Columbia University; Jewish Home Lifecare on the Upper West Side; 7 World Trade Center in Manhattan; Bossert Hotel in Brooklyn; Attorney Street in Manhattan; Park Lane Hotel, the former Helmsley Hotel, in Manhattan; and many others. As a result of the research for these projects and the coordination with environmental agencies, Bryan understands New York City environmental issues, the regulations governing these issues, and the remediation protocols.

T.C. Dunham Paint Company, Yonkers, NY
Bryan provided consulting services including emergency response, and production and oversight of an approved remedial action work plan associated with a 4-alarm paint warehouse fire that impacted a large area in Yonkers. He teamed with various consultants and coordinated with various regulatory agencies, including the City of Yonkers, New York State Department of Environmental Conservation and the United States Environmental Protection Agency to generate various approved documents including a remedial action work plan, health and safety plan (HASP) and community air monitoring program (CAMP) plan.

Former Bay Shore Armory, Bay Shore, NY
Bryan performed a Phase II Environmental Site Assessment for the re-use and redevelopment of the former New York State Armory property. He coordinated with sub-contractors and provided field oversight for a geophysical survey, the sampling from several large leaching fields, abandoned underground structures including vehicle lifts, tanks and an oil/water separator.

Queen of Peace Cemetery and Residential Subdivision, Old Westbury, NY
Bryan prepared the FEIS for the development of a cemetery for the Diocese of Rockville Centre.

Nassau Coliseum Redevelopment, Lighthouse at Long Island, Uniondale, NY
Bryan assisted in preparation of the DGEIS for the redevelopment of the existing Nassau County Veterans Memorial Coliseum to a multi-use entertainment and residential complex in the Town of Hempstead.

EIS for Heartland Town Square Redevelopment, Brentwood, NY
Bryan assisted in preparation of the EIS for the rezoning and redevelopment of the 475± acre former Pilgrim Psychiatric Center as a Smart Growth Community.

Sheltair Aviation, Republic Airport, Farmingdale, NY
Bryan assisted in preparation of the Hazardous Materials section of DEIS for proposed redevelopment and improvement of a former residential subdivision as a private jet terminal.

Pulte Homes, Courthouse Commons, Central Islip, NY
Bryan prepared Phase I and Phase II Environmental Site Assessment and assisted in the monitoring of a large-scale remediation of a landfill at the former Central Islip Psychiatric Facility under the direction of the Suffolk County Department of Health Services and the New York State Department of Environmental Conservation for the ultimate redevelopment of the property as a residential condominium complex. ($125K)

Lowe's Home Centers, Various Nassau County and Suffolk County Sites, NY
Bryan prepared Phase I and Phase II Environmental Site Assessments for several Lowe's stores throughout Long Island.

Verizon Wireless Phase I & Phase II Environmental Site Assessments, Various Locations, NY
Bryan has performed over 60 Phase I and/or Phase II Environmental Site Assessments (ESA) in the five boroughs and over 200 in various locations in New York for Verizon Wireless' service expansion. He supports Phase II ESAs by performing soil sampling, groundwater investigations/monitoring and soil vapor monitoring, and also provides remedial investigation support.

PANYNJ Passenger Facility Charge, Newark, NJ, New York, NY, New Windsor, NY
Bryan assisted in developing and administering the 2010 PFC application for the Port Authority of New York and New Jersey for Newark Liberty International Airport, John F. Kennedy International Airport, LaGuardia Airport and Stewart International Airport. This application includes $570 million in capital development projects that incorporate terminal expansion, runway and taxiway pavement rehabilitation and security enhancements. Working with Port Authority staff, assisted in developing each project description justification through detailed meetings with a variety of Port Authority staff (technical services, accounting, planning) throughout the agency. The application received considerable support by the airlines and worked diligently with Port Authority staff and the FAA to the eventual approval of the application.

Country Point at Plainview, Plainview, NY
Bryan conducted a Phase I Environmental Site Assessment on the former Nassau County Sanitorium and associated recreational playing fields in Plainview, New York. He used this information to provide integrated services and incorporated some into a Draft Environmental Impact Statement to analyze existing conditions, potential impacts and mitigation measures associated with the redevelopment of the former Nassau County Sanitorium to a multi-family residential subdivision.

APPENDIX B

	Boring Log	Project No.: 26518.05	Page: 1
	Drill Rig: Geoprobe 7822DT	Date Drilled: 3/29/2023	Logged By: IM
	Boring Diameter: 2" Macrocore	Boring Number: SB-1	

Sample	% Recovery	PID Reading (ppm)	Depth (Feet) BGS	USCS Soil Type	Lithology/Description
X	50	0.0	0-5	SW	Light brown sand with brick and stone fragments. No odor.
X	80	0.0	5-6.5	SW	Light brown sand with trace brick and stone fragments. No odor.

Soil Sampling Notes: Refusal at 6.5' BGS, samples at 0-2' BGS and 4.5-6.5' BGS intervals.

Groundwater Sampling Notes: Groundwater not encountered.

Soil Vapor Sampling Notes: SV-1 installed @ 9:01a, 5'BGS.

BGS - Below Ground Surface

USCS - Unified Soil Classification System

Boring Location:
SB-1

	Boring Log	Project No.: 26518.05	Page: 2
	Drill Rig: Geoprobe 7822DT	Date Drilled: 3/29/2023	Logged By: IM
	Boring Diameter: 2" Macrocore	Boring Number: SB-2	

Sample	% Recovery	PID Reading (ppm)	Depth (Feet) BGS	USCS Soil Type	Lithology/Description
X	75	0.0	0-5	SW	Light brown/tan sand with brick, asphalt, and stone fragments. No odor.
	50	0.0	5-10	SW	Light brown/tan sand with brick and stone fragments, trace wood. No odor.
X	90	0.0	10-12	SW	Light brown sand with rock fragments. No odor, slightly moist @ 12' BGS.

Soil Sampling Notes: Refusal at 12' BGS, samples at 0-2' BGS and 10-12' BGS intervals.

Groundwater Sampling Notes: Groundwater not encountered.

Soil Vapor Sampling Notes: SV-2 installed @ 9:30a, 11'BGS.

BGS - Below Ground Surface

USCS - Unified Soil Classification System

Boring Location:
SB-2

	Boring Log	Project No.: 26518.05	Page: 3
	Drill Rig: Geoprobe 7822DT	Date Drilled: 3/29/2023	Logged By: IM
	Boring Diameter: 2" Macrocore	Boring Number: SB-3	

Sample	% Recovery	PID Reading (ppm)	Depth (Feet) BGS	USCS Soil Type	Lithology/Description
X	90	0.0	0-5	SW	Light brown sand with stone fragments. No odor.
X	60	0.0	5-8	SW	Light brown sand with brick, stone, and wood fragments. No odor.

Soil Sampling Notes: Refusal at 8' BGS, samples at 0-2' BGS and 6-8' BGS intervals.

Groundwater Sampling Notes: Groundwater not encountered.

Soil Vapor Sampling Notes: SV-3 installed @ 10:05a, 8'BGS.

BGS - Below Ground Surface

USCS - Unified Soil Classification System

Boring Location:
SB-3

	Boring Log	Project No.: 26518.05	Page: 4
	Drill Rig: Geoprobe 7822DT	Date Drilled: 3/29/2023	Logged By: IM
	Boring Diameter: 2" Macrocore	Boring Number: SB-4	

Sample	% Recovery	PID Reading (ppm)	Depth (Feet) BGS	USCS Soil Type	Lithology/Description
X	75	0.1	0-5	SW	Asphalt at surface. Dark brown sand with brick and glass. No odor.
X	90	0.0	5-6	SW	Light brown/tan sand with rock fragments and streaks of orange/rust-colored sand. No odor.

Soil Sampling Notes: Refusal at 6' BGS, samples at 0-2' BGS and 4-6' BGS intervals.

Groundwater Sampling Notes: Groundwater not encountered.

Soil Vapor Sampling Notes: SV-4 installed @ 10:30a, 6'BGS.

BGS - Below Ground Surface

USCS - Unified Soil Classification System

Boring Location:
SB-4

	Boring Log	Project No.: 26518.05	Page: 5
	Drill Rig: Geoprobe 7822DT	Date Drilled: 3/29/2023	Logged By: IM
	Boring Diameter: 2" Macrocore	Boring Number: SB-5	

Sample	% Recovery	PID Reading (ppm)	Depth (Feet) BGS	USCS Soil Type	Lithology/Description
X	50	0.0	0-5	SM	Medium brown/dark brown topsoil with gravel and brick. No odors.
	50	0.0	5-10	SP	Medium- to light-brown sand with brick and rock fragments. No odors.
X	50	0.0	10-14	SM	Tan/light brown sand to dark brown sand and silt. Rock fragments and no odors.

Soil Sampling Notes: Refusal at 14' BGS, samples at 0-2' BGS and 12-14'BGS intervals.

Groundwater Sampling Notes: Groundwater not encountered.

Soil Vapor Sampling Notes: SV-5 installed @ 11:26a, 13.5'BGS.

BGS - Below Ground Surface

USCS - Unified Soil Classification System

Boring Location:
SB-5

	Boring Log	Project No.: 26518.05	Page: 6
	Drill Rig: Geoprobe 7822DT	Date Drilled: 3/29/2023	Logged By: IM
	Boring Diameter: 2" Macrocore	Boring Number: SB-6	

Sample	% Recovery	PID Reading (ppm)	Depth (Feet) BGS	USCS Soil Type	Lithology/Description
X	80	0.0	0-3.5	SW	Asphalt at surface. Medium- to coarse-grained brown sand. Dark, weathered rock fragments. No odor.

Soil Sampling Notes: Refusal at 3.5' BGS, sample at 0-2' BGS interval.

Groundwater Sampling Notes: Groundwater not encountered.

Soil Vapor Sampling Notes: SV-6 installed @ 14:05a, 3'BGS.

BGS - Below Ground Surface

USCS - Unified Soil Classification System

Boring Location:
SB-6

	Boring Log	Project No.: 26518.05	Page: 7
	Drill Rig: Geoprobe 7822DT	Date Drilled: 3/29/2023	Logged By: IM
	Boring Diameter: 2" Macrocore	Boring Number: SB-7	

Sample	% Recovery	PID Reading (ppm)	Depth (Feet) BGS	USCS Soil Type	Lithology/Description
X	25	0.0	0-2	SW	Light sand with rock and brick fragments. No odor.

Soil Sampling Notes: Refusal at 2' BGS, sample at 0-2' BGS interval.

Groundwater Sampling Notes: Groundwater not encountered.

Soil Vapor Sampling Notes: N/A

BGS - Below Ground Surface

USCS - Unified Soil Classification System

Boring Location:
SB-7

	Boring Log	Project No.: 26518.05	Page: 8
	Drill Rig: Geoprobe 7822DT	Date Drilled: 3/29/2023	Logged By: IM
	Boring Diameter: 2" Macrocore	Boring Number: SB-8	

Sample	% Recovery	PID Reading (ppm)	Depth (Feet) BGS	USCS Soil Type	Lithology/Description
X	75	0.0	0-3	SW	Light brown/tan sand with rock and trace asphalt. No odor.

Soil Sampling Notes: Refusal at 3' BGS, sample at 0-2' BGS interval.

Groundwater Sampling Notes: Groundwater not encountered.

Soil Vapor Sampling Notes: SV-7 installed @ 12:30a, 2'BGS.

BGS - Below Ground Surface

USCS - Unified Soil Classification System

Boring Location:
SB-8

	Boring Log	Project No.: 26518.05	Page: 9
	Drill Rig: Geoprobe 7822DT	Date Drilled: 3/29/2023	Logged By: IM
	Boring Diameter: 2" Macrocore	Boring Number: SB-9	

Sample	% Recovery	PID Reading (ppm)	Depth (Feet) BGS	USCS Soil Type	Lithology/Description
X	50	0.0	0-3	SW	Light brown/tan sand with brick, rock, and trace wood. No odor.

Soil Sampling Notes: Refusal at 3' BGS, sample at 0-2' BGS interval.

Groundwater Sampling Notes: Groundwater not encountered.

Soil Vapor Sampling Notes: SV-8 installed @ 12:20a, 3'BGS.

BGS - Below Ground Surface

USCS - Unified Soil Classification System

Boring Location:
SB-9

	Boring Log	Project No.: 26518.05	Page: 10
	Drill Rig: Geoprobe 7822DT	Date Drilled: 3/29/2023	Logged By: IM
	Boring Diameter: 2" Macrocore	Boring Number: SB-10	

Sample	% Recovery	PID Reading (ppm)	Depth (Feet) BGS	USCS Soil Type	Lithology/Description
X	50	0.2	0-2	SW	Light brown/tan sand with rock fragments. No odor.

Soil Sampling Notes: Refusal at 2' BGS, sample at 0-2' BGS interval.

Groundwater Sampling Notes: Groundwater not encountered.

Soil Vapor Sampling Notes: SV-9 installed @ 12:40a, 2'BGS.

BGS - Below Ground Surface

USCS - Unified Soil Classification System

Boring Location:
SB-10

	Boring Log	Project No.: 26518.05	Page: 11
	Drill Rig: Geoprobe 7822DT	Date Drilled: 3/29/2023	Logged By: IM
	Boring Diameter: 2" Macrocore	Boring Number: SB-11	

Sample	% Recovery	PID Reading (ppm)	Depth (Feet) BGS	USCS Soil Type	Lithology/Description
X	30	0.6	0-5	SW	Medium- to light-brown sand with brick and rock fragments. No odors.
X	30	31.4	5-9	SW	Dark brown sand/black asphalt with rock fragments and petroleum odor.

Soil Sampling Notes: Refusal at 9' BGS, samples at 0-2' BGS and 6.5-8.5' BGS intervals.

Groundwater Sampling Notes: Groundwater not encountered.

Soil Vapor Sampling Notes: SV-10 installed @ 13:35a, 8.5'BGS.

BGS - Below Ground Surface

USCS - Unified Soil Classification System

Boring Location:
SB-11

APPENDIX C

Project Location:
484 East 178th Street
Bronx, New York
VHB Project Number: 26518.05

Sample Date:	03/30/2023	**VHB Job #:**	26518.05
Field ID# and Depth:	SV-1; 5'BGS	**Sampled By:**	John Lagoudes & Celeste Corcoran
Canister#	3153	**Size of Canister:**	6 Liters
Regulator#	01949	**Sample Type:**	Summa Canister

Sampling Information

AMBIENT OUTDOOR READINGS		
	Temperature (F)	Barometric Pressure (inches of Hg)
Start	33	30.30
Stop	35	30.30

INTERIOR TEMPERATURE (°F)	
Start	N/A
Stop	N/A

CANISTER PRESSURE (inches of Hg)	
Start	-30.80
Stop	-5.35

SAMPLING TIME (24-hour-clock)	
Start	09:22
Stop	10.51
Total Elapsed Sampling Time: 89 Minutes	

Project Location:
484 East 178th Street
Bronx, New York
VHB Project Number: 26518.05

Sample Date:	03/30/2023	**VHB Job #:**	26518.05
Field ID# and Depth:	SV-2; 11'BGS	**Sampled By:**	John Lagoudes & Celeste Corcoran
Canister#	1661	**Size of Canister:**	6 Liters
Regulator#	0141	**Sample Type:**	Summa Canister

Sampling Information

AMBIENT OUTDOOR READINGS		
	Temperature (F)	Barometric Pressure (inches of Hg)
Start	33	30.30
Stop	35	30.30

INTERIOR TEMPERATURE (°F)	
Start	N/A
Stop	N/A

CANISTER PRESSURE (inches of Hg)	
Start	-30.53
Stop	-5.63

SAMPLING TIME (24-hour-clock)	
Start	09:31
Stop	11:02
Total Elapsed Sampling Time: 92 Minutes	

Project Location:
484 East 178th Street
Bronx, New York
VHB Project Number: 26518.05

Sample Date:	03/30/2023	**VHB Job #:**	26518.05
Field ID# and Depth:	SV-3; 8'BGS	**Sampled By:**	John Lagoudes & Celeste Corcoran
Canister#	941	**Size of Canister:**	6 Liters
Regulator#	0257	**Sample Type:**	Summa Canister

Sampling Information

AMBIENT OUTDOOR READINGS		
	Temperature (F)	Barometric Pressure (inches of Hg)
Start	33	30.30
Stop	35	30.32

INTERIOR TEMPERATURE (°F)	
Start	N/A
Stop	N/A

CANISTER PRESSURE (inches of Hg)	
Start	-31.72
Stop	-5.64

SAMPLING TIME (24-hour-clock)	
Start	10:05
Stop	11:49
Total Elapsed Sampling Time: 104 Minutes	

Project Location:
484 East 178th Street
Bronx, New York
VHB Project Number: 26518.05

Sample Date:	03/30/2023	**VHB Job #:**	26518.05
Field ID# and Depth:	SV-4; 6'BGS	**Sampled By:**	John Lagoudes & Celeste Corcoran
Canister#	2779	**Size of Canister:**	6 Liters
Regulator#	01692	**Sample Type:**	Summa Canister

Sampling Information

AMBIENT OUTDOOR READINGS		
	Temperature (F)	Barometric Pressure (inches of Hg)
Start	35	30.30
Stop	38	30.31

INTERIOR TEMPERATURE (°F)	
Start	N/A
Stop	N/A

CANISTER PRESSURE (inches of Hg)	
Start	-30.80
Stop	-5.96

SAMPLING TIME (24-hour-clock)	
Start	10:30
Stop	12:20
Total Elapsed Sampling Time: 110 Minutes	

Project Location:
484 East 178th Street
Bronx, New York
VHB Project Number: 26518.05

Sample Date:	03/30/2023	**VHB Job #:**	26518.05
Field ID# and Depth:	SV-5; 13.5'BGS	**Sampled By:**	John Lagoudes & Celeste Corcoran
Canister#	2801	**Size of Canister:**	6 Liters
Regulator#	0822	**Sample Type:**	Summa Canister

Sampling Information

AMBIENT OUTDOOR READINGS		
	Temperature (F)	Barometric Pressure (inches of Hg)
Start	35	30.32
Stop	38	30.31

INTERIOR TEMPERATURE (°F)	
Start	N/A
Stop	N/A

CANISTER PRESSURE (inches of Hg)	
Start	-30.70
Stop	-6.42

SAMPLING TIME (24-hour-clock)	
Start	11:26
Stop	12:42
Total Elapsed Sampling Time: 76 Minutes	

Project Location:
484 East 178th Street
Bronx, New York
VHB Project Number: 26518.05

Sample Date:	03/30/2023	**VHB Job #:**	26518.05
Field ID# and Depth:	SV-6; 3'BGS	**Sampled By:**	John Lagoudes & Celeste Corcoran
Canister#	3598	**Size of Canister:**	6 Liters
Regulator#	01547	**Sample Type:**	Summa Canister

Sampling Information

AMBIENT OUTDOOR READINGS		
	Temperature (F)	Barometric Pressure (inches of Hg)
Start	42	30.30
Stop	42	30.30

INTERIOR TEMPERATURE (°F)	
Start	N/A
Stop	N/A

CANISTER PRESSURE (inches of Hg)	
Start	-30.54
Stop	-5.78

SAMPLING TIME (24-hour-clock)	
Start	14:06
Stop	16:03
Total Elapsed Sampling Time: 117 Minutes	

Project Location:
484 East 178th Street
Bronx, New York
VHB Project Number: 26518.05

Sample Date:	03/30/2023	**VHB Job #:**	26518.05
Field ID# and Depth:	SV-7; 2'BGS	**Sampled By:**	John Lagoudes & Celeste Corcoran
Canister#	2659	**Size of Canister:**	6 Liters
Regulator#	0490	**Sample Type:**	Summa Canister

Sampling Information

AMBIENT OUTDOOR READINGS		
	Temperature (F)	Barometric Pressure (inches of Hg)
Start	38	30.31
Stop	42	30.30

INTERIOR TEMPERATURE (°F)	
Start	N/A
Stop	N/A

CANISTER PRESSURE (inches of Hg)	
Start	-30.80
Stop	-5.94

SAMPLING TIME (24-hour-clock)	
Start	12:30
Stop	14:13
Total Elapsed Sampling Time: 104 Minutes	

Project Location:
484 East 178th Street
Bronx, New York
VHB Project Number: 26518.05

Sample Date:	03/30/2023	**VHB Job #:**	26518.05
Field ID# and Depth:	SV-8; 3'BGS	**Sampled By:**	John Lagoudes & Celeste Corcoran
Canister#	687	**Size of Canister:**	6 Liters
Regulator#	02105	**Sample Type:**	Summa Canister

Sampling Information

AMBIENT OUTDOOR READINGS		
	Temperature (F)	Barometric Pressure (inches of Hg)
Start	38	30.31
Stop	42	30.30

INTERIOR TEMPERATURE (°F)	
Start	N/A
Stop	N/A

CANISTER PRESSURE (inches of Hg)	
Start	-30.43
Stop	-7.63

SAMPLING TIME (24-hour-clock)	
Start	12:24
Stop	14:28
Total Elapsed Sampling Time: 124 Minutes	

Project Location:
484 East 178th Street
Bronx, New York
VHB Project Number: 26518.05

Sample Date:	03/30/2023	**VHB Job #:**	26518.05
Field ID# and Depth:	SV-9; 2'BGS	**Sampled By:**	John Lagoudes & Celeste Corcoran
Canister#	3329	**Size of Canister:**	6 Liters
Regulator#	01518	**Sample Type:**	Summa Canister

Sampling Information

AMBIENT OUTDOOR READINGS		
	Temperature (F)	Barometric Pressure (inches of Hg)
Start	38	30.31
Stop	42	30.30

INTERIOR TEMPERATURE (°F)	
Start	N/A
Stop	N/A

CANISTER PRESSURE (inches of Hg)	
Start	-30.75
Stop	-5.70

SAMPLING TIME (24-hour-clock)	
Start	12:40
Stop	14:37
Total Elapsed Sampling Time: 117 Minutes	

Project Location:
484 East 178th Street
Bronx, New York
VHB Project Number: 26518.05

Sample Date:	03/30/2023	**VHB Job #:**	26518.05
Field ID# and Depth:	SV-10; 8.5'BGS	**Sampled By:**	John Lagoudes & Celeste Corcoran
Canister#	2059	**Size of Canister:**	6 Liters
Regulator#	01331	**Sample Type:**	Summa Canister

Sampling Information

AMBIENT OUTDOOR READINGS		
	Temperature (F)	Barometric Pressure (inches of Hg)
Start	41	30.30
Stop	42	30.30

INTERIOR TEMPERATURE (°F)	
Start	N/A
Stop	N/A

CANISTER PRESSURE (inches of Hg)	
Start	-30.63
Stop	-5.20

SAMPLING TIME (24-hour-clock)	
Start	13:36
Stop	15:31
Total Elapsed Sampling Time: 115 Minutes	

APPENDIX D

ANALYTICAL REPORT

Lab Number:	L2319830
Client:	VHB Engineering, Surveying and Landscape One Penn Plaza Suite 715 New York, NY 10119
ATTN:	Isabel Mielczarek
Phone:	(212) 857-7381
Project Name:	ST. JOSEPH
Project Number:	26518.05
Report Date:	04/20/23

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2319830
Report Date: 04/20/23

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2319830-01	SB-5 (12-14')	SOIL	484 E. 178TH STREET, BRONX, NY	03/29/23 11:40	03/29/23

Project Name:	ST. JOSEPH	**Lab Number:**	L2319830
Project Number:	26518.05	**Report Date:**	04/20/23

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name:	ST. JOSEPH	**Lab Number:**	L2319830
Project Number:	26518.05	**Report Date:**	04/20/23

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Total Metals

L2319830-01: The sample has elevated detection limits for all elements, with the exception of mercury, due to the dilution required by the sample matrix.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Michelle M. Morris

Title: Technical Director/Representative Date: 04/20/23

METALS

Project Name: ST. JOSEPH
Lab Number: L2319830
Project Number: 26518.05
Report Date: 04/20/23

SAMPLE RESULTS

Lab ID: L2319830-01
Client ID: SB-5 (12-14')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 11:40
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	4360		mg/kg	8.44	2.28	2	04/17/23 22:17	04/19/23 20:14	EPA 3050B	1,6010D	MRC
Antimony, Total	ND		mg/kg	4.22	0.321	2	04/17/23 22:17	04/19/23 20:14	EPA 3050B	1,6010D	MRC
Arsenic, Total	4.75		mg/kg	0.844	0.176	2	04/17/23 22:17	04/19/23 20:14	EPA 3050B	1,6010D	MRC
Barium, Total	522		mg/kg	0.844	0.147	2	04/17/23 22:17	04/19/23 20:14	EPA 3050B	1,6010D	MRC
Beryllium, Total	0.169	J	mg/kg	0.422	0.028	2	04/17/23 22:17	04/19/23 20:14	EPA 3050B	1,6010D	MRC
Cadmium, Total	1.88		mg/kg	0.844	0.083	2	04/17/23 22:17	04/19/23 20:14	EPA 3050B	1,6010D	MRC
Calcium, Total	57000		mg/kg	8.44	2.95	2	04/17/23 22:17	04/19/23 20:14	EPA 3050B	1,6010D	MRC
Chromium, Total	8.85		mg/kg	0.844	0.081	2	04/17/23 22:17	04/19/23 20:14	EPA 3050B	1,6010D	MRC
Cobalt, Total	4.33		mg/kg	1.69	0.140	2	04/17/23 22:17	04/19/23 20:14	EPA 3050B	1,6010D	MRC
Copper, Total	9.83		mg/kg	0.844	0.218	2	04/17/23 22:17	04/19/23 20:14	EPA 3050B	1,6010D	MRC
Iron, Total	6970		mg/kg	4.22	0.762	2	04/17/23 22:17	04/19/23 20:14	EPA 3050B	1,6010D	MRC
Lead, Total	1370		mg/kg	4.22	0.226	2	04/17/23 22:17	04/19/23 20:14	EPA 3050B	1,6010D	MRC
Magnesium, Total	8320		mg/kg	8.44	1.30	2	04/17/23 22:17	04/19/23 20:14	EPA 3050B	1,6010D	MRC
Manganese, Total	132		mg/kg	0.844	0.134	2	04/17/23 22:17	04/19/23 20:14	EPA 3050B	1,6010D	MRC
Mercury, Total	0.134		mg/kg	0.073	0.048	1	04/17/23 23:20	04/18/23 21:07	EPA 7471B	1,7471B	DMB
Nickel, Total	10.8		mg/kg	2.11	0.204	2	04/17/23 22:17	04/19/23 20:14	EPA 3050B	1,6010D	MRC
Potassium, Total	530		mg/kg	211	12.2	2	04/17/23 22:17	04/19/23 20:14	EPA 3050B	1,6010D	MRC
Selenium, Total	0.418	J	mg/kg	1.69	0.218	2	04/17/23 22:17	04/19/23 20:14	EPA 3050B	1,6010D	MRC
Silver, Total	ND		mg/kg	0.422	0.239	2	04/17/23 22:17	04/19/23 20:14	EPA 3050B	1,6010D	MRC
Sodium, Total	346		mg/kg	169	2.66	2	04/17/23 22:17	04/19/23 20:14	EPA 3050B	1,6010D	MRC
Thallium, Total	ND		mg/kg	1.69	0.266	2	04/17/23 22:17	04/19/23 20:14	EPA 3050B	1,6010D	MRC
Vanadium, Total	20.0		mg/kg	0.844	0.171	2	04/17/23 22:17	04/19/23 20:14	EPA 3050B	1,6010D	MRC
Zinc, Total	1500		mg/kg	4.22	0.247	2	04/17/23 22:17	04/19/23 20:14	EPA 3050B	1,6010D	MRC

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2319830
Report Date: 04/20/23

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1767352-1										
Aluminum, Total	ND		mg/kg	4.00	1.08	1	04/17/23 22:17	04/18/23 19:47	1,6010D	DMB
Antimony, Total	ND		mg/kg	2.00	0.152	1	04/17/23 22:17	04/18/23 19:47	1,6010D	DMB
Arsenic, Total	ND		mg/kg	0.400	0.083	1	04/17/23 22:17	04/18/23 19:47	1,6010D	DMB
Barium, Total	ND		mg/kg	0.400	0.070	1	04/17/23 22:17	04/18/23 19:47	1,6010D	DMB
Beryllium, Total	ND		mg/kg	0.200	0.013	1	04/17/23 22:17	04/18/23 19:47	1,6010D	DMB
Cadmium, Total	ND		mg/kg	0.400	0.039	1	04/17/23 22:17	04/18/23 19:47	1,6010D	DMB
Calcium, Total	ND		mg/kg	4.00	1.40	1	04/17/23 22:17	04/18/23 19:47	1,6010D	DMB
Chromium, Total	ND		mg/kg	0.400	0.038	1	04/17/23 22:17	04/18/23 19:47	1,6010D	DMB
Cobalt, Total	ND		mg/kg	0.800	0.066	1	04/17/23 22:17	04/18/23 19:47	1,6010D	DMB
Copper, Total	ND		mg/kg	0.400	0.103	1	04/17/23 22:17	04/18/23 19:47	1,6010D	DMB
Iron, Total	0.384	J	mg/kg	2.00	0.361	1	04/17/23 22:17	04/18/23 19:47	1,6010D	DMB
Lead, Total	ND		mg/kg	2.00	0.107	1	04/17/23 22:17	04/18/23 19:47	1,6010D	DMB
Magnesium, Total	ND		mg/kg	4.00	0.616	1	04/17/23 22:17	04/18/23 19:47	1,6010D	DMB
Manganese, Total	ND		mg/kg	0.400	0.064	1	04/17/23 22:17	04/18/23 19:47	1,6010D	DMB
Nickel, Total	ND		mg/kg	1.00	0.097	1	04/17/23 22:17	04/18/23 19:47	1,6010D	DMB
Potassium, Total	ND		mg/kg	100	5.76	1	04/17/23 22:17	04/18/23 19:47	1,6010D	DMB
Selenium, Total	ND		mg/kg	0.800	0.103	1	04/17/23 22:17	04/18/23 19:47	1,6010D	DMB
Silver, Total	ND		mg/kg	0.200	0.113	1	04/17/23 22:17	04/18/23 19:47	1,6010D	DMB
Sodium, Total	3.84	J	mg/kg	80.0	1.26	1	04/17/23 22:17	04/18/23 19:47	1,6010D	DMB
Thallium, Total	ND		mg/kg	0.800	0.126	1	04/17/23 22:17	04/18/23 19:47	1,6010D	DMB
Vanadium, Total	ND		mg/kg	0.400	0.081	1	04/17/23 22:17	04/18/23 19:47	1,6010D	DMB
Zinc, Total	ND		mg/kg	2.00	0.117	1	04/17/23 22:17	04/18/23 19:47	1,6010D	DMB

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1767354-1										
Mercury, Total	ND		mg/kg	0.083	0.054	1	04/17/23 23:20	04/18/23 20:18	1,7471B	DMB

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2319830
Report Date: 04/20/23

Method Blank Analysis
Batch Quality Control

Prep Information

Digestion Method: EPA 7471B

Lab Control Sample Analysis

Batch Quality Control

Project Name: ST. JOSEPH

Project Number: 26518.05

Lab Number: L2319830

Report Date: 04/20/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1767352-2 SRM Lot Number: D116-540								
Aluminum, Total	81		-		45-155	-		
Antimony, Total	151		-		2-205	-		
Arsenic, Total	101		-		82-119	-		
Barium, Total	90		-		82-118	-		
Beryllium, Total	103		-		82-118	-		
Cadmium, Total	102		-		82-118	-		
Calcium, Total	92		-		81-119	-		
Chromium, Total	100		-		81-118	-		
Cobalt, Total	103		-		83-117	-		
Copper, Total	98		-		83-117	-		
Iron, Total	96		-		58-142	-		
Lead, Total	98		-		83-117	-		
Magnesium, Total	88		-		75-125	-		
Manganese, Total	98		-		82-118	-		
Nickel, Total	103		-		82-118	-		
Potassium, Total	91		-		68-131	-		
Selenium, Total	107		-		78-122	-		
Silver, Total	97		-		79-121	-		
Sodium, Total	98		-		71-130	-		
Thallium, Total	100		-		80-120	-		
Vanadium, Total	99		-		78-122	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: ST. JOSEPH

Project Number: 26518.05

Lab Number: L2319830

Report Date: 04/20/23

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1767352-2 SRM Lot Number: D116-540					
Zinc, Total	100	-	80-120	-	
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1767354-2 SRM Lot Number: D116-540					
Mercury, Total	93	-	58-142	-	

Matrix Spike Analysis
Batch Quality Control

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2319830
Report Date: 04/20/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1767352-3 QC Sample: L2318071-03 Client ID: MS Sample												
Aluminum, Total	13500	168	12800	**0**	Q	-	-		75-125	-		20
Antimony, Total	0.815J	42	32.8	78		-	-		75-125	-		20
Arsenic, Total	124	10.1	119	**0**	Q	-	-		75-125	-		20
Barium, Total	120	168	236	**69**	Q	-	-		75-125	-		20
Beryllium, Total	1.32	4.2	4.39	**73**	Q	-	-		75-125	-		20
Cadmium, Total	0.061J	4.45	3.61	81		-	-		75-125	-		20
Calcium, Total	64200	840	62800	**0**	Q	-	-		75-125	-		20
Chromium, Total	96.3	16.8	100	**22**	Q	-	-		75-125	-		20
Cobalt, Total	2.68	42	36.3	80		-	-		75-125	-		20
Copper, Total	98.2	21	103	**23**	Q	-	-		75-125	-		20
Iron, Total	7570	84	8720	**1370**	Q	-	-		75-125	-		20
Lead, Total	4.82	44.5	42.2	84		-	-		75-125	-		20
Magnesium, Total	12700	840	10700	**0**	Q	-	-		75-125	-		20
Manganese, Total	701	42	693	**0**	Q	-	-		75-125	-		20
Nickel, Total	7.89	42	39.4	75		-	-		75-125	-		20
Potassium, Total	3540	840	4370	99		-	-		75-125	-		20
Selenium, Total	0.991	10.1	10.5	94		-	-		75-125	-		20
Silver, Total	ND	4.2	4.04	96		-	-		75-125	-		20
Sodium, Total	873	840	1580	84		-	-		75-125	-		20
Thallium, Total	ND	10.1	6.83	**68**	Q	-	-		75-125	-		20
Vanadium, Total	11.5	42	46.7	84		-	-		75-125	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2319830
Report Date: 04/20/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery		MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1767352-3 QC Sample: L2318071-03 Client ID: MS Sample										
Zinc, Total	35.7	42	69.2	80		-	-	75-125	-	20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1767354-3 QC Sample: L2319894-02 Client ID: MS Sample										
Mercury, Total	9.24	2.94	10.6	**46**	Q	-	-	80-120	-	20

Lab Duplicate Analysis

Batch Quality Control

Project Name: ST. JOSEPH

Project Number: 26518.05

Lab Number: L2319830

Report Date: 04/20/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1767352-4 QC Sample: L2318071-03 Client ID: DUP Sample						
Arsenic, Total	124	112	mg/kg	10		20
Cadmium, Total	0.061J	0.097J	mg/kg	NC		20
Chromium, Total	96.3	93.0	mg/kg	3		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1767354-4 QC Sample: L2319894-02 Client ID: DUP Sample						
Mercury, Total	9.24	6.75	mg/kg	**31**	Q	20

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Serial Dilution Analysis
Batch Quality Control

Lab Number: L2319830
Report Date: 04/20/23

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1767352-6 QC Sample: L2318071-03 Client ID: DUP Sample						
Arsenic, Total	124	124	mg/kg	0		20
Chromium, Total	96.3	107	mg/kg	11		20

INORGANICS
&
MISCELLANEOUS

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2319830
Report Date: 04/20/23

SAMPLE RESULTS

Lab ID: L2319830-01
Client ID: SB-5 (12-14')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 11:40
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91.9		%	0.100	NA	1	-	03/30/23 12:48	121,2540G	ROI

Lab Duplicate Analysis

Batch Quality Control

Project Name: ST. JOSEPH

Project Number: 26518.05

Lab Number: L2319830

Report Date: 04/20/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1760643-1 QC Sample: L2316525-01 Client ID: DUP Sample						
Solids, Total	87.9	87.1	%	1		20

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2319830
Report Date: 04/20/23

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2319830-01E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.3	Y	Absent		BE-TI(180),BA-TI(180),AS-TI(180),AG-TI(180),AL-TI(180),CR-TI(180),TL-TI(180),NI-TI(180),ZN-TI(180),CU-TI(180),PB-TI(180),SB-TI(180),SE-TI(180),V-TI(180),CO-TI(180),MN-TI(180),FE-TI(180),HG-T(28),MG-TI(180),K-TI(180),CD-TI(180),NA-TI(180),CA-TI(180)

*Values in parentheses indicate holding time in days

Project Name:	ST. JOSEPH	**Lab Number:**	L2319830
Project Number:	26518.05	**Report Date:**	04/20/23

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

NR - No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Project Name:	ST. JOSEPH	**Lab Number:**	L2319830
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Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

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Data Qualifiers

Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: DU Report with 'J' Qualifiers

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Project Number:	26518.05	**Report Date:**	04/20/23

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

Soil

L2319830

NEW YORK CHAIN OF CUSTODY

ALPHA

Westborough, MA 01581 — 8 Walkup Dr. — TEL: 508-898-9220 — FAX: 508-898-9193
Mansfield, MA 02048 — 320 Forbes Blvd — TEL: 508-822-9300 — FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

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Date Rec'd in Lab: 03/30/23

ALPHA Job #: ~~L2316585~~

Client Information
Client: VHB
Address: One Penn Plaza, Suite 715
New York, NY 10119
Phone: 212-857-7350
Fax:
Email: GLester@VHB.com; MPiczarek@VHB.com

Project Information
Project Name: St. Joseph
Project Location: 484 E. 178th Street, Bronx, NY
Project # 26518.05
(Use Project name as Project #)
Project Manager: Isabel Mielczarek
ALPHAQuote #:

Turn-Around Time
Standard ☑ Due Date:
Rush (only if pre approved) ☐ # of Days:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

Deliverables
☑ ASP-A ☐ EQuIS (1 File) ☐ EQuIS (4 File) ☐ Other

Regulatory Requirement
☐ NY TOGS ☑ NY Part 375
☐ AWQ Standards ☑ NY CP-51
☑ NY Restricted Use ☐ Other
☑ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information
☑ Same as Client Info
PO #

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility: ☐ NJ ☐ NY ☐ Other:

Sample Filtration
☐ Done ☐ Lab to do
Preservation ☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TCL VOCs 8260	TCL SVOCs 8270	TCL Pesticides 8081 via 8270	TCL PCBs via 8082	Total Solids	TAL metals via 6010 + Hg				Sample Specific Comments	Total Bottle
19830-01	SB-1 (0'-2')	03-29-23	09:05	S	JL	X	X	X	X	X	X				Include Excels for this	6
-02	SB-1 (5-6.5')		09:09	S	IM	X	X	X	X	X	X					6
-03	SB-2 (0'-2')		09:45	S	JL	X	X	X	X	X	X					6
-04	SB-2 (10'-12')		09:47	S	IM	X	X	X	X	X	X					6
-05	SB-3 (0-2')		10:25	S	JL	X	X	X	X	X	X					6
-06	SB-3 (6'-8')		10:30	S	IM	X	X	X	X	X	X					6
-07	SB-4 (0-2')		10:55	S	JL	X	X	X	X	X	X					6
-08	SB-4 (4-6'		11:00	S	IM	X	X	X	X	X	X					6
-09	SB-5 (0-2'		11:34	S	JL	X	X	X	X	X	X					6
-10	SB-5 (12-14')	03-29-23	11:40	S	IM	X	X	X	X	X	X					6
					Container Type	E				P						
					Preservative	A	A	A	A							

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; K/E = Zn Ac/NaOH; O = Other

Container Code: P = Plastic; A = Amber Glass; V = Vial; G = Glass; B = Bacteria Cup; C = Cube; O = Other; E = Encore; D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
	03-29-2023/1641	(AAL)	3/29/23 1646
(AAL)	3/29-23 1840		3.29.23 2100
	3.29.23 0030		3.30.23 0032
	3.30.23 0240		3/30/23 0240

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

ANALYTICAL REPORT

Lab Number:	L2316525
Client:	VHB Engineering, Surveying and Landscape One Penn Plaza Suite 715 New York, NY 10119
ATTN:	Isabel Mielczarek
Phone:	(212) 857-7381
Project Name:	ST. JOSEPH
Project Number:	26518.05
Report Date:	04/12/23

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316525
Report Date: 04/12/23

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2316525-01	SB-1 (0'-2')	SOIL	484 E. 178TH STREET, BRONX, NY	03/29/23 09:05	03/29/23
L2316525-02	SB-1 (5'-6.5')	SOIL	484 E. 178TH STREET, BRONX, NY	03/29/23 09:09	03/29/23
L2316525-03	SB-2 (0'-2')	SOIL	484 E. 178TH STREET, BRONX, NY	03/29/23 09:45	03/29/23
L2316525-04	SB-2 (10'-12')	SOIL	484 E. 178TH STREET, BRONX, NY	03/29/23 09:47	03/29/23
L2316525-05	SB-3 (0-2')	SOIL	484 E. 178TH STREET, BRONX, NY	03/29/23 10:25	03/29/23
L2316525-06	SB-3 (6'-8')	SOIL	484 E. 178TH STREET, BRONX, NY	03/29/23 10:30	03/29/23
L2316525-07	SB-4 (0-2')	SOIL	484 E. 178TH STREET, BRONX, NY	03/29/23 10:55	03/29/23
L2316525-08	SB-4 (4-6')	SOIL	484 E. 178TH STREET, BRONX, NY	03/29/23 11:00	03/29/23
L2316525-09	SB-5 (0-2')	SOIL	484 E. 178TH STREET, BRONX, NY	03/29/23 11:39	03/29/23
L2316525-10	SB-5 (12-14')	SOIL	484 E. 178TH STREET, BRONX, NY	03/29/23 11:40	03/29/23
L2316525-11	SB-7 (0-2')	SOIL	484 E. 178TH STREET, BRONX, NY	03/29/23 12:05	03/29/23
L2316525-12	SB-9 (0-2')	SOIL	484 E. 178TH STREET, BRONX, NY	03/29/23 12:25	03/29/23
L2316525-13	SB-10 (0-2')	SOIL	484 E. 178TH STREET, BRONX, NY	03/29/23 12:53	03/29/23
L2316525-14	SB-11 (0-2')	SOIL	484 E. 178TH STREET, BRONX, NY	03/29/23 13:25	03/29/23
L2316525-15	SB-11 (6.5'-8.5')	SOIL	484 E. 178TH STREET, BRONX, NY	03/29/23 13:27	03/29/23
L2316525-16	SB-6 (0-2')	SOIL	484 E. 178TH STREET, BRONX, NY	03/29/23 14:00	03/29/23
L2316525-17	SB-8 (0-2')	SOIL	484 E. 178TH STREET, BRONX, NY	03/29/23 14:09	03/29/23

Project Name:	ST. JOSEPH	**Lab Number:**	L2316525
Project Number:	26518.05	**Report Date:**	04/12/23

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: ST. JOSEPH **Lab Number:** L2316525
Project Number: 26518.05 **Report Date:** 04/12/23

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L2316525-15: The collection date and time on the chain of custody was 29-MAR-23 13:27; however, the collection date/time on the container label was 29-MAR-23 13:29. At the client's request, the collection date/time is reported as 29-MAR-23 13:27.

Semivolatile Organics

L2316525-07D and -09D: The sample has elevated detection limits due to the dilution required by the sample matrix.

L2316525-13: The surrogate recoveries were outside the acceptance criteria for 2-fluorophenol (7%) and 2,4,6-tribromophenol (1%); however, re-extraction achieved similar results: 2-fluorophenol (12%) and 2,4,6-tribromophenol (1%). The results of both extractions are reported.

The WG1764356-2/-3 LCS/LCSD recoveries, associated with L2316525-02, -03, -04, -05, -06, -07D, -08, -09D, -10, -11, -12, -14, -15, -16, and -17, are below the acceptance criteria for benzoic acid (0%/0%); however, it has been identified as a "difficult" analyte. The results of the associated samples are reported.

Total Metals

L2316525-01 through -17: The sample has elevated detection limits for all elements, with the exception of mercury, due to the dilution required by the sample matrix.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Tiffani Morrissey - Tiffani Morrissey

Title: Technical Director/Representative Date: 04/12/23

ORGANICS

VOLATILES

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-01
Client ID: SB-1 (0'-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 09:05
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 04/05/23 11:34
Analyst: AJK
Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	5.6	2.6	1
1,1-Dichloroethane	ND		ug/kg	1.1	0.16	1
Chloroform	ND		ug/kg	1.7	0.16	1
Carbon tetrachloride	ND		ug/kg	1.1	0.26	1
1,2-Dichloropropane	ND		ug/kg	1.1	0.14	1
Dibromochloromethane	ND		ug/kg	1.1	0.16	1
1,1,2-Trichloroethane	ND		ug/kg	1.1	0.30	1
Tetrachloroethene	ND		ug/kg	0.56	0.22	1
Chlorobenzene	ND		ug/kg	0.56	0.14	1
Trichlorofluoromethane	ND		ug/kg	4.5	0.78	1
1,2-Dichloroethane	ND		ug/kg	1.1	0.29	1
1,1,1-Trichloroethane	ND		ug/kg	0.56	0.19	1
Bromodichloromethane	ND		ug/kg	0.56	0.12	1
trans-1,3-Dichloropropene	ND		ug/kg	1.1	0.31	1
cis-1,3-Dichloropropene	ND		ug/kg	0.56	0.18	1
1,3-Dichloropropene, Total	ND		ug/kg	0.56	0.18	1
1,1-Dichloropropene	ND		ug/kg	0.56	0.18	1
Bromoform	ND		ug/kg	4.5	0.28	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.56	0.19	1
Benzene	ND		ug/kg	0.56	0.19	1
Toluene	ND		ug/kg	1.1	0.61	1
Ethylbenzene	ND		ug/kg	1.1	0.16	1
Chloromethane	ND		ug/kg	4.5	1.0	1
Bromomethane	ND		ug/kg	2.2	0.65	1
Vinyl chloride	ND		ug/kg	1.1	0.38	1
Chloroethane	ND		ug/kg	2.2	0.51	1
1,1-Dichloroethene	ND		ug/kg	1.1	0.27	1
trans-1,2-Dichloroethene	ND		ug/kg	1.7	0.15	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-01 Date Collected: 03/29/23 09:05

Client ID: SB-1 (0'-2') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.56	0.15	1
1,2-Dichlorobenzene	ND		ug/kg	2.2	0.16	1
1,3-Dichlorobenzene	ND		ug/kg	2.2	0.17	1
1,4-Dichlorobenzene	ND		ug/kg	2.2	0.19	1
Methyl tert butyl ether	ND		ug/kg	2.2	0.22	1
p/m-Xylene	ND		ug/kg	2.2	0.63	1
o-Xylene	ND		ug/kg	1.1	0.33	1
Xylenes, Total	ND		ug/kg	1.1	0.33	1
cis-1,2-Dichloroethene	ND		ug/kg	1.1	0.20	1
1,2-Dichloroethene, Total	ND		ug/kg	1.1	0.15	1
Dibromomethane	ND		ug/kg	2.2	0.27	1
Styrene	ND		ug/kg	1.1	0.22	1
Dichlorodifluoromethane	ND		ug/kg	11	1.0	1
Acetone	ND		ug/kg	11	5.4	1
Carbon disulfide	ND		ug/kg	11	5.1	1
2-Butanone	ND		ug/kg	11	2.5	1
Vinyl acetate	ND		ug/kg	11	2.4	1
4-Methyl-2-pentanone	ND		ug/kg	11	1.4	1
1,2,3-Trichloropropane	ND		ug/kg	2.2	0.14	1
2-Hexanone	ND		ug/kg	11	1.3	1
Bromochloromethane	ND		ug/kg	2.2	0.23	1
2,2-Dichloropropane	ND		ug/kg	2.2	0.23	1
1,2-Dibromoethane	ND		ug/kg	1.1	0.31	1
1,3-Dichloropropane	ND		ug/kg	2.2	0.19	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.56	0.15	1
Bromobenzene	ND		ug/kg	2.2	0.16	1
n-Butylbenzene	ND		ug/kg	1.1	0.19	1
sec-Butylbenzene	ND		ug/kg	1.1	0.16	1
tert-Butylbenzene	ND		ug/kg	2.2	0.13	1
o-Chlorotoluene	ND		ug/kg	2.2	0.21	1
p-Chlorotoluene	ND		ug/kg	2.2	0.12	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.4	1.1	1
Hexachlorobutadiene	ND		ug/kg	4.5	0.19	1
Isopropylbenzene	ND		ug/kg	1.1	0.12	1
p-Isopropyltoluene	ND		ug/kg	1.1	0.12	1
Naphthalene	ND		ug/kg	4.5	0.73	1
Acrylonitrile	ND		ug/kg	4.5	1.3	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-01 Date Collected: 03/29/23 09:05

Client ID: SB-1 (0'-2') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
n-Propylbenzene	ND		ug/kg	1.1	0.19	1
1,2,3-Trichlorobenzene	ND		ug/kg	2.2	0.36	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.2	0.30	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.2	0.22	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.2	0.38	1
1,4-Dioxane	ND		ug/kg	90	39.	1
p-Diethylbenzene	ND		ug/kg	2.2	0.20	1
p-Ethyltoluene	ND		ug/kg	2.2	0.43	1
1,2,4,5-Tetramethylbenzene	ND		ug/kg	2.2	0.21	1
Ethyl ether	ND		ug/kg	2.2	0.38	1
trans-1,4-Dichloro-2-butene	ND		ug/kg	5.6	1.6	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	102		70-130

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-02
Client ID: SB-1 (5'-6.5')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 09:09
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 04/05/23 12:00
Analyst: AJK
Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	8.3	3.8	1
1,1-Dichloroethane	ND		ug/kg	1.6	0.24	1
Chloroform	ND		ug/kg	2.5	0.23	1
Carbon tetrachloride	ND		ug/kg	1.6	0.38	1
1,2-Dichloropropane	ND		ug/kg	1.6	0.21	1
Dibromochloromethane	ND		ug/kg	1.6	0.23	1
1,1,2-Trichloroethane	ND		ug/kg	1.6	0.44	1
Tetrachloroethene	ND		ug/kg	0.83	0.32	1
Chlorobenzene	ND		ug/kg	0.83	0.21	1
Trichlorofluoromethane	ND		ug/kg	6.6	1.1	1
1,2-Dichloroethane	ND		ug/kg	1.6	0.42	1
1,1,1-Trichloroethane	ND		ug/kg	0.83	0.28	1
Bromodichloromethane	ND		ug/kg	0.83	0.18	1
trans-1,3-Dichloropropene	ND		ug/kg	1.6	0.45	1
cis-1,3-Dichloropropene	ND		ug/kg	0.83	0.26	1
1,3-Dichloropropene, Total	ND		ug/kg	0.83	0.26	1
1,1-Dichloropropene	ND		ug/kg	0.83	0.26	1
Bromoform	ND		ug/kg	6.6	0.41	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.83	0.27	1
Benzene	ND		ug/kg	0.83	0.27	1
Toluene	ND		ug/kg	1.6	0.90	1
Ethylbenzene	ND		ug/kg	1.6	0.23	1
Chloromethane	ND		ug/kg	6.6	1.5	1
Bromomethane	ND		ug/kg	3.3	0.96	1
Vinyl chloride	ND		ug/kg	1.6	0.55	1
Chloroethane	ND		ug/kg	3.3	0.75	1
1,1-Dichloroethene	ND		ug/kg	1.6	0.39	1
trans-1,2-Dichloroethene	ND		ug/kg	2.5	0.23	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-02 Date Collected: 03/29/23 09:09

Client ID: SB-1 (5'-6.5') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.83	0.23	1
1,2-Dichlorobenzene	ND		ug/kg	3.3	0.24	1
1,3-Dichlorobenzene	ND		ug/kg	3.3	0.24	1
1,4-Dichlorobenzene	ND		ug/kg	3.3	0.28	1
Methyl tert butyl ether	ND		ug/kg	3.3	0.33	1
p/m-Xylene	ND		ug/kg	3.3	0.92	1
o-Xylene	ND		ug/kg	1.6	0.48	1
Xylenes, Total	ND		ug/kg	1.6	0.48	1
cis-1,2-Dichloroethene	ND		ug/kg	1.6	0.29	1
1,2-Dichloroethene, Total	ND		ug/kg	1.6	0.23	1
Dibromomethane	ND		ug/kg	3.3	0.39	1
Styrene	ND		ug/kg	1.6	0.32	1
Dichlorodifluoromethane	ND		ug/kg	16	1.5	1
Acetone	ND		ug/kg	16	8.0	1
Carbon disulfide	ND		ug/kg	16	7.5	1
2-Butanone	ND		ug/kg	16	3.7	1
Vinyl acetate	ND		ug/kg	16	3.6	1
4-Methyl-2-pentanone	ND		ug/kg	16	2.1	1
1,2,3-Trichloropropane	ND		ug/kg	3.3	0.21	1
2-Hexanone	ND		ug/kg	16	2.0	1
Bromochloromethane	ND		ug/kg	3.3	0.34	1
2,2-Dichloropropane	ND		ug/kg	3.3	0.33	1
1,2-Dibromoethane	ND		ug/kg	1.6	0.46	1
1,3-Dichloropropane	ND		ug/kg	3.3	0.28	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.83	0.22	1
Bromobenzene	ND		ug/kg	3.3	0.24	1
n-Butylbenzene	ND		ug/kg	1.6	0.28	1
sec-Butylbenzene	ND		ug/kg	1.6	0.24	1
tert-Butylbenzene	ND		ug/kg	3.3	0.20	1
o-Chlorotoluene	ND		ug/kg	3.3	0.32	1
p-Chlorotoluene	ND		ug/kg	3.3	0.18	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	5.0	1.6	1
Hexachlorobutadiene	ND		ug/kg	6.6	0.28	1
Isopropylbenzene	ND		ug/kg	1.6	0.18	1
p-Isopropyltoluene	ND		ug/kg	1.6	0.18	1
Naphthalene	ND		ug/kg	6.6	1.1	1
Acrylonitrile	ND		ug/kg	6.6	1.9	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-02 Date Collected: 03/29/23 09:09

Client ID: SB-1 (5'-6.5') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
n-Propylbenzene	ND		ug/kg	1.6	0.28	1
1,2,3-Trichlorobenzene	ND		ug/kg	3.3	0.53	1
1,2,4-Trichlorobenzene	ND		ug/kg	3.3	0.45	1
1,3,5-Trimethylbenzene	ND		ug/kg	3.3	0.32	1
1,2,4-Trimethylbenzene	ND		ug/kg	3.3	0.55	1
1,4-Dioxane	ND		ug/kg	130	58.	1
p-Diethylbenzene	ND		ug/kg	3.3	0.29	1
p-Ethyltoluene	ND		ug/kg	3.3	0.63	1
1,2,4,5-Tetramethylbenzene	ND		ug/kg	3.3	0.32	1
Ethyl ether	ND		ug/kg	3.3	0.56	1
trans-1,4-Dichloro-2-butene	ND		ug/kg	8.3	2.3	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	100		70-130

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-03
Client ID: SB-2 (0'-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 09:45
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 04/05/23 12:26
Analyst: JIC
Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	5.5	2.5	1
1,1-Dichloroethane	ND		ug/kg	1.1	0.16	1
Chloroform	ND		ug/kg	1.6	0.15	1
Carbon tetrachloride	ND		ug/kg	1.1	0.25	1
1,2-Dichloropropane	ND		ug/kg	1.1	0.14	1
Dibromochloromethane	ND		ug/kg	1.1	0.15	1
1,1,2-Trichloroethane	ND		ug/kg	1.1	0.29	1
Tetrachloroethene	ND		ug/kg	0.55	0.22	1
Chlorobenzene	ND		ug/kg	0.55	0.14	1
Trichlorofluoromethane	ND		ug/kg	4.4	0.77	1
1,2-Dichloroethane	ND		ug/kg	1.1	0.28	1
1,1,1-Trichloroethane	ND		ug/kg	0.55	0.18	1
Bromodichloromethane	ND		ug/kg	0.55	0.12	1
trans-1,3-Dichloropropene	ND		ug/kg	1.1	0.30	1
cis-1,3-Dichloropropene	ND		ug/kg	0.55	0.17	1
1,3-Dichloropropene, Total	ND		ug/kg	0.55	0.17	1
1,1-Dichloropropene	ND		ug/kg	0.55	0.18	1
Bromoform	ND		ug/kg	4.4	0.27	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.55	0.18	1
Benzene	ND		ug/kg	0.55	0.18	1
Toluene	ND		ug/kg	1.1	0.60	1
Ethylbenzene	ND		ug/kg	1.1	0.16	1
Chloromethane	ND		ug/kg	4.4	1.0	1
Bromomethane	ND		ug/kg	2.2	0.64	1
Vinyl chloride	ND		ug/kg	1.1	0.37	1
Chloroethane	ND		ug/kg	2.2	0.50	1
1,1-Dichloroethene	ND		ug/kg	1.1	0.26	1
trans-1,2-Dichloroethene	ND		ug/kg	1.6	0.15	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-03 Date Collected: 03/29/23 09:45

Client ID: SB-2 (0'-2') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.55	0.15	1
1,2-Dichlorobenzene	ND		ug/kg	2.2	0.16	1
1,3-Dichlorobenzene	ND		ug/kg	2.2	0.16	1
1,4-Dichlorobenzene	ND		ug/kg	2.2	0.19	1
Methyl tert butyl ether	ND		ug/kg	2.2	0.22	1
p/m-Xylene	ND		ug/kg	2.2	0.62	1
o-Xylene	ND		ug/kg	1.1	0.32	1
Xylenes, Total	ND		ug/kg	1.1	0.32	1
cis-1,2-Dichloroethene	ND		ug/kg	1.1	0.19	1
1,2-Dichloroethene, Total	ND		ug/kg	1.1	0.15	1
Dibromomethane	ND		ug/kg	2.2	0.26	1
Styrene	0.42	J	ug/kg	1.1	0.22	1
Dichlorodifluoromethane	ND		ug/kg	11	1.0	1
Acetone	ND		ug/kg	11	5.3	1
Carbon disulfide	ND		ug/kg	11	5.0	1
2-Butanone	ND		ug/kg	11	2.4	1
Vinyl acetate	ND		ug/kg	11	2.4	1
4-Methyl-2-pentanone	ND		ug/kg	11	1.4	1
1,2,3-Trichloropropane	ND		ug/kg	2.2	0.14	1
2-Hexanone	ND		ug/kg	11	1.3	1
Bromochloromethane	ND		ug/kg	2.2	0.23	1
2,2-Dichloropropane	ND		ug/kg	2.2	0.22	1
1,2-Dibromoethane	ND		ug/kg	1.1	0.31	1
1,3-Dichloropropane	ND		ug/kg	2.2	0.18	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.55	0.14	1
Bromobenzene	ND		ug/kg	2.2	0.16	1
n-Butylbenzene	ND		ug/kg	1.1	0.18	1
sec-Butylbenzene	ND		ug/kg	1.1	0.16	1
tert-Butylbenzene	ND		ug/kg	2.2	0.13	1
o-Chlorotoluene	ND		ug/kg	2.2	0.21	1
p-Chlorotoluene	ND		ug/kg	2.2	0.12	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.3	1.1	1
Hexachlorobutadiene	ND		ug/kg	4.4	0.19	1
Isopropylbenzene	ND		ug/kg	1.1	0.12	1
p-Isopropyltoluene	ND		ug/kg	1.1	0.12	1
Naphthalene	ND		ug/kg	4.4	0.72	1
Acrylonitrile	ND		ug/kg	4.4	1.3	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-03 Date Collected: 03/29/23 09:45

Client ID: SB-2 (0'-2') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
n-Propylbenzene	ND		ug/kg	1.1	0.19	1
1,2,3-Trichlorobenzene	ND		ug/kg	2.2	0.36	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.2	0.30	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.2	0.21	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.2	0.37	1
1,4-Dioxane	ND		ug/kg	88	39.	1
p-Diethylbenzene	ND		ug/kg	2.2	0.20	1
p-Ethyltoluene	ND		ug/kg	2.2	0.42	1
1,2,4,5-Tetramethylbenzene	ND		ug/kg	2.2	0.21	1
Ethyl ether	ND		ug/kg	2.2	0.38	1
trans-1,4-Dichloro-2-butene	ND		ug/kg	5.5	1.6	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	103		70-130

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-04
Client ID: SB-2 (10'-12')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 09:47
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 04/05/23 12:52
Analyst: JIC
Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	6.6	3.0	1
1,1-Dichloroethane	ND		ug/kg	1.3	0.19	1
Chloroform	ND		ug/kg	2.0	0.18	1
Carbon tetrachloride	ND		ug/kg	1.3	0.30	1
1,2-Dichloropropane	ND		ug/kg	1.3	0.16	1
Dibromochloromethane	ND		ug/kg	1.3	0.18	1
1,1,2-Trichloroethane	ND		ug/kg	1.3	0.35	1
Tetrachloroethene	ND		ug/kg	0.66	0.26	1
Chlorobenzene	ND		ug/kg	0.66	0.17	1
Trichlorofluoromethane	ND		ug/kg	5.3	0.92	1
1,2-Dichloroethane	ND		ug/kg	1.3	0.34	1
1,1,1-Trichloroethane	ND		ug/kg	0.66	0.22	1
Bromodichloromethane	ND		ug/kg	0.66	0.14	1
trans-1,3-Dichloropropene	ND		ug/kg	1.3	0.36	1
cis-1,3-Dichloropropene	ND		ug/kg	0.66	0.21	1
1,3-Dichloropropene, Total	ND		ug/kg	0.66	0.21	1
1,1-Dichloropropene	ND		ug/kg	0.66	0.21	1
Bromoform	ND		ug/kg	5.3	0.32	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.66	0.22	1
Benzene	ND		ug/kg	0.66	0.22	1
Toluene	ND		ug/kg	1.3	0.72	1
Ethylbenzene	ND		ug/kg	1.3	0.19	1
Chloromethane	ND		ug/kg	5.3	1.2	1
Bromomethane	ND		ug/kg	2.6	0.77	1
Vinyl chloride	ND		ug/kg	1.3	0.44	1
Chloroethane	ND		ug/kg	2.6	0.60	1
1,1-Dichloroethene	ND		ug/kg	1.3	0.31	1
trans-1,2-Dichloroethene	ND		ug/kg	2.0	0.18	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-04 Date Collected: 03/29/23 09:47

Client ID: SB-2 (10'-12') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.66	0.18	1
1,2-Dichlorobenzene	ND		ug/kg	2.6	0.19	1
1,3-Dichlorobenzene	ND		ug/kg	2.6	0.20	1
1,4-Dichlorobenzene	ND		ug/kg	2.6	0.22	1
Methyl tert butyl ether	ND		ug/kg	2.6	0.26	1
p/m-Xylene	ND		ug/kg	2.6	0.74	1
o-Xylene	ND		ug/kg	1.3	0.38	1
Xylenes, Total	ND		ug/kg	1.3	0.38	1
cis-1,2-Dichloroethene	ND		ug/kg	1.3	0.23	1
1,2-Dichloroethene, Total	ND		ug/kg	1.3	0.18	1
Dibromomethane	ND		ug/kg	2.6	0.31	1
Styrene	ND		ug/kg	1.3	0.26	1
Dichlorodifluoromethane	ND		ug/kg	13	1.2	1
Acetone	ND		ug/kg	13	6.3	1
Carbon disulfide	ND		ug/kg	13	6.0	1
2-Butanone	ND		ug/kg	13	2.9	1
Vinyl acetate	ND		ug/kg	13	2.8	1
4-Methyl-2-pentanone	ND		ug/kg	13	1.7	1
1,2,3-Trichloropropane	ND		ug/kg	2.6	0.17	1
2-Hexanone	ND		ug/kg	13	1.6	1
Bromochloromethane	ND		ug/kg	2.6	0.27	1
2,2-Dichloropropane	ND		ug/kg	2.6	0.27	1
1,2-Dibromoethane	ND		ug/kg	1.3	0.37	1
1,3-Dichloropropane	ND		ug/kg	2.6	0.22	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.66	0.17	1
Bromobenzene	ND		ug/kg	2.6	0.19	1
n-Butylbenzene	ND		ug/kg	1.3	0.22	1
sec-Butylbenzene	ND		ug/kg	1.3	0.19	1
tert-Butylbenzene	ND		ug/kg	2.6	0.16	1
o-Chlorotoluene	ND		ug/kg	2.6	0.25	1
p-Chlorotoluene	ND		ug/kg	2.6	0.14	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	4.0	1.3	1
Hexachlorobutadiene	ND		ug/kg	5.3	0.22	1
Isopropylbenzene	ND		ug/kg	1.3	0.14	1
p-Isopropyltoluene	ND		ug/kg	1.3	0.14	1
Naphthalene	ND		ug/kg	5.3	0.86	1
Acrylonitrile	ND		ug/kg	5.3	1.5	1

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-04
Client ID: SB-2 (10'-12')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 09:47
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
n-Propylbenzene	ND		ug/kg	1.3	0.22	1
1,2,3-Trichlorobenzene	ND		ug/kg	2.6	0.42	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.6	0.36	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.6	0.25	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.6	0.44	1
1,4-Dioxane	ND		ug/kg	100	46.	1
p-Diethylbenzene	ND		ug/kg	2.6	0.23	1
p-Ethyltoluene	ND		ug/kg	2.6	0.51	1
1,2,4,5-Tetramethylbenzene	ND		ug/kg	2.6	0.25	1
Ethyl ether	ND		ug/kg	2.6	0.45	1
trans-1,4-Dichloro-2-butene	ND		ug/kg	6.6	1.9	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	100		70-130

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-05
Client ID: SB-3 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 10:25
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 04/05/23 13:19
Analyst: JIC
Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	6.6	3.0	1
1,1-Dichloroethane	ND		ug/kg	1.3	0.19	1
Chloroform	ND		ug/kg	2.0	0.18	1
Carbon tetrachloride	ND		ug/kg	1.3	0.30	1
1,2-Dichloropropane	ND		ug/kg	1.3	0.16	1
Dibromochloromethane	ND		ug/kg	1.3	0.18	1
1,1,2-Trichloroethane	ND		ug/kg	1.3	0.35	1
Tetrachloroethene	ND		ug/kg	0.66	0.26	1
Chlorobenzene	ND		ug/kg	0.66	0.17	1
Trichlorofluoromethane	ND		ug/kg	5.3	0.92	1
1,2-Dichloroethane	ND		ug/kg	1.3	0.34	1
1,1,1-Trichloroethane	ND		ug/kg	0.66	0.22	1
Bromodichloromethane	ND		ug/kg	0.66	0.14	1
trans-1,3-Dichloropropene	ND		ug/kg	1.3	0.36	1
cis-1,3-Dichloropropene	ND		ug/kg	0.66	0.21	1
1,3-Dichloropropene, Total	ND		ug/kg	0.66	0.21	1
1,1-Dichloropropene	ND		ug/kg	0.66	0.21	1
Bromoform	ND		ug/kg	5.3	0.32	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.66	0.22	1
Benzene	ND		ug/kg	0.66	0.22	1
Toluene	ND		ug/kg	1.3	0.72	1
Ethylbenzene	ND		ug/kg	1.3	0.19	1
Chloromethane	ND		ug/kg	5.3	1.2	1
Bromomethane	ND		ug/kg	2.6	0.77	1
Vinyl chloride	ND		ug/kg	1.3	0.44	1
Chloroethane	ND		ug/kg	2.6	0.60	1
1,1-Dichloroethene	ND		ug/kg	1.3	0.31	1
trans-1,2-Dichloroethene	ND		ug/kg	2.0	0.18	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-05 Date Collected: 03/29/23 10:25

Client ID: SB-3 (0-2') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.66	0.18	1
1,2-Dichlorobenzene	ND		ug/kg	2.6	0.19	1
1,3-Dichlorobenzene	ND		ug/kg	2.6	0.20	1
1,4-Dichlorobenzene	ND		ug/kg	2.6	0.23	1
Methyl tert butyl ether	ND		ug/kg	2.6	0.26	1
p/m-Xylene	ND		ug/kg	2.6	0.74	1
o-Xylene	ND		ug/kg	1.3	0.38	1
Xylenes, Total	ND		ug/kg	1.3	0.38	1
cis-1,2-Dichloroethene	ND		ug/kg	1.3	0.23	1
1,2-Dichloroethene, Total	ND		ug/kg	1.3	0.18	1
Dibromomethane	ND		ug/kg	2.6	0.31	1
Styrene	ND		ug/kg	1.3	0.26	1
Dichlorodifluoromethane	ND		ug/kg	13	1.2	1
Acetone	ND		ug/kg	13	6.4	1
Carbon disulfide	ND		ug/kg	13	6.0	1
2-Butanone	ND		ug/kg	13	2.9	1
Vinyl acetate	ND		ug/kg	13	2.8	1
4-Methyl-2-pentanone	ND		ug/kg	13	1.7	1
1,2,3-Trichloropropane	ND		ug/kg	2.6	0.17	1
2-Hexanone	ND		ug/kg	13	1.6	1
Bromochloromethane	ND		ug/kg	2.6	0.27	1
2,2-Dichloropropane	ND		ug/kg	2.6	0.27	1
1,2-Dibromoethane	ND		ug/kg	1.3	0.37	1
1,3-Dichloropropane	ND		ug/kg	2.6	0.22	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.66	0.17	1
Bromobenzene	ND		ug/kg	2.6	0.19	1
n-Butylbenzene	ND		ug/kg	1.3	0.22	1
sec-Butylbenzene	ND		ug/kg	1.3	0.19	1
tert-Butylbenzene	ND		ug/kg	2.6	0.16	1
o-Chlorotoluene	ND		ug/kg	2.6	0.25	1
p-Chlorotoluene	ND		ug/kg	2.6	0.14	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	4.0	1.3	1
Hexachlorobutadiene	ND		ug/kg	5.3	0.22	1
Isopropylbenzene	ND		ug/kg	1.3	0.14	1
p-Isopropyltoluene	ND		ug/kg	1.3	0.14	1
Naphthalene	ND		ug/kg	5.3	0.86	1
Acrylonitrile	ND		ug/kg	5.3	1.5	1

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-05
Client ID: SB-3 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 10:25
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
n-Propylbenzene	ND		ug/kg	1.3	0.23	1
1,2,3-Trichlorobenzene	ND		ug/kg	2.6	0.42	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.6	0.36	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.6	0.26	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.6	0.44	1
1,4-Dioxane	ND		ug/kg	100	46.	1
p-Diethylbenzene	ND		ug/kg	2.6	0.23	1
p-Ethyltoluene	ND		ug/kg	2.6	0.51	1
1,2,4,5-Tetramethylbenzene	ND		ug/kg	2.6	0.25	1
Ethyl ether	ND		ug/kg	2.6	0.45	1
trans-1,4-Dichloro-2-butene	ND		ug/kg	6.6	1.9	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	102		70-130

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-06
Client ID: SB-3 (6'-8')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 10:30
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 04/05/23 13:45
Analyst: JIC
Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	6.7	3.1	1
1,1-Dichloroethane	ND		ug/kg	1.3	0.20	1
Chloroform	ND		ug/kg	2.0	0.19	1
Carbon tetrachloride	ND		ug/kg	1.3	0.31	1
1,2-Dichloropropane	ND		ug/kg	1.3	0.17	1
Dibromochloromethane	ND		ug/kg	1.3	0.19	1
1,1,2-Trichloroethane	ND		ug/kg	1.3	0.36	1
Tetrachloroethene	ND		ug/kg	0.67	0.26	1
Chlorobenzene	ND		ug/kg	0.67	0.17	1
Trichlorofluoromethane	ND		ug/kg	5.4	0.94	1
1,2-Dichloroethane	ND		ug/kg	1.3	0.35	1
1,1,1-Trichloroethane	ND		ug/kg	0.67	0.22	1
Bromodichloromethane	ND		ug/kg	0.67	0.15	1
trans-1,3-Dichloropropene	ND		ug/kg	1.3	0.37	1
cis-1,3-Dichloropropene	ND		ug/kg	0.67	0.21	1
1,3-Dichloropropene, Total	ND		ug/kg	0.67	0.21	1
1,1-Dichloropropene	ND		ug/kg	0.67	0.21	1
Bromoform	ND		ug/kg	5.4	0.33	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.67	0.22	1
Benzene	ND		ug/kg	0.67	0.22	1
Toluene	ND		ug/kg	1.3	0.73	1
Ethylbenzene	ND		ug/kg	1.3	0.19	1
Chloromethane	ND		ug/kg	5.4	1.2	1
Bromomethane	ND		ug/kg	2.7	0.78	1
Vinyl chloride	ND		ug/kg	1.3	0.45	1
Chloroethane	ND		ug/kg	2.7	0.61	1
1,1-Dichloroethene	ND		ug/kg	1.3	0.32	1
trans-1,2-Dichloroethene	ND		ug/kg	2.0	0.18	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-06 Date Collected: 03/29/23 10:30

Client ID: SB-3 (6'-8') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.67	0.18	1
1,2-Dichlorobenzene	ND		ug/kg	2.7	0.19	1
1,3-Dichlorobenzene	ND		ug/kg	2.7	0.20	1
1,4-Dichlorobenzene	ND		ug/kg	2.7	0.23	1
Methyl tert butyl ether	ND		ug/kg	2.7	0.27	1
p/m-Xylene	ND		ug/kg	2.7	0.75	1
o-Xylene	ND		ug/kg	1.3	0.39	1
Xylenes, Total	ND		ug/kg	1.3	0.39	1
cis-1,2-Dichloroethene	ND		ug/kg	1.3	0.24	1
1,2-Dichloroethene, Total	ND		ug/kg	1.3	0.18	1
Dibromomethane	ND		ug/kg	2.7	0.32	1
Styrene	0.53	J	ug/kg	1.3	0.26	1
Dichlorodifluoromethane	ND		ug/kg	13	1.2	1
Acetone	ND		ug/kg	13	6.5	1
Carbon disulfide	ND		ug/kg	13	6.1	1
2-Butanone	ND		ug/kg	13	3.0	1
Vinyl acetate	ND		ug/kg	13	2.9	1
4-Methyl-2-pentanone	ND		ug/kg	13	1.7	1
1,2,3-Trichloropropane	ND		ug/kg	2.7	0.17	1
2-Hexanone	ND		ug/kg	13	1.6	1
Bromochloromethane	ND		ug/kg	2.7	0.28	1
2,2-Dichloropropane	ND		ug/kg	2.7	0.27	1
1,2-Dibromoethane	ND		ug/kg	1.3	0.38	1
1,3-Dichloropropane	ND		ug/kg	2.7	0.22	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.67	0.18	1
Bromobenzene	ND		ug/kg	2.7	0.20	1
n-Butylbenzene	ND		ug/kg	1.3	0.22	1
sec-Butylbenzene	ND		ug/kg	1.3	0.20	1
tert-Butylbenzene	ND		ug/kg	2.7	0.16	1
o-Chlorotoluene	ND		ug/kg	2.7	0.26	1
p-Chlorotoluene	ND		ug/kg	2.7	0.14	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	4.0	1.3	1
Hexachlorobutadiene	ND		ug/kg	5.4	0.23	1
Isopropylbenzene	ND		ug/kg	1.3	0.15	1
p-Isopropyltoluene	ND		ug/kg	1.3	0.15	1
Naphthalene	ND		ug/kg	5.4	0.88	1
Acrylonitrile	ND		ug/kg	5.4	1.5	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-06 Date Collected: 03/29/23 10:30

Client ID: SB-3 (6'-8') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
n-Propylbenzene	ND		ug/kg	1.3	0.23	1
1,2,3-Trichlorobenzene	ND		ug/kg	2.7	0.43	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.7	0.37	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.7	0.26	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.7	0.45	1
1,4-Dioxane	ND		ug/kg	110	47.	1
p-Diethylbenzene	ND		ug/kg	2.7	0.24	1
p-Ethyltoluene	ND		ug/kg	2.7	0.52	1
1,2,4,5-Tetramethylbenzene	ND		ug/kg	2.7	0.26	1
Ethyl ether	ND		ug/kg	2.7	0.46	1
trans-1,4-Dichloro-2-butene	ND		ug/kg	6.7	1.9	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	103		70-130

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-07
Client ID: SB-4 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 10:55
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 04/05/23 14:11
Analyst: JIC
Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	5.1	2.3	1
1,1-Dichloroethane	ND		ug/kg	1.0	0.15	1
Chloroform	ND		ug/kg	1.5	0.14	1
Carbon tetrachloride	ND		ug/kg	1.0	0.23	1
1,2-Dichloropropane	ND		ug/kg	1.0	0.13	1
Dibromochloromethane	ND		ug/kg	1.0	0.14	1
1,1,2-Trichloroethane	ND		ug/kg	1.0	0.27	1
Tetrachloroethene	ND		ug/kg	0.51	0.20	1
Chlorobenzene	ND		ug/kg	0.51	0.13	1
Trichlorofluoromethane	ND		ug/kg	4.1	0.71	1
1,2-Dichloroethane	ND		ug/kg	1.0	0.26	1
1,1,1-Trichloroethane	ND		ug/kg	0.51	0.17	1
Bromodichloromethane	ND		ug/kg	0.51	0.11	1
trans-1,3-Dichloropropene	ND		ug/kg	1.0	0.28	1
cis-1,3-Dichloropropene	ND		ug/kg	0.51	0.16	1
1,3-Dichloropropene, Total	ND		ug/kg	0.51	0.16	1
1,1-Dichloropropene	ND		ug/kg	0.51	0.16	1
Bromoform	ND		ug/kg	4.1	0.25	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.51	0.17	1
Benzene	ND		ug/kg	0.51	0.17	1
Toluene	ND		ug/kg	1.0	0.55	1
Ethylbenzene	ND		ug/kg	1.0	0.14	1
Chloromethane	ND		ug/kg	4.1	0.95	1
Bromomethane	ND		ug/kg	2.0	0.59	1
Vinyl chloride	ND		ug/kg	1.0	0.34	1
Chloroethane	ND		ug/kg	2.0	0.46	1
1,1-Dichloroethene	ND		ug/kg	1.0	0.24	1
trans-1,2-Dichloroethene	ND		ug/kg	1.5	0.14	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-07 Date Collected: 03/29/23 10:55

Client ID: SB-4 (0-2') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.51	0.14	1
1,2-Dichlorobenzene	ND		ug/kg	2.0	0.15	1
1,3-Dichlorobenzene	ND		ug/kg	2.0	0.15	1
1,4-Dichlorobenzene	ND		ug/kg	2.0	0.17	1
Methyl tert butyl ether	ND		ug/kg	2.0	0.20	1
p/m-Xylene	ND		ug/kg	2.0	0.57	1
o-Xylene	ND		ug/kg	1.0	0.30	1
Xylenes, Total	ND		ug/kg	1.0	0.30	1
cis-1,2-Dichloroethene	ND		ug/kg	1.0	0.18	1
1,2-Dichloroethene, Total	ND		ug/kg	1.0	0.14	1
Dibromomethane	ND		ug/kg	2.0	0.24	1
Styrene	ND		ug/kg	1.0	0.20	1
Dichlorodifluoromethane	ND		ug/kg	10	0.93	1
Acetone	ND		ug/kg	10	4.9	1
Carbon disulfide	ND		ug/kg	10	4.6	1
2-Butanone	ND		ug/kg	10	2.3	1
Vinyl acetate	ND		ug/kg	10	2.2	1
4-Methyl-2-pentanone	ND		ug/kg	10	1.3	1
1,2,3-Trichloropropane	ND		ug/kg	2.0	0.13	1
2-Hexanone	ND		ug/kg	10	1.2	1
Bromochloromethane	ND		ug/kg	2.0	0.21	1
2,2-Dichloropropane	ND		ug/kg	2.0	0.21	1
1,2-Dibromoethane	ND		ug/kg	1.0	0.28	1
1,3-Dichloropropane	ND		ug/kg	2.0	0.17	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.51	0.13	1
Bromobenzene	ND		ug/kg	2.0	0.15	1
n-Butylbenzene	ND		ug/kg	1.0	0.17	1
sec-Butylbenzene	ND		ug/kg	1.0	0.15	1
tert-Butylbenzene	ND		ug/kg	2.0	0.12	1
o-Chlorotoluene	ND		ug/kg	2.0	0.20	1
p-Chlorotoluene	ND		ug/kg	2.0	0.11	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.1	1.0	1
Hexachlorobutadiene	ND		ug/kg	4.1	0.17	1
Isopropylbenzene	ND		ug/kg	1.0	0.11	1
p-Isopropyltoluene	ND		ug/kg	1.0	0.11	1
Naphthalene	ND		ug/kg	4.1	0.66	1
Acrylonitrile	ND		ug/kg	4.1	1.2	1

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-07
Client ID: SB-4 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 10:55
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
n-Propylbenzene	ND		ug/kg	1.0	0.17	1
1,2,3-Trichlorobenzene	ND		ug/kg	2.0	0.33	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.0	0.28	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.0	0.20	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.0	0.34	1
1,4-Dioxane	ND		ug/kg	82	36.	1
p-Diethylbenzene	ND		ug/kg	2.0	0.18	1
p-Ethyltoluene	ND		ug/kg	2.0	0.39	1
1,2,4,5-Tetramethylbenzene	ND		ug/kg	2.0	0.20	1
Ethyl ether	ND		ug/kg	2.0	0.35	1
trans-1,4-Dichloro-2-butene	ND		ug/kg	5.1	1.4	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	105		70-130

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-08
Client ID: SB-4 (4-6')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 11:00
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 04/05/23 14:38
Analyst: JIC
Percent Solids: 69%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	7.6	3.5	1
1,1-Dichloroethane	ND		ug/kg	1.5	0.22	1
Chloroform	ND		ug/kg	2.3	0.21	1
Carbon tetrachloride	ND		ug/kg	1.5	0.35	1
1,2-Dichloropropane	ND		ug/kg	1.5	0.19	1
Dibromochloromethane	ND		ug/kg	1.5	0.21	1
1,1,2-Trichloroethane	ND		ug/kg	1.5	0.40	1
Tetrachloroethene	ND		ug/kg	0.76	0.30	1
Chlorobenzene	ND		ug/kg	0.76	0.19	1
Trichlorofluoromethane	ND		ug/kg	6.1	1.0	1
1,2-Dichloroethane	ND		ug/kg	1.5	0.39	1
1,1,1-Trichloroethane	ND		ug/kg	0.76	0.25	1
Bromodichloromethane	ND		ug/kg	0.76	0.16	1
trans-1,3-Dichloropropene	ND		ug/kg	1.5	0.41	1
cis-1,3-Dichloropropene	ND		ug/kg	0.76	0.24	1
1,3-Dichloropropene, Total	ND		ug/kg	0.76	0.24	1
1,1-Dichloropropene	ND		ug/kg	0.76	0.24	1
Bromoform	ND		ug/kg	6.1	0.37	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.76	0.25	1
Benzene	ND		ug/kg	0.76	0.25	1
Toluene	ND		ug/kg	1.5	0.82	1
Ethylbenzene	ND		ug/kg	1.5	0.21	1
Chloromethane	ND		ug/kg	6.1	1.4	1
Bromomethane	ND		ug/kg	3.0	0.88	1
Vinyl chloride	ND		ug/kg	1.5	0.51	1
Chloroethane	ND		ug/kg	3.0	0.69	1
1,1-Dichloroethene	ND		ug/kg	1.5	0.36	1
trans-1,2-Dichloroethene	ND		ug/kg	2.3	0.21	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-08 Date Collected: 03/29/23 11:00

Client ID: SB-4 (4-6') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.76	0.21	1
1,2-Dichlorobenzene	ND		ug/kg	3.0	0.22	1
1,3-Dichlorobenzene	ND		ug/kg	3.0	0.22	1
1,4-Dichlorobenzene	ND		ug/kg	3.0	0.26	1
Methyl tert butyl ether	ND		ug/kg	3.0	0.30	1
p/m-Xylene	ND		ug/kg	3.0	0.85	1
o-Xylene	ND		ug/kg	1.5	0.44	1
Xylenes, Total	ND		ug/kg	1.5	0.44	1
cis-1,2-Dichloroethene	ND		ug/kg	1.5	0.26	1
1,2-Dichloroethene, Total	ND		ug/kg	1.5	0.21	1
Dibromomethane	ND		ug/kg	3.0	0.36	1
Styrene	0.68	J	ug/kg	1.5	0.30	1
Dichlorodifluoromethane	ND		ug/kg	15	1.4	1
Acetone	ND		ug/kg	15	7.3	1
Carbon disulfide	ND		ug/kg	15	6.9	1
2-Butanone	ND		ug/kg	15	3.4	1
Vinyl acetate	ND		ug/kg	15	3.3	1
4-Methyl-2-pentanone	ND		ug/kg	15	1.9	1
1,2,3-Trichloropropane	ND		ug/kg	3.0	0.19	1
2-Hexanone	ND		ug/kg	15	1.8	1
Bromochloromethane	ND		ug/kg	3.0	0.31	1
2,2-Dichloropropane	ND		ug/kg	3.0	0.31	1
1,2-Dibromoethane	ND		ug/kg	1.5	0.42	1
1,3-Dichloropropane	ND		ug/kg	3.0	0.25	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.76	0.20	1
Bromobenzene	ND		ug/kg	3.0	0.22	1
n-Butylbenzene	ND		ug/kg	1.5	0.25	1
sec-Butylbenzene	ND		ug/kg	1.5	0.22	1
tert-Butylbenzene	ND		ug/kg	3.0	0.18	1
o-Chlorotoluene	ND		ug/kg	3.0	0.29	1
p-Chlorotoluene	ND		ug/kg	3.0	0.16	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	4.6	1.5	1
Hexachlorobutadiene	ND		ug/kg	6.1	0.26	1
Isopropylbenzene	ND		ug/kg	1.5	0.16	1
p-Isopropyltoluene	ND		ug/kg	1.5	0.16	1
Naphthalene	ND		ug/kg	6.1	0.99	1
Acrylonitrile	ND		ug/kg	6.1	1.7	1

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-08
Client ID: SB-4 (4-6')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 11:00
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
n-Propylbenzene	ND		ug/kg	1.5	0.26	1
1,2,3-Trichlorobenzene	ND		ug/kg	3.0	0.49	1
1,2,4-Trichlorobenzene	ND		ug/kg	3.0	0.41	1
1,3,5-Trimethylbenzene	ND		ug/kg	3.0	0.29	1
1,2,4-Trimethylbenzene	ND		ug/kg	3.0	0.51	1
1,4-Dioxane	ND		ug/kg	120	53.	1
p-Diethylbenzene	ND		ug/kg	3.0	0.27	1
p-Ethyltoluene	ND		ug/kg	3.0	0.58	1
1,2,4,5-Tetramethylbenzene	ND		ug/kg	3.0	0.29	1
Ethyl ether	ND		ug/kg	3.0	0.52	1
trans-1,4-Dichloro-2-butene	ND		ug/kg	7.6	2.2	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	104		70-130

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-09
Client ID: SB-5 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 11:39
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 04/05/23 15:04
Analyst: JIC
Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	5.2	2.4	1
1,1-Dichloroethane	ND		ug/kg	1.0	0.15	1
Chloroform	ND		ug/kg	1.6	0.14	1
Carbon tetrachloride	ND		ug/kg	1.0	0.24	1
1,2-Dichloropropane	ND		ug/kg	1.0	0.13	1
Dibromochloromethane	ND		ug/kg	1.0	0.14	1
1,1,2-Trichloroethane	ND		ug/kg	1.0	0.28	1
Tetrachloroethene	ND		ug/kg	0.52	0.20	1
Chlorobenzene	ND		ug/kg	0.52	0.13	1
Trichlorofluoromethane	ND		ug/kg	4.2	0.72	1
1,2-Dichloroethane	ND		ug/kg	1.0	0.27	1
1,1,1-Trichloroethane	ND		ug/kg	0.52	0.17	1
Bromodichloromethane	ND		ug/kg	0.52	0.11	1
trans-1,3-Dichloropropene	ND		ug/kg	1.0	0.28	1
cis-1,3-Dichloropropene	ND		ug/kg	0.52	0.16	1
1,3-Dichloropropene, Total	ND		ug/kg	0.52	0.16	1
1,1-Dichloropropene	ND		ug/kg	0.52	0.16	1
Bromoform	ND		ug/kg	4.2	0.26	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.52	0.17	1
Benzene	ND		ug/kg	0.52	0.17	1
Toluene	ND		ug/kg	1.0	0.56	1
Ethylbenzene	ND		ug/kg	1.0	0.15	1
Chloromethane	ND		ug/kg	4.2	0.97	1
Bromomethane	ND		ug/kg	2.1	0.60	1
Vinyl chloride	ND		ug/kg	1.0	0.35	1
Chloroethane	ND		ug/kg	2.1	0.47	1
1,1-Dichloroethene	ND		ug/kg	1.0	0.25	1
trans-1,2-Dichloroethene	ND		ug/kg	1.6	0.14	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-09 Date Collected: 03/29/23 11:39

Client ID: SB-5 (0-2') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.52	0.14	1
1,2-Dichlorobenzene	ND		ug/kg	2.1	0.15	1
1,3-Dichlorobenzene	ND		ug/kg	2.1	0.15	1
1,4-Dichlorobenzene	ND		ug/kg	2.1	0.18	1
Methyl tert butyl ether	ND		ug/kg	2.1	0.21	1
p/m-Xylene	ND		ug/kg	2.1	0.58	1
o-Xylene	ND		ug/kg	1.0	0.30	1
Xylenes, Total	ND		ug/kg	1.0	0.30	1
cis-1,2-Dichloroethene	ND		ug/kg	1.0	0.18	1
1,2-Dichloroethene, Total	ND		ug/kg	1.0	0.14	1
Dibromomethane	ND		ug/kg	2.1	0.25	1
Styrene	ND		ug/kg	1.0	0.20	1
Dichlorodifluoromethane	ND		ug/kg	10	0.95	1
Acetone	ND		ug/kg	10	5.0	1
Carbon disulfide	ND		ug/kg	10	4.7	1
2-Butanone	ND		ug/kg	10	2.3	1
Vinyl acetate	ND		ug/kg	10	2.2	1
4-Methyl-2-pentanone	ND		ug/kg	10	1.3	1
1,2,3-Trichloropropane	ND		ug/kg	2.1	0.13	1
2-Hexanone	ND		ug/kg	10	1.2	1
Bromochloromethane	ND		ug/kg	2.1	0.21	1
2,2-Dichloropropane	ND		ug/kg	2.1	0.21	1
1,2-Dibromoethane	ND		ug/kg	1.0	0.29	1
1,3-Dichloropropane	ND		ug/kg	2.1	0.17	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.52	0.14	1
Bromobenzene	ND		ug/kg	2.1	0.15	1
n-Butylbenzene	ND		ug/kg	1.0	0.17	1
sec-Butylbenzene	ND		ug/kg	1.0	0.15	1
tert-Butylbenzene	ND		ug/kg	2.1	0.12	1
o-Chlorotoluene	ND		ug/kg	2.1	0.20	1
p-Chlorotoluene	ND		ug/kg	2.1	0.11	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.1	1.0	1
Hexachlorobutadiene	ND		ug/kg	4.2	0.18	1
Isopropylbenzene	ND		ug/kg	1.0	0.11	1
p-Isopropyltoluene	ND		ug/kg	1.0	0.11	1
Naphthalene	ND		ug/kg	4.2	0.68	1
Acrylonitrile	ND		ug/kg	4.2	1.2	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-09 Date Collected: 03/29/23 11:39

Client ID: SB-5 (0-2') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
n-Propylbenzene	ND		ug/kg	1.0	0.18	1
1,2,3-Trichlorobenzene	ND		ug/kg	2.1	0.33	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.1	0.28	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.1	0.20	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.1	0.35	1
1,4-Dioxane	ND		ug/kg	83	36.	1
p-Diethylbenzene	ND		ug/kg	2.1	0.18	1
p-Ethyltoluene	ND		ug/kg	2.1	0.40	1
1,2,4,5-Tetramethylbenzene	ND		ug/kg	2.1	0.20	1
Ethyl ether	ND		ug/kg	2.1	0.35	1
trans-1,4-Dichloro-2-butene	ND		ug/kg	5.2	1.5	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	103		70-130

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-10
Client ID: SB-5 (12-14')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 11:40
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 04/05/23 15:30
Analyst: JIC
Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	6.6	3.0	1
1,1-Dichloroethane	ND		ug/kg	1.3	0.19	1
Chloroform	ND		ug/kg	2.0	0.18	1
Carbon tetrachloride	ND		ug/kg	1.3	0.30	1
1,2-Dichloropropane	ND		ug/kg	1.3	0.16	1
Dibromochloromethane	ND		ug/kg	1.3	0.18	1
1,1,2-Trichloroethane	ND		ug/kg	1.3	0.35	1
Tetrachloroethene	ND		ug/kg	0.66	0.26	1
Chlorobenzene	ND		ug/kg	0.66	0.17	1
Trichlorofluoromethane	ND		ug/kg	5.2	0.91	1
1,2-Dichloroethane	ND		ug/kg	1.3	0.34	1
1,1,1-Trichloroethane	ND		ug/kg	0.66	0.22	1
Bromodichloromethane	ND		ug/kg	0.66	0.14	1
trans-1,3-Dichloropropene	ND		ug/kg	1.3	0.36	1
cis-1,3-Dichloropropene	ND		ug/kg	0.66	0.21	1
1,3-Dichloropropene, Total	ND		ug/kg	0.66	0.21	1
1,1-Dichloropropene	ND		ug/kg	0.66	0.21	1
Bromoform	ND		ug/kg	5.2	0.32	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.66	0.22	1
Benzene	ND		ug/kg	0.66	0.22	1
Toluene	ND		ug/kg	1.3	0.71	1
Ethylbenzene	ND		ug/kg	1.3	0.18	1
Chloromethane	ND		ug/kg	5.2	1.2	1
Bromomethane	ND		ug/kg	2.6	0.76	1
Vinyl chloride	ND		ug/kg	1.3	0.44	1
Chloroethane	ND		ug/kg	2.6	0.59	1
1,1-Dichloroethene	ND		ug/kg	1.3	0.31	1
trans-1,2-Dichloroethene	ND		ug/kg	2.0	0.18	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-10 Date Collected: 03/29/23 11:40

Client ID: SB-5 (12-14') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.66	0.18	1
1,2-Dichlorobenzene	ND		ug/kg	2.6	0.19	1
1,3-Dichlorobenzene	ND		ug/kg	2.6	0.19	1
1,4-Dichlorobenzene	ND		ug/kg	2.6	0.22	1
Methyl tert butyl ether	ND		ug/kg	2.6	0.26	1
p/m-Xylene	ND		ug/kg	2.6	0.74	1
o-Xylene	ND		ug/kg	1.3	0.38	1
Xylenes, Total	ND		ug/kg	1.3	0.38	1
cis-1,2-Dichloroethene	ND		ug/kg	1.3	0.23	1
1,2-Dichloroethene, Total	ND		ug/kg	1.3	0.18	1
Dibromomethane	ND		ug/kg	2.6	0.31	1
Styrene	ND		ug/kg	1.3	0.26	1
Dichlorodifluoromethane	ND		ug/kg	13	1.2	1
Acetone	ND		ug/kg	13	6.3	1
Carbon disulfide	ND		ug/kg	13	6.0	1
2-Butanone	ND		ug/kg	13	2.9	1
Vinyl acetate	ND		ug/kg	13	2.8	1
4-Methyl-2-pentanone	ND		ug/kg	13	1.7	1
1,2,3-Trichloropropane	ND		ug/kg	2.6	0.17	1
2-Hexanone	ND		ug/kg	13	1.6	1
Bromochloromethane	ND		ug/kg	2.6	0.27	1
2,2-Dichloropropane	ND		ug/kg	2.6	0.26	1
1,2-Dibromoethane	ND		ug/kg	1.3	0.37	1
1,3-Dichloropropane	ND		ug/kg	2.6	0.22	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.66	0.17	1
Bromobenzene	ND		ug/kg	2.6	0.19	1
n-Butylbenzene	ND		ug/kg	1.3	0.22	1
sec-Butylbenzene	ND		ug/kg	1.3	0.19	1
tert-Butylbenzene	ND		ug/kg	2.6	0.16	1
o-Chlorotoluene	ND		ug/kg	2.6	0.25	1
p-Chlorotoluene	ND		ug/kg	2.6	0.14	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.9	1.3	1
Hexachlorobutadiene	ND		ug/kg	5.2	0.22	1
Isopropylbenzene	ND		ug/kg	1.3	0.14	1
p-Isopropyltoluene	ND		ug/kg	1.3	0.14	1
Naphthalene	ND		ug/kg	5.2	0.85	1
Acrylonitrile	ND		ug/kg	5.2	1.5	1

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-10
Client ID: SB-5 (12-14')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 11:40
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
n-Propylbenzene	ND		ug/kg	1.3	0.22	1
1,2,3-Trichlorobenzene	ND		ug/kg	2.6	0.42	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.6	0.36	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.6	0.25	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.6	0.44	1
1,4-Dioxane	ND		ug/kg	100	46.	1
p-Diethylbenzene	ND		ug/kg	2.6	0.23	1
p-Ethyltoluene	ND		ug/kg	2.6	0.50	1
1,2,4,5-Tetramethylbenzene	ND		ug/kg	2.6	0.25	1
Ethyl ether	ND		ug/kg	2.6	0.45	1
trans-1,4-Dichloro-2-butene	ND		ug/kg	6.6	1.9	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	104		70-130

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-11
Client ID: SB-7 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 12:05
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 04/05/23 15:57
Analyst: JIC
Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	6.7	3.1	1
1,1-Dichloroethane	ND		ug/kg	1.3	0.19	1
Chloroform	ND		ug/kg	2.0	0.19	1
Carbon tetrachloride	ND		ug/kg	1.3	0.31	1
1,2-Dichloropropane	ND		ug/kg	1.3	0.17	1
Dibromochloromethane	ND		ug/kg	1.3	0.19	1
1,1,2-Trichloroethane	ND		ug/kg	1.3	0.36	1
Tetrachloroethene	ND		ug/kg	0.67	0.26	1
Chlorobenzene	ND		ug/kg	0.67	0.17	1
Trichlorofluoromethane	ND		ug/kg	5.4	0.93	1
1,2-Dichloroethane	ND		ug/kg	1.3	0.34	1
1,1,1-Trichloroethane	ND		ug/kg	0.67	0.22	1
Bromodichloromethane	ND		ug/kg	0.67	0.15	1
trans-1,3-Dichloropropene	ND		ug/kg	1.3	0.37	1
cis-1,3-Dichloropropene	ND		ug/kg	0.67	0.21	1
1,3-Dichloropropene, Total	ND		ug/kg	0.67	0.21	1
1,1-Dichloropropene	ND		ug/kg	0.67	0.21	1
Bromoform	ND		ug/kg	5.4	0.33	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.67	0.22	1
Benzene	ND		ug/kg	0.67	0.22	1
Toluene	ND		ug/kg	1.3	0.73	1
Ethylbenzene	ND		ug/kg	1.3	0.19	1
Chloromethane	ND		ug/kg	5.4	1.2	1
Bromomethane	ND		ug/kg	2.7	0.78	1
Vinyl chloride	ND		ug/kg	1.3	0.45	1
Chloroethane	ND		ug/kg	2.7	0.61	1
1,1-Dichloroethene	ND		ug/kg	1.3	0.32	1
trans-1,2-Dichloroethene	ND		ug/kg	2.0	0.18	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-11 Date Collected: 03/29/23 12:05

Client ID: SB-7 (0-2') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.67	0.18	1
1,2-Dichlorobenzene	ND		ug/kg	2.7	0.19	1
1,3-Dichlorobenzene	ND		ug/kg	2.7	0.20	1
1,4-Dichlorobenzene	ND		ug/kg	2.7	0.23	1
Methyl tert butyl ether	ND		ug/kg	2.7	0.27	1
p/m-Xylene	ND		ug/kg	2.7	0.75	1
o-Xylene	ND		ug/kg	1.3	0.39	1
Xylenes, Total	ND		ug/kg	1.3	0.39	1
cis-1,2-Dichloroethene	ND		ug/kg	1.3	0.24	1
1,2-Dichloroethene, Total	ND		ug/kg	1.3	0.18	1
Dibromomethane	ND		ug/kg	2.7	0.32	1
Styrene	0.58	J	ug/kg	1.3	0.26	1
Dichlorodifluoromethane	ND		ug/kg	13	1.2	1
Acetone	ND		ug/kg	13	6.5	1
Carbon disulfide	ND		ug/kg	13	6.1	1
2-Butanone	ND		ug/kg	13	3.0	1
Vinyl acetate	ND		ug/kg	13	2.9	1
4-Methyl-2-pentanone	ND		ug/kg	13	1.7	1
1,2,3-Trichloropropane	ND		ug/kg	2.7	0.17	1
2-Hexanone	ND		ug/kg	13	1.6	1
Bromochloromethane	ND		ug/kg	2.7	0.28	1
2,2-Dichloropropane	ND		ug/kg	2.7	0.27	1
1,2-Dibromoethane	ND		ug/kg	1.3	0.37	1
1,3-Dichloropropane	ND		ug/kg	2.7	0.22	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.67	0.18	1
Bromobenzene	ND		ug/kg	2.7	0.19	1
n-Butylbenzene	ND		ug/kg	1.3	0.22	1
sec-Butylbenzene	ND		ug/kg	1.3	0.20	1
tert-Butylbenzene	ND		ug/kg	2.7	0.16	1
o-Chlorotoluene	ND		ug/kg	2.7	0.26	1
p-Chlorotoluene	ND		ug/kg	2.7	0.14	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	4.0	1.3	1
Hexachlorobutadiene	ND		ug/kg	5.4	0.23	1
Isopropylbenzene	ND		ug/kg	1.3	0.15	1
p-Isopropyltoluene	ND		ug/kg	1.3	0.15	1
Naphthalene	ND		ug/kg	5.4	0.87	1
Acrylonitrile	ND		ug/kg	5.4	1.5	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-11 Date Collected: 03/29/23 12:05

Client ID: SB-7 (0-2') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
n-Propylbenzene	ND		ug/kg	1.3	0.23	1
1,2,3-Trichlorobenzene	ND		ug/kg	2.7	0.43	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.7	0.36	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.7	0.26	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.7	0.45	1
1,4-Dioxane	ND		ug/kg	110	47.	1
p-Diethylbenzene	ND		ug/kg	2.7	0.24	1
p-Ethyltoluene	ND		ug/kg	2.7	0.52	1
1,2,4,5-Tetramethylbenzene	ND		ug/kg	2.7	0.26	1
Ethyl ether	ND		ug/kg	2.7	0.46	1
trans-1,4-Dichloro-2-butene	ND		ug/kg	6.7	1.9	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	86		70-130
Dibromofluoromethane	102		70-130

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-12
Client ID: SB-9 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 12:25
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 04/05/23 16:23
Analyst: JIC
Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	5.5	2.5	1
1,1-Dichloroethane	ND		ug/kg	1.1	0.16	1
Chloroform	ND		ug/kg	1.7	0.16	1
Carbon tetrachloride	ND		ug/kg	1.1	0.26	1
1,2-Dichloropropane	ND		ug/kg	1.1	0.14	1
Dibromochloromethane	ND		ug/kg	1.1	0.16	1
1,1,2-Trichloroethane	ND		ug/kg	1.1	0.30	1
Tetrachloroethene	ND		ug/kg	0.55	0.22	1
Chlorobenzene	ND		ug/kg	0.55	0.14	1
Trichlorofluoromethane	ND		ug/kg	4.4	0.77	1
1,2-Dichloroethane	ND		ug/kg	1.1	0.28	1
1,1,1-Trichloroethane	ND		ug/kg	0.55	0.18	1
Bromodichloromethane	ND		ug/kg	0.55	0.12	1
trans-1,3-Dichloropropene	ND		ug/kg	1.1	0.30	1
cis-1,3-Dichloropropene	ND		ug/kg	0.55	0.18	1
1,3-Dichloropropene, Total	ND		ug/kg	0.55	0.18	1
1,1-Dichloropropene	ND		ug/kg	0.55	0.18	1
Bromoform	ND		ug/kg	4.4	0.27	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.55	0.18	1
Benzene	ND		ug/kg	0.55	0.18	1
Toluene	ND		ug/kg	1.1	0.60	1
Ethylbenzene	ND		ug/kg	1.1	0.16	1
Chloromethane	ND		ug/kg	4.4	1.0	1
Bromomethane	ND		ug/kg	2.2	0.64	1
Vinyl chloride	ND		ug/kg	1.1	0.37	1
Chloroethane	ND		ug/kg	2.2	0.50	1
1,1-Dichloroethene	ND		ug/kg	1.1	0.26	1
trans-1,2-Dichloroethene	ND		ug/kg	1.7	0.15	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-12 Date Collected: 03/29/23 12:25

Client ID: SB-9 (0-2') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.55	0.15	1
1,2-Dichlorobenzene	ND		ug/kg	2.2	0.16	1
1,3-Dichlorobenzene	ND		ug/kg	2.2	0.16	1
1,4-Dichlorobenzene	ND		ug/kg	2.2	0.19	1
Methyl tert butyl ether	ND		ug/kg	2.2	0.22	1
p/m-Xylene	ND		ug/kg	2.2	0.62	1
o-Xylene	ND		ug/kg	1.1	0.32	1
Xylenes, Total	ND		ug/kg	1.1	0.32	1
cis-1,2-Dichloroethene	ND		ug/kg	1.1	0.19	1
1,2-Dichloroethene, Total	ND		ug/kg	1.1	0.15	1
Dibromomethane	ND		ug/kg	2.2	0.26	1
Styrene	ND		ug/kg	1.1	0.22	1
Dichlorodifluoromethane	ND		ug/kg	11	1.0	1
Acetone	ND		ug/kg	11	5.3	1
Carbon disulfide	ND		ug/kg	11	5.0	1
2-Butanone	ND		ug/kg	11	2.5	1
Vinyl acetate	ND		ug/kg	11	2.4	1
4-Methyl-2-pentanone	ND		ug/kg	11	1.4	1
1,2,3-Trichloropropane	ND		ug/kg	2.2	0.14	1
2-Hexanone	ND		ug/kg	11	1.3	1
Bromochloromethane	ND		ug/kg	2.2	0.23	1
2,2-Dichloropropane	ND		ug/kg	2.2	0.22	1
1,2-Dibromoethane	ND		ug/kg	1.1	0.31	1
1,3-Dichloropropane	ND		ug/kg	2.2	0.18	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.55	0.15	1
Bromobenzene	ND		ug/kg	2.2	0.16	1
n-Butylbenzene	ND		ug/kg	1.1	0.18	1
sec-Butylbenzene	ND		ug/kg	1.1	0.16	1
tert-Butylbenzene	ND		ug/kg	2.2	0.13	1
o-Chlorotoluene	ND		ug/kg	2.2	0.21	1
p-Chlorotoluene	ND		ug/kg	2.2	0.12	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.3	1.1	1
Hexachlorobutadiene	ND		ug/kg	4.4	0.19	1
Isopropylbenzene	ND		ug/kg	1.1	0.12	1
p-Isopropyltoluene	ND		ug/kg	1.1	0.12	1
Naphthalene	ND		ug/kg	4.4	0.72	1
Acrylonitrile	ND		ug/kg	4.4	1.3	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-12 Date Collected: 03/29/23 12:25

Client ID: SB-9 (0-2') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
n-Propylbenzene	ND		ug/kg	1.1	0.19	1
1,2,3-Trichlorobenzene	ND		ug/kg	2.2	0.36	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.2	0.30	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.2	0.21	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.2	0.37	1
1,4-Dioxane	ND		ug/kg	89	39.	1
p-Diethylbenzene	ND		ug/kg	2.2	0.20	1
p-Ethyltoluene	ND		ug/kg	2.2	0.43	1
1,2,4,5-Tetramethylbenzene	ND		ug/kg	2.2	0.21	1
Ethyl ether	ND		ug/kg	2.2	0.38	1
trans-1,4-Dichloro-2-butene	ND		ug/kg	5.5	1.6	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	85		70-130
Dibromofluoromethane	105		70-130

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-13
Client ID: SB-10 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 12:53
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 04/05/23 16:49
Analyst: JIC
Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	7.1	3.2	1
1,1-Dichloroethane	ND		ug/kg	1.4	0.21	1
Chloroform	ND		ug/kg	2.1	0.20	1
Carbon tetrachloride	ND		ug/kg	1.4	0.33	1
1,2-Dichloropropane	ND		ug/kg	1.4	0.18	1
Dibromochloromethane	ND		ug/kg	1.4	0.20	1
1,1,2-Trichloroethane	ND		ug/kg	1.4	0.38	1
Tetrachloroethene	ND		ug/kg	0.71	0.28	1
Chlorobenzene	ND		ug/kg	0.71	0.18	1
Trichlorofluoromethane	ND		ug/kg	5.7	0.99	1
1,2-Dichloroethane	ND		ug/kg	1.4	0.36	1
1,1,1-Trichloroethane	ND		ug/kg	0.71	0.24	1
Bromodichloromethane	ND		ug/kg	0.71	0.16	1
trans-1,3-Dichloropropene	ND		ug/kg	1.4	0.39	1
cis-1,3-Dichloropropene	ND		ug/kg	0.71	0.22	1
1,3-Dichloropropene, Total	ND		ug/kg	0.71	0.22	1
1,1-Dichloropropene	ND		ug/kg	0.71	0.23	1
Bromoform	ND		ug/kg	5.7	0.35	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.71	0.24	1
Benzene	ND		ug/kg	0.71	0.24	1
Toluene	ND		ug/kg	1.4	0.77	1
Ethylbenzene	ND		ug/kg	1.4	0.20	1
Chloromethane	ND		ug/kg	5.7	1.3	1
Bromomethane	ND		ug/kg	2.8	0.83	1
Vinyl chloride	ND		ug/kg	1.4	0.48	1
Chloroethane	ND		ug/kg	2.8	0.64	1
1,1-Dichloroethene	ND		ug/kg	1.4	0.34	1
trans-1,2-Dichloroethene	ND		ug/kg	2.1	0.19	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-13 Date Collected: 03/29/23 12:53

Client ID: SB-10 (0-2') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.71	0.19	1
1,2-Dichlorobenzene	ND		ug/kg	2.8	0.20	1
1,3-Dichlorobenzene	ND		ug/kg	2.8	0.21	1
1,4-Dichlorobenzene	ND		ug/kg	2.8	0.24	1
Methyl tert butyl ether	ND		ug/kg	2.8	0.28	1
p/m-Xylene	ND		ug/kg	2.8	0.80	1
o-Xylene	ND		ug/kg	1.4	0.41	1
Xylenes, Total	ND		ug/kg	1.4	0.41	1
cis-1,2-Dichloroethene	ND		ug/kg	1.4	0.25	1
1,2-Dichloroethene, Total	ND		ug/kg	1.4	0.19	1
Dibromomethane	ND		ug/kg	2.8	0.34	1
Styrene	ND		ug/kg	1.4	0.28	1
Dichlorodifluoromethane	ND		ug/kg	14	1.3	1
Acetone	ND		ug/kg	14	6.8	1
Carbon disulfide	ND		ug/kg	14	6.5	1
2-Butanone	ND		ug/kg	14	3.2	1
Vinyl acetate	ND		ug/kg	14	3.0	1
4-Methyl-2-pentanone	ND		ug/kg	14	1.8	1
1,2,3-Trichloropropane	ND		ug/kg	2.8	0.18	1
2-Hexanone	ND		ug/kg	14	1.7	1
Bromochloromethane	ND		ug/kg	2.8	0.29	1
2,2-Dichloropropane	ND		ug/kg	2.8	0.29	1
1,2-Dibromoethane	ND		ug/kg	1.4	0.40	1
1,3-Dichloropropane	ND		ug/kg	2.8	0.24	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.71	0.19	1
Bromobenzene	ND		ug/kg	2.8	0.21	1
n-Butylbenzene	ND		ug/kg	1.4	0.24	1
sec-Butylbenzene	ND		ug/kg	1.4	0.21	1
tert-Butylbenzene	ND		ug/kg	2.8	0.17	1
o-Chlorotoluene	ND		ug/kg	2.8	0.27	1
p-Chlorotoluene	ND		ug/kg	2.8	0.15	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	4.3	1.4	1
Hexachlorobutadiene	ND		ug/kg	5.7	0.24	1
Isopropylbenzene	ND		ug/kg	1.4	0.16	1
p-Isopropyltoluene	ND		ug/kg	1.4	0.16	1
Naphthalene	ND		ug/kg	5.7	0.92	1
Acrylonitrile	ND		ug/kg	5.7	1.6	1

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-13
Client ID: SB-10 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 12:53
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
n-Propylbenzene	ND		ug/kg	1.4	0.24	1
1,2,3-Trichlorobenzene	ND		ug/kg	2.8	0.46	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.8	0.39	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.8	0.27	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.8	0.48	1
1,4-Dioxane	ND		ug/kg	110	50.	1
p-Diethylbenzene	ND		ug/kg	2.8	0.25	1
p-Ethyltoluene	ND		ug/kg	2.8	0.55	1
1,2,4,5-Tetramethylbenzene	ND		ug/kg	2.8	0.27	1
Ethyl ether	ND		ug/kg	2.8	0.48	1
trans-1,4-Dichloro-2-butene	ND		ug/kg	7.1	2.0	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	93		70-130

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-14
Client ID: SB-11 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 13:25
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 04/05/23 17:15
Analyst: JIC
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	6.2	2.8	1
1,1-Dichloroethane	ND		ug/kg	1.2	0.18	1
Chloroform	ND		ug/kg	1.8	0.17	1
Carbon tetrachloride	ND		ug/kg	1.2	0.28	1
1,2-Dichloropropane	ND		ug/kg	1.2	0.15	1
Dibromochloromethane	ND		ug/kg	1.2	0.17	1
1,1,2-Trichloroethane	ND		ug/kg	1.2	0.33	1
Tetrachloroethene	ND		ug/kg	0.62	0.24	1
Chlorobenzene	ND		ug/kg	0.62	0.16	1
Trichlorofluoromethane	ND		ug/kg	5.0	0.86	1
1,2-Dichloroethane	ND		ug/kg	1.2	0.32	1
1,1,1-Trichloroethane	ND		ug/kg	0.62	0.21	1
Bromodichloromethane	ND		ug/kg	0.62	0.13	1
trans-1,3-Dichloropropene	ND		ug/kg	1.2	0.34	1
cis-1,3-Dichloropropene	ND		ug/kg	0.62	0.20	1
1,3-Dichloropropene, Total	ND		ug/kg	0.62	0.20	1
1,1-Dichloropropene	ND		ug/kg	0.62	0.20	1
Bromoform	ND		ug/kg	5.0	0.30	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.62	0.20	1
Benzene	ND		ug/kg	0.62	0.20	1
Toluene	ND		ug/kg	1.2	0.67	1
Ethylbenzene	ND		ug/kg	1.2	0.17	1
Chloromethane	ND		ug/kg	5.0	1.2	1
Bromomethane	ND		ug/kg	2.5	0.72	1
Vinyl chloride	ND		ug/kg	1.2	0.41	1
Chloroethane	ND		ug/kg	2.5	0.56	1
1,1-Dichloroethene	ND		ug/kg	1.2	0.29	1
trans-1,2-Dichloroethene	ND		ug/kg	1.8	0.17	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-14 Date Collected: 03/29/23 13:25

Client ID: SB-11 (0-2') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.62	0.17	1
1,2-Dichlorobenzene	ND		ug/kg	2.5	0.18	1
1,3-Dichlorobenzene	ND		ug/kg	2.5	0.18	1
1,4-Dichlorobenzene	ND		ug/kg	2.5	0.21	1
Methyl tert butyl ether	ND		ug/kg	2.5	0.25	1
p/m-Xylene	ND		ug/kg	2.5	0.69	1
o-Xylene	ND		ug/kg	1.2	0.36	1
Xylenes, Total	ND		ug/kg	1.2	0.36	1
cis-1,2-Dichloroethene	ND		ug/kg	1.2	0.22	1
1,2-Dichloroethene, Total	ND		ug/kg	1.2	0.17	1
Dibromomethane	ND		ug/kg	2.5	0.29	1
Styrene	ND		ug/kg	1.2	0.24	1
Dichlorodifluoromethane	ND		ug/kg	12	1.1	1
Acetone	ND		ug/kg	12	6.0	1
Carbon disulfide	ND		ug/kg	12	5.6	1
2-Butanone	ND		ug/kg	12	2.7	1
Vinyl acetate	ND		ug/kg	12	2.7	1
4-Methyl-2-pentanone	ND		ug/kg	12	1.6	1
1,2,3-Trichloropropane	ND		ug/kg	2.5	0.16	1
2-Hexanone	ND		ug/kg	12	1.5	1
Bromochloromethane	ND		ug/kg	2.5	0.25	1
2,2-Dichloropropane	ND		ug/kg	2.5	0.25	1
1,2-Dibromoethane	ND		ug/kg	1.2	0.34	1
1,3-Dichloropropane	ND		ug/kg	2.5	0.21	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.62	0.16	1
Bromobenzene	ND		ug/kg	2.5	0.18	1
n-Butylbenzene	ND		ug/kg	1.2	0.21	1
sec-Butylbenzene	ND		ug/kg	1.2	0.18	1
tert-Butylbenzene	ND		ug/kg	2.5	0.15	1
o-Chlorotoluene	ND		ug/kg	2.5	0.24	1
p-Chlorotoluene	ND		ug/kg	2.5	0.13	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.7	1.2	1
Hexachlorobutadiene	ND		ug/kg	5.0	0.21	1
Isopropylbenzene	ND		ug/kg	1.2	0.13	1
p-Isopropyltoluene	ND		ug/kg	1.2	0.13	1
Naphthalene	ND		ug/kg	5.0	0.80	1
Acrylonitrile	ND		ug/kg	5.0	1.4	1

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-14
Client ID: SB-11 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 13:25
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
n-Propylbenzene	ND		ug/kg	1.2	0.21	1
1,2,3-Trichlorobenzene	ND		ug/kg	2.5	0.40	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.5	0.34	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.5	0.24	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.5	0.41	1
1,4-Dioxane	ND		ug/kg	99	43.	1
p-Diethylbenzene	ND		ug/kg	2.5	0.22	1
p-Ethyltoluene	ND		ug/kg	2.5	0.48	1
1,2,4,5-Tetramethylbenzene	ND		ug/kg	2.5	0.24	1
Ethyl ether	ND		ug/kg	2.5	0.42	1
trans-1,4-Dichloro-2-butene	ND		ug/kg	6.2	1.8	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	102		70-130

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-15
Client ID: SB-11 (6.5'-8.5')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 13:27
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 04/05/23 17:42
Analyst: JIC
Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	8.2	3.8	1
1,1-Dichloroethane	ND		ug/kg	1.6	0.24	1
Chloroform	ND		ug/kg	2.5	0.23	1
Carbon tetrachloride	ND		ug/kg	1.6	0.38	1
1,2-Dichloropropane	ND		ug/kg	1.6	0.21	1
Dibromochloromethane	ND		ug/kg	1.6	0.23	1
1,1,2-Trichloroethane	ND		ug/kg	1.6	0.44	1
Tetrachloroethene	ND		ug/kg	0.82	0.32	1
Chlorobenzene	ND		ug/kg	0.82	0.21	1
Trichlorofluoromethane	ND		ug/kg	6.6	1.1	1
1,2-Dichloroethane	ND		ug/kg	1.6	0.42	1
1,1,1-Trichloroethane	ND		ug/kg	0.82	0.28	1
Bromodichloromethane	ND		ug/kg	0.82	0.18	1
trans-1,3-Dichloropropene	ND		ug/kg	1.6	0.45	1
cis-1,3-Dichloropropene	ND		ug/kg	0.82	0.26	1
1,3-Dichloropropene, Total	ND		ug/kg	0.82	0.26	1
1,1-Dichloropropene	ND		ug/kg	0.82	0.26	1
Bromoform	ND		ug/kg	6.6	0.40	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.82	0.27	1
Benzene	ND		ug/kg	0.82	0.27	1
Toluene	ND		ug/kg	1.6	0.90	1
Ethylbenzene	ND		ug/kg	1.6	0.23	1
Chloromethane	ND		ug/kg	6.6	1.5	1
Bromomethane	ND		ug/kg	3.3	0.96	1
Vinyl chloride	ND		ug/kg	1.6	0.55	1
Chloroethane	ND		ug/kg	3.3	0.74	1
1,1-Dichloroethene	ND		ug/kg	1.6	0.39	1
trans-1,2-Dichloroethene	ND		ug/kg	2.5	0.23	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-15 Date Collected: 03/29/23 13:27

Client ID: SB-11 (6.5'-8.5') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.82	0.23	1
1,2-Dichlorobenzene	ND		ug/kg	3.3	0.24	1
1,3-Dichlorobenzene	ND		ug/kg	3.3	0.24	1
1,4-Dichlorobenzene	ND		ug/kg	3.3	0.28	1
Methyl tert butyl ether	ND		ug/kg	3.3	0.33	1
p/m-Xylene	ND		ug/kg	3.3	0.92	1
o-Xylene	ND		ug/kg	1.6	0.48	1
Xylenes, Total	ND		ug/kg	1.6	0.48	1
cis-1,2-Dichloroethene	ND		ug/kg	1.6	0.29	1
1,2-Dichloroethene, Total	ND		ug/kg	1.6	0.23	1
Dibromomethane	ND		ug/kg	3.3	0.39	1
Styrene	ND		ug/kg	1.6	0.32	1
Dichlorodifluoromethane	ND		ug/kg	16	1.5	1
Acetone	ND		ug/kg	16	7.9	1
Carbon disulfide	ND		ug/kg	16	7.5	1
2-Butanone	ND		ug/kg	16	3.7	1
Vinyl acetate	ND		ug/kg	16	3.5	1
4-Methyl-2-pentanone	ND		ug/kg	16	2.1	1
1,2,3-Trichloropropane	ND		ug/kg	3.3	0.21	1
2-Hexanone	ND		ug/kg	16	1.9	1
Bromochloromethane	ND		ug/kg	3.3	0.34	1
2,2-Dichloropropane	ND		ug/kg	3.3	0.33	1
1,2-Dibromoethane	ND		ug/kg	1.6	0.46	1
1,3-Dichloropropane	ND		ug/kg	3.3	0.28	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.82	0.22	1
Bromobenzene	ND		ug/kg	3.3	0.24	1
n-Butylbenzene	ND		ug/kg	1.6	0.28	1
sec-Butylbenzene	ND		ug/kg	1.6	0.24	1
tert-Butylbenzene	ND		ug/kg	3.3	0.19	1
o-Chlorotoluene	ND		ug/kg	3.3	0.32	1
p-Chlorotoluene	ND		ug/kg	3.3	0.18	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	5.0	1.6	1
Hexachlorobutadiene	ND		ug/kg	6.6	0.28	1
Isopropylbenzene	ND		ug/kg	1.6	0.18	1
p-Isopropyltoluene	ND		ug/kg	1.6	0.18	1
Naphthalene	2.8	J	ug/kg	6.6	1.1	1
Acrylonitrile	ND		ug/kg	6.6	1.9	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-15 Date Collected: 03/29/23 13:27

Client ID: SB-11 (6.5'-8.5') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
n-Propylbenzene	ND		ug/kg	1.6	0.28	1
1,2,3-Trichlorobenzene	ND		ug/kg	3.3	0.53	1
1,2,4-Trichlorobenzene	ND		ug/kg	3.3	0.45	1
1,3,5-Trimethylbenzene	ND		ug/kg	3.3	0.32	1
1,2,4-Trimethylbenzene	ND		ug/kg	3.3	0.55	1
1,4-Dioxane	ND		ug/kg	130	58.	1
p-Diethylbenzene	ND		ug/kg	3.3	0.29	1
p-Ethyltoluene	ND		ug/kg	3.3	0.63	1
1,2,4,5-Tetramethylbenzene	0.93	J	ug/kg	3.3	0.32	1
Ethyl ether	ND		ug/kg	3.3	0.56	1
trans-1,4-Dichloro-2-butene	ND		ug/kg	8.2	2.3	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	106		70-130

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-16
Client ID: SB-6 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 14:00
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 04/05/23 18:08
Analyst: JIC
Percent Solids: 97%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	6.6	3.0	1
1,1-Dichloroethane	ND		ug/kg	1.3	0.19	1
Chloroform	ND		ug/kg	2.0	0.18	1
Carbon tetrachloride	ND		ug/kg	1.3	0.30	1
1,2-Dichloropropane	ND		ug/kg	1.3	0.16	1
Dibromochloromethane	ND		ug/kg	1.3	0.18	1
1,1,2-Trichloroethane	ND		ug/kg	1.3	0.35	1
Tetrachloroethene	ND		ug/kg	0.66	0.26	1
Chlorobenzene	ND		ug/kg	0.66	0.17	1
Trichlorofluoromethane	ND		ug/kg	5.2	0.91	1
1,2-Dichloroethane	ND		ug/kg	1.3	0.34	1
1,1,1-Trichloroethane	ND		ug/kg	0.66	0.22	1
Bromodichloromethane	ND		ug/kg	0.66	0.14	1
trans-1,3-Dichloropropene	ND		ug/kg	1.3	0.36	1
cis-1,3-Dichloropropene	ND		ug/kg	0.66	0.21	1
1,3-Dichloropropene, Total	ND		ug/kg	0.66	0.21	1
1,1-Dichloropropene	ND		ug/kg	0.66	0.21	1
Bromoform	ND		ug/kg	5.2	0.32	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.66	0.22	1
Benzene	ND		ug/kg	0.66	0.22	1
Toluene	ND		ug/kg	1.3	0.71	1
Ethylbenzene	ND		ug/kg	1.3	0.18	1
Chloromethane	ND		ug/kg	5.2	1.2	1
Bromomethane	ND		ug/kg	2.6	0.76	1
Vinyl chloride	ND		ug/kg	1.3	0.44	1
Chloroethane	ND		ug/kg	2.6	0.59	1
1,1-Dichloroethene	ND		ug/kg	1.3	0.31	1
trans-1,2-Dichloroethene	ND		ug/kg	2.0	0.18	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-16 Date Collected: 03/29/23 14:00

Client ID: SB-6 (0-2') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.66	0.18	1
1,2-Dichlorobenzene	ND		ug/kg	2.6	0.19	1
1,3-Dichlorobenzene	ND		ug/kg	2.6	0.19	1
1,4-Dichlorobenzene	ND		ug/kg	2.6	0.22	1
Methyl tert butyl ether	ND		ug/kg	2.6	0.26	1
p/m-Xylene	ND		ug/kg	2.6	0.74	1
o-Xylene	ND		ug/kg	1.3	0.38	1
Xylenes, Total	ND		ug/kg	1.3	0.38	1
cis-1,2-Dichloroethene	ND		ug/kg	1.3	0.23	1
1,2-Dichloroethene, Total	ND		ug/kg	1.3	0.18	1
Dibromomethane	ND		ug/kg	2.6	0.31	1
Styrene	ND		ug/kg	1.3	0.26	1
Dichlorodifluoromethane	ND		ug/kg	13	1.2	1
Acetone	ND		ug/kg	13	6.3	1
Carbon disulfide	ND		ug/kg	13	6.0	1
2-Butanone	ND		ug/kg	13	2.9	1
Vinyl acetate	ND		ug/kg	13	2.8	1
4-Methyl-2-pentanone	ND		ug/kg	13	1.7	1
1,2,3-Trichloropropane	ND		ug/kg	2.6	0.17	1
2-Hexanone	ND		ug/kg	13	1.6	1
Bromochloromethane	ND		ug/kg	2.6	0.27	1
2,2-Dichloropropane	ND		ug/kg	2.6	0.26	1
1,2-Dibromoethane	ND		ug/kg	1.3	0.37	1
1,3-Dichloropropane	ND		ug/kg	2.6	0.22	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.66	0.17	1
Bromobenzene	ND		ug/kg	2.6	0.19	1
n-Butylbenzene	ND		ug/kg	1.3	0.22	1
sec-Butylbenzene	ND		ug/kg	1.3	0.19	1
tert-Butylbenzene	ND		ug/kg	2.6	0.16	1
o-Chlorotoluene	ND		ug/kg	2.6	0.25	1
p-Chlorotoluene	ND		ug/kg	2.6	0.14	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.9	1.3	1
Hexachlorobutadiene	ND		ug/kg	5.2	0.22	1
Isopropylbenzene	ND		ug/kg	1.3	0.14	1
p-Isopropyltoluene	ND		ug/kg	1.3	0.14	1
Naphthalene	ND		ug/kg	5.2	0.85	1
Acrylonitrile	ND		ug/kg	5.2	1.5	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-16 Date Collected: 03/29/23 14:00

Client ID: SB-6 (0-2') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
n-Propylbenzene	ND		ug/kg	1.3	0.22	1
1,2,3-Trichlorobenzene	ND		ug/kg	2.6	0.42	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.6	0.36	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.6	0.25	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.6	0.44	1
1,4-Dioxane	ND		ug/kg	100	46.	1
p-Diethylbenzene	ND		ug/kg	2.6	0.23	1
p-Ethyltoluene	ND		ug/kg	2.6	0.50	1
1,2,4,5-Tetramethylbenzene	ND		ug/kg	2.6	0.25	1
Ethyl ether	ND		ug/kg	2.6	0.45	1
trans-1,4-Dichloro-2-butene	ND		ug/kg	6.6	1.9	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	103		70-130

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-17
Client ID: SB-8 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 14:09
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 04/05/23 18:34
Analyst: JIC
Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	6.4	2.9	1
1,1-Dichloroethane	ND		ug/kg	1.3	0.18	1
Chloroform	ND		ug/kg	1.9	0.18	1
Carbon tetrachloride	ND		ug/kg	1.3	0.29	1
1,2-Dichloropropane	ND		ug/kg	1.3	0.16	1
Dibromochloromethane	ND		ug/kg	1.3	0.18	1
1,1,2-Trichloroethane	ND		ug/kg	1.3	0.34	1
Tetrachloroethene	ND		ug/kg	0.64	0.25	1
Chlorobenzene	ND		ug/kg	0.64	0.16	1
Trichlorofluoromethane	ND		ug/kg	5.1	0.88	1
1,2-Dichloroethane	ND		ug/kg	1.3	0.33	1
1,1,1-Trichloroethane	ND		ug/kg	0.64	0.21	1
Bromodichloromethane	ND		ug/kg	0.64	0.14	1
trans-1,3-Dichloropropene	ND		ug/kg	1.3	0.35	1
cis-1,3-Dichloropropene	ND		ug/kg	0.64	0.20	1
1,3-Dichloropropene, Total	ND		ug/kg	0.64	0.20	1
1,1-Dichloropropene	ND		ug/kg	0.64	0.20	1
Bromoform	ND		ug/kg	5.1	0.31	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.64	0.21	1
Benzene	ND		ug/kg	0.64	0.21	1
Toluene	ND		ug/kg	1.3	0.69	1
Ethylbenzene	ND		ug/kg	1.3	0.18	1
Chloromethane	ND		ug/kg	5.1	1.2	1
Bromomethane	ND		ug/kg	2.5	0.74	1
Vinyl chloride	ND		ug/kg	1.3	0.43	1
Chloroethane	ND		ug/kg	2.5	0.58	1
1,1-Dichloroethene	ND		ug/kg	1.3	0.30	1
trans-1,2-Dichloroethene	ND		ug/kg	1.9	0.17	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-17 Date Collected: 03/29/23 14:09

Client ID: SB-8 (0-2') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.64	0.17	1
1,2-Dichlorobenzene	ND		ug/kg	2.5	0.18	1
1,3-Dichlorobenzene	ND		ug/kg	2.5	0.19	1
1,4-Dichlorobenzene	ND		ug/kg	2.5	0.22	1
Methyl tert butyl ether	ND		ug/kg	2.5	0.26	1
p/m-Xylene	ND		ug/kg	2.5	0.71	1
o-Xylene	ND		ug/kg	1.3	0.37	1
Xylenes, Total	ND		ug/kg	1.3	0.37	1
cis-1,2-Dichloroethene	ND		ug/kg	1.3	0.22	1
1,2-Dichloroethene, Total	ND		ug/kg	1.3	0.17	1
Dibromomethane	ND		ug/kg	2.5	0.30	1
Styrene	ND		ug/kg	1.3	0.25	1
Dichlorodifluoromethane	ND		ug/kg	13	1.2	1
Acetone	ND		ug/kg	13	6.1	1
Carbon disulfide	ND		ug/kg	13	5.8	1
2-Butanone	ND		ug/kg	13	2.8	1
Vinyl acetate	ND		ug/kg	13	2.7	1
4-Methyl-2-pentanone	ND		ug/kg	13	1.6	1
1,2,3-Trichloropropane	ND		ug/kg	2.5	0.16	1
2-Hexanone	ND		ug/kg	13	1.5	1
Bromochloromethane	ND		ug/kg	2.5	0.26	1
2,2-Dichloropropane	ND		ug/kg	2.5	0.26	1
1,2-Dibromoethane	ND		ug/kg	1.3	0.36	1
1,3-Dichloropropane	ND		ug/kg	2.5	0.21	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.64	0.17	1
Bromobenzene	ND		ug/kg	2.5	0.18	1
n-Butylbenzene	ND		ug/kg	1.3	0.21	1
sec-Butylbenzene	ND		ug/kg	1.3	0.18	1
tert-Butylbenzene	ND		ug/kg	2.5	0.15	1
o-Chlorotoluene	ND		ug/kg	2.5	0.24	1
p-Chlorotoluene	ND		ug/kg	2.5	0.14	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.8	1.3	1
Hexachlorobutadiene	ND		ug/kg	5.1	0.22	1
Isopropylbenzene	ND		ug/kg	1.3	0.14	1
p-Isopropyltoluene	ND		ug/kg	1.3	0.14	1
Naphthalene	ND		ug/kg	5.1	0.83	1
Acrylonitrile	ND		ug/kg	5.1	1.5	1

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-17
Client ID: SB-8 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 14:09
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
n-Propylbenzene	ND		ug/kg	1.3	0.22	1
1,2,3-Trichlorobenzene	ND		ug/kg	2.5	0.41	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.5	0.35	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.5	0.24	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.5	0.42	1
1,4-Dioxane	ND		ug/kg	100	45.	1
p-Diethylbenzene	ND		ug/kg	2.5	0.22	1
p-Ethyltoluene	ND		ug/kg	2.5	0.49	1
1,2,4,5-Tetramethylbenzene	ND		ug/kg	2.5	0.24	1
Ethyl ether	ND		ug/kg	2.5	0.43	1
trans-1,4-Dichloro-2-butene	ND		ug/kg	6.4	1.8	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	103		70-130

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 04/05/23 09:22
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-17 Batch: WG1763542-5					
Methylene chloride	ND		ug/kg	5.0	2.3
1,1-Dichloroethane	ND		ug/kg	1.0	0.14
Chloroform	ND		ug/kg	1.5	0.14
Carbon tetrachloride	ND		ug/kg	1.0	0.23
1,2-Dichloropropane	ND		ug/kg	1.0	0.12
Dibromochloromethane	ND		ug/kg	1.0	0.14
1,1,2-Trichloroethane	ND		ug/kg	1.0	0.27
Tetrachloroethene	ND		ug/kg	0.50	0.20
Chlorobenzene	ND		ug/kg	0.50	0.13
Trichlorofluoromethane	ND		ug/kg	4.0	0.70
1,2-Dichloroethane	ND		ug/kg	1.0	0.26
1,1,1-Trichloroethane	ND		ug/kg	0.50	0.17
Bromodichloromethane	ND		ug/kg	0.50	0.11
trans-1,3-Dichloropropene	ND		ug/kg	1.0	0.27
cis-1,3-Dichloropropene	ND		ug/kg	0.50	0.16
1,3-Dichloropropene, Total	ND		ug/kg	0.50	0.16
1,1-Dichloropropene	ND		ug/kg	0.50	0.16
Bromoform	ND		ug/kg	4.0	0.25
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.50	0.17
Benzene	ND		ug/kg	0.50	0.17
Toluene	ND		ug/kg	1.0	0.54
Ethylbenzene	ND		ug/kg	1.0	0.14
Chloromethane	ND		ug/kg	4.0	0.93
Bromomethane	0.79	J	ug/kg	2.0	0.58
Vinyl chloride	ND		ug/kg	1.0	0.34
Chloroethane	ND		ug/kg	2.0	0.45
1,1-Dichloroethene	ND		ug/kg	1.0	0.24
trans-1,2-Dichloroethene	ND		ug/kg	1.5	0.14
Trichloroethene	ND		ug/kg	0.50	0.14

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 04/05/23 09:22
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-17 Batch: WG1763542-5					
1,2-Dichlorobenzene	ND		ug/kg	2.0	0.14
1,3-Dichlorobenzene	ND		ug/kg	2.0	0.15
1,4-Dichlorobenzene	ND		ug/kg	2.0	0.17
Methyl tert butyl ether	ND		ug/kg	2.0	0.20
p/m-Xylene	ND		ug/kg	2.0	0.56
o-Xylene	ND		ug/kg	1.0	0.29
Xylenes, Total	ND		ug/kg	1.0	0.29
cis-1,2-Dichloroethene	ND		ug/kg	1.0	0.18
1,2-Dichloroethene, Total	ND		ug/kg	1.0	0.14
Dibromomethane	ND		ug/kg	2.0	0.24
Styrene	ND		ug/kg	1.0	0.20
Dichlorodifluoromethane	ND		ug/kg	10	0.92
Acetone	ND		ug/kg	10	4.8
Carbon disulfide	ND		ug/kg	10	4.6
2-Butanone	ND		ug/kg	10	2.2
Vinyl acetate	ND		ug/kg	10	2.2
4-Methyl-2-pentanone	ND		ug/kg	10	1.3
1,2,3-Trichloropropane	ND		ug/kg	2.0	0.13
2-Hexanone	ND		ug/kg	10	1.2
Bromochloromethane	ND		ug/kg	2.0	0.20
2,2-Dichloropropane	ND		ug/kg	2.0	0.20
1,2-Dibromoethane	ND		ug/kg	1.0	0.28
1,3-Dichloropropane	ND		ug/kg	2.0	0.17
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.50	0.13
Bromobenzene	ND		ug/kg	2.0	0.14
n-Butylbenzene	ND		ug/kg	1.0	0.17
sec-Butylbenzene	ND		ug/kg	1.0	0.15
tert-Butylbenzene	ND		ug/kg	2.0	0.12
o-Chlorotoluene	ND		ug/kg	2.0	0.19

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 04/05/23 09:22
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-17 Batch: WG1763542-5					
p-Chlorotoluene	ND		ug/kg	2.0	0.11
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.0	1.0
Hexachlorobutadiene	ND		ug/kg	4.0	0.17
Isopropylbenzene	ND		ug/kg	1.0	0.11
p-Isopropyltoluene	ND		ug/kg	1.0	0.11
Naphthalene	ND		ug/kg	4.0	0.65
Acrylonitrile	ND		ug/kg	4.0	1.2
n-Propylbenzene	ND		ug/kg	1.0	0.17
1,2,3-Trichlorobenzene	ND		ug/kg	2.0	0.32
1,2,4-Trichlorobenzene	ND		ug/kg	2.0	0.27
1,3,5-Trimethylbenzene	ND		ug/kg	2.0	0.19
1,2,4-Trimethylbenzene	ND		ug/kg	2.0	0.33
1,4-Dioxane	ND		ug/kg	80	35.
p-Diethylbenzene	ND		ug/kg	2.0	0.18
p-Ethyltoluene	ND		ug/kg	2.0	0.38
1,2,4,5-Tetramethylbenzene	ND		ug/kg	2.0	0.19
Ethyl ether	ND		ug/kg	2.0	0.34
trans-1,4-Dichloro-2-butene	ND		ug/kg	5.0	1.4

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316525
Report Date: 04/12/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-17 Batch: WG1763542-3 WG1763542-4								
Methylene chloride	91		92		70-130	1		30
1,1-Dichloroethane	89		91		70-130	2		30
Chloroform	93		96		70-130	3		30
Carbon tetrachloride	96		100		70-130	4		30
1,2-Dichloropropane	90		92		70-130	2		30
Dibromochloromethane	96		97		70-130	1		30
1,1,2-Trichloroethane	93		94		70-130	1		30
Tetrachloroethene	98		101		70-130	3		30
Chlorobenzene	94		95		70-130	1		30
Trichlorofluoromethane	117		124		70-139	6		30
1,2-Dichloroethane	87		86		70-130	1		30
1,1,1-Trichloroethane	97		100		70-130	3		30
Bromodichloromethane	94		98		70-130	4		30
trans-1,3-Dichloropropene	90		91		70-130	1		30
cis-1,3-Dichloropropene	97		98		70-130	1		30
1,1-Dichloropropene	98		101		70-130	3		30
Bromoform	89		88		70-130	1		30
1,1,2,2-Tetrachloroethane	93		92		70-130	1		30
Benzene	96		99		70-130	3		30
Toluene	90		93		70-130	3		30
Ethylbenzene	90		91		70-130	1		30
Chloromethane	97		100		52-130	3		30
Bromomethane	**178**	Q	**182**	Q	57-147	2		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316525
Report Date: 04/12/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-17 Batch: WG1763542-3 WG1763542-4								
Vinyl chloride	114		118		67-130	3		30
Chloroethane	122		130		50-151	6		30
1,1-Dichloroethene	105		111		65-135	6		30
trans-1,2-Dichloroethene	98		100		70-130	2		30
Trichloroethene	103		106		70-130	3		30
1,2-Dichlorobenzene	92		92		70-130	0		30
1,3-Dichlorobenzene	91		92		70-130	1		30
1,4-Dichlorobenzene	90		91		70-130	1		30
Methyl tert butyl ether	89		91		66-130	2		30
p/m-Xylene	95		98		70-130	3		30
o-Xylene	94		96		70-130	2		30
cis-1,2-Dichloroethene	97		100		70-130	3		30
Dibromomethane	98		97		70-130	1		30
Styrene	90		93		70-130	3		30
Dichlorodifluoromethane	97		100		30-146	3		30
Acetone	74		72		54-140	3		30
Carbon disulfide	95		100		59-130	5		30
2-Butanone	**69**	Q	70		70-130	1		30
Vinyl acetate	86		85		70-130	1		30
4-Methyl-2-pentanone	76		77		70-130	1		30
1,2,3-Trichloropropane	87		85		68-130	2		30
2-Hexanone	74		74		70-130	0		30
Bromochloromethane	96		96		70-130	0		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: ST. JOSEPH

Project Number: 26518.05

Lab Number: L2316525

Report Date: 04/12/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-17 Batch: WG1763542-3 WG1763542-4								
2,2-Dichloropropane	91		93		70-130	2		30
1,2-Dibromoethane	98		98		70-130	0		30
1,3-Dichloropropane	89		91		69-130	2		30
1,1,1,2-Tetrachloroethane	91		93		70-130	2		30
Bromobenzene	91		91		70-130	0		30
n-Butylbenzene	94		96		70-130	2		30
sec-Butylbenzene	93		96		70-130	3		30
tert-Butylbenzene	91		93		70-130	2		30
o-Chlorotoluene	87		88		70-130	1		30
p-Chlorotoluene	86		88		70-130	2		30
1,2-Dibromo-3-chloropropane	93		93		68-130	0		30
Hexachlorobutadiene	88		92		67-130	4		30
Isopropylbenzene	92		93		70-130	1		30
p-Isopropyltoluene	92		94		70-130	2		30
Naphthalene	93		92		70-130	1		30
Acrylonitrile	88		87		70-130	1		30
n-Propylbenzene	91		92		70-130	1		30
1,2,3-Trichlorobenzene	94		97		70-130	3		30
1,2,4-Trichlorobenzene	92		93		70-130	1		30
1,3,5-Trimethylbenzene	90		92		70-130	2		30
1,2,4-Trimethylbenzene	89		91		70-130	2		30
1,4-Dioxane	92		97		65-136	5		30
p-Diethylbenzene	94		96		70-130	2		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316525
Report Date: 04/12/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-17 Batch: WG1763542-3 WG1763542-4								
p-Ethyltoluene	94		96		70-130	2		30
1,2,4,5-Tetramethylbenzene	91		93		70-130	2		30
Ethyl ether	119		120		67-130	1		30
trans-1,4-Dichloro-2-butene	88		84		70-130	5		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	90		91		70-130
Toluene-d8	98		98		70-130
4-Bromofluorobenzene	88		87		70-130
Dibromofluoromethane	102		102		70-130

SEMIVOLATILES

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-01
Client ID: SB-1 (0'-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 09:05
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 04/12/23 01:29
Analyst: LJG
Percent Solids: 88%

Extraction Method: EPA 3546
Extraction Date: 04/11/23 11:18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Acenaphthene	ND		ug/kg	150	19.	1
1,2,4-Trichlorobenzene	ND		ug/kg	180	21.	1
Hexachlorobenzene	ND		ug/kg	110	21.	1
Bis(2-chloroethyl)ether	ND		ug/kg	170	25.	1
2-Chloronaphthalene	ND		ug/kg	180	18.	1
1,2-Dichlorobenzene	ND		ug/kg	180	33.	1
1,3-Dichlorobenzene	ND		ug/kg	180	32.	1
1,4-Dichlorobenzene	ND		ug/kg	180	32.	1
3,3'-Dichlorobenzidine	ND		ug/kg	180	49.	1
2,4-Dinitrotoluene	ND		ug/kg	180	37.	1
2,6-Dinitrotoluene	ND		ug/kg	180	32.	1
Fluoranthene	89	J	ug/kg	110	21.	1
4-Chlorophenyl phenyl ether	ND		ug/kg	180	20.	1
4-Bromophenyl phenyl ether	ND		ug/kg	180	28.	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	220	32.	1
Bis(2-chloroethoxy)methane	ND		ug/kg	200	18.	1
Hexachlorobutadiene	ND		ug/kg	180	27.	1
Hexachlorocyclopentadiene	ND		ug/kg	530	170	1
Hexachloroethane	ND		ug/kg	150	30.	1
Isophorone	ND		ug/kg	170	24.	1
Naphthalene	ND		ug/kg	180	22.	1
Nitrobenzene	ND		ug/kg	170	27.	1
NDPA/DPA	ND		ug/kg	150	21.	1
n-Nitrosodi-n-propylamine	ND		ug/kg	180	29.	1
Bis(2-ethylhexyl)phthalate	150	J	ug/kg	180	64.	1
Butyl benzyl phthalate	85	J	ug/kg	180	47.	1
Di-n-butylphthalate	ND		ug/kg	180	35.	1
Di-n-octylphthalate	ND		ug/kg	180	63.	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-01 Date Collected: 03/29/23 09:05

Client ID: SB-1 (0'-2') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Diethyl phthalate	ND		ug/kg	180	17.	1
Dimethyl phthalate	ND		ug/kg	180	39.	1
Benzo(a)anthracene	40	J	ug/kg	110	21.	1
Benzo(a)pyrene	ND		ug/kg	150	45.	1
Benzo(b)fluoranthene	56	J	ug/kg	110	31.	1
Benzo(k)fluoranthene	ND		ug/kg	110	30.	1
Chrysene	38	J	ug/kg	110	19.	1
Acenaphthylene	ND		ug/kg	150	29.	1
Anthracene	ND		ug/kg	110	36.	1
Benzo(ghi)perylene	26	J	ug/kg	150	22.	1
Fluorene	ND		ug/kg	180	18.	1
Phenanthrene	62	J	ug/kg	110	22.	1
Dibenzo(a,h)anthracene	ND		ug/kg	110	21.	1
Indeno(1,2,3-cd)pyrene	28	J	ug/kg	150	26.	1
Pyrene	77	J	ug/kg	110	18.	1
Biphenyl	ND		ug/kg	420	24.	1
4-Chloroaniline	ND		ug/kg	180	34.	1
2-Nitroaniline	ND		ug/kg	180	36.	1
3-Nitroaniline	ND		ug/kg	180	35.	1
4-Nitroaniline	ND		ug/kg	180	77.	1
Dibenzofuran	ND		ug/kg	180	18.	1
2-Methylnaphthalene	ND		ug/kg	220	22.	1
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	180	19.	1
Acetophenone	ND		ug/kg	180	23.	1
2,4,6-Trichlorophenol	ND		ug/kg	110	35.	1
p-Chloro-m-cresol	ND		ug/kg	180	28.	1
2-Chlorophenol	ND		ug/kg	180	22.	1
2,4-Dichlorophenol	ND		ug/kg	170	30.	1
2,4-Dimethylphenol	ND		ug/kg	180	61.	1
2-Nitrophenol	ND		ug/kg	400	70.	1
4-Nitrophenol	ND		ug/kg	260	76.	1
2,4-Dinitrophenol	ND		ug/kg	890	86.	1
4,6-Dinitro-o-cresol	ND		ug/kg	480	89.	1
Pentachlorophenol	ND		ug/kg	150	41.	1
Phenol	ND		ug/kg	180	28.	1
2-Methylphenol	ND		ug/kg	180	29.	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	270	29.	1

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-01
Client ID: SB-1 (0'-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 09:05
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,5-Trichlorophenol	ND		ug/kg	180	36.	1
Benzoic Acid	ND		ug/kg	600	190	1
Benzyl Alcohol	ND		ug/kg	180	57.	1
Carbazole	ND		ug/kg	180	18.	1
1,4-Dioxane	ND		ug/kg	28	8.5	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	54		25-120
Phenol-d6	73		10-120
Nitrobenzene-d5	68		23-120
2-Fluorobiphenyl	70		30-120
2,4,6-Tribromophenol	32		10-136
4-Terphenyl-d14	67		18-120

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-02
Client ID: SB-1 (5'-6.5')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 09:09
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 04/09/23 17:19
Analyst: IM
Percent Solids: 88%

Extraction Method: EPA 3546
Extraction Date: 04/08/23 14:12

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Acenaphthene	ND		ug/kg	150	19.	1
1,2,4-Trichlorobenzene	ND		ug/kg	190	21.	1
Hexachlorobenzene	ND		ug/kg	110	21.	1
Bis(2-chloroethyl)ether	ND		ug/kg	170	25.	1
2-Chloronaphthalene	ND		ug/kg	190	19.	1
1,2-Dichlorobenzene	ND		ug/kg	190	34.	1
1,3-Dichlorobenzene	ND		ug/kg	190	32.	1
1,4-Dichlorobenzene	ND		ug/kg	190	33.	1
3,3'-Dichlorobenzidine	ND		ug/kg	190	50.	1
2,4-Dinitrotoluene	ND		ug/kg	190	38.	1
2,6-Dinitrotoluene	ND		ug/kg	190	32.	1
Fluoranthene	57	J	ug/kg	110	22.	1
4-Chlorophenyl phenyl ether	ND		ug/kg	190	20.	1
4-Bromophenyl phenyl ether	ND		ug/kg	190	29.	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	220	32.	1
Bis(2-chloroethoxy)methane	ND		ug/kg	200	19.	1
Hexachlorobutadiene	ND		ug/kg	190	27.	1
Hexachlorocyclopentadiene	ND		ug/kg	540	170	1
Hexachloroethane	ND		ug/kg	150	30.	1
Isophorone	ND		ug/kg	170	24.	1
Naphthalene	ND		ug/kg	190	23.	1
Nitrobenzene	ND		ug/kg	170	28.	1
NDPA/DPA	ND		ug/kg	150	21.	1
n-Nitrosodi-n-propylamine	ND		ug/kg	190	29.	1
Bis(2-ethylhexyl)phthalate	ND		ug/kg	190	65.	1
Butyl benzyl phthalate	ND		ug/kg	190	47.	1
Di-n-butylphthalate	ND		ug/kg	190	36.	1
Di-n-octylphthalate	ND		ug/kg	190	64.	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-02 Date Collected: 03/29/23 09:09

Client ID: SB-1 (5'-6.5') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Diethyl phthalate	ND		ug/kg	190	17.	1
Dimethyl phthalate	ND		ug/kg	190	39.	1
Benzo(a)anthracene	34	J	ug/kg	110	21.	1
Benzo(a)pyrene	ND		ug/kg	150	46.	1
Benzo(b)fluoranthene	36	J	ug/kg	110	32.	1
Benzo(k)fluoranthene	ND		ug/kg	110	30.	1
Chrysene	30	J	ug/kg	110	20.	1
Acenaphthylene	ND		ug/kg	150	29.	1
Anthracene	ND		ug/kg	110	36.	1
Benzo(ghi)perylene	ND		ug/kg	150	22.	1
Fluorene	ND		ug/kg	190	18.	1
Phenanthrene	28	J	ug/kg	110	23.	1
Dibenzo(a,h)anthracene	ND		ug/kg	110	22.	1
Indeno(1,2,3-cd)pyrene	ND		ug/kg	150	26.	1
Pyrene	48	J	ug/kg	110	19.	1
Biphenyl	ND		ug/kg	430	24.	1
4-Chloroaniline	ND		ug/kg	190	34.	1
2-Nitroaniline	ND		ug/kg	190	36.	1
3-Nitroaniline	ND		ug/kg	190	35.	1
4-Nitroaniline	ND		ug/kg	190	78.	1
Dibenzofuran	ND		ug/kg	190	18.	1
2-Methylnaphthalene	ND		ug/kg	220	23.	1
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	190	20.	1
Acetophenone	ND		ug/kg	190	23.	1
2,4,6-Trichlorophenol	ND		ug/kg	110	36.	1
p-Chloro-m-cresol	ND		ug/kg	190	28.	1
2-Chlorophenol	ND		ug/kg	190	22.	1
2,4-Dichlorophenol	ND		ug/kg	170	30.	1
2,4-Dimethylphenol	ND		ug/kg	190	62.	1
2-Nitrophenol	ND		ug/kg	400	70.	1
4-Nitrophenol	ND		ug/kg	260	76.	1
2,4-Dinitrophenol	ND		ug/kg	900	87.	1
4,6-Dinitro-o-cresol	ND		ug/kg	490	90.	1
Pentachlorophenol	ND		ug/kg	150	41.	1
Phenol	ND		ug/kg	190	28.	1
2-Methylphenol	ND		ug/kg	190	29.	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	270	29.	1

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-02
Client ID: SB-1 (5'-6.5')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 09:09
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,5-Trichlorophenol	ND		ug/kg	190	36.	1
Benzoic Acid	ND		ug/kg	610	190	1
Benzyl Alcohol	ND		ug/kg	190	57.	1
Carbazole	ND		ug/kg	190	18.	1
1,4-Dioxane	ND		ug/kg	28	8.6	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	72		25-120
Phenol-d6	77		10-120
Nitrobenzene-d5	70		23-120
2-Fluorobiphenyl	81		30-120
2,4,6-Tribromophenol	78		10-136
4-Terphenyl-d14	84		18-120

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-03
Client ID: SB-2 (0'-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 09:45
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 04/09/23 17:36
Analyst: IM
Percent Solids: 89%

Extraction Method: EPA 3546
Extraction Date: 04/08/23 14:12

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Acenaphthene	ND		ug/kg	140	19.	1
1,2,4-Trichlorobenzene	ND		ug/kg	180	21.	1
Hexachlorobenzene	ND		ug/kg	110	20.	1
Bis(2-chloroethyl)ether	ND		ug/kg	160	25.	1
2-Chloronaphthalene	ND		ug/kg	180	18.	1
1,2-Dichlorobenzene	ND		ug/kg	180	33.	1
1,3-Dichlorobenzene	ND		ug/kg	180	31.	1
1,4-Dichlorobenzene	ND		ug/kg	180	32.	1
3,3'-Dichlorobenzidine	ND		ug/kg	180	48.	1
2,4-Dinitrotoluene	ND		ug/kg	180	36.	1
2,6-Dinitrotoluene	ND		ug/kg	180	31.	1
Fluoranthene	34	J	ug/kg	110	21.	1
4-Chlorophenyl phenyl ether	ND		ug/kg	180	19.	1
4-Bromophenyl phenyl ether	ND		ug/kg	180	28.	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	220	31.	1
Bis(2-chloroethoxy)methane	ND		ug/kg	200	18.	1
Hexachlorobutadiene	ND		ug/kg	180	27.	1
Hexachlorocyclopentadiene	ND		ug/kg	520	160	1
Hexachloroethane	ND		ug/kg	140	29.	1
Isophorone	ND		ug/kg	160	24.	1
Naphthalene	ND		ug/kg	180	22.	1
Nitrobenzene	ND		ug/kg	160	27.	1
NDPA/DPA	ND		ug/kg	140	21.	1
n-Nitrosodi-n-propylamine	ND		ug/kg	180	28.	1
Bis(2-ethylhexyl)phthalate	ND		ug/kg	180	63.	1
Butyl benzyl phthalate	ND		ug/kg	180	46.	1
Di-n-butylphthalate	ND		ug/kg	180	34.	1
Di-n-octylphthalate	ND		ug/kg	180	62.	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-03 Date Collected: 03/29/23 09:45

Client ID: SB-2 (0'-2') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Diethyl phthalate	ND		ug/kg	180	17.	1
Dimethyl phthalate	ND		ug/kg	180	38.	1
Benzo(a)anthracene	27	J	ug/kg	110	20.	1
Benzo(a)pyrene	ND		ug/kg	140	44.	1
Benzo(b)fluoranthene	31	J	ug/kg	110	31.	1
Benzo(k)fluoranthene	ND		ug/kg	110	29.	1
Chrysene	22	J	ug/kg	110	19.	1
Acenaphthylene	ND		ug/kg	140	28.	1
Anthracene	ND		ug/kg	110	35.	1
Benzo(ghi)perylene	24	J	ug/kg	140	21.	1
Fluorene	ND		ug/kg	180	18.	1
Phenanthrene	ND		ug/kg	110	22.	1
Dibenzo(a,h)anthracene	ND		ug/kg	110	21.	1
Indeno(1,2,3-cd)pyrene	ND		ug/kg	140	25.	1
Pyrene	33	J	ug/kg	110	18.	1
Biphenyl	ND		ug/kg	410	24.	1
4-Chloroaniline	ND		ug/kg	180	33.	1
2-Nitroaniline	ND		ug/kg	180	35.	1
3-Nitroaniline	ND		ug/kg	180	34.	1
4-Nitroaniline	ND		ug/kg	180	75.	1
Dibenzofuran	ND		ug/kg	180	17.	1
2-Methylnaphthalene	ND		ug/kg	220	22.	1
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	180	19.	1
Acetophenone	ND		ug/kg	180	22.	1
2,4,6-Trichlorophenol	ND		ug/kg	110	34.	1
p-Chloro-m-cresol	ND		ug/kg	180	27.	1
2-Chlorophenol	ND		ug/kg	180	22.	1
2,4-Dichlorophenol	ND		ug/kg	160	29.	1
2,4-Dimethylphenol	ND		ug/kg	180	60.	1
2-Nitrophenol	ND		ug/kg	390	68.	1
4-Nitrophenol	ND		ug/kg	250	74.	1
2,4-Dinitrophenol	ND		ug/kg	870	85.	1
4,6-Dinitro-o-cresol	ND		ug/kg	470	87.	1
Pentachlorophenol	ND		ug/kg	140	40.	1
Phenol	ND		ug/kg	180	27.	1
2-Methylphenol	ND		ug/kg	180	28.	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	260	28.	1

Project Name: ST. JOSEPH
Lab Number: L2316525
Project Number: 26518.05
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-03
Client ID: SB-2 (0'-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 09:45
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,5-Trichlorophenol	ND		ug/kg	180	35.	1
Benzoic Acid	ND		ug/kg	590	180	1
Benzyl Alcohol	ND		ug/kg	180	56.	1
Carbazole	ND		ug/kg	180	18.	1
1,4-Dioxane	ND		ug/kg	27	8.4	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	72		25-120
Phenol-d6	71		10-120
Nitrobenzene-d5	66		23-120
2-Fluorobiphenyl	75		30-120
2,4,6-Tribromophenol	69		10-136
4-Terphenyl-d14	71		18-120

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-04
Client ID: SB-2 (10'-12')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 09:47
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 04/09/23 17:52
Analyst: IM
Percent Solids: 88%

Extraction Method: EPA 3546
Extraction Date: 04/08/23 14:12

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Acenaphthene	ND		ug/kg	150	19.	1
1,2,4-Trichlorobenzene	ND		ug/kg	190	21.	1
Hexachlorobenzene	ND		ug/kg	110	21.	1
Bis(2-chloroethyl)ether	ND		ug/kg	170	25.	1
2-Chloronaphthalene	ND		ug/kg	190	18.	1
1,2-Dichlorobenzene	ND		ug/kg	190	34.	1
1,3-Dichlorobenzene	ND		ug/kg	190	32.	1
1,4-Dichlorobenzene	ND		ug/kg	190	33.	1
3,3'-Dichlorobenzidine	ND		ug/kg	190	50.	1
2,4-Dinitrotoluene	ND		ug/kg	190	37.	1
2,6-Dinitrotoluene	ND		ug/kg	190	32.	1
Fluoranthene	37	J	ug/kg	110	21.	1
4-Chlorophenyl phenyl ether	ND		ug/kg	190	20.	1
4-Bromophenyl phenyl ether	ND		ug/kg	190	28.	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	220	32.	1
Bis(2-chloroethoxy)methane	ND		ug/kg	200	19.	1
Hexachlorobutadiene	ND		ug/kg	190	27.	1
Hexachlorocyclopentadiene	ND		ug/kg	530	170	1
Hexachloroethane	ND		ug/kg	150	30.	1
Isophorone	ND		ug/kg	170	24.	1
Naphthalene	ND		ug/kg	190	23.	1
Nitrobenzene	ND		ug/kg	170	28.	1
NDPA/DPA	ND		ug/kg	150	21.	1
n-Nitrosodi-n-propylamine	ND		ug/kg	190	29.	1
Bis(2-ethylhexyl)phthalate	ND		ug/kg	190	65.	1
Butyl benzyl phthalate	ND		ug/kg	190	47.	1
Di-n-butylphthalate	ND		ug/kg	190	35.	1
Di-n-octylphthalate	ND		ug/kg	190	64.	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-04 Date Collected: 03/29/23 09:47

Client ID: SB-2 (10'-12') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Diethyl phthalate	ND		ug/kg	190	17.	1
Dimethyl phthalate	ND		ug/kg	190	39.	1
Benzo(a)anthracene	ND		ug/kg	110	21.	1
Benzo(a)pyrene	ND		ug/kg	150	46.	1
Benzo(b)fluoranthene	ND		ug/kg	110	31.	1
Benzo(k)fluoranthene	ND		ug/kg	110	30.	1
Chrysene	ND		ug/kg	110	19.	1
Acenaphthylene	ND		ug/kg	150	29.	1
Anthracene	ND		ug/kg	110	36.	1
Benzo(ghi)perylene	ND		ug/kg	150	22.	1
Fluorene	ND		ug/kg	190	18.	1
Phenanthrene	29	J	ug/kg	110	23.	1
Dibenzo(a,h)anthracene	ND		ug/kg	110	22.	1
Indeno(1,2,3-cd)pyrene	ND		ug/kg	150	26.	1
Pyrene	35	J	ug/kg	110	18.	1
Biphenyl	ND		ug/kg	430	24.	1
4-Chloroaniline	ND		ug/kg	190	34.	1
2-Nitroaniline	ND		ug/kg	190	36.	1
3-Nitroaniline	ND		ug/kg	190	35.	1
4-Nitroaniline	ND		ug/kg	190	77.	1
Dibenzofuran	ND		ug/kg	190	18.	1
2-Methylnaphthalene	ND		ug/kg	220	22.	1
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	190	20.	1
Acetophenone	ND		ug/kg	190	23.	1
2,4,6-Trichlorophenol	ND		ug/kg	110	35.	1
p-Chloro-m-cresol	ND		ug/kg	190	28.	1
2-Chlorophenol	ND		ug/kg	190	22.	1
2,4-Dichlorophenol	ND		ug/kg	170	30.	1
2,4-Dimethylphenol	ND		ug/kg	190	62.	1
2-Nitrophenol	ND		ug/kg	400	70.	1
4-Nitrophenol	ND		ug/kg	260	76.	1
2,4-Dinitrophenol	ND		ug/kg	900	87.	1
4,6-Dinitro-o-cresol	ND		ug/kg	490	90.	1
Pentachlorophenol	ND		ug/kg	150	41.	1
Phenol	ND		ug/kg	190	28.	1
2-Methylphenol	ND		ug/kg	190	29.	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	270	29.	1

Project Name: ST. JOSEPH
Lab Number: L2316525
Project Number: 26518.05
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-04
Client ID: SB-2 (10'-12')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 09:47
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,5-Trichlorophenol	ND		ug/kg	190	36.	1
Benzoic Acid	ND		ug/kg	600	190	1
Benzyl Alcohol	ND		ug/kg	190	57.	1
Carbazole	ND		ug/kg	190	18.	1
1,4-Dioxane	ND		ug/kg	28	8.6	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	72		25-120
Phenol-d6	67		10-120
Nitrobenzene-d5	61		23-120
2-Fluorobiphenyl	70		30-120
2,4,6-Tribromophenol	80		10-136
4-Terphenyl-d14	69		18-120

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-05
Client ID: SB-3 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 10:25
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 04/09/23 18:09
Analyst: IM
Percent Solids: 87%

Extraction Method: EPA 3546
Extraction Date: 04/08/23 14:12

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Acenaphthene	ND		ug/kg	150	20.	1
1,2,4-Trichlorobenzene	ND		ug/kg	190	22.	1
Hexachlorobenzene	ND		ug/kg	110	21.	1
Bis(2-chloroethyl)ether	ND		ug/kg	170	26.	1
2-Chloronaphthalene	ND		ug/kg	190	19.	1
1,2-Dichlorobenzene	ND		ug/kg	190	34.	1
1,3-Dichlorobenzene	ND		ug/kg	190	33.	1
1,4-Dichlorobenzene	ND		ug/kg	190	33.	1
3,3'-Dichlorobenzidine	ND		ug/kg	190	51.	1
2,4-Dinitrotoluene	ND		ug/kg	190	38.	1
2,6-Dinitrotoluene	ND		ug/kg	190	33.	1
Fluoranthene	ND		ug/kg	110	22.	1
4-Chlorophenyl phenyl ether	ND		ug/kg	190	20.	1
4-Bromophenyl phenyl ether	ND		ug/kg	190	29.	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	230	32.	1
Bis(2-chloroethoxy)methane	ND		ug/kg	200	19.	1
Hexachlorobutadiene	ND		ug/kg	190	28.	1
Hexachlorocyclopentadiene	ND		ug/kg	540	170	1
Hexachloroethane	ND		ug/kg	150	31.	1
Isophorone	ND		ug/kg	170	25.	1
Naphthalene	ND		ug/kg	190	23.	1
Nitrobenzene	ND		ug/kg	170	28.	1
NDPA/DPA	ND		ug/kg	150	22.	1
n-Nitrosodi-n-propylamine	ND		ug/kg	190	29.	1
Bis(2-ethylhexyl)phthalate	ND		ug/kg	190	66.	1
Butyl benzyl phthalate	ND		ug/kg	190	48.	1
Di-n-butylphthalate	ND		ug/kg	190	36.	1
Di-n-octylphthalate	ND		ug/kg	190	65.	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-05 Date Collected: 03/29/23 10:25

Client ID: SB-3 (0-2') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Diethyl phthalate	ND		ug/kg	190	18.	1
Dimethyl phthalate	ND		ug/kg	190	40.	1
Benzo(a)anthracene	ND		ug/kg	110	21.	1
Benzo(a)pyrene	ND		ug/kg	150	46.	1
Benzo(b)fluoranthene	ND		ug/kg	110	32.	1
Benzo(k)fluoranthene	ND		ug/kg	110	30.	1
Chrysene	ND		ug/kg	110	20.	1
Acenaphthylene	ND		ug/kg	150	29.	1
Anthracene	ND		ug/kg	110	37.	1
Benzo(ghi)perylene	ND		ug/kg	150	22.	1
Fluorene	ND		ug/kg	190	18.	1
Phenanthrene	ND		ug/kg	110	23.	1
Dibenzo(a,h)anthracene	ND		ug/kg	110	22.	1
Indeno(1,2,3-cd)pyrene	ND		ug/kg	150	26.	1
Pyrene	ND		ug/kg	110	19.	1
Biphenyl	ND		ug/kg	430	25.	1
4-Chloroaniline	ND		ug/kg	190	35.	1
2-Nitroaniline	ND		ug/kg	190	37.	1
3-Nitroaniline	ND		ug/kg	190	36.	1
4-Nitroaniline	ND		ug/kg	190	79.	1
Dibenzofuran	ND		ug/kg	190	18.	1
2-Methylnaphthalene	ND		ug/kg	230	23.	1
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	190	20.	1
Acetophenone	ND		ug/kg	190	24.	1
2,4,6-Trichlorophenol	ND		ug/kg	110	36.	1
p-Chloro-m-cresol	ND		ug/kg	190	28.	1
2-Chlorophenol	ND		ug/kg	190	22.	1
2,4-Dichlorophenol	ND		ug/kg	170	31.	1
2,4-Dimethylphenol	ND		ug/kg	190	63.	1
2-Nitrophenol	ND		ug/kg	410	72.	1
4-Nitrophenol	ND		ug/kg	270	78.	1
2,4-Dinitrophenol	ND		ug/kg	910	89.	1
4,6-Dinitro-o-cresol	ND		ug/kg	490	91.	1
Pentachlorophenol	ND		ug/kg	150	42.	1
Phenol	ND		ug/kg	190	29.	1
2-Methylphenol	ND		ug/kg	190	30.	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	270	30.	1

Project Name: ST. JOSEPH
Lab Number: L2316525
Project Number: 26518.05
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-05
Client ID: SB-3 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 10:25
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,5-Trichlorophenol	ND		ug/kg	190	36.	1
Benzoic Acid	ND		ug/kg	620	190	1
Benzyl Alcohol	ND		ug/kg	190	58.	1
Carbazole	ND		ug/kg	190	18.	1
1,4-Dioxane	ND		ug/kg	28	8.8	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	64		25-120
Phenol-d6	60		10-120
Nitrobenzene-d5	59		23-120
2-Fluorobiphenyl	66		30-120
2,4,6-Tribromophenol	77		10-136
4-Terphenyl-d14	64		18-120

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-06
Client ID: SB-3 (6'-8')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 10:30
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 04/09/23 18:25
Analyst: IM
Percent Solids: 88%

Extraction Method: EPA 3546
Extraction Date: 04/08/23 14:12

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Acenaphthene	ND		ug/kg	150	19.	1
1,2,4-Trichlorobenzene	ND		ug/kg	180	21.	1
Hexachlorobenzene	ND		ug/kg	110	21.	1
Bis(2-chloroethyl)ether	ND		ug/kg	170	25.	1
2-Chloronaphthalene	ND		ug/kg	180	18.	1
1,2-Dichlorobenzene	ND		ug/kg	180	33.	1
1,3-Dichlorobenzene	ND		ug/kg	180	32.	1
1,4-Dichlorobenzene	ND		ug/kg	180	32.	1
3,3'-Dichlorobenzidine	ND		ug/kg	180	49.	1
2,4-Dinitrotoluene	ND		ug/kg	180	37.	1
2,6-Dinitrotoluene	ND		ug/kg	180	32.	1
Fluoranthene	34	J	ug/kg	110	21.	1
4-Chlorophenyl phenyl ether	ND		ug/kg	180	20.	1
4-Bromophenyl phenyl ether	ND		ug/kg	180	28.	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	220	32.	1
Bis(2-chloroethoxy)methane	ND		ug/kg	200	19.	1
Hexachlorobutadiene	ND		ug/kg	180	27.	1
Hexachlorocyclopentadiene	ND		ug/kg	530	170	1
Hexachloroethane	ND		ug/kg	150	30.	1
Isophorone	ND		ug/kg	170	24.	1
Naphthalene	ND		ug/kg	180	23.	1
Nitrobenzene	ND		ug/kg	170	28.	1
NDPA/DPA	ND		ug/kg	150	21.	1
n-Nitrosodi-n-propylamine	ND		ug/kg	180	29.	1
Bis(2-ethylhexyl)phthalate	ND		ug/kg	180	64.	1
Butyl benzyl phthalate	ND		ug/kg	180	47.	1
Di-n-butylphthalate	ND		ug/kg	180	35.	1
Di-n-octylphthalate	ND		ug/kg	180	63.	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-06 Date Collected: 03/29/23 10:30

Client ID: SB-3 (6'-8') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Diethyl phthalate	ND		ug/kg	180	17.	1
Dimethyl phthalate	ND		ug/kg	180	39.	1
Benzo(a)anthracene	22	J	ug/kg	110	21.	1
Benzo(a)pyrene	ND		ug/kg	150	45.	1
Benzo(b)fluoranthene	34	J	ug/kg	110	31.	1
Benzo(k)fluoranthene	ND		ug/kg	110	30.	1
Chrysene	19	J	ug/kg	110	19.	1
Acenaphthylene	ND		ug/kg	150	29.	1
Anthracene	ND		ug/kg	110	36.	1
Benzo(ghi)perylene	ND		ug/kg	150	22.	1
Fluorene	ND		ug/kg	180	18.	1
Phenanthrene	ND		ug/kg	110	23.	1
Dibenzo(a,h)anthracene	ND		ug/kg	110	22.	1
Indeno(1,2,3-cd)pyrene	ND		ug/kg	150	26.	1
Pyrene	31	J	ug/kg	110	18.	1
Biphenyl	ND		ug/kg	420	24.	1
4-Chloroaniline	ND		ug/kg	180	34.	1
2-Nitroaniline	ND		ug/kg	180	36.	1
3-Nitroaniline	ND		ug/kg	180	35.	1
4-Nitroaniline	ND		ug/kg	180	77.	1
Dibenzofuran	ND		ug/kg	180	18.	1
2-Methylnaphthalene	ND		ug/kg	220	22.	1
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	180	19.	1
Acetophenone	ND		ug/kg	180	23.	1
2,4,6-Trichlorophenol	ND		ug/kg	110	35.	1
p-Chloro-m-cresol	ND		ug/kg	180	28.	1
2-Chlorophenol	ND		ug/kg	180	22.	1
2,4-Dichlorophenol	ND		ug/kg	170	30.	1
2,4-Dimethylphenol	ND		ug/kg	180	61.	1
2-Nitrophenol	ND		ug/kg	400	70.	1
4-Nitrophenol	ND		ug/kg	260	76.	1
2,4-Dinitrophenol	ND		ug/kg	890	87.	1
4,6-Dinitro-o-cresol	ND		ug/kg	480	89.	1
Pentachlorophenol	ND		ug/kg	150	41.	1
Phenol	ND		ug/kg	180	28.	1
2-Methylphenol	ND		ug/kg	180	29.	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	270	29.	1

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-06
Client ID: SB-3 (6'-8')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 10:30
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,5-Trichlorophenol	ND		ug/kg	180	36.	1
Benzoic Acid	ND		ug/kg	600	190	1
Benzyl Alcohol	ND		ug/kg	180	57.	1
Carbazole	ND		ug/kg	180	18.	1
1,4-Dioxane	ND		ug/kg	28	8.6	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	79		25-120
Phenol-d6	79		10-120
Nitrobenzene-d5	73		23-120
2-Fluorobiphenyl	82		30-120
2,4,6-Tribromophenol	98		10-136
4-Terphenyl-d14	83		18-120

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-07 D
Client ID: SB-4 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 10:55
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 04/09/23 22:02
Analyst: IM
Percent Solids: 90%

Extraction Method: EPA 3546
Extraction Date: 04/08/23 14:12

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Acenaphthene	ND		ug/kg	720	94.	5
1,2,4-Trichlorobenzene	ND		ug/kg	900	100	5
Hexachlorobenzene	ND		ug/kg	540	100	5
Bis(2-chloroethyl)ether	ND		ug/kg	810	120	5
2-Chloronaphthalene	ND		ug/kg	900	90.	5
1,2-Dichlorobenzene	ND		ug/kg	900	160	5
1,3-Dichlorobenzene	ND		ug/kg	900	160	5
1,4-Dichlorobenzene	ND		ug/kg	900	160	5
3,3'-Dichlorobenzidine	ND		ug/kg	900	240	5
2,4-Dinitrotoluene	ND		ug/kg	900	180	5
2,6-Dinitrotoluene	ND		ug/kg	900	150	5
Fluoranthene	2300		ug/kg	540	100	5
4-Chlorophenyl phenyl ether	ND		ug/kg	900	96.	5
4-Bromophenyl phenyl ether	ND		ug/kg	900	140	5
Bis(2-chloroisopropyl)ether	ND		ug/kg	1100	150	5
Bis(2-chloroethoxy)methane	ND		ug/kg	970	90.	5
Hexachlorobutadiene	ND		ug/kg	900	130	5
Hexachlorocyclopentadiene	ND		ug/kg	2600	820	5
Hexachloroethane	ND		ug/kg	720	150	5
Isophorone	ND		ug/kg	810	120	5
Naphthalene	130	J	ug/kg	900	110	5
Nitrobenzene	ND		ug/kg	810	130	5
NDPA/DPA	ND		ug/kg	720	100	5
n-Nitrosodi-n-propylamine	ND		ug/kg	900	140	5
Bis(2-ethylhexyl)phthalate	ND		ug/kg	900	310	5
Butyl benzyl phthalate	ND		ug/kg	900	230	5
Di-n-butylphthalate	ND		ug/kg	900	170	5
Di-n-octylphthalate	ND		ug/kg	900	310	5

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-07 D Date Collected: 03/29/23 10:55

Client ID: SB-4 (0-2') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Diethyl phthalate	ND		ug/kg	900	84.	5
Dimethyl phthalate	ND		ug/kg	900	190	5
Benzo(a)anthracene	1500		ug/kg	540	100	5
Benzo(a)pyrene	1700		ug/kg	720	220	5
Benzo(b)fluoranthene	2100		ug/kg	540	150	5
Benzo(k)fluoranthene	560		ug/kg	540	140	5
Chrysene	1400		ug/kg	540	94.	5
Acenaphthylene	770		ug/kg	720	140	5
Anthracene	510	J	ug/kg	540	180	5
Benzo(ghi)perylene	1300		ug/kg	720	110	5
Fluorene	ND		ug/kg	900	88.	5
Phenanthrene	830		ug/kg	540	110	5
Dibenzo(a,h)anthracene	240	J	ug/kg	540	100	5
Indeno(1,2,3-cd)pyrene	1100		ug/kg	720	120	5
Pyrene	2200		ug/kg	540	90.	5
Biphenyl	ND		ug/kg	2000	120	5
4-Chloroaniline	ND		ug/kg	900	160	5
2-Nitroaniline	ND		ug/kg	900	170	5
3-Nitroaniline	ND		ug/kg	900	170	5
4-Nitroaniline	ND		ug/kg	900	370	5
Dibenzofuran	ND		ug/kg	900	85.	5
2-Methylnaphthalene	ND		ug/kg	1100	110	5
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	900	94.	5
Acetophenone	ND		ug/kg	900	110	5
2,4,6-Trichlorophenol	ND		ug/kg	540	170	5
p-Chloro-m-cresol	ND		ug/kg	900	130	5
2-Chlorophenol	ND		ug/kg	900	110	5
2,4-Dichlorophenol	ND		ug/kg	810	140	5
2,4-Dimethylphenol	ND		ug/kg	900	300	5
2-Nitrophenol	ND		ug/kg	1900	340	5
4-Nitrophenol	ND		ug/kg	1300	370	5
2,4-Dinitrophenol	ND		ug/kg	4300	420	5
4,6-Dinitro-o-cresol	ND		ug/kg	2300	430	5
Pentachlorophenol	ND		ug/kg	720	200	5
Phenol	ND		ug/kg	900	140	5
2-Methylphenol	ND		ug/kg	900	140	5
3-Methylphenol/4-Methylphenol	ND		ug/kg	1300	140	5

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-07 D Date Collected: 03/29/23 10:55

Client ID: SB-4 (0-2') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,5-Trichlorophenol	ND		ug/kg	900	170	5
Benzoic Acid	ND		ug/kg	2900	910	5
Benzyl Alcohol	ND		ug/kg	900	280	5
Carbazole	120	J	ug/kg	900	88.	5
1,4-Dioxane	ND		ug/kg	140	42.	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	72		25-120
Phenol-d6	62		10-120
Nitrobenzene-d5	55		23-120
2-Fluorobiphenyl	70		30-120
2,4,6-Tribromophenol	72		10-136
4-Terphenyl-d14	67		18-120

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-08
Client ID: SB-4 (4-6')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 11:00
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 04/09/23 18:42
Analyst: IM
Percent Solids: 69%

Extraction Method: EPA 3546
Extraction Date: 04/08/23 14:12

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Acenaphthene	27	J	ug/kg	190	25.	1
1,2,4-Trichlorobenzene	ND		ug/kg	240	27.	1
Hexachlorobenzene	ND		ug/kg	140	27.	1
Bis(2-chloroethyl)ether	ND		ug/kg	210	32.	1
2-Chloronaphthalene	ND		ug/kg	240	24.	1
1,2-Dichlorobenzene	ND		ug/kg	240	43.	1
1,3-Dichlorobenzene	ND		ug/kg	240	41.	1
1,4-Dichlorobenzene	ND		ug/kg	240	42.	1
3,3'-Dichlorobenzidine	ND		ug/kg	240	63.	1
2,4-Dinitrotoluene	ND		ug/kg	240	48.	1
2,6-Dinitrotoluene	ND		ug/kg	240	41.	1
Fluoranthene	4500		ug/kg	140	27.	1
4-Chlorophenyl phenyl ether	ND		ug/kg	240	25.	1
4-Bromophenyl phenyl ether	ND		ug/kg	240	36.	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	280	41.	1
Bis(2-chloroethoxy)methane	ND		ug/kg	260	24.	1
Hexachlorobutadiene	ND		ug/kg	240	35.	1
Hexachlorocyclopentadiene	ND		ug/kg	680	220	1
Hexachloroethane	ND		ug/kg	190	38.	1
Isophorone	ND		ug/kg	210	31.	1
Naphthalene	310		ug/kg	240	29.	1
Nitrobenzene	ND		ug/kg	210	35.	1
NDPA/DPA	ND		ug/kg	190	27.	1
n-Nitrosodi-n-propylamine	ND		ug/kg	240	37.	1
Bis(2-ethylhexyl)phthalate	520		ug/kg	240	82.	1
Butyl benzyl phthalate	4800		ug/kg	240	60.	1
Di-n-butylphthalate	ND		ug/kg	240	45.	1
Di-n-octylphthalate	ND		ug/kg	240	81.	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-08 Date Collected: 03/29/23 11:00

Client ID: SB-4 (4-6') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Diethyl phthalate	ND		ug/kg	240	22.	1
Dimethyl phthalate	ND		ug/kg	240	50.	1
Benzo(a)anthracene	3400		ug/kg	140	27.	1
Benzo(a)pyrene	3100		ug/kg	190	58.	1
Benzo(b)fluoranthene	3700		ug/kg	140	40.	1
Benzo(k)fluoranthene	1400		ug/kg	140	38.	1
Chrysene	3000		ug/kg	140	25.	1
Acenaphthylene	710		ug/kg	190	37.	1
Anthracene	690		ug/kg	140	46.	1
Benzo(ghi)perylene	1900		ug/kg	190	28.	1
Fluorene	51	J	ug/kg	240	23.	1
Phenanthrene	800		ug/kg	140	29.	1
Dibenzo(a,h)anthracene	620		ug/kg	140	27.	1
Indeno(1,2,3-cd)pyrene	1800		ug/kg	190	33.	1
Pyrene	4000		ug/kg	140	24.	1
Biphenyl	ND		ug/kg	540	31.	1
4-Chloroaniline	ND		ug/kg	240	43.	1
2-Nitroaniline	ND		ug/kg	240	46.	1
3-Nitroaniline	ND		ug/kg	240	45.	1
4-Nitroaniline	ND		ug/kg	240	98.	1
Dibenzofuran	64	J	ug/kg	240	22.	1
2-Methylnaphthalene	90	J	ug/kg	280	29.	1
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	240	25.	1
Acetophenone	58	J	ug/kg	240	29.	1
2,4,6-Trichlorophenol	ND		ug/kg	140	45.	1
p-Chloro-m-cresol	ND		ug/kg	240	35.	1
2-Chlorophenol	ND		ug/kg	240	28.	1
2,4-Dichlorophenol	ND		ug/kg	210	38.	1
2,4-Dimethylphenol	ND		ug/kg	240	78.	1
2-Nitrophenol	ND		ug/kg	510	89.	1
4-Nitrophenol	ND		ug/kg	330	97.	1
2,4-Dinitrophenol	ND		ug/kg	1100	110	1
4,6-Dinitro-o-cresol	ND		ug/kg	620	110	1
Pentachlorophenol	210		ug/kg	190	52.	1
Phenol	44	J	ug/kg	240	36.	1
2-Methylphenol	ND		ug/kg	240	37.	1
3-Methylphenol/4-Methylphenol	50	J	ug/kg	340	37.	1

Project Name: ST. JOSEPH
Lab Number: L2316525
Project Number: 26518.05
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-08
Client ID: SB-4 (4-6')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 11:00
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,5-Trichlorophenol	ND		ug/kg	240	46.	1
Benzoic Acid	430	J	ug/kg	770	240	1
Benzyl Alcohol	ND		ug/kg	240	73.	1
Carbazole	160	J	ug/kg	240	23.	1
1,4-Dioxane	ND		ug/kg	36	11.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	88		25-120
Phenol-d6	82		10-120
Nitrobenzene-d5	78		23-120
2-Fluorobiphenyl	82		30-120
2,4,6-Tribromophenol	107		10-136
4-Terphenyl-d14	80		18-120

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-09 D
Client ID: SB-5 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 11:39
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 04/09/23 21:45
Analyst: IM
Percent Solids: 88%

Extraction Method: EPA 3546
Extraction Date: 04/08/23 14:12

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Acenaphthene	130	J	ug/kg	750	97.	5
1,2,4-Trichlorobenzene	ND		ug/kg	940	110	5
Hexachlorobenzene	ND		ug/kg	560	100	5
Bis(2-chloroethyl)ether	ND		ug/kg	840	130	5
2-Chloronaphthalene	ND		ug/kg	940	93.	5
1,2-Dichlorobenzene	ND		ug/kg	940	170	5
1,3-Dichlorobenzene	ND		ug/kg	940	160	5
1,4-Dichlorobenzene	ND		ug/kg	940	160	5
3,3'-Dichlorobenzidine	ND		ug/kg	940	250	5
2,4-Dinitrotoluene	ND		ug/kg	940	190	5
2,6-Dinitrotoluene	ND		ug/kg	940	160	5
Fluoranthene	2200		ug/kg	560	110	5
4-Chlorophenyl phenyl ether	ND		ug/kg	940	100	5
4-Bromophenyl phenyl ether	ND		ug/kg	940	140	5
Bis(2-chloroisopropyl)ether	ND		ug/kg	1100	160	5
Bis(2-chloroethoxy)methane	ND		ug/kg	1000	94.	5
Hexachlorobutadiene	ND		ug/kg	940	140	5
Hexachlorocyclopentadiene	ND		ug/kg	2700	850	5
Hexachloroethane	ND		ug/kg	750	150	5
Isophorone	ND		ug/kg	840	120	5
Naphthalene	140	J	ug/kg	940	110	5
Nitrobenzene	ND		ug/kg	840	140	5
NDPA/DPA	ND		ug/kg	750	110	5
n-Nitrosodi-n-propylamine	ND		ug/kg	940	140	5
Bis(2-ethylhexyl)phthalate	ND		ug/kg	940	320	5
Butyl benzyl phthalate	ND		ug/kg	940	240	5
Di-n-butylphthalate	ND		ug/kg	940	180	5
Di-n-octylphthalate	ND		ug/kg	940	320	5

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-09 D Date Collected: 03/29/23 11:39

Client ID: SB-5 (0-2') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Diethyl phthalate	ND		ug/kg	940	87.	5
Dimethyl phthalate	ND		ug/kg	940	200	5
Benzo(a)anthracene	1500		ug/kg	560	100	5
Benzo(a)pyrene	1800		ug/kg	750	230	5
Benzo(b)fluoranthene	2200		ug/kg	560	160	5
Benzo(k)fluoranthene	670		ug/kg	560	150	5
Chrysene	1400		ug/kg	560	98.	5
Acenaphthylene	1100		ug/kg	750	140	5
Anthracene	580		ug/kg	560	180	5
Benzo(ghi)perylene	1500		ug/kg	750	110	5
Fluorene	190	J	ug/kg	940	91.	5
Phenanthrene	1200		ug/kg	560	110	5
Dibenzo(a,h)anthracene	270	J	ug/kg	560	110	5
Indeno(1,2,3-cd)pyrene	1200		ug/kg	750	130	5
Pyrene	2100		ug/kg	560	93.	5
Biphenyl	ND		ug/kg	2100	120	5
4-Chloroaniline	ND		ug/kg	940	170	5
2-Nitroaniline	ND		ug/kg	940	180	5
3-Nitroaniline	ND		ug/kg	940	180	5
4-Nitroaniline	ND		ug/kg	940	390	5
Dibenzofuran	ND		ug/kg	940	89.	5
2-Methylnaphthalene	ND		ug/kg	1100	110	5
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	940	98.	5
Acetophenone	ND		ug/kg	940	120	5
2,4,6-Trichlorophenol	ND		ug/kg	560	180	5
p-Chloro-m-cresol	ND		ug/kg	940	140	5
2-Chlorophenol	ND		ug/kg	940	110	5
2,4-Dichlorophenol	ND		ug/kg	840	150	5
2,4-Dimethylphenol	ND		ug/kg	940	310	5
2-Nitrophenol	ND		ug/kg	2000	350	5
4-Nitrophenol	ND		ug/kg	1300	380	5
2,4-Dinitrophenol	ND		ug/kg	4500	440	5
4,6-Dinitro-o-cresol	ND		ug/kg	2400	450	5
Pentachlorophenol	ND		ug/kg	750	210	5
Phenol	ND		ug/kg	940	140	5
2-Methylphenol	ND		ug/kg	940	140	5
3-Methylphenol/4-Methylphenol	ND		ug/kg	1400	150	5

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-09 D Date Collected: 03/29/23 11:39

Client ID: SB-5 (0-2') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,5-Trichlorophenol	ND		ug/kg	940	180	5
Benzoic Acid	ND		ug/kg	3000	950	5
Benzyl Alcohol	ND		ug/kg	940	290	5
Carbazole	170	J	ug/kg	940	91.	5
1,4-Dioxane	ND		ug/kg	140	43.	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	70		25-120
Phenol-d6	66		10-120
Nitrobenzene-d5	54		23-120
2-Fluorobiphenyl	71		30-120
2,4,6-Tribromophenol	71		10-136
4-Terphenyl-d14	72		18-120

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-10
Client ID: SB-5 (12-14')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 11:40
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 04/09/23 18:58
Analyst: IM
Percent Solids: 92%

Extraction Method: EPA 3546
Extraction Date: 04/08/23 14:12

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Acenaphthene	24	J	ug/kg	140	18.	1
1,2,4-Trichlorobenzene	ND		ug/kg	180	20.	1
Hexachlorobenzene	ND		ug/kg	110	20.	1
Bis(2-chloroethyl)ether	ND		ug/kg	160	24.	1
2-Chloronaphthalene	ND		ug/kg	180	18.	1
1,2-Dichlorobenzene	ND		ug/kg	180	32.	1
1,3-Dichlorobenzene	ND		ug/kg	180	31.	1
1,4-Dichlorobenzene	ND		ug/kg	180	31.	1
3,3'-Dichlorobenzidine	ND		ug/kg	180	48.	1
2,4-Dinitrotoluene	ND		ug/kg	180	36.	1
2,6-Dinitrotoluene	ND		ug/kg	180	31.	1
Fluoranthene	1300		ug/kg	110	20.	1
4-Chlorophenyl phenyl ether	ND		ug/kg	180	19.	1
4-Bromophenyl phenyl ether	ND		ug/kg	180	27.	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	210	30.	1
Bis(2-chloroethoxy)methane	ND		ug/kg	190	18.	1
Hexachlorobutadiene	ND		ug/kg	180	26.	1
Hexachlorocyclopentadiene	ND		ug/kg	510	160	1
Hexachloroethane	ND		ug/kg	140	29.	1
Isophorone	ND		ug/kg	160	23.	1
Naphthalene	54	J	ug/kg	180	22.	1
Nitrobenzene	ND		ug/kg	160	26.	1
NDPA/DPA	ND		ug/kg	140	20.	1
n-Nitrosodi-n-propylamine	ND		ug/kg	180	28.	1
Bis(2-ethylhexyl)phthalate	88	J	ug/kg	180	62.	1
Butyl benzyl phthalate	ND		ug/kg	180	45.	1
Di-n-butylphthalate	34	J	ug/kg	180	34.	1
Di-n-octylphthalate	ND		ug/kg	180	61.	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-10 Date Collected: 03/29/23 11:40

Client ID: SB-5 (12-14') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Diethyl phthalate	ND		ug/kg	180	16.	1
Dimethyl phthalate	ND		ug/kg	180	38.	1
Benzo(a)anthracene	700		ug/kg	110	20.	1
Benzo(a)pyrene	840		ug/kg	140	44.	1
Benzo(b)fluoranthene	960		ug/kg	110	30.	1
Benzo(k)fluoranthene	330		ug/kg	110	28.	1
Chrysene	690		ug/kg	110	18.	1
Acenaphthylene	450		ug/kg	140	28.	1
Anthracene	310		ug/kg	110	35.	1
Benzo(ghi)perylene	880		ug/kg	140	21.	1
Fluorene	44	J	ug/kg	180	17.	1
Phenanthrene	820		ug/kg	110	22.	1
Dibenzo(a,h)anthracene	160		ug/kg	110	21.	1
Indeno(1,2,3-cd)pyrene	730		ug/kg	140	25.	1
Pyrene	1100		ug/kg	110	18.	1
Biphenyl	ND		ug/kg	410	23.	1
4-Chloroaniline	ND		ug/kg	180	32.	1
2-Nitroaniline	ND		ug/kg	180	34.	1
3-Nitroaniline	ND		ug/kg	180	34.	1
4-Nitroaniline	ND		ug/kg	180	74.	1
Dibenzofuran	46	J	ug/kg	180	17.	1
2-Methylnaphthalene	ND		ug/kg	210	22.	1
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	180	19.	1
Acetophenone	ND		ug/kg	180	22.	1
2,4,6-Trichlorophenol	ND		ug/kg	110	34.	1
p-Chloro-m-cresol	ND		ug/kg	180	27.	1
2-Chlorophenol	ND		ug/kg	180	21.	1
2,4-Dichlorophenol	ND		ug/kg	160	29.	1
2,4-Dimethylphenol	ND		ug/kg	180	59.	1
2-Nitrophenol	ND		ug/kg	380	67.	1
4-Nitrophenol	ND		ug/kg	250	73.	1
2,4-Dinitrophenol	ND		ug/kg	860	83.	1
4,6-Dinitro-o-cresol	ND		ug/kg	460	86.	1
Pentachlorophenol	ND		ug/kg	140	39.	1
Phenol	ND		ug/kg	180	27.	1
2-Methylphenol	ND		ug/kg	180	28.	1
3-Methylphenol/4-Methylphenol	36	J	ug/kg	260	28.	1

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-10
Client ID: SB-5 (12-14')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 11:40
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,5-Trichlorophenol	ND		ug/kg	180	34.	1
Benzoic Acid	ND		ug/kg	580	180	1
Benzyl Alcohol	ND		ug/kg	180	55.	1
Carbazole	150	J	ug/kg	180	17.	1
1,4-Dioxane	ND		ug/kg	27	8.2	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	65		25-120
Phenol-d6	66		10-120
Nitrobenzene-d5	62		23-120
2-Fluorobiphenyl	71		30-120
2,4,6-Tribromophenol	69		10-136
4-Terphenyl-d14	69		18-120

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-11
Client ID: SB-7 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 12:05
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 04/09/23 19:15
Analyst: IM
Percent Solids: 88%

Extraction Method: EPA 3546
Extraction Date: 04/08/23 14:33

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Acenaphthene	ND		ug/kg	150	19.	1
1,2,4-Trichlorobenzene	ND		ug/kg	180	21.	1
Hexachlorobenzene	ND		ug/kg	110	20.	1
Bis(2-chloroethyl)ether	ND		ug/kg	160	25.	1
2-Chloronaphthalene	ND		ug/kg	180	18.	1
1,2-Dichlorobenzene	ND		ug/kg	180	33.	1
1,3-Dichlorobenzene	ND		ug/kg	180	32.	1
1,4-Dichlorobenzene	ND		ug/kg	180	32.	1
3,3'-Dichlorobenzidine	ND		ug/kg	180	49.	1
2,4-Dinitrotoluene	ND		ug/kg	180	37.	1
2,6-Dinitrotoluene	ND		ug/kg	180	32.	1
Fluoranthene	42	J	ug/kg	110	21.	1
4-Chlorophenyl phenyl ether	ND		ug/kg	180	20.	1
4-Bromophenyl phenyl ether	ND		ug/kg	180	28.	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	220	31.	1
Bis(2-chloroethoxy)methane	ND		ug/kg	200	18.	1
Hexachlorobutadiene	ND		ug/kg	180	27.	1
Hexachlorocyclopentadiene	ND		ug/kg	520	170	1
Hexachloroethane	ND		ug/kg	150	30.	1
Isophorone	ND		ug/kg	160	24.	1
Naphthalene	ND		ug/kg	180	22.	1
Nitrobenzene	ND		ug/kg	160	27.	1
NDPA/DPA	ND		ug/kg	150	21.	1
n-Nitrosodi-n-propylamine	ND		ug/kg	180	28.	1
Bis(2-ethylhexyl)phthalate	ND		ug/kg	180	64.	1
Butyl benzyl phthalate	ND		ug/kg	180	46.	1
Di-n-butylphthalate	ND		ug/kg	180	35.	1
Di-n-octylphthalate	ND		ug/kg	180	62.	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-11 Date Collected: 03/29/23 12:05

Client ID: SB-7 (0-2') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Diethyl phthalate	ND		ug/kg	180	17.	1
Dimethyl phthalate	ND		ug/kg	180	39.	1
Benzo(a)anthracene	25	J	ug/kg	110	21.	1
Benzo(a)pyrene	ND		ug/kg	150	45.	1
Benzo(b)fluoranthene	34	J	ug/kg	110	31.	1
Benzo(k)fluoranthene	ND		ug/kg	110	29.	1
Chrysene	23	J	ug/kg	110	19.	1
Acenaphthylene	28	J	ug/kg	150	28.	1
Anthracene	ND		ug/kg	110	36.	1
Benzo(ghi)perylene	ND		ug/kg	150	22.	1
Fluorene	ND		ug/kg	180	18.	1
Phenanthrene	31	J	ug/kg	110	22.	1
Dibenzo(a,h)anthracene	ND		ug/kg	110	21.	1
Indeno(1,2,3-cd)pyrene	ND		ug/kg	150	26.	1
Pyrene	38	J	ug/kg	110	18.	1
Biphenyl	ND		ug/kg	420	24.	1
4-Chloroaniline	ND		ug/kg	180	33.	1
2-Nitroaniline	ND		ug/kg	180	35.	1
3-Nitroaniline	ND		ug/kg	180	35.	1
4-Nitroaniline	ND		ug/kg	180	76.	1
Dibenzofuran	ND		ug/kg	180	17.	1
2-Methylnaphthalene	ND		ug/kg	220	22.	1
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	180	19.	1
Acetophenone	ND		ug/kg	180	23.	1
2,4,6-Trichlorophenol	ND		ug/kg	110	35.	1
p-Chloro-m-cresol	ND		ug/kg	180	27.	1
2-Chlorophenol	ND		ug/kg	180	22.	1
2,4-Dichlorophenol	ND		ug/kg	160	30.	1
2,4-Dimethylphenol	ND		ug/kg	180	61.	1
2-Nitrophenol	ND		ug/kg	400	69.	1
4-Nitrophenol	ND		ug/kg	260	75.	1
2,4-Dinitrophenol	ND		ug/kg	880	86.	1
4,6-Dinitro-o-cresol	ND		ug/kg	480	88.	1
Pentachlorophenol	ND		ug/kg	150	40.	1
Phenol	ND		ug/kg	180	28.	1
2-Methylphenol	ND		ug/kg	180	28.	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	260	29.	1

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-11
Client ID: SB-7 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 12:05
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,5-Trichlorophenol	ND		ug/kg	180	35.	1
Benzoic Acid	ND		ug/kg	600	190	1
Benzyl Alcohol	ND		ug/kg	180	56.	1
Carbazole	ND		ug/kg	180	18.	1
1,4-Dioxane	ND		ug/kg	28	8.4	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	79		25-120
Phenol-d6	77		10-120
Nitrobenzene-d5	71		23-120
2-Fluorobiphenyl	75		30-120
2,4,6-Tribromophenol	74		10-136
4-Terphenyl-d14	74		18-120

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-12
Client ID: SB-9 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 12:25
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 04/09/23 19:32
Analyst: IM
Percent Solids: 88%

Extraction Method: EPA 3546
Extraction Date: 04/08/23 14:33

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Acenaphthene	ND		ug/kg	150	19.	1
1,2,4-Trichlorobenzene	ND		ug/kg	190	21.	1
Hexachlorobenzene	ND		ug/kg	110	21.	1
Bis(2-chloroethyl)ether	ND		ug/kg	170	25.	1
2-Chloronaphthalene	ND		ug/kg	190	18.	1
1,2-Dichlorobenzene	ND		ug/kg	190	33.	1
1,3-Dichlorobenzene	ND		ug/kg	190	32.	1
1,4-Dichlorobenzene	ND		ug/kg	190	32.	1
3,3'-Dichlorobenzidine	ND		ug/kg	190	50.	1
2,4-Dinitrotoluene	ND		ug/kg	190	37.	1
2,6-Dinitrotoluene	ND		ug/kg	190	32.	1
Fluoranthene	32	J	ug/kg	110	21.	1
4-Chlorophenyl phenyl ether	ND		ug/kg	190	20.	1
4-Bromophenyl phenyl ether	ND		ug/kg	190	28.	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	220	32.	1
Bis(2-chloroethoxy)methane	ND		ug/kg	200	19.	1
Hexachlorobutadiene	ND		ug/kg	190	27.	1
Hexachlorocyclopentadiene	ND		ug/kg	530	170	1
Hexachloroethane	ND		ug/kg	150	30.	1
Isophorone	ND		ug/kg	170	24.	1
Naphthalene	ND		ug/kg	190	23.	1
Nitrobenzene	ND		ug/kg	170	28.	1
NDPA/DPA	ND		ug/kg	150	21.	1
n-Nitrosodi-n-propylamine	ND		ug/kg	190	29.	1
Bis(2-ethylhexyl)phthalate	ND		ug/kg	190	64.	1
Butyl benzyl phthalate	ND		ug/kg	190	47.	1
Di-n-butylphthalate	ND		ug/kg	190	35.	1
Di-n-octylphthalate	ND		ug/kg	190	63.	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-12 Date Collected: 03/29/23 12:25

Client ID: SB-9 (0-2') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Diethyl phthalate	ND		ug/kg	190	17.	1
Dimethyl phthalate	ND		ug/kg	190	39.	1
Benzo(a)anthracene	21	J	ug/kg	110	21.	1
Benzo(a)pyrene	ND		ug/kg	150	45.	1
Benzo(b)fluoranthene	ND		ug/kg	110	31.	1
Benzo(k)fluoranthene	ND		ug/kg	110	30.	1
Chrysene	20	J	ug/kg	110	19.	1
Acenaphthylene	ND		ug/kg	150	29.	1
Anthracene	ND		ug/kg	110	36.	1
Benzo(ghi)perylene	ND		ug/kg	150	22.	1
Fluorene	ND		ug/kg	190	18.	1
Phenanthrene	ND		ug/kg	110	23.	1
Dibenzo(a,h)anthracene	ND		ug/kg	110	22.	1
Indeno(1,2,3-cd)pyrene	ND		ug/kg	150	26.	1
Pyrene	29	J	ug/kg	110	18.	1
Biphenyl	ND		ug/kg	420	24.	1
4-Chloroaniline	ND		ug/kg	190	34.	1
2-Nitroaniline	ND		ug/kg	190	36.	1
3-Nitroaniline	ND		ug/kg	190	35.	1
4-Nitroaniline	ND		ug/kg	190	77.	1
Dibenzofuran	ND		ug/kg	190	18.	1
2-Methylnaphthalene	ND		ug/kg	220	22.	1
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	190	19.	1
Acetophenone	ND		ug/kg	190	23.	1
2,4,6-Trichlorophenol	ND		ug/kg	110	35.	1
p-Chloro-m-cresol	ND		ug/kg	190	28.	1
2-Chlorophenol	ND		ug/kg	190	22.	1
2,4-Dichlorophenol	ND		ug/kg	170	30.	1
2,4-Dimethylphenol	ND		ug/kg	190	61.	1
2-Nitrophenol	ND		ug/kg	400	70.	1
4-Nitrophenol	ND		ug/kg	260	76.	1
2,4-Dinitrophenol	ND		ug/kg	890	87.	1
4,6-Dinitro-o-cresol	ND		ug/kg	480	89.	1
Pentachlorophenol	ND		ug/kg	150	41.	1
Phenol	ND		ug/kg	190	28.	1
2-Methylphenol	ND		ug/kg	190	29.	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	270	29.	1

Project Name: ST. JOSEPH
Lab Number: L2316525
Project Number: 26518.05
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-12
Client ID: SB-9 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 12:25
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,5-Trichlorophenol	ND		ug/kg	190	36.	1
Benzoic Acid	ND		ug/kg	600	190	1
Benzyl Alcohol	ND		ug/kg	190	57.	1
Carbazole	ND		ug/kg	190	18.	1
1,4-Dioxane	ND		ug/kg	28	8.6	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	80		25-120
Phenol-d6	76		10-120
Nitrobenzene-d5	71		23-120
2-Fluorobiphenyl	74		30-120
2,4,6-Tribromophenol	88		10-136
4-Terphenyl-d14	67		18-120

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-13
Client ID: SB-10 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 12:53
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 04/09/23 19:48
Analyst: IM
Percent Solids: 88%

Extraction Method: EPA 3546
Extraction Date: 04/08/23 14:33

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Acenaphthene	ND		ug/kg	150	19.	1
1,2,4-Trichlorobenzene	ND		ug/kg	180	21.	1
Hexachlorobenzene	ND		ug/kg	110	21.	1
Bis(2-chloroethyl)ether	ND		ug/kg	170	25.	1
2-Chloronaphthalene	ND		ug/kg	180	18.	1
1,2-Dichlorobenzene	ND		ug/kg	180	33.	1
1,3-Dichlorobenzene	ND		ug/kg	180	32.	1
1,4-Dichlorobenzene	ND		ug/kg	180	32.	1
3,3'-Dichlorobenzidine	ND		ug/kg	180	49.	1
2,4-Dinitrotoluene	ND		ug/kg	180	37.	1
2,6-Dinitrotoluene	ND		ug/kg	180	32.	1
Fluoranthene	40	J	ug/kg	110	21.	1
4-Chlorophenyl phenyl ether	ND		ug/kg	180	20.	1
4-Bromophenyl phenyl ether	ND		ug/kg	180	28.	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	220	32.	1
Bis(2-chloroethoxy)methane	ND		ug/kg	200	18.	1
Hexachlorobutadiene	ND		ug/kg	180	27.	1
Hexachlorocyclopentadiene	ND		ug/kg	530	170	1
Hexachloroethane	ND		ug/kg	150	30.	1
Isophorone	ND		ug/kg	170	24.	1
Naphthalene	ND		ug/kg	180	22.	1
Nitrobenzene	ND		ug/kg	170	27.	1
NDPA/DPA	ND		ug/kg	150	21.	1
n-Nitrosodi-n-propylamine	ND		ug/kg	180	28.	1
Bis(2-ethylhexyl)phthalate	ND		ug/kg	180	64.	1
Butyl benzyl phthalate	ND		ug/kg	180	47.	1
Di-n-butylphthalate	ND		ug/kg	180	35.	1
Di-n-octylphthalate	ND		ug/kg	180	63.	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-13 Date Collected: 03/29/23 12:53

Client ID: SB-10 (0-2') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Diethyl phthalate	ND		ug/kg	180	17.	1
Dimethyl phthalate	ND		ug/kg	180	39.	1
Benzo(a)anthracene	23	J	ug/kg	110	21.	1
Benzo(a)pyrene	ND		ug/kg	150	45.	1
Benzo(b)fluoranthene	ND		ug/kg	110	31.	1
Benzo(k)fluoranthene	ND		ug/kg	110	30.	1
Chrysene	22	J	ug/kg	110	19.	1
Acenaphthylene	ND		ug/kg	150	28.	1
Anthracene	ND		ug/kg	110	36.	1
Benzo(ghi)perylene	ND		ug/kg	150	22.	1
Fluorene	ND		ug/kg	180	18.	1
Phenanthrene	34	J	ug/kg	110	22.	1
Dibenzo(a,h)anthracene	ND		ug/kg	110	21.	1
Indeno(1,2,3-cd)pyrene	ND		ug/kg	150	26.	1
Pyrene	42	J	ug/kg	110	18.	1
Biphenyl	ND		ug/kg	420	24.	1
4-Chloroaniline	ND		ug/kg	180	34.	1
2-Nitroaniline	ND		ug/kg	180	36.	1
3-Nitroaniline	ND		ug/kg	180	35.	1
4-Nitroaniline	ND		ug/kg	180	77.	1
Dibenzofuran	ND		ug/kg	180	18.	1
2-Methylnaphthalene	ND		ug/kg	220	22.	1
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	180	19.	1
Acetophenone	ND		ug/kg	180	23.	1
2,4,6-Trichlorophenol	ND		ug/kg	110	35.	1
p-Chloro-m-cresol	ND		ug/kg	180	28.	1
2-Chlorophenol	ND		ug/kg	180	22.	1
2,4-Dichlorophenol	ND		ug/kg	170	30.	1
2,4-Dimethylphenol	ND		ug/kg	180	61.	1
2-Nitrophenol	ND		ug/kg	400	70.	1
4-Nitrophenol	ND		ug/kg	260	76.	1
2,4-Dinitrophenol	ND		ug/kg	890	86.	1
4,6-Dinitro-o-cresol	ND		ug/kg	480	89.	1
Pentachlorophenol	ND		ug/kg	150	41.	1
Phenol	ND		ug/kg	180	28.	1
2-Methylphenol	ND		ug/kg	180	29.	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	270	29.	1

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-13
Client ID: SB-10 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 12:53
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,5-Trichlorophenol	ND		ug/kg	180	35.	1
Benzoic Acid	ND		ug/kg	600	190	1
Benzyl Alcohol	ND		ug/kg	180	57.	1
Carbazole	ND		ug/kg	180	18.	1
1,4-Dioxane	ND		ug/kg	28	8.5	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	**7**	Q	25-120
Phenol-d6	40		10-120
Nitrobenzene-d5	65		23-120
2-Fluorobiphenyl	76		30-120
2,4,6-Tribromophenol	**1**	Q	10-136
4-Terphenyl-d14	77		18-120

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-13 RE
Client ID: SB-10 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 12:53
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 04/12/23 00:41
Analyst: LJG
Percent Solids: 88%

Extraction Method: EPA 3546
Extraction Date: 04/11/23 11:18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Acenaphthene	ND		ug/kg	150	19.	1
1,2,4-Trichlorobenzene	ND		ug/kg	190	21.	1
Hexachlorobenzene	ND		ug/kg	110	21.	1
Bis(2-chloroethyl)ether	ND		ug/kg	170	25.	1
2-Chloronaphthalene	ND		ug/kg	190	18.	1
1,2-Dichlorobenzene	ND		ug/kg	190	34.	1
1,3-Dichlorobenzene	ND		ug/kg	190	32.	1
1,4-Dichlorobenzene	ND		ug/kg	190	33.	1
3,3'-Dichlorobenzidine	ND		ug/kg	190	50.	1
2,4-Dinitrotoluene	ND		ug/kg	190	37.	1
2,6-Dinitrotoluene	ND		ug/kg	190	32.	1
Fluoranthene	34	J	ug/kg	110	21.	1
4-Chlorophenyl phenyl ether	ND		ug/kg	190	20.	1
4-Bromophenyl phenyl ether	ND		ug/kg	190	28.	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	220	32.	1
Bis(2-chloroethoxy)methane	ND		ug/kg	200	19.	1
Hexachlorobutadiene	ND		ug/kg	190	27.	1
Hexachlorocyclopentadiene	ND		ug/kg	540	170	1
Hexachloroethane	ND		ug/kg	150	30.	1
Isophorone	ND		ug/kg	170	24.	1
Naphthalene	ND		ug/kg	190	23.	1
Nitrobenzene	ND		ug/kg	170	28.	1
NDPA/DPA	ND		ug/kg	150	21.	1
n-Nitrosodi-n-propylamine	ND		ug/kg	190	29.	1
Bis(2-ethylhexyl)phthalate	ND		ug/kg	190	65.	1
Butyl benzyl phthalate	ND		ug/kg	190	47.	1
Di-n-butylphthalate	ND		ug/kg	190	35.	1
Di-n-octylphthalate	ND		ug/kg	190	64.	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-13 RE Date Collected: 03/29/23 12:53

Client ID: SB-10 (0-2') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Diethyl phthalate	ND		ug/kg	190	17.	1
Dimethyl phthalate	ND		ug/kg	190	39.	1
Benzo(a)anthracene	ND		ug/kg	110	21.	1
Benzo(a)pyrene	ND		ug/kg	150	46.	1
Benzo(b)fluoranthene	ND		ug/kg	110	32.	1
Benzo(k)fluoranthene	ND		ug/kg	110	30.	1
Chrysene	ND		ug/kg	110	19.	1
Acenaphthylene	ND		ug/kg	150	29.	1
Anthracene	ND		ug/kg	110	36.	1
Benzo(ghi)perylene	ND		ug/kg	150	22.	1
Fluorene	ND		ug/kg	190	18.	1
Phenanthrene	ND		ug/kg	110	23.	1
Dibenzo(a,h)anthracene	ND		ug/kg	110	22.	1
Indeno(1,2,3-cd)pyrene	ND		ug/kg	150	26.	1
Pyrene	35	J	ug/kg	110	18.	1
Biphenyl	ND		ug/kg	430	24.	1
4-Chloroaniline	ND		ug/kg	190	34.	1
2-Nitroaniline	ND		ug/kg	190	36.	1
3-Nitroaniline	ND		ug/kg	190	35.	1
4-Nitroaniline	ND		ug/kg	190	77.	1
Dibenzofuran	ND		ug/kg	190	18.	1
2-Methylnaphthalene	ND		ug/kg	220	23.	1
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	190	20.	1
Acetophenone	ND		ug/kg	190	23.	1
2,4,6-Trichlorophenol	ND		ug/kg	110	35.	1
p-Chloro-m-cresol	ND		ug/kg	190	28.	1
2-Chlorophenol	ND		ug/kg	190	22.	1
2,4-Dichlorophenol	ND		ug/kg	170	30.	1
2,4-Dimethylphenol	ND		ug/kg	190	62.	1
2-Nitrophenol	ND		ug/kg	400	70.	1
4-Nitrophenol	ND		ug/kg	260	76.	1
2,4-Dinitrophenol	ND		ug/kg	900	87.	1
4,6-Dinitro-o-cresol	ND		ug/kg	490	90.	1
Pentachlorophenol	ND		ug/kg	150	41.	1
Phenol	ND		ug/kg	190	28.	1
2-Methylphenol	ND		ug/kg	190	29.	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	270	29.	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-13 RE Date Collected: 03/29/23 12:53

Client ID: SB-10 (0-2') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,5-Trichlorophenol	ND		ug/kg	190	36.	1
Benzoic Acid	ND		ug/kg	610	190	1
Benzyl Alcohol	ND		ug/kg	190	57.	1
Carbazole	ND		ug/kg	190	18.	1
1,4-Dioxane	ND		ug/kg	28	8.6	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	**12**	Q	25-120
Phenol-d6	53		10-120
Nitrobenzene-d5	68		23-120
2-Fluorobiphenyl	70		30-120
2,4,6-Tribromophenol	**1**	Q	10-136
4-Terphenyl-d14	62		18-120

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-14
Client ID: SB-11 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 13:25
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 04/09/23 20:05
Analyst: IM
Percent Solids: 91%

Extraction Method: EPA 3546
Extraction Date: 04/08/23 14:33

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Acenaphthene	ND		ug/kg	140	18.	1
1,2,4-Trichlorobenzene	ND		ug/kg	180	20.	1
Hexachlorobenzene	ND		ug/kg	110	20.	1
Bis(2-chloroethyl)ether	ND		ug/kg	160	24.	1
2-Chloronaphthalene	ND		ug/kg	180	18.	1
1,2-Dichlorobenzene	ND		ug/kg	180	32.	1
1,3-Dichlorobenzene	ND		ug/kg	180	31.	1
1,4-Dichlorobenzene	ND		ug/kg	180	31.	1
3,3'-Dichlorobenzidine	ND		ug/kg	180	48.	1
2,4-Dinitrotoluene	ND		ug/kg	180	36.	1
2,6-Dinitrotoluene	ND		ug/kg	180	31.	1
Fluoranthene	32	J	ug/kg	110	20.	1
4-Chlorophenyl phenyl ether	ND		ug/kg	180	19.	1
4-Bromophenyl phenyl ether	ND		ug/kg	180	27.	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	210	30.	1
Bis(2-chloroethoxy)methane	ND		ug/kg	190	18.	1
Hexachlorobutadiene	ND		ug/kg	180	26.	1
Hexachlorocyclopentadiene	ND		ug/kg	510	160	1
Hexachloroethane	ND		ug/kg	140	29.	1
Isophorone	ND		ug/kg	160	23.	1
Naphthalene	38	J	ug/kg	180	22.	1
Nitrobenzene	ND		ug/kg	160	26.	1
NDPA/DPA	ND		ug/kg	140	20.	1
n-Nitrosodi-n-propylamine	ND		ug/kg	180	28.	1
Bis(2-ethylhexyl)phthalate	74	J	ug/kg	180	62.	1
Butyl benzyl phthalate	ND		ug/kg	180	45.	1
Di-n-butylphthalate	ND		ug/kg	180	34.	1
Di-n-octylphthalate	ND		ug/kg	180	61.	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-14 Date Collected: 03/29/23 13:25

Client ID: SB-11 (0-2') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Diethyl phthalate	ND		ug/kg	180	16.	1
Dimethyl phthalate	ND		ug/kg	180	38.	1
Benzo(a)anthracene	24	J	ug/kg	110	20.	1
Benzo(a)pyrene	ND		ug/kg	140	44.	1
Benzo(b)fluoranthene	33	J	ug/kg	110	30.	1
Benzo(k)fluoranthene	ND		ug/kg	110	29.	1
Chrysene	29	J	ug/kg	110	18.	1
Acenaphthylene	ND		ug/kg	140	28.	1
Anthracene	ND		ug/kg	110	35.	1
Benzo(ghi)perylene	23	J	ug/kg	140	21.	1
Fluorene	ND		ug/kg	180	17.	1
Phenanthrene	24	J	ug/kg	110	22.	1
Dibenzo(a,h)anthracene	ND		ug/kg	110	21.	1
Indeno(1,2,3-cd)pyrene	ND		ug/kg	140	25.	1
Pyrene	56	J	ug/kg	110	18.	1
Biphenyl	ND		ug/kg	410	23.	1
4-Chloroaniline	ND		ug/kg	180	32.	1
2-Nitroaniline	ND		ug/kg	180	34.	1
3-Nitroaniline	ND		ug/kg	180	34.	1
4-Nitroaniline	ND		ug/kg	180	74.	1
Dibenzofuran	ND		ug/kg	180	17.	1
2-Methylnaphthalene	22	J	ug/kg	210	22.	1
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	180	19.	1
Acetophenone	ND		ug/kg	180	22.	1
2,4,6-Trichlorophenol	ND		ug/kg	110	34.	1
p-Chloro-m-cresol	ND		ug/kg	180	27.	1
2-Chlorophenol	ND		ug/kg	180	21.	1
2,4-Dichlorophenol	ND		ug/kg	160	29.	1
2,4-Dimethylphenol	ND		ug/kg	180	59.	1
2-Nitrophenol	ND		ug/kg	390	67.	1
4-Nitrophenol	ND		ug/kg	250	73.	1
2,4-Dinitrophenol	ND		ug/kg	860	83.	1
4,6-Dinitro-o-cresol	ND		ug/kg	460	86.	1
Pentachlorophenol	ND		ug/kg	140	39.	1
Phenol	ND		ug/kg	180	27.	1
2-Methylphenol	ND		ug/kg	180	28.	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	260	28.	1

Project Name: ST. JOSEPH
Lab Number: L2316525
Project Number: 26518.05
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-14
Client ID: SB-11 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 13:25
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,5-Trichlorophenol	ND		ug/kg	180	34.	1
Benzoic Acid	ND		ug/kg	580	180	1
Benzyl Alcohol	ND		ug/kg	180	55.	1
Carbazole	ND		ug/kg	180	17.	1
1,4-Dioxane	ND		ug/kg	27	8.2	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	63		25-120
Phenol-d6	65		10-120
Nitrobenzene-d5	59		23-120
2-Fluorobiphenyl	70		30-120
2,4,6-Tribromophenol	74		10-136
4-Terphenyl-d14	72		18-120

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-15
Client ID: SB-11 (6.5'-8.5')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 13:27
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 04/09/23 20:22
Analyst: IM
Percent Solids: 89%

Extraction Method: EPA 3546
Extraction Date: 04/08/23 14:33

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Acenaphthene	130	J	ug/kg	150	19.	1
1,2,4-Trichlorobenzene	ND		ug/kg	180	21.	1
Hexachlorobenzene	ND		ug/kg	110	21.	1
Bis(2-chloroethyl)ether	ND		ug/kg	160	25.	1
2-Chloronaphthalene	ND		ug/kg	180	18.	1
1,2-Dichlorobenzene	ND		ug/kg	180	33.	1
1,3-Dichlorobenzene	ND		ug/kg	180	32.	1
1,4-Dichlorobenzene	ND		ug/kg	180	32.	1
3,3'-Dichlorobenzidine	ND		ug/kg	180	49.	1
2,4-Dinitrotoluene	ND		ug/kg	180	37.	1
2,6-Dinitrotoluene	ND		ug/kg	180	32.	1
Fluoranthene	140		ug/kg	110	21.	1
4-Chlorophenyl phenyl ether	ND		ug/kg	180	20.	1
4-Bromophenyl phenyl ether	ND		ug/kg	180	28.	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	220	31.	1
Bis(2-chloroethoxy)methane	ND		ug/kg	200	18.	1
Hexachlorobutadiene	ND		ug/kg	180	27.	1
Hexachlorocyclopentadiene	ND		ug/kg	530	170	1
Hexachloroethane	ND		ug/kg	150	30.	1
Isophorone	ND		ug/kg	160	24.	1
Naphthalene	61	J	ug/kg	180	22.	1
Nitrobenzene	ND		ug/kg	160	27.	1
NDPA/DPA	ND		ug/kg	150	21.	1
n-Nitrosodi-n-propylamine	ND		ug/kg	180	28.	1
Bis(2-ethylhexyl)phthalate	200		ug/kg	180	64.	1
Butyl benzyl phthalate	ND		ug/kg	180	46.	1
Di-n-butylphthalate	ND		ug/kg	180	35.	1
Di-n-octylphthalate	ND		ug/kg	180	63.	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-15 Date Collected: 03/29/23 13:27

Client ID: SB-11 (6.5'-8.5') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Diethyl phthalate	ND		ug/kg	180	17.	1
Dimethyl phthalate	ND		ug/kg	180	39.	1
Benzo(a)anthracene	55	J	ug/kg	110	21.	1
Benzo(a)pyrene	54	J	ug/kg	150	45.	1
Benzo(b)fluoranthene	82	J	ug/kg	110	31.	1
Benzo(k)fluoranthene	60	J	ug/kg	110	29.	1
Chrysene	100	J	ug/kg	110	19.	1
Acenaphthylene	95	J	ug/kg	150	28.	1
Anthracene	110		ug/kg	110	36.	1
Benzo(ghi)perylene	110	J	ug/kg	150	22.	1
Fluorene	180		ug/kg	180	18.	1
Phenanthrene	910		ug/kg	110	22.	1
Dibenzo(a,h)anthracene	ND		ug/kg	110	21.	1
Indeno(1,2,3-cd)pyrene	87	J	ug/kg	150	26.	1
Pyrene	400		ug/kg	110	18.	1
Biphenyl	59	J	ug/kg	420	24.	1
4-Chloroaniline	ND		ug/kg	180	34.	1
2-Nitroaniline	ND		ug/kg	180	36.	1
3-Nitroaniline	ND		ug/kg	180	35.	1
4-Nitroaniline	ND		ug/kg	180	76.	1
Dibenzofuran	96	J	ug/kg	180	17.	1
2-Methylnaphthalene	750		ug/kg	220	22.	1
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	180	19.	1
Acetophenone	ND		ug/kg	180	23.	1
2,4,6-Trichlorophenol	ND		ug/kg	110	35.	1
p-Chloro-m-cresol	ND		ug/kg	180	27.	1
2-Chlorophenol	ND		ug/kg	180	22.	1
2,4-Dichlorophenol	ND		ug/kg	160	30.	1
2,4-Dimethylphenol	ND		ug/kg	180	61.	1
2-Nitrophenol	ND		ug/kg	400	69.	1
4-Nitrophenol	ND		ug/kg	260	75.	1
2,4-Dinitrophenol	ND		ug/kg	880	86.	1
4,6-Dinitro-o-cresol	ND		ug/kg	480	88.	1
Pentachlorophenol	ND		ug/kg	150	40.	1
Phenol	ND		ug/kg	180	28.	1
2-Methylphenol	ND		ug/kg	180	28.	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	260	29.	1

Project Name: ST. JOSEPH
Lab Number: L2316525
Project Number: 26518.05
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-15
Client ID: SB-11 (6.5'-8.5')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 13:27
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,5-Trichlorophenol	ND		ug/kg	180	35.	1
Benzoic Acid	ND		ug/kg	600	190	1
Benzyl Alcohol	ND		ug/kg	180	56.	1
Carbazole	ND		ug/kg	180	18.	1
1,4-Dioxane	ND		ug/kg	28	8.5	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	60		25-120
Phenol-d6	73		10-120
Nitrobenzene-d5	74		23-120
2-Fluorobiphenyl	81		30-120
2,4,6-Tribromophenol	51		10-136
4-Terphenyl-d14	82		18-120

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-16
Client ID: SB-6 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 14:00
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 04/09/23 17:06
Analyst: JG
Percent Solids: 97%

Extraction Method: EPA 3546
Extraction Date: 04/08/23 14:33

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Acenaphthene	ND		ug/kg	140	18.	1
1,2,4-Trichlorobenzene	ND		ug/kg	170	20.	1
Hexachlorobenzene	ND		ug/kg	100	19.	1
Bis(2-chloroethyl)ether	ND		ug/kg	150	23.	1
2-Chloronaphthalene	ND		ug/kg	170	17.	1
1,2-Dichlorobenzene	ND		ug/kg	170	31.	1
1,3-Dichlorobenzene	ND		ug/kg	170	29.	1
1,4-Dichlorobenzene	ND		ug/kg	170	30.	1
3,3'-Dichlorobenzidine	ND		ug/kg	170	45.	1
2,4-Dinitrotoluene	ND		ug/kg	170	34.	1
2,6-Dinitrotoluene	ND		ug/kg	170	29.	1
Fluoranthene	ND		ug/kg	100	20.	1
4-Chlorophenyl phenyl ether	ND		ug/kg	170	18.	1
4-Bromophenyl phenyl ether	ND		ug/kg	170	26.	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	200	29.	1
Bis(2-chloroethoxy)methane	ND		ug/kg	180	17.	1
Hexachlorobutadiene	ND		ug/kg	170	25.	1
Hexachlorocyclopentadiene	ND		ug/kg	490	150	1
Hexachloroethane	ND		ug/kg	140	28.	1
Isophorone	ND		ug/kg	150	22.	1
Naphthalene	ND		ug/kg	170	21.	1
Nitrobenzene	ND		ug/kg	150	25.	1
NDPA/DPA	ND		ug/kg	140	19.	1
n-Nitrosodi-n-propylamine	ND		ug/kg	170	26.	1
Bis(2-ethylhexyl)phthalate	ND		ug/kg	170	59.	1
Butyl benzyl phthalate	ND		ug/kg	170	43.	1
Di-n-butylphthalate	ND		ug/kg	170	32.	1
Di-n-octylphthalate	ND		ug/kg	170	58.	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-16 Date Collected: 03/29/23 14:00

Client ID: SB-6 (0-2') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Diethyl phthalate	ND		ug/kg	170	16.	1
Dimethyl phthalate	ND		ug/kg	170	36.	1
Benzo(a)anthracene	ND		ug/kg	100	19.	1
Benzo(a)pyrene	ND		ug/kg	140	42.	1
Benzo(b)fluoranthene	ND		ug/kg	100	29.	1
Benzo(k)fluoranthene	ND		ug/kg	100	27.	1
Chrysene	ND		ug/kg	100	18.	1
Acenaphthylene	ND		ug/kg	140	26.	1
Anthracene	ND		ug/kg	100	33.	1
Benzo(ghi)perylene	ND		ug/kg	140	20.	1
Fluorene	ND		ug/kg	170	17.	1
Phenanthrene	ND		ug/kg	100	21.	1
Dibenzo(a,h)anthracene	ND		ug/kg	100	20.	1
Indeno(1,2,3-cd)pyrene	ND		ug/kg	140	24.	1
Pyrene	ND		ug/kg	100	17.	1
Biphenyl	ND		ug/kg	390	22.	1
4-Chloroaniline	ND		ug/kg	170	31.	1
2-Nitroaniline	ND		ug/kg	170	33.	1
3-Nitroaniline	ND		ug/kg	170	32.	1
4-Nitroaniline	ND		ug/kg	170	71.	1
Dibenzofuran	ND		ug/kg	170	16.	1
2-Methylnaphthalene	ND		ug/kg	200	21.	1
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	170	18.	1
Acetophenone	ND		ug/kg	170	21.	1
2,4,6-Trichlorophenol	ND		ug/kg	100	32.	1
p-Chloro-m-cresol	ND		ug/kg	170	25.	1
2-Chlorophenol	ND		ug/kg	170	20.	1
2,4-Dichlorophenol	ND		ug/kg	150	27.	1
2,4-Dimethylphenol	ND		ug/kg	170	56.	1
2-Nitrophenol	ND		ug/kg	370	64.	1
4-Nitrophenol	ND		ug/kg	240	70.	1
2,4-Dinitrophenol	ND		ug/kg	820	80.	1
4,6-Dinitro-o-cresol	ND		ug/kg	440	82.	1
Pentachlorophenol	ND		ug/kg	140	38.	1
Phenol	ND		ug/kg	170	26.	1
2-Methylphenol	ND		ug/kg	170	26.	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	250	27.	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-16 Date Collected: 03/29/23 14:00

Client ID: SB-6 (0-2') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,5-Trichlorophenol	ND		ug/kg	170	33.	1
Benzoic Acid	ND		ug/kg	550	170	1
Benzyl Alcohol	ND		ug/kg	170	52.	1
Carbazole	ND		ug/kg	170	17.	1
1,4-Dioxane	ND		ug/kg	26	7.9	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	80		25-120
Phenol-d6	82		10-120
Nitrobenzene-d5	60		23-120
2-Fluorobiphenyl	66		30-120
2,4,6-Tribromophenol	66		10-136
4-Terphenyl-d14	65		18-120

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-16
Client ID: SB-6 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 14:00
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 144,1633
Analytical Date: 04/05/23 16:18
Analyst: AC
Percent Solids: 97%

Extraction Method: EPA 1633
Extraction Date: 04/03/23 06:29
Cleanup Method: EPA 1633
Cleanup Date: 04/05/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/g	0.786	0.050	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/g	0.393	0.055	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/g	0.196	0.042	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/g	0.196	0.046	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/g	0.196	0.023	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/g	0.196	0.058	1
Perfluorooctanoic Acid (PFOA)	ND		ng/g	0.196	0.051	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/g	0.786	0.275	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/g	0.196	0.036	1
Perfluorononanoic Acid (PFNA)	ND		ng/g	0.196	0.077	1
Perfluorooctanesulfonic Acid (PFOS)	0.212		ng/g	0.196	0.078	1
Perfluorodecanoic Acid (PFDA)	ND		ng/g	0.196	0.074	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/g	0.786	0.380	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/g	0.196	0.098	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/g	0.196	0.050	1
Perfluorodecanesulfonic Acid (PFDS)	0.055	J	ng/g	0.196	0.031	1
Perfluorooctanesulfonamide (PFOSA)	ND		ng/g	0.196	0.042	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/g	0.196	0.081	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/g	0.196	0.040	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/g	0.196	0.052	1
Perfluorotetradecanoic Acid (PFTeDA)	ND		ng/g	0.196	0.104	1
PFOA/PFOS, Total	0.212		ng/g	0.196	0.051	1

Project Name: ST. JOSEPH
Lab Number: L2316525
Project Number: 26518.05
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-16
Client ID: SB-6 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 14:00
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	74		20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	80		20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	73		20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	82		20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	71		20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	75		20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	62		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	75		20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	70		20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	76		20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	82		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	77		20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	77		20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	77		20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	44		20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	69		20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	69		20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	65		20-150

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-17
Client ID: SB-8 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 14:09
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 04/09/23 17:30
Analyst: JG
Percent Solids: 88%

Extraction Method: EPA 3546
Extraction Date: 04/08/23 14:33

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Acenaphthene	ND		ug/kg	150	20.	1
1,2,4-Trichlorobenzene	ND		ug/kg	190	22.	1
Hexachlorobenzene	ND		ug/kg	110	21.	1
Bis(2-chloroethyl)ether	ND		ug/kg	170	26.	1
2-Chloronaphthalene	ND		ug/kg	190	19.	1
1,2-Dichlorobenzene	ND		ug/kg	190	34.	1
1,3-Dichlorobenzene	ND		ug/kg	190	32.	1
1,4-Dichlorobenzene	ND		ug/kg	190	33.	1
3,3'-Dichlorobenzidine	ND		ug/kg	190	50.	1
2,4-Dinitrotoluene	ND		ug/kg	190	38.	1
2,6-Dinitrotoluene	ND		ug/kg	190	32.	1
Fluoranthene	ND		ug/kg	110	22.	1
4-Chlorophenyl phenyl ether	ND		ug/kg	190	20.	1
4-Bromophenyl phenyl ether	ND		ug/kg	190	29.	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	230	32.	1
Bis(2-chloroethoxy)methane	ND		ug/kg	200	19.	1
Hexachlorobutadiene	ND		ug/kg	190	28.	1
Hexachlorocyclopentadiene	ND		ug/kg	540	170	1
Hexachloroethane	ND		ug/kg	150	30.	1
Isophorone	ND		ug/kg	170	24.	1
Naphthalene	ND		ug/kg	190	23.	1
Nitrobenzene	ND		ug/kg	170	28.	1
NDPA/DPA	ND		ug/kg	150	21.	1
n-Nitrosodi-n-propylamine	ND		ug/kg	190	29.	1
Bis(2-ethylhexyl)phthalate	ND		ug/kg	190	65.	1
Butyl benzyl phthalate	ND		ug/kg	190	48.	1
Di-n-butylphthalate	ND		ug/kg	190	36.	1
Di-n-octylphthalate	ND		ug/kg	190	64.	1

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-17 Date Collected: 03/29/23 14:09

Client ID: SB-8 (0-2') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Diethyl phthalate	ND		ug/kg	190	17.	1
Dimethyl phthalate	ND		ug/kg	190	40.	1
Benzo(a)anthracene	ND		ug/kg	110	21.	1
Benzo(a)pyrene	ND		ug/kg	150	46.	1
Benzo(b)fluoranthene	ND		ug/kg	110	32.	1
Benzo(k)fluoranthene	ND		ug/kg	110	30.	1
Chrysene	ND		ug/kg	110	20.	1
Acenaphthylene	ND		ug/kg	150	29.	1
Anthracene	ND		ug/kg	110	37.	1
Benzo(ghi)perylene	ND		ug/kg	150	22.	1
Fluorene	ND		ug/kg	190	18.	1
Phenanthrene	ND		ug/kg	110	23.	1
Dibenzo(a,h)anthracene	ND		ug/kg	110	22.	1
Indeno(1,2,3-cd)pyrene	ND		ug/kg	150	26.	1
Pyrene	ND		ug/kg	110	19.	1
Biphenyl	ND		ug/kg	430	24.	1
4-Chloroaniline	ND		ug/kg	190	34.	1
2-Nitroaniline	ND		ug/kg	190	36.	1
3-Nitroaniline	ND		ug/kg	190	36.	1
4-Nitroaniline	ND		ug/kg	190	78.	1
Dibenzofuran	ND		ug/kg	190	18.	1
2-Methylnaphthalene	ND		ug/kg	230	23.	1
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	190	20.	1
Acetophenone	ND		ug/kg	190	23.	1
2,4,6-Trichlorophenol	ND		ug/kg	110	36.	1
p-Chloro-m-cresol	ND		ug/kg	190	28.	1
2-Chlorophenol	ND		ug/kg	190	22.	1
2,4-Dichlorophenol	ND		ug/kg	170	30.	1
2,4-Dimethylphenol	ND		ug/kg	190	62.	1
2-Nitrophenol	ND		ug/kg	410	71.	1
4-Nitrophenol	ND		ug/kg	260	77.	1
2,4-Dinitrophenol	ND		ug/kg	910	88.	1
4,6-Dinitro-o-cresol	ND		ug/kg	490	91.	1
Pentachlorophenol	ND		ug/kg	150	42.	1
Phenol	ND		ug/kg	190	28.	1
2-Methylphenol	ND		ug/kg	190	29.	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	270	30.	1

Project Name: ST. JOSEPH
Lab Number: L2316525
Project Number: 26518.05
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-17
Client ID: SB-8 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 14:09
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,5-Trichlorophenol	ND		ug/kg	190	36.	1
Benzoic Acid	ND		ug/kg	610	190	1
Benzyl Alcohol	ND		ug/kg	190	58.	1
Carbazole	ND		ug/kg	190	18.	1
1,4-Dioxane	ND		ug/kg	28	8.7	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	59		25-120
Phenol-d6	87		10-120
Nitrobenzene-d5	66		23-120
2-Fluorobiphenyl	71		30-120
2,4,6-Tribromophenol	26		10-136
4-Terphenyl-d14	63		18-120

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316525
Report Date: 04/12/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 144,1633
Analytical Date: 04/05/23 13:20
Analyst: AC

Extraction Method: EPA 1633
Extraction Date: 04/03/23 06:29
Cleanup Method: EPA 1633
Cleanup Date: 04/05/23

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab for sample(s): 16 Batch: WG1761892-1					
Perfluorobutanoic Acid (PFBA)	ND		ng/g	0.800	0.050
Perfluoropentanoic Acid (PFPeA)	ND		ng/g	0.400	0.056
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/g	0.200	0.043
Perfluorohexanoic Acid (PFHxA)	ND		ng/g	0.200	0.046
Perfluoroheptanoic Acid (PFHpA)	ND		ng/g	0.200	0.023
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/g	0.200	0.059
Perfluorooctanoic Acid (PFOA)	ND		ng/g	0.200	0.052
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/g	0.800	0.280
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/g	0.200	0.037
Perfluorononanoic Acid (PFNA)	ND		ng/g	0.200	0.078
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/g	0.200	0.079
Perfluorodecanoic Acid (PFDA)	ND		ng/g	0.200	0.075
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/g	0.800	0.387
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/g	0.200	0.100
Perfluoroundecanoic Acid (PFUnA)	ND		ng/g	0.200	0.051
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/g	0.200	0.032
Perfluorooctanesulfonamide (PFOSA)	ND		ng/g	0.200	0.043
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/g	0.200	0.082
Perfluorododecanoic Acid (PFDoA)	ND		ng/g	0.200	0.041
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/g	0.200	0.053
Perfluorotetradecanoic Acid (PFTeDA)	ND		ng/g	0.200	0.106
PFOA/PFOS, Total	ND		ng/g	0.200	0.052

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316525
Report Date: 04/12/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 144,1633
Analytical Date: 04/05/23 13:20
Analyst: AC

Extraction Method: EPA 1633
Extraction Date: 04/03/23 06:29
Cleanup Method: EPA 1633
Cleanup Date: 04/05/23

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab for sample(s): 16 Batch: WG1761892-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	78		20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	83		20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	73		20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	84		20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	77		20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	75		20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	59		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	78		20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	73		20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	76		20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	79		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	79		20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	88		20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	75		20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	54		20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	79		20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	70		20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	47		20-150

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316525
Report Date: 04/12/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E
Analytical Date: 04/09/23 13:14
Analyst: IM

Extraction Method: EPA 3546
Extraction Date: 04/08/23 14:12

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 02-17 Batch: WG1764356-1					
Acenaphthene	ND		ug/kg	130	17.
1,2,4-Trichlorobenzene	ND		ug/kg	170	19.
Hexachlorobenzene	ND		ug/kg	100	18.
Bis(2-chloroethyl)ether	ND		ug/kg	150	22.
2-Chloronaphthalene	ND		ug/kg	170	16.
1,2-Dichlorobenzene	ND		ug/kg	170	30.
1,3-Dichlorobenzene	ND		ug/kg	170	28.
1,4-Dichlorobenzene	ND		ug/kg	170	29.
3,3'-Dichlorobenzidine	ND		ug/kg	170	44.
2,4-Dinitrotoluene	ND		ug/kg	170	33.
2,6-Dinitrotoluene	ND		ug/kg	170	28.
Fluoranthene	ND		ug/kg	100	19.
4-Chlorophenyl phenyl ether	ND		ug/kg	170	18.
4-Bromophenyl phenyl ether	ND		ug/kg	170	25.
Bis(2-chloroisopropyl)ether	ND		ug/kg	200	28.
Bis(2-chloroethoxy)methane	ND		ug/kg	180	17.
Hexachlorobutadiene	ND		ug/kg	170	24.
Hexachlorocyclopentadiene	ND		ug/kg	470	150
Hexachloroethane	ND		ug/kg	130	27.
Isophorone	ND		ug/kg	150	22.
Naphthalene	33	J	ug/kg	170	20.
Nitrobenzene	ND		ug/kg	150	24.
NDPA/DPA	ND		ug/kg	130	19.
n-Nitrosodi-n-propylamine	ND		ug/kg	170	26.
Bis(2-ethylhexyl)phthalate	ND		ug/kg	170	57.
Butyl benzyl phthalate	ND		ug/kg	170	42.
Di-n-butylphthalate	ND		ug/kg	170	31.
Di-n-octylphthalate	ND		ug/kg	170	56.
Diethyl phthalate	ND		ug/kg	170	15.

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316525
Report Date: 04/12/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E
Analytical Date: 04/09/23 13:14
Analyst: IM

Extraction Method: EPA 3546
Extraction Date: 04/08/23 14:12

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 02-17 Batch: WG1764356-1					
Dimethyl phthalate	ND		ug/kg	170	35.
Benzo(a)anthracene	ND		ug/kg	100	19.
Benzo(a)pyrene	ND		ug/kg	130	40.
Benzo(b)fluoranthene	ND		ug/kg	100	28.
Benzo(k)fluoranthene	ND		ug/kg	100	26.
Chrysene	ND		ug/kg	100	17.
Acenaphthylene	ND		ug/kg	130	26.
Anthracene	ND		ug/kg	100	32.
Benzo(ghi)perylene	ND		ug/kg	130	20.
Fluorene	ND		ug/kg	170	16.
Phenanthrene	ND		ug/kg	100	20.
Dibenzo(a,h)anthracene	ND		ug/kg	100	19.
Indeno(1,2,3-cd)pyrene	ND		ug/kg	130	23.
Pyrene	ND		ug/kg	100	16.
Biphenyl	ND		ug/kg	380	22.
4-Chloroaniline	ND		ug/kg	170	30.
2-Nitroaniline	ND		ug/kg	170	32.
3-Nitroaniline	ND		ug/kg	170	31.
4-Nitroaniline	ND		ug/kg	170	69.
Dibenzofuran	ND		ug/kg	170	16.
2-Methylnaphthalene	ND		ug/kg	200	20.
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	170	17.
Acetophenone	ND		ug/kg	170	20.
2,4,6-Trichlorophenol	ND		ug/kg	100	31.
p-Chloro-m-cresol	ND		ug/kg	170	25.
2-Chlorophenol	ND		ug/kg	170	20.
2,4-Dichlorophenol	ND		ug/kg	150	27.
2,4-Dimethylphenol	ND		ug/kg	170	55.
2-Nitrophenol	ND		ug/kg	360	62.

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E
Analytical Date: 04/09/23 13:14
Analyst: IM

Extraction Method: EPA 3546
Extraction Date: 04/08/23 14:12

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 02-17 Batch: WG1764356-1					
4-Nitrophenol	ND		ug/kg	230	68.
2,4-Dinitrophenol	ND		ug/kg	800	77.
4,6-Dinitro-o-cresol	ND		ug/kg	430	80.
Pentachlorophenol	ND		ug/kg	130	36.
Phenol	ND		ug/kg	170	25.
2-Methylphenol	ND		ug/kg	170	26.
3-Methylphenol/4-Methylphenol	ND		ug/kg	240	26.
2,4,5-Trichlorophenol	ND		ug/kg	170	32.
Benzoic Acid	ND		ug/kg	540	170
Benzyl Alcohol	ND		ug/kg	170	51.
Carbazole	ND		ug/kg	170	16.
1,4-Dioxane	ND		ug/kg	25	7.6

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	72		25-120
Phenol-d6	71		10-120
Nitrobenzene-d5	61		23-120
2-Fluorobiphenyl	75		30-120
2,4,6-Tribromophenol	84		10-136
4-Terphenyl-d14	80		18-120

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316525
Report Date: 04/12/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E
Analytical Date: 04/11/23 22:41
Analyst: LJG

Extraction Method: EPA 3546
Extraction Date: 04/11/23 10:17

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01,13 Batch: WG1765203-1					
Acenaphthene	ND		ug/kg	130	17.
1,2,4-Trichlorobenzene	ND		ug/kg	160	18.
Hexachlorobenzene	ND		ug/kg	97	18.
Bis(2-chloroethyl)ether	ND		ug/kg	140	22.
2-Chloronaphthalene	ND		ug/kg	160	16.
1,2-Dichlorobenzene	ND		ug/kg	160	29.
1,3-Dichlorobenzene	ND		ug/kg	160	28.
1,4-Dichlorobenzene	ND		ug/kg	160	28.
3,3'-Dichlorobenzidine	ND		ug/kg	160	43.
2,4-Dinitrotoluene	ND		ug/kg	160	32.
2,6-Dinitrotoluene	ND		ug/kg	160	28.
Fluoranthene	ND		ug/kg	97	18.
4-Chlorophenyl phenyl ether	ND		ug/kg	160	17.
4-Bromophenyl phenyl ether	ND		ug/kg	160	25.
Bis(2-chloroisopropyl)ether	ND		ug/kg	190	28.
Bis(2-chloroethoxy)methane	ND		ug/kg	170	16.
Hexachlorobutadiene	ND		ug/kg	160	24.
Hexachlorocyclopentadiene	ND		ug/kg	460	150
Hexachloroethane	ND		ug/kg	130	26.
Isophorone	ND		ug/kg	140	21.
Naphthalene	ND		ug/kg	160	20.
Nitrobenzene	ND		ug/kg	140	24.
NDPA/DPA	ND		ug/kg	130	18.
n-Nitrosodi-n-propylamine	ND		ug/kg	160	25.
Bis(2-ethylhexyl)phthalate	ND		ug/kg	160	56.
Butyl benzyl phthalate	ND		ug/kg	160	41.
Di-n-butylphthalate	ND		ug/kg	160	31.
Di-n-octylphthalate	ND		ug/kg	160	55.
Diethyl phthalate	ND		ug/kg	160	15.

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316525
Report Date: 04/12/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E
Analytical Date: 04/11/23 22:41
Analyst: LJG

Extraction Method: EPA 3546
Extraction Date: 04/11/23 10:17

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01,13 Batch: WG1765203-1					
Dimethyl phthalate	ND		ug/kg	160	34.
Benzo(a)anthracene	ND		ug/kg	97	18.
Benzo(a)pyrene	ND		ug/kg	130	39.
Benzo(b)fluoranthene	ND		ug/kg	97	27.
Benzo(k)fluoranthene	ND		ug/kg	97	26.
Chrysene	ND		ug/kg	97	17.
Acenaphthylene	ND		ug/kg	130	25.
Anthracene	ND		ug/kg	97	31.
Benzo(ghi)perylene	ND		ug/kg	130	19.
Fluorene	ND		ug/kg	160	16.
Phenanthrene	ND		ug/kg	97	20.
Dibenzo(a,h)anthracene	ND		ug/kg	97	19.
Indeno(1,2,3-cd)pyrene	ND		ug/kg	130	22.
Pyrene	ND		ug/kg	97	16.
Biphenyl	ND		ug/kg	370	21.
4-Chloroaniline	ND		ug/kg	160	29.
2-Nitroaniline	ND		ug/kg	160	31.
3-Nitroaniline	ND		ug/kg	160	30.
4-Nitroaniline	ND		ug/kg	160	67.
Dibenzofuran	ND		ug/kg	160	15.
2-Methylnaphthalene	ND		ug/kg	190	19.
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	160	17.
Acetophenone	ND		ug/kg	160	20.
2,4,6-Trichlorophenol	ND		ug/kg	97	31.
p-Chloro-m-cresol	ND		ug/kg	160	24.
2-Chlorophenol	ND		ug/kg	160	19.
2,4-Dichlorophenol	ND		ug/kg	140	26.
2,4-Dimethylphenol	ND		ug/kg	160	53.
2-Nitrophenol	ND		ug/kg	350	61.

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E
Analytical Date: 04/11/23 22:41
Analyst: LJG

Extraction Method: EPA 3546
Extraction Date: 04/11/23 10:17

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01,13 Batch: WG1765203-1					
4-Nitrophenol	ND		ug/kg	220	66.
2,4-Dinitrophenol	ND		ug/kg	770	75.
4,6-Dinitro-o-cresol	ND		ug/kg	420	77.
Pentachlorophenol	ND		ug/kg	130	36.
Phenol	ND		ug/kg	160	24.
2-Methylphenol	ND		ug/kg	160	25.
3-Methylphenol/4-Methylphenol	ND		ug/kg	230	25.
2,4,5-Trichlorophenol	ND		ug/kg	160	31.
Benzoic Acid	ND		ug/kg	520	160
Benzyl Alcohol	ND		ug/kg	160	49.
Carbazole	ND		ug/kg	160	16.
1,4-Dioxane	ND		ug/kg	24	7.4

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	74		25-120
Phenol-d6	75		10-120
Nitrobenzene-d5	67		23-120
2-Fluorobiphenyl	70		30-120
2,4,6-Tribromophenol	74		10-136
4-Terphenyl-d14	74		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316525
Report Date: 04/12/23

Parameter	Low Level LCS %Recovery	Qual	Low Level LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 16 Batch: WG1761892-2 LOW LEVEL								
Perfluorobutanoic Acid (PFBA)	96		-		40-150	-		30
Perfluoropentanoic Acid (PFPeA)	95		-		40-150	-		30
Perfluorobutanesulfonic Acid (PFBS)	101		-		40-150	-		30
Perfluorohexanoic Acid (PFHxA)	92		-		40-150	-		30
Perfluoroheptanoic Acid (PFHpA)	110		-		40-150	-		30
Perfluorohexanesulfonic Acid (PFHxS)	93		-		40-150	-		30
Perfluorooctanoic Acid (PFOA)	118		-		40-150	-		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	107		-		40-150	-		30
Perfluoroheptanesulfonic Acid (PFHpS)	89		-		40-150	-		30
Perfluorononanoic Acid (PFNA)	90		-		40-150	-		30
Perfluorooctanesulfonic Acid (PFOS)	113		-		40-150	-		30
Perfluorodecanoic Acid (PFDA)	82		-		40-150	-		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	104		-		40-150	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	78		-		40-150	-		30
Perfluoroundecanoic Acid (PFUnA)	100		-		40-150	-		30
Perfluorodecanesulfonic Acid (PFDS)	78		-		40-150	-		30
Perfluorooctanesulfonamide (PFOSA)	80		-		40-150	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	68		-		40-150	-		30
Perfluorododecanoic Acid (PFDoA)	88		-		40-150	-		30
Perfluorotridecanoic Acid (PFTrDA)	82		-		40-150	-		30
Perfluorotetradecanoic Acid (PFTeDA)	92		-		40-150	-		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316525
Report Date: 04/12/23

Parameter	Low Level LCS %Recovery	Qual	Low Level LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits

Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 16 Batch: WG1761892-2 LOW LEVEL

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	82				20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	93				20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	70				20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	88				20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	77				20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	82				20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	64				20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	82				20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	84				20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	83				20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	84				20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	83				20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	98				20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	79				20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	60				20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	81				20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	64				20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	46				20-150

Lab Control Sample Analysis
Batch Quality Control

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316525
Report Date: 04/12/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 16 Batch: WG1761892-3								
Perfluorobutanoic Acid (PFBA)	92		-		40-150	-		30
Perfluoropentanoic Acid (PFPeA)	85		-		40-150	-		30
Perfluorobutanesulfonic Acid (PFBS)	96		-		40-150	-		30
Perfluorohexanoic Acid (PFHxA)	89		-		40-150	-		30
Perfluoroheptanoic Acid (PFHpA)	109		-		40-150	-		30
Perfluorohexanesulfonic Acid (PFHxS)	91		-		40-150	-		30
Perfluorooctanoic Acid (PFOA)	110		-		40-150	-		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	95		-		40-150	-		30
Perfluoroheptanesulfonic Acid (PFHpS)	96		-		40-150	-		30
Perfluorononanoic Acid (PFNA)	92		-		40-150	-		30
Perfluorooctanesulfonic Acid (PFOS)	90		-		40-150	-		30
Perfluorodecanoic Acid (PFDA)	87		-		40-150	-		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	102		-		40-150	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	86		-		40-150	-		30
Perfluoroundecanoic Acid (PFUnA)	87		-		40-150	-		30
Perfluorodecanesulfonic Acid (PFDS)	84		-		40-150	-		30
Perfluorooctanesulfonamide (PFOSA)	80		-		40-150	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	78		-		40-150	-		30
Perfluorododecanoic Acid (PFDoA)	88		-		40-150	-		30
Perfluorotridecanoic Acid (PFTrDA)	70		-		40-150	-		30
Perfluorotetradecanoic Acid (PFTeDA)	88		-		40-150	-		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316525
Report Date: 04/12/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 16 Batch: WG1761892-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	83				20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	91				20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	79				20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	88				20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	73				20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	81				20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	69				20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	85				20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	79				20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	83				20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	93				20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	85				20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	98				20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	97				20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	63				20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	84				20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	79				20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	58				20-150

Lab Control Sample Analysis
Batch Quality Control

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316525
Report Date: 04/12/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 02-17 Batch: WG1764356-2 WG1764356-3								
Acenaphthene	68		64		31-137	6		50
1,2,4-Trichlorobenzene	66		63		38-107	5		50
Hexachlorobenzene	76		69		40-140	10		50
Bis(2-chloroethyl)ether	61		57		40-140	7		50
2-Chloronaphthalene	68		64		40-140	6		50
1,2-Dichlorobenzene	64		58		40-140	10		50
1,3-Dichlorobenzene	63		59		40-140	7		50
1,4-Dichlorobenzene	62		56		28-104	10		50
3,3'-Dichlorobenzidine	46		46		40-140	0		50
2,4-Dinitrotoluene	71		67		40-132	6		50
2,6-Dinitrotoluene	67		64		40-140	5		50
Fluoranthene	69		68		40-140	1		50
4-Chlorophenyl phenyl ether	69		66		40-140	4		50
4-Bromophenyl phenyl ether	73		68		40-140	7		50
Bis(2-chloroisopropyl)ether	59		56		40-140	5		50
Bis(2-chloroethoxy)methane	63		58		40-117	8		50
Hexachlorobutadiene	66		63		40-140	5		50
Hexachlorocyclopentadiene	**180**	Q	**172**	Q	40-140	5		50
Hexachloroethane	56		52		40-140	7		50
Isophorone	61		57		40-140	7		50
Naphthalene	64		60		40-140	6		50
Nitrobenzene	63		60		40-140	5		50
NDPA/DPA	72		67		36-157	7		50

Lab Control Sample Analysis
Batch Quality Control

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316525
Report Date: 04/12/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 02-17 Batch: WG1764356-2 WG1764356-3								
n-Nitrosodi-n-propylamine	65		61		32-121	6		50
Bis(2-ethylhexyl)phthalate	58		54		40-140	7		50
Butyl benzyl phthalate	60		58		40-140	3		50
Di-n-butylphthalate	63		60		40-140	5		50
Di-n-octylphthalate	58		55		40-140	5		50
Diethyl phthalate	66		62		40-140	6		50
Dimethyl phthalate	67		64		40-140	5		50
Benzo(a)anthracene	72		69		40-140	4		50
Benzo(a)pyrene	78		75		40-140	4		50
Benzo(b)fluoranthene	76		70		40-140	8		50
Benzo(k)fluoranthene	72		70		40-140	3		50
Chrysene	72		68		40-140	6		50
Acenaphthylene	75		70		40-140	7		50
Anthracene	71		68		40-140	4		50
Benzo(ghi)perylene	72		70		40-140	3		50
Fluorene	69		66		40-140	4		50
Phenanthrene	70		67		40-140	4		50
Dibenzo(a,h)anthracene	70		68		40-140	3		50
Indeno(1,2,3-cd)pyrene	73		69		40-140	6		50
Pyrene	71		68		35-142	4		50
Biphenyl	72		68		37-127	6		50
4-Chloroaniline	**26**	Q	**30**	Q	40-140	14		50
2-Nitroaniline	72		69		47-134	4		50

Lab Control Sample Analysis
Batch Quality Control

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316525
Report Date: 04/12/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 02-17 Batch: WG1764356-2 WG1764356-3								
3-Nitroaniline	42		43		26-129	2		50
4-Nitroaniline	72		68		41-125	6		50
Dibenzofuran	71		67		40-140	6		50
2-Methylnaphthalene	70		65		40-140	7		50
1,2,4,5-Tetrachlorobenzene	70		67		40-117	4		50
Acetophenone	69		64		14-144	8		50
2,4,6-Trichlorophenol	77		73		30-130	5		50
p-Chloro-m-cresol	70		66		26-103	6		50
2-Chlorophenol	67		64		25-102	5		50
2,4-Dichlorophenol	72		69		30-130	4		50
2,4-Dimethylphenol	66		64		30-130	3		50
2-Nitrophenol	70		64		30-130	9		50
4-Nitrophenol	88		82		11-114	7		50
2,4-Dinitrophenol	25		27		4-130	8		50
4,6-Dinitro-o-cresol	70		71		10-130	1		50
Pentachlorophenol	82		74		17-109	10		50
Phenol	64		61		26-90	5		50
2-Methylphenol	64		61		30-130.	5		50
3-Methylphenol/4-Methylphenol	68		62		30-130	9		50
2,4,5-Trichlorophenol	76		75		30-130	1		50
Benzoic Acid	**0**	Q	**0**	Q	10-110	NC		50
Benzyl Alcohol	70		63		40-140	11		50
Carbazole	73		69		54-128	6		50

Lab Control Sample Analysis

Batch Quality Control

Project Name: ST. JOSEPH

Project Number: 26518.05

Lab Number: L2316525

Report Date: 04/12/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 02-17 Batch: WG1764356-2 WG1764356-3								
1,4-Dioxane	47		44		40-140	7		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	71		66		25-120
Phenol-d6	72		66		10-120
Nitrobenzene-d5	62		56		23-120
2-Fluorobiphenyl	70		63		30-120
2,4,6-Tribromophenol	86		81		10-136
4-Terphenyl-d14	70		67		18-120

Lab Control Sample Analysis

Batch Quality Control

Project Name: ST. JOSEPH

Project Number: 26518.05

Lab Number: L2316525

Report Date: 04/12/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,13 Batch: WG1765203-2 WG1765203-3								
Acenaphthene	69		64		31-137	8		50
1,2,4-Trichlorobenzene	65		60		38-107	8		50
Hexachlorobenzene	70		67		40-140	4		50
Bis(2-chloroethyl)ether	65		60		40-140	8		50
2-Chloronaphthalene	69		64		40-140	8		50
1,2-Dichlorobenzene	64		59		40-140	8		50
1,3-Dichlorobenzene	63		58		40-140	8		50
1,4-Dichlorobenzene	64		58		28-104	10		50
3,3'-Dichlorobenzidine	45		49		40-140	9		50
2,4-Dinitrotoluene	74		72		40-132	3		50
2,6-Dinitrotoluene	72		69		40-140	4		50
Fluoranthene	70		68		40-140	3		50
4-Chlorophenyl phenyl ether	70		66		40-140	6		50
4-Bromophenyl phenyl ether	71		69		40-140	3		50
Bis(2-chloroisopropyl)ether	68		62		40-140	9		50
Bis(2-chloroethoxy)methane	70		64		40-117	9		50
Hexachlorobutadiene	63		58		40-140	8		50
Hexachlorocyclopentadiene	81		73		40-140	10		50
Hexachloroethane	64		60		40-140	6		50
Isophorone	68		63		40-140	8		50
Naphthalene	68		62		40-140	9		50
Nitrobenzene	67		62		40-140	8		50
NDPA/DPA	72		70		36-157	3		50

Lab Control Sample Analysis

Batch Quality Control

Project Name: ST. JOSEPH

Project Number: 26518.05

Lab Number: L2316525

Report Date: 04/12/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,13 Batch: WG1765203-2 WG1765203-3								
n-Nitrosodi-n-propylamine	68		64		32-121	6		50
Bis(2-ethylhexyl)phthalate	78		74		40-140	5		50
Butyl benzyl phthalate	75		72		40-140	4		50
Di-n-butylphthalate	75		72		40-140	4		50
Di-n-octylphthalate	80		75		40-140	6		50
Diethyl phthalate	73		70		40-140	4		50
Dimethyl phthalate	72		70		40-140	3		50
Benzo(a)anthracene	71		69		40-140	3		50
Benzo(a)pyrene	74		70		40-140	6		50
Benzo(b)fluoranthene	67		64		40-140	5		50
Benzo(k)fluoranthene	73		68		40-140	7		50
Chrysene	69		67		40-140	3		50
Acenaphthylene	77		73		40-140	5		50
Anthracene	71		68		40-140	4		50
Benzo(ghi)perylene	66		64		40-140	3		50
Fluorene	71		68		40-140	4		50
Phenanthrene	68		66		40-140	3		50
Dibenzo(a,h)anthracene	67		65		40-140	3		50
Indeno(1,2,3-cd)pyrene	66		65		40-140	2		50
Pyrene	70		67		35-142	4		50
Biphenyl	70		67		37-127	4		50
4-Chloroaniline	57		55		40-140	4		50
2-Nitroaniline	74		71		47-134	4		50

Lab Control Sample Analysis
Batch Quality Control

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316525
Report Date: 04/12/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,13 Batch: WG1765203-2 WG1765203-3								
3-Nitroaniline	43		50		26-129	15		50
4-Nitroaniline	69		69		41-125	0		50
Dibenzofuran	71		67		40-140	6		50
2-Methylnaphthalene	71		66		40-140	7		50
1,2,4,5-Tetrachlorobenzene	67		61		40-117	9		50
Acetophenone	69		64		14-144	8		50
2,4,6-Trichlorophenol	73		70		30-130	4		50
p-Chloro-m-cresol	77		72		26-103	7		50
2-Chlorophenol	68		64		25-102	6		50
2,4-Dichlorophenol	72		67		30-130	7		50
2,4-Dimethylphenol	76		72		30-130	5		50
2-Nitrophenol	68		63		30-130	8		50
4-Nitrophenol	81		79		11-114	3		50
2,4-Dinitrophenol	62		54		4-130	14		50
4,6-Dinitro-o-cresol	79		77		10-130	3		50
Pentachlorophenol	80		71		17-109	12		50
Phenol	72		66		26-90	9		50
2-Methylphenol	70		66		30-130.	6		50
3-Methylphenol/4-Methylphenol	72		66		30-130	9		50
2,4,5-Trichlorophenol	74		71		30-130	4		50
Benzoic Acid	54		28		10-110	**63**	Q	50
Benzyl Alcohol	69		64		40-140	8		50
Carbazole	71		69		54-128	3		50

Lab Control Sample Analysis
Batch Quality Control

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316525
Report Date: 04/12/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,13 Batch: WG1765203-2 WG1765203-3								
1,4-Dioxane	51		46		40-140	10		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	73		67		25-120
Phenol-d6	74		67		10-120
Nitrobenzene-d5	67		62		23-120
2-Fluorobiphenyl	69		64		30-120
2,4,6-Tribromophenol	76		72		10-136
4-Terphenyl-d14	67		64		18-120

PCBS

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-01
Client ID: SB-1 (0'-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 09:05
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8082A
Analytical Date: 04/09/23 14:15
Analyst: MEO
Percent Solids: 88%

Extraction Method: EPA 3546
Extraction Date: 04/08/23 13:34
Cleanup Method: EPA 3665A
Cleanup Date: 04/09/23
Cleanup Method: EPA 3660B
Cleanup Date: 04/09/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	35.9	3.19	1	A
Aroclor 1221	ND		ug/kg	35.9	3.60	1	A
Aroclor 1232	ND		ug/kg	35.9	7.61	1	A
Aroclor 1242	ND		ug/kg	35.9	4.84	1	A
Aroclor 1248	23.6	J	ug/kg	35.9	5.38	1	B
Aroclor 1254	25.2	J	ug/kg	35.9	3.93	1	A
Aroclor 1260	ND		ug/kg	35.9	6.63	1	A
Aroclor 1262	ND		ug/kg	35.9	4.56	1	A
Aroclor 1268	ND		ug/kg	35.9	3.72	1	A
PCBs, Total	48.8	J	ug/kg	35.9	3.19	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	80		30-150	A
Decachlorobiphenyl	76		30-150	A
2,4,5,6-Tetrachloro-m-xylene	82		30-150	B
Decachlorobiphenyl	74		30-150	B

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-02
Client ID: SB-1 (5'-6.5')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 09:09
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8082A
Analytical Date: 04/09/23 14:23
Analyst: MEO
Percent Solids: 88%

Extraction Method: EPA 3546
Extraction Date: 04/08/23 13:34
Cleanup Method: EPA 3665A
Cleanup Date: 04/09/23
Cleanup Method: EPA 3660B
Cleanup Date: 04/09/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	36.6	3.25	1	A
Aroclor 1221	ND		ug/kg	36.6	3.67	1	A
Aroclor 1232	ND		ug/kg	36.6	7.76	1	A
Aroclor 1242	ND		ug/kg	36.6	4.93	1	A
Aroclor 1248	ND		ug/kg	36.6	5.49	1	A
Aroclor 1254	13.8	J	ug/kg	36.6	4.00	1	A
Aroclor 1260	ND		ug/kg	36.6	6.76	1	A
Aroclor 1262	ND		ug/kg	36.6	4.65	1	A
Aroclor 1268	ND		ug/kg	36.6	3.79	1	A
PCBs, Total	13.8	J	ug/kg	36.6	3.25	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	86		30-150	A
Decachlorobiphenyl	86		30-150	A
2,4,5,6-Tetrachloro-m-xylene	87		30-150	B
Decachlorobiphenyl	79		30-150	B

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-03
Client ID: SB-2 (0'-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 09:45
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8082A
Analytical Date: 04/09/23 14:31
Analyst: MEO
Percent Solids: 89%

Extraction Method: EPA 3546
Extraction Date: 04/08/23 13:34
Cleanup Method: EPA 3665A
Cleanup Date: 04/09/23
Cleanup Method: EPA 3660B
Cleanup Date: 04/09/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	37.1	3.30	1	A
Aroclor 1221	ND		ug/kg	37.1	3.72	1	A
Aroclor 1232	ND		ug/kg	37.1	7.88	1	A
Aroclor 1242	ND		ug/kg	37.1	5.01	1	A
Aroclor 1248	18.6	J	ug/kg	37.1	5.57	1	B
Aroclor 1254	17.0	J	ug/kg	37.1	4.06	1	A
Aroclor 1260	ND		ug/kg	37.1	6.86	1	A
Aroclor 1262	ND		ug/kg	37.1	4.72	1	A
Aroclor 1268	ND		ug/kg	37.1	3.85	1	A
PCBs, Total	35.6	J	ug/kg	37.1	3.30	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	80		30-150	A
Decachlorobiphenyl	75		30-150	A
2,4,5,6-Tetrachloro-m-xylene	81		30-150	B
Decachlorobiphenyl	69		30-150	B

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-04
Client ID: SB-2 (10'-12')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 09:47
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8082A
Analytical Date: 04/09/23 14:39
Analyst: MEO
Percent Solids: 88%

Extraction Method: EPA 3546
Extraction Date: 04/08/23 13:34
Cleanup Method: EPA 3665A
Cleanup Date: 04/09/23
Cleanup Method: EPA 3660B
Cleanup Date: 04/09/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	37.6	3.34	1	A
Aroclor 1221	ND		ug/kg	37.6	3.76	1	A
Aroclor 1232	ND		ug/kg	37.6	7.96	1	A
Aroclor 1242	ND		ug/kg	37.6	5.06	1	A
Aroclor 1248	11.9	J	ug/kg	37.6	5.63	1	B
Aroclor 1254	8.07	J	ug/kg	37.6	4.11	1	A
Aroclor 1260	ND		ug/kg	37.6	6.94	1	A
Aroclor 1262	ND		ug/kg	37.6	4.77	1	A
Aroclor 1268	ND		ug/kg	37.6	3.89	1	A
PCBs, Total	20.0	J	ug/kg	37.6	3.34	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	87		30-150	A
Decachlorobiphenyl	89		30-150	A
2,4,5,6-Tetrachloro-m-xylene	88		30-150	B
Decachlorobiphenyl	83		30-150	B

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-05
Client ID: SB-3 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 10:25
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8082A
Analytical Date: 04/09/23 14:47
Analyst: MEO
Percent Solids: 87%

Extraction Method: EPA 3546
Extraction Date: 04/08/23 13:34
Cleanup Method: EPA 3665A
Cleanup Date: 04/09/23
Cleanup Method: EPA 3660B
Cleanup Date: 04/09/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	37.1	3.30	1	A
Aroclor 1221	ND		ug/kg	37.1	3.72	1	A
Aroclor 1232	ND		ug/kg	37.1	7.87	1	A
Aroclor 1242	ND		ug/kg	37.1	5.01	1	A
Aroclor 1248	ND		ug/kg	37.1	5.57	1	A
Aroclor 1254	ND		ug/kg	37.1	4.06	1	A
Aroclor 1260	ND		ug/kg	37.1	6.86	1	A
Aroclor 1262	ND		ug/kg	37.1	4.72	1	A
Aroclor 1268	ND		ug/kg	37.1	3.85	1	A
PCBs, Total	ND		ug/kg	37.1	3.30	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	84		30-150	A
Decachlorobiphenyl	83		30-150	A
2,4,5,6-Tetrachloro-m-xylene	84		30-150	B
Decachlorobiphenyl	77		30-150	B

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-06
Client ID: SB-3 (6'-8')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 10:30
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8082A
Analytical Date: 04/09/23 14:55
Analyst: MEO
Percent Solids: 88%

Extraction Method: EPA 3546
Extraction Date: 04/08/23 13:34
Cleanup Method: EPA 3665A
Cleanup Date: 04/09/23
Cleanup Method: EPA 3660B
Cleanup Date: 04/09/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	36.6	3.25	1	A
Aroclor 1221	ND		ug/kg	36.6	3.66	1	A
Aroclor 1232	ND		ug/kg	36.6	7.75	1	A
Aroclor 1242	ND		ug/kg	36.6	4.93	1	A
Aroclor 1248	17.9	J	ug/kg	36.6	5.49	1	A
Aroclor 1254	17.7	J	ug/kg	36.6	4.00	1	A
Aroclor 1260	ND		ug/kg	36.6	6.76	1	A
Aroclor 1262	ND		ug/kg	36.6	4.64	1	A
Aroclor 1268	ND		ug/kg	36.6	3.79	1	A
PCBs, Total	35.6	J	ug/kg	36.6	3.25	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	88		30-150	A
Decachlorobiphenyl	89		30-150	A
2,4,5,6-Tetrachloro-m-xylene	86		30-150	B
Decachlorobiphenyl	79		30-150	B

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-07
Client ID: SB-4 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 10:55
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8082A
Analytical Date: 04/09/23 15:03
Analyst: MEO
Percent Solids: 90%

Extraction Method: EPA 3546
Extraction Date: 04/08/23 13:34
Cleanup Method: EPA 3665A
Cleanup Date: 04/09/23
Cleanup Method: EPA 3660B
Cleanup Date: 04/09/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	36.6	3.25	1	A
Aroclor 1221	ND		ug/kg	36.6	3.67	1	A
Aroclor 1232	ND		ug/kg	36.6	7.76	1	A
Aroclor 1242	ND		ug/kg	36.6	4.93	1	A
Aroclor 1248	ND		ug/kg	36.6	5.49	1	A
Aroclor 1254	ND		ug/kg	36.6	4.00	1	A
Aroclor 1260	14.5	J	ug/kg	36.6	6.76	1	B
Aroclor 1262	ND		ug/kg	36.6	4.65	1	A
Aroclor 1268	4.64	J	ug/kg	36.6	3.79	1	B
PCBs, Total	19.1	J	ug/kg	36.6	3.25	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	76		30-150	A
Decachlorobiphenyl	78		30-150	A
2,4,5,6-Tetrachloro-m-xylene	79		30-150	B
Decachlorobiphenyl	83		30-150	B

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-08
Client ID: SB-4 (4-6')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 11:00
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8082A
Analytical Date: 04/09/23 15:11
Analyst: MEO
Percent Solids: 69%

Extraction Method: EPA 3546
Extraction Date: 04/08/23 13:34
Cleanup Method: EPA 3665A
Cleanup Date: 04/09/23
Cleanup Method: EPA 3660B
Cleanup Date: 04/09/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	46.5	4.13	1	A
Aroclor 1221	ND		ug/kg	46.5	4.66	1	A
Aroclor 1232	ND		ug/kg	46.5	9.85	1	A
Aroclor 1242	ND		ug/kg	46.5	6.26	1	A
Aroclor 1248	ND		ug/kg	46.5	6.97	1	A
Aroclor 1254	ND		ug/kg	46.5	5.08	1	A
Aroclor 1260	60.9		ug/kg	46.5	8.59	1	A
Aroclor 1262	ND		ug/kg	46.5	5.90	1	A
Aroclor 1268	36.2	J	ug/kg	46.5	4.82	1	A
PCBs, Total	97.1	J	ug/kg	46.5	4.13	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	66		30-150	A
Decachlorobiphenyl	85		30-150	A
2,4,5,6-Tetrachloro-m-xylene	72		30-150	B
Decachlorobiphenyl	126		30-150	B

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-09
Client ID: SB-5 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 11:39
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8082A
Analytical Date: 04/09/23 15:19
Analyst: MEO
Percent Solids: 88%

Extraction Method: EPA 3546
Extraction Date: 04/08/23 13:34
Cleanup Method: EPA 3665A
Cleanup Date: 04/09/23
Cleanup Method: EPA 3660B
Cleanup Date: 04/09/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	37.5	3.33	1	A
Aroclor 1221	ND		ug/kg	37.5	3.76	1	A
Aroclor 1232	ND		ug/kg	37.5	7.96	1	A
Aroclor 1242	ND		ug/kg	37.5	5.06	1	A
Aroclor 1248	ND		ug/kg	37.5	5.63	1	A
Aroclor 1254	26.2	J	ug/kg	37.5	4.11	1	B
Aroclor 1260	17.1	J	ug/kg	37.5	6.94	1	A
Aroclor 1262	ND		ug/kg	37.5	4.77	1	A
Aroclor 1268	4.58	J	ug/kg	37.5	3.89	1	B
PCBs, Total	47.9	J	ug/kg	37.5	3.33	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	64		30-150	A
Decachlorobiphenyl	69		30-150	A
2,4,5,6-Tetrachloro-m-xylene	64		30-150	B
Decachlorobiphenyl	76		30-150	B

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-10
Client ID: SB-5 (12-14')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 11:40
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8082A
Analytical Date: 04/09/23 15:27
Analyst: MEO
Percent Solids: 92%

Extraction Method: EPA 3546
Extraction Date: 04/08/23 13:34
Cleanup Method: EPA 3665A
Cleanup Date: 04/09/23
Cleanup Method: EPA 3660B
Cleanup Date: 04/09/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	35.4	3.14	1	A
Aroclor 1221	ND		ug/kg	35.4	3.54	1	A
Aroclor 1232	ND		ug/kg	35.4	7.50	1	A
Aroclor 1242	ND		ug/kg	35.4	4.77	1	A
Aroclor 1248	ND		ug/kg	35.4	5.31	1	A
Aroclor 1254	ND		ug/kg	35.4	3.87	1	A
Aroclor 1260	30.3	J	ug/kg	35.4	6.54	1	A
Aroclor 1262	ND		ug/kg	35.4	4.49	1	A
Aroclor 1268	15.7	J	ug/kg	35.4	3.66	1	A
PCBs, Total	46.0	J	ug/kg	35.4	3.14	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	66		30-150	A
Decachlorobiphenyl	85		30-150	A
2,4,5,6-Tetrachloro-m-xylene	70		30-150	B
Decachlorobiphenyl	94		30-150	B

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-11
Client ID: SB-7 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 12:05
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8082A
Analytical Date: 04/09/23 15:35
Analyst: MEO
Percent Solids: 88%

Extraction Method: EPA 3546
Extraction Date: 04/08/23 13:34
Cleanup Method: EPA 3665A
Cleanup Date: 04/09/23
Cleanup Method: EPA 3660B
Cleanup Date: 04/09/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	36.0	3.20	1	A
Aroclor 1221	ND		ug/kg	36.0	3.61	1	A
Aroclor 1232	ND		ug/kg	36.0	7.64	1	A
Aroclor 1242	ND		ug/kg	36.0	4.86	1	A
Aroclor 1248	ND		ug/kg	36.0	5.40	1	A
Aroclor 1254	7.56	J	ug/kg	36.0	3.94	1	B
Aroclor 1260	ND		ug/kg	36.0	6.66	1	A
Aroclor 1262	ND		ug/kg	36.0	4.57	1	A
Aroclor 1268	ND		ug/kg	36.0	3.73	1	A
PCBs, Total	7.56	J	ug/kg	36.0	3.20	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	83		30-150	A
Decachlorobiphenyl	80		30-150	A
2,4,5,6-Tetrachloro-m-xylene	88		30-150	B
Decachlorobiphenyl	78		30-150	B

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-12
Client ID: SB-9 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 12:25
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8082A
Analytical Date: 04/09/23 15:43
Analyst: MEO
Percent Solids: 88%

Extraction Method: EPA 3546
Extraction Date: 04/08/23 13:34
Cleanup Method: EPA 3665A
Cleanup Date: 04/09/23
Cleanup Method: EPA 3660B
Cleanup Date: 04/09/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	37.5	3.33	1	A
Aroclor 1221	ND		ug/kg	37.5	3.76	1	A
Aroclor 1232	ND		ug/kg	37.5	7.95	1	A
Aroclor 1242	ND		ug/kg	37.5	5.06	1	A
Aroclor 1248	14.0	J	ug/kg	37.5	5.62	1	B
Aroclor 1254	19.2	J	ug/kg	37.5	4.10	1	A
Aroclor 1260	ND		ug/kg	37.5	6.93	1	A
Aroclor 1262	ND		ug/kg	37.5	4.76	1	A
Aroclor 1268	ND		ug/kg	37.5	3.88	1	A
PCBs, Total	33.2	J	ug/kg	37.5	3.33	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	78		30-150	A
Decachlorobiphenyl	73		30-150	A
2,4,5,6-Tetrachloro-m-xylene	84		30-150	B
Decachlorobiphenyl	72		30-150	B

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-13
Client ID: SB-10 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 12:53
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8082A
Analytical Date: 04/09/23 15:51
Analyst: MEO
Percent Solids: 88%

Extraction Method: EPA 3546
Extraction Date: 04/08/23 13:34
Cleanup Method: EPA 3665A
Cleanup Date: 04/09/23
Cleanup Method: EPA 3660B
Cleanup Date: 04/09/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	36.4	3.23	1	A
Aroclor 1221	ND		ug/kg	36.4	3.65	1	A
Aroclor 1232	ND		ug/kg	36.4	7.72	1	A
Aroclor 1242	ND		ug/kg	36.4	4.91	1	A
Aroclor 1248	6.09	J	ug/kg	36.4	5.46	1	B
Aroclor 1254	5.07	J	ug/kg	36.4	3.98	1	B
Aroclor 1260	ND		ug/kg	36.4	6.73	1	A
Aroclor 1262	ND		ug/kg	36.4	4.62	1	A
Aroclor 1268	ND		ug/kg	36.4	3.77	1	A
PCBs, Total	11.2	J	ug/kg	36.4	3.23	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	79		30-150	A
Decachlorobiphenyl	79		30-150	A
2,4,5,6-Tetrachloro-m-xylene	80		30-150	B
Decachlorobiphenyl	73		30-150	B

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-14
Client ID: SB-11 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 13:25
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8082A
Analytical Date: 04/09/23 15:59
Analyst: MEO
Percent Solids: 91%

Extraction Method: EPA 3546
Extraction Date: 04/08/23 13:34
Cleanup Method: EPA 3665A
Cleanup Date: 04/09/23
Cleanup Method: EPA 3660B
Cleanup Date: 04/09/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	36.6	3.25	1	A
Aroclor 1221	ND		ug/kg	36.6	3.66	1	A
Aroclor 1232	ND		ug/kg	36.6	7.75	1	A
Aroclor 1242	ND		ug/kg	36.6	4.93	1	A
Aroclor 1248	ND		ug/kg	36.6	5.48	1	A
Aroclor 1254	ND		ug/kg	36.6	4.00	1	A
Aroclor 1260	ND		ug/kg	36.6	6.76	1	A
Aroclor 1262	ND		ug/kg	36.6	4.64	1	A
Aroclor 1268	ND		ug/kg	36.6	3.79	1	A
PCBs, Total	ND		ug/kg	36.6	3.25	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	69		30-150	A
Decachlorobiphenyl	68		30-150	A
2,4,5,6-Tetrachloro-m-xylene	70		30-150	B
Decachlorobiphenyl	65		30-150	B

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-15
Client ID: SB-11 (6.5'-8.5')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 13:27
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8082A
Analytical Date: 04/09/23 16:07
Analyst: MEO
Percent Solids: 89%

Extraction Method: EPA 3546
Extraction Date: 04/08/23 13:34
Cleanup Method: EPA 3665A
Cleanup Date: 04/09/23
Cleanup Method: EPA 3660B
Cleanup Date: 04/09/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	36.6	3.25	1	A
Aroclor 1221	ND		ug/kg	36.6	3.67	1	A
Aroclor 1232	ND		ug/kg	36.6	7.76	1	A
Aroclor 1242	ND		ug/kg	36.6	4.93	1	A
Aroclor 1248	ND		ug/kg	36.6	5.49	1	A
Aroclor 1254	ND		ug/kg	36.6	4.00	1	A
Aroclor 1260	11.5	J	ug/kg	36.6	6.76	1	A
Aroclor 1262	ND		ug/kg	36.6	4.65	1	A
Aroclor 1268	ND		ug/kg	36.6	3.79	1	A
PCBs, Total	11.5	J	ug/kg	36.6	3.25	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	76		30-150	A
Decachlorobiphenyl	81		30-150	A
2,4,5,6-Tetrachloro-m-xylene	76		30-150	B
Decachlorobiphenyl	77		30-150	B

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-16
Client ID: SB-6 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 14:00
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8082A
Analytical Date: 04/09/23 16:15
Analyst: MEO
Percent Solids: 97%

Extraction Method: EPA 3546
Extraction Date: 04/08/23 13:34
Cleanup Method: EPA 3665A
Cleanup Date: 04/09/23
Cleanup Method: EPA 3660B
Cleanup Date: 04/09/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	34.0	3.02	1	A
Aroclor 1221	ND		ug/kg	34.0	3.41	1	A
Aroclor 1232	ND		ug/kg	34.0	7.22	1	A
Aroclor 1242	ND		ug/kg	34.0	4.59	1	A
Aroclor 1248	ND		ug/kg	34.0	5.11	1	A
Aroclor 1254	ND		ug/kg	34.0	3.72	1	A
Aroclor 1260	ND		ug/kg	34.0	6.29	1	B
Aroclor 1262	ND		ug/kg	34.0	4.32	1	A
Aroclor 1268	ND		ug/kg	34.0	3.53	1	A
PCBs, Total	ND		ug/kg	34.0	3.02	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	94		30-150	A
Decachlorobiphenyl	99		30-150	A
2,4,5,6-Tetrachloro-m-xylene	96		30-150	B
Decachlorobiphenyl	94		30-150	B

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-17
Client ID: SB-8 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 14:09
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8082A
Analytical Date: 04/09/23 16:23
Analyst: MEO
Percent Solids: 88%

Extraction Method: EPA 3546
Extraction Date: 04/08/23 13:34
Cleanup Method: EPA 3665A
Cleanup Date: 04/09/23
Cleanup Method: EPA 3660B
Cleanup Date: 04/09/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	37.5	3.33	1	A
Aroclor 1221	ND		ug/kg	37.5	3.76	1	A
Aroclor 1232	ND		ug/kg	37.5	7.95	1	A
Aroclor 1242	ND		ug/kg	37.5	5.06	1	A
Aroclor 1248	7.73	J	ug/kg	37.5	5.62	1	B
Aroclor 1254	7.64	J	ug/kg	37.5	4.10	1	B
Aroclor 1260	ND		ug/kg	37.5	6.93	1	A
Aroclor 1262	ND		ug/kg	37.5	4.76	1	A
Aroclor 1268	ND		ug/kg	37.5	3.88	1	A
PCBs, Total	15.4	J	ug/kg	37.5	3.33	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	86		30-150	A
Decachlorobiphenyl	92		30-150	A
2,4,5,6-Tetrachloro-m-xylene	89		30-150	B
Decachlorobiphenyl	87		30-150	B

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316525
Report Date: 04/12/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8082A
Analytical Date: 04/09/23 13:51
Analyst: MEO

Extraction Method: EPA 3546
Extraction Date: 04/08/23 13:34
Cleanup Method: EPA 3665A
Cleanup Date: 04/09/23
Cleanup Method: EPA 3660B
Cleanup Date: 04/09/23

Parameter	Result	Qualifier	Units	RL	MDL	Column
Polychlorinated Biphenyls by GC - Westborough Lab for sample(s): 01-17 Batch: WG1764354-1						
Aroclor 1016	ND		ug/kg	31.3	2.78	A
Aroclor 1221	ND		ug/kg	31.3	3.14	A
Aroclor 1232	ND		ug/kg	31.3	6.63	A
Aroclor 1242	ND		ug/kg	31.3	4.22	A
Aroclor 1248	ND		ug/kg	31.3	4.69	A
Aroclor 1254	ND		ug/kg	31.3	3.42	A
Aroclor 1260	ND		ug/kg	31.3	5.78	A
Aroclor 1262	ND		ug/kg	31.3	3.97	A
Aroclor 1268	ND		ug/kg	31.3	3.24	A
PCBs, Total	ND		ug/kg	31.3	2.78	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	99		30-150	A
Decachlorobiphenyl	101		30-150	A
2,4,5,6-Tetrachloro-m-xylene	103		30-150	B
Decachlorobiphenyl	96		30-150	B

Lab Control Sample Analysis

Batch Quality Control

Project Name: ST. JOSEPH

Project Number: 26518.05

Lab Number: L2316525

Report Date: 04/12/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01-17 Batch: WG1764354-2 WG1764354-3									
Aroclor 1016	97		96		40-140	1		50	A
Aroclor 1260	83		83		40-140	0		50	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	96		96		30-150	A
Decachlorobiphenyl	96		97		30-150	A
2,4,5,6-Tetrachloro-m-xylene	98		99		30-150	B
Decachlorobiphenyl	88		89		30-150	B

PESTICIDES

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-01
Client ID: SB-1 (0'-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 09:05
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8081B
Analytical Date: 04/11/23 09:48
Analyst: MMG
Percent Solids: 88%

Extraction Method: EPA 3546
Extraction Date: 04/09/23 00:42
Cleanup Method: EPA 3620B
Cleanup Date: 04/10/23
Cleanup Method: EPA 3660B
Cleanup Date: 04/11/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							
Delta-BHC	ND		ug/kg	1.73	0.338	1	A
Lindane	ND		ug/kg	0.720	0.322	1	A
Alpha-BHC	ND		ug/kg	0.720	0.204	1	A
Beta-BHC	ND		ug/kg	1.73	0.655	1	A
Heptachlor	ND		ug/kg	0.863	0.387	1	A
Aldrin	ND		ug/kg	1.73	0.608	1	A
Heptachlor epoxide	ND		ug/kg	3.24	0.971	1	A
Endrin	ND		ug/kg	0.720	0.295	1	A
Endrin aldehyde	ND		ug/kg	2.16	0.756	1	A
Endrin ketone	ND		ug/kg	1.73	0.445	1	A
Dieldrin	ND		ug/kg	1.08	0.540	1	A
4,4'-DDE	ND		ug/kg	1.73	0.399	1	A
4,4'-DDD	ND		ug/kg	1.73	0.616	1	A
4,4'-DDT	5.93		ug/kg	1.73	1.39	1	B
Endosulfan I	ND		ug/kg	1.73	0.408	1	A
Endosulfan II	ND		ug/kg	1.73	0.577	1	A
Endosulfan sulfate	ND		ug/kg	0.720	0.342	1	A
Methoxychlor	ND		ug/kg	3.24	1.01	1	A
Toxaphene	ND		ug/kg	32.4	9.07	1	A
cis-Chlordane	0.775	J	ug/kg	2.16	0.602	1	A
trans-Chlordane	2.73		ug/kg	2.16	0.570	1	A
Chlordane	19.2		ug/kg	14.4	5.72	1	B

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-01 Date Collected: 03/29/23 09:05

Client ID: SB-1 (0'-2') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	78		30-150	A
Decachlorobiphenyl	106		30-150	A
2,4,5,6-Tetrachloro-m-xylene	76		30-150	B
Decachlorobiphenyl	98		30-150	B

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-02
Client ID: SB-1 (5'-6.5')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 09:09
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8081B
Analytical Date: 04/11/23 10:00
Analyst: MMG
Percent Solids: 88%

Extraction Method: EPA 3546
Extraction Date: 04/09/23 00:42
Cleanup Method: EPA 3620B
Cleanup Date: 04/10/23
Cleanup Method: EPA 3660B
Cleanup Date: 04/11/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							
Delta-BHC	ND		ug/kg	1.75	0.342	1	A
Lindane	ND		ug/kg	0.729	0.326	1	A
Alpha-BHC	ND		ug/kg	0.729	0.207	1	A
Beta-BHC	ND		ug/kg	1.75	0.663	1	A
Heptachlor	2.02		ug/kg	0.874	0.392	1	A
Aldrin	ND		ug/kg	1.75	0.616	1	A
Heptachlor epoxide	ND		ug/kg	3.28	0.984	1	A
Endrin	ND		ug/kg	0.729	0.299	1	A
Endrin aldehyde	ND		ug/kg	2.19	0.765	1	A
Endrin ketone	ND		ug/kg	1.75	0.450	1	A
Dieldrin	ND		ug/kg	1.09	0.546	1	A
4,4'-DDE	1.23	J	ug/kg	1.75	0.404	1	A
4,4'-DDD	ND		ug/kg	1.75	0.624	1	A
4,4'-DDT	11.8		ug/kg	1.75	1.41	1	B
Endosulfan I	ND		ug/kg	1.75	0.413	1	A
Endosulfan II	ND		ug/kg	1.75	0.584	1	A
Endosulfan sulfate	ND		ug/kg	0.729	0.347	1	A
Methoxychlor	ND		ug/kg	3.28	1.02	1	A
Toxaphene	ND		ug/kg	32.8	9.18	1	A
cis-Chlordane	17.6		ug/kg	2.19	0.609	1	A
trans-Chlordane	18.7		ug/kg	2.19	0.577	1	A
Chlordane	117		ug/kg	14.6	5.79	1	B

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-02 Date Collected: 03/29/23 09:09

Client ID: SB-1 (5'-6.5') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	78		30-150	A
Decachlorobiphenyl	95		30-150	A
2,4,5,6-Tetrachloro-m-xylene	73		30-150	B
Decachlorobiphenyl	93		30-150	B

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-03
Client ID: SB-2 (0'-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 09:45
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8081B
Analytical Date: 04/11/23 10:11
Analyst: MMG
Percent Solids: 89%

Extraction Method: EPA 3546
Extraction Date: 04/09/23 00:42
Cleanup Method: EPA 3620B
Cleanup Date: 04/10/23
Cleanup Method: EPA 3660B
Cleanup Date: 04/11/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							
Delta-BHC	ND		ug/kg	1.69	0.331	1	A
Lindane	ND		ug/kg	0.704	0.315	1	A
Alpha-BHC	ND		ug/kg	0.704	0.200	1	A
Beta-BHC	ND		ug/kg	1.69	0.641	1	A
Heptachlor	ND		ug/kg	0.845	0.379	1	A
Aldrin	ND		ug/kg	1.69	0.595	1	A
Heptachlor epoxide	ND		ug/kg	3.17	0.951	1	A
Endrin	ND		ug/kg	0.704	0.289	1	A
Endrin aldehyde	ND		ug/kg	2.11	0.740	1	A
Endrin ketone	ND		ug/kg	1.69	0.435	1	A
Dieldrin	ND		ug/kg	1.06	0.528	1	A
4,4'-DDE	ND		ug/kg	1.69	0.391	1	A
4,4'-DDD	ND		ug/kg	1.69	0.603	1	A
4,4'-DDT	2.69		ug/kg	1.69	1.36	1	B
Endosulfan I	ND		ug/kg	1.69	0.399	1	A
Endosulfan II	ND		ug/kg	1.69	0.565	1	A
Endosulfan sulfate	ND		ug/kg	0.704	0.335	1	A
Methoxychlor	ND		ug/kg	3.17	0.986	1	A
Toxaphene	ND		ug/kg	31.7	8.87	1	A
cis-Chlordane	ND		ug/kg	2.11	0.589	1	A
trans-Chlordane	0.632	JIP	ug/kg	2.11	0.558	1	B
Chlordane	ND		ug/kg	14.1	5.60	1	A

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-03 Date Collected: 03/29/23 09:45

Client ID: SB-2 (0'-2') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	79		30-150	A
Decachlorobiphenyl	99		30-150	A
2,4,5,6-Tetrachloro-m-xylene	77		30-150	B
Decachlorobiphenyl	93		30-150	B

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-04
Client ID: SB-2 (10'-12')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 09:47
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8081B
Analytical Date: 04/11/23 10:22
Analyst: MMG
Percent Solids: 88%

Extraction Method: EPA 3546
Extraction Date: 04/09/23 00:42
Cleanup Method: EPA 3620B
Cleanup Date: 04/10/23
Cleanup Method: EPA 3660B
Cleanup Date: 04/11/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							
Delta-BHC	ND		ug/kg	1.70	0.334	1	A
Lindane	ND		ug/kg	0.710	0.318	1	A
Alpha-BHC	ND		ug/kg	0.710	0.202	1	A
Beta-BHC	ND		ug/kg	1.70	0.646	1	A
Heptachlor	ND		ug/kg	0.852	0.382	1	A
Aldrin	ND		ug/kg	1.70	0.600	1	A
Heptachlor epoxide	ND		ug/kg	3.20	0.959	1	A
Endrin	ND		ug/kg	0.710	0.291	1	A
Endrin aldehyde	ND		ug/kg	2.13	0.746	1	A
Endrin ketone	ND		ug/kg	1.70	0.439	1	A
Dieldrin	ND		ug/kg	1.06	0.533	1	A
4,4'-DDE	ND		ug/kg	1.70	0.394	1	A
4,4'-DDD	ND		ug/kg	1.70	0.608	1	A
4,4'-DDT	ND		ug/kg	1.70	1.37	1	A
Endosulfan I	ND		ug/kg	1.70	0.403	1	A
Endosulfan II	ND		ug/kg	1.70	0.570	1	A
Endosulfan sulfate	ND		ug/kg	0.710	0.338	1	A
Methoxychlor	ND		ug/kg	3.20	0.994	1	A
Toxaphene	ND		ug/kg	32.0	8.95	1	A
cis-Chlordane	0.656	J	ug/kg	2.13	0.594	1	A
trans-Chlordane	ND	IP	ug/kg	2.13	0.562	1	B
Chlordane	ND		ug/kg	14.2	5.65	1	A

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-04 Date Collected: 03/29/23 09:47

Client ID: SB-2 (10'-12') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	74		30-150	A
Decachlorobiphenyl	99		30-150	A
2,4,5,6-Tetrachloro-m-xylene	72		30-150	B
Decachlorobiphenyl	90		30-150	B

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-05
Client ID: SB-3 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 10:25
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8081B
Analytical Date: 04/11/23 10:34
Analyst: MMG
Percent Solids: 87%

Extraction Method: EPA 3546
Extraction Date: 04/09/23 00:42
Cleanup Method: EPA 3620B
Cleanup Date: 04/10/23
Cleanup Method: EPA 3660B
Cleanup Date: 04/11/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							
Delta-BHC	ND		ug/kg	1.74	0.340	1	A
Lindane	ND		ug/kg	0.723	0.323	1	A
Alpha-BHC	ND		ug/kg	0.723	0.205	1	A
Beta-BHC	ND		ug/kg	1.74	0.658	1	A
Heptachlor	ND		ug/kg	0.868	0.389	1	A
Aldrin	ND		ug/kg	1.74	0.611	1	A
Heptachlor epoxide	ND		ug/kg	3.25	0.976	1	A
Endrin	ND		ug/kg	0.723	0.296	1	A
Endrin aldehyde	ND		ug/kg	2.17	0.759	1	A
Endrin ketone	ND		ug/kg	1.74	0.447	1	A
Dieldrin	ND		ug/kg	1.08	0.542	1	A
4,4'-DDE	ND		ug/kg	1.74	0.401	1	A
4,4'-DDD	ND		ug/kg	1.74	0.619	1	A
4,4'-DDT	ND	IP	ug/kg	1.74	1.40	1	A
Endosulfan I	ND		ug/kg	1.74	0.410	1	A
Endosulfan II	ND		ug/kg	1.74	0.580	1	A
Endosulfan sulfate	ND		ug/kg	0.723	0.344	1	A
Methoxychlor	ND		ug/kg	3.25	1.01	1	A
Toxaphene	ND		ug/kg	32.5	9.11	1	A
cis-Chlordane	ND		ug/kg	2.17	0.604	1	A
trans-Chlordane	ND	IP	ug/kg	2.17	0.573	1	B
Chlordane	ND		ug/kg	14.5	5.75	1	A

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-05 Date Collected: 03/29/23 10:25

Client ID: SB-3 (0-2') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	84		30-150	A
Decachlorobiphenyl	114		30-150	A
2,4,5,6-Tetrachloro-m-xylene	86		30-150	B
Decachlorobiphenyl	112		30-150	B

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-06
Client ID: SB-3 (6'-8')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 10:30
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8081B
Analytical Date: 04/11/23 10:45
Analyst: MMG
Percent Solids: 88%

Extraction Method: EPA 3546
Extraction Date: 04/09/23 00:42
Cleanup Method: EPA 3620B
Cleanup Date: 04/10/23
Cleanup Method: EPA 3660B
Cleanup Date: 04/11/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							
Delta-BHC	ND		ug/kg	1.74	0.341	1	A
Lindane	ND		ug/kg	0.725	0.324	1	A
Alpha-BHC	ND		ug/kg	0.725	0.206	1	A
Beta-BHC	ND		ug/kg	1.74	0.660	1	A
Heptachlor	ND		ug/kg	0.870	0.390	1	A
Aldrin	ND		ug/kg	1.74	0.613	1	A
Heptachlor epoxide	ND		ug/kg	3.26	0.979	1	A
Endrin	ND		ug/kg	0.725	0.297	1	A
Endrin aldehyde	ND		ug/kg	2.18	0.762	1	A
Endrin ketone	ND		ug/kg	1.74	0.448	1	A
Dieldrin	ND		ug/kg	1.09	0.544	1	A
4,4'-DDE	ND		ug/kg	1.74	0.402	1	A
4,4'-DDD	ND		ug/kg	1.74	0.621	1	A
4,4'-DDT	2.57		ug/kg	1.74	1.40	1	B
Endosulfan I	ND		ug/kg	1.74	0.411	1	A
Endosulfan II	ND		ug/kg	1.74	0.582	1	A
Endosulfan sulfate	ND		ug/kg	0.725	0.345	1	A
Methoxychlor	ND		ug/kg	3.26	1.02	1	A
Toxaphene	ND		ug/kg	32.6	9.14	1	A
cis-Chlordane	ND		ug/kg	2.18	0.606	1	A
trans-Chlordane	1.05	J	ug/kg	2.18	0.574	1	A
Chlordane	ND		ug/kg	14.5	5.77	1	A

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-06 Date Collected: 03/29/23 10:30

Client ID: SB-3 (6'-8') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	87		30-150	A
Decachlorobiphenyl	108		30-150	A
2,4,5,6-Tetrachloro-m-xylene	85		30-150	B
Decachlorobiphenyl	102		30-150	B

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-07
Client ID: SB-4 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 10:55
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8081B
Analytical Date: 04/11/23 10:57
Analyst: MMG
Percent Solids: 90%

Extraction Method: EPA 3546
Extraction Date: 04/09/23 00:42
Cleanup Method: EPA 3620B
Cleanup Date: 04/10/23
Cleanup Method: EPA 3660B
Cleanup Date: 04/11/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							
Delta-BHC	ND		ug/kg	1.76	0.344	1	A
Lindane	ND		ug/kg	0.732	0.327	1	A
Alpha-BHC	ND		ug/kg	0.732	0.208	1	A
Beta-BHC	ND		ug/kg	1.76	0.666	1	A
Heptachlor	ND		ug/kg	0.879	0.394	1	A
Aldrin	ND		ug/kg	1.76	0.619	1	A
Heptachlor epoxide	ND		ug/kg	3.29	0.988	1	A
Endrin	ND		ug/kg	0.732	0.300	1	A
Endrin aldehyde	ND		ug/kg	2.20	0.769	1	A
Endrin ketone	ND		ug/kg	1.76	0.452	1	A
Dieldrin	ND		ug/kg	1.10	0.549	1	A
4,4'-DDE	ND		ug/kg	1.76	0.406	1	A
4,4'-DDD	6.57		ug/kg	1.76	0.627	1	B
4,4'-DDT	76.8		ug/kg	1.76	1.41	1	B
Endosulfan I	ND		ug/kg	1.76	0.415	1	A
Endosulfan II	ND		ug/kg	1.76	0.587	1	A
Endosulfan sulfate	ND		ug/kg	0.732	0.348	1	A
Methoxychlor	ND		ug/kg	3.29	1.02	1	A
Toxaphene	ND		ug/kg	32.9	9.22	1	A
cis-Chlordane	17.6	IP	ug/kg	2.20	0.612	1	B
trans-Chlordane	18.4	IP	ug/kg	2.20	0.580	1	A
Chlordane	ND		ug/kg	14.6	5.82	1	A

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-07 Date Collected: 03/29/23 10:55

Client ID: SB-4 (0-2') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	96		30-150	A
Decachlorobiphenyl	83		30-150	A
2,4,5,6-Tetrachloro-m-xylene	93		30-150	B
Decachlorobiphenyl	133		30-150	B

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-08
Client ID: SB-4 (4-6')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 11:00
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8081B
Analytical Date: 04/11/23 11:08
Analyst: MMG
Percent Solids: 69%

Extraction Method: EPA 3546
Extraction Date: 04/09/23 00:42
Cleanup Method: EPA 3620B
Cleanup Date: 04/10/23
Cleanup Method: EPA 3660B
Cleanup Date: 04/11/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							
Delta-BHC	ND		ug/kg	2.28	0.446	1	A
Lindane	ND		ug/kg	0.949	0.424	1	A
Alpha-BHC	ND		ug/kg	0.949	0.270	1	A
Beta-BHC	ND		ug/kg	2.28	0.864	1	A
Heptachlor	1.75		ug/kg	1.14	0.511	1	A
Aldrin	ND		ug/kg	2.28	0.802	1	A
Heptachlor epoxide	4.68		ug/kg	4.27	1.28	1	A
Endrin	ND		ug/kg	0.949	0.389	1	A
Endrin aldehyde	ND		ug/kg	2.85	0.996	1	A
Endrin ketone	ND		ug/kg	2.28	0.586	1	A
Dieldrin	58.2		ug/kg	1.42	0.712	1	B
4,4'-DDE	181		ug/kg	2.28	0.527	1	B
4,4'-DDD	26.8		ug/kg	2.28	0.812	1	B
4,4'-DDT	782	E	ug/kg	2.28	1.83	1	B
Endosulfan I	ND		ug/kg	2.28	0.538	1	A
Endosulfan II	ND		ug/kg	2.28	0.761	1	A
Endosulfan sulfate	ND		ug/kg	0.949	0.452	1	A
Methoxychlor	ND		ug/kg	4.27	1.33	1	A
Toxaphene	ND		ug/kg	42.7	12.0	1	A
cis-Chlordane	24.0	IP	ug/kg	2.85	0.793	1	B
trans-Chlordane	34.1		ug/kg	2.85	0.752	1	A
Chlordane	157		ug/kg	19.0	7.54	1	B

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-08 Date Collected: 03/29/23 11:00

Client ID: SB-4 (4-6') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	92		30-150	A
Decachlorobiphenyl	110		30-150	A
2,4,5,6-Tetrachloro-m-xylene	85		30-150	B
Decachlorobiphenyl	**153**	Q	30-150	B

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-08 D
Client ID: SB-4 (4-6')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Sample Depth:
Matrix: Soil
Analytical Method: 1,8081B
Analytical Date: 04/11/23 15:17
Analyst: MMG
Percent Solids: 69%

Date Collected: 03/29/23 11:00
Date Received: 03/29/23
Field Prep: Not Specified

Extraction Method: EPA 3546
Extraction Date: 04/09/23 00:42
Cleanup Method: EPA 3620B
Cleanup Date: 04/10/23
Cleanup Method: EPA 3660B
Cleanup Date: 04/11/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							
4,4'-DDT	806		ug/kg	11.4	9.16	5	B

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-09
Client ID: SB-5 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 11:39
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8081B
Analytical Date: 04/11/23 11:20
Analyst: MMG
Percent Solids: 88%

Extraction Method: EPA 3546
Extraction Date: 04/09/23 00:42
Cleanup Method: EPA 3620B
Cleanup Date: 04/10/23
Cleanup Method: EPA 3660B
Cleanup Date: 04/11/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							
Delta-BHC	ND		ug/kg	1.76	0.344	1	A
Lindane	ND		ug/kg	0.732	0.327	1	A
Alpha-BHC	ND		ug/kg	0.732	0.208	1	A
Beta-BHC	ND		ug/kg	1.76	0.666	1	A
Heptachlor	ND		ug/kg	0.878	0.394	1	A
Aldrin	ND		ug/kg	1.76	0.618	1	A
Heptachlor epoxide	ND		ug/kg	3.29	0.988	1	B
Endrin	ND		ug/kg	0.732	0.300	1	A
Endrin aldehyde	ND		ug/kg	2.20	0.768	1	A
Endrin ketone	ND		ug/kg	1.76	0.452	1	A
Dieldrin	4.12		ug/kg	1.10	0.549	1	B
4,4'-DDE	7.16		ug/kg	1.76	0.406	1	A
4,4'-DDD	1.03	J	ug/kg	1.76	0.626	1	B
4,4'-DDT	21.7		ug/kg	1.76	1.41	1	B
Endosulfan I	ND		ug/kg	1.76	0.415	1	A
Endosulfan II	ND		ug/kg	1.76	0.587	1	A
Endosulfan sulfate	ND		ug/kg	0.732	0.348	1	A
Methoxychlor	ND		ug/kg	3.29	1.02	1	A
Toxaphene	ND		ug/kg	32.9	9.22	1	A
cis-Chlordane	2.63	IP	ug/kg	2.20	0.612	1	B
trans-Chlordane	2.18	JIP	ug/kg	2.20	0.580	1	B
Chlordane	16.6		ug/kg	14.6	5.82	1	A

Project Name: ST. JOSEPH
Lab Number: L2316525
Project Number: 26518.05
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-09
Client ID: SB-5 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 11:39
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	88		30-150	A
Decachlorobiphenyl	81		30-150	A
2,4,5,6-Tetrachloro-m-xylene	82		30-150	B
Decachlorobiphenyl	95		30-150	B

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-10
Client ID: SB-5 (12-14')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 11:40
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8081B
Analytical Date: 04/11/23 11:31
Analyst: MMG
Percent Solids: 92%

Extraction Method: EPA 3546
Extraction Date: 04/09/23 00:42
Cleanup Method: EPA 3620B
Cleanup Date: 04/10/23
Cleanup Method: EPA 3660B
Cleanup Date: 04/11/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							
Delta-BHC	ND		ug/kg	1.70	0.333	1	A
Lindane	ND		ug/kg	0.709	0.317	1	A
Alpha-BHC	ND		ug/kg	0.709	0.201	1	A
Beta-BHC	ND		ug/kg	1.70	0.646	1	A
Heptachlor	0.456	J	ug/kg	0.851	0.382	1	A
Aldrin	ND		ug/kg	1.70	0.599	1	A
Heptachlor epoxide	1.19	J	ug/kg	3.19	0.958	1	A
Endrin	ND		ug/kg	0.709	0.291	1	A
Endrin aldehyde	ND		ug/kg	2.13	0.745	1	A
Endrin ketone	ND		ug/kg	1.70	0.438	1	A
Dieldrin	69.0		ug/kg	1.06	0.532	1	B
4,4'-DDE	34.0		ug/kg	1.70	0.394	1	B
4,4'-DDD	4.39		ug/kg	1.70	0.607	1	B
4,4'-DDT	126		ug/kg	1.70	1.37	1	B
Endosulfan I	ND		ug/kg	1.70	0.402	1	A
Endosulfan II	ND		ug/kg	1.70	0.569	1	A
Endosulfan sulfate	ND		ug/kg	0.709	0.338	1	A
Methoxychlor	ND		ug/kg	3.19	0.993	1	A
Toxaphene	ND		ug/kg	31.9	8.94	1	A
cis-Chlordane	13.5	IP	ug/kg	2.13	0.593	1	B
trans-Chlordane	20.2		ug/kg	2.13	0.562	1	A
Chlordane	74.6		ug/kg	14.2	5.64	1	B

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-10 Date Collected: 03/29/23 11:40

Client ID: SB-5 (12-14') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	83		30-150	A
Decachlorobiphenyl	83		30-150	A
2,4,5,6-Tetrachloro-m-xylene	78		30-150	B
Decachlorobiphenyl	87		30-150	B

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-11
Client ID: SB-7 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 12:05
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8081B
Analytical Date: 04/11/23 11:43
Analyst: MMG
Percent Solids: 88%

Extraction Method: EPA 3546
Extraction Date: 04/09/23 00:42
Cleanup Method: EPA 3620B
Cleanup Date: 04/10/23
Cleanup Method: EPA 3660B
Cleanup Date: 04/11/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							
Delta-BHC	ND		ug/kg	1.72	0.338	1	A
Lindane	ND		ug/kg	0.718	0.321	1	A
Alpha-BHC	ND		ug/kg	0.718	0.204	1	A
Beta-BHC	ND		ug/kg	1.72	0.654	1	A
Heptachlor	ND		ug/kg	0.862	0.386	1	A
Aldrin	ND		ug/kg	1.72	0.607	1	A
Heptachlor epoxide	ND		ug/kg	3.23	0.970	1	A
Endrin	ND		ug/kg	0.718	0.295	1	A
Endrin aldehyde	ND		ug/kg	2.16	0.754	1	A
Endrin ketone	ND		ug/kg	1.72	0.444	1	A
Dieldrin	ND		ug/kg	1.08	0.539	1	A
4,4'-DDE	ND		ug/kg	1.72	0.399	1	A
4,4'-DDD	ND		ug/kg	1.72	0.615	1	A
4,4'-DDT	2.37		ug/kg	1.72	1.39	1	B
Endosulfan I	ND		ug/kg	1.72	0.407	1	A
Endosulfan II	ND		ug/kg	1.72	0.576	1	A
Endosulfan sulfate	ND		ug/kg	0.718	0.342	1	A
Methoxychlor	ND		ug/kg	3.23	1.01	1	A
Toxaphene	ND		ug/kg	32.3	9.05	1	A
cis-Chlordane	ND		ug/kg	2.16	0.601	1	A
trans-Chlordane	0.948	J	ug/kg	2.16	0.569	1	A
Chlordane	ND		ug/kg	14.4	5.71	1	A

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-11 Date Collected: 03/29/23 12:05

Client ID: SB-7 (0-2') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	72		30-150	A
Decachlorobiphenyl	84		30-150	A
2,4,5,6-Tetrachloro-m-xylene	68		30-150	B
Decachlorobiphenyl	76		30-150	B

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-12
Client ID: SB-9 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 12:25
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8081B
Analytical Date: 04/11/23 11:54
Analyst: MMG
Percent Solids: 88%

Extraction Method: EPA 3546
Extraction Date: 04/09/23 00:42
Cleanup Method: EPA 3620B
Cleanup Date: 04/10/23
Cleanup Method: EPA 3660B
Cleanup Date: 04/11/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							
Delta-BHC	ND		ug/kg	1.76	0.344	1	A
Lindane	ND		ug/kg	0.733	0.328	1	A
Alpha-BHC	ND		ug/kg	0.733	0.208	1	A
Beta-BHC	ND		ug/kg	1.76	0.667	1	A
Heptachlor	ND		ug/kg	0.880	0.394	1	A
Aldrin	ND		ug/kg	1.76	0.620	1	A
Heptachlor epoxide	ND		ug/kg	3.30	0.990	1	A
Endrin	ND		ug/kg	0.733	0.300	1	A
Endrin aldehyde	ND		ug/kg	2.20	0.770	1	A
Endrin ketone	ND		ug/kg	1.76	0.453	1	A
Dieldrin	ND		ug/kg	1.10	0.550	1	A
4,4'-DDE	ND		ug/kg	1.76	0.407	1	A
4,4'-DDD	ND		ug/kg	1.76	0.628	1	A
4,4'-DDT	1.64	JIP	ug/kg	1.76	1.41	1	B
Endosulfan I	ND		ug/kg	1.76	0.416	1	A
Endosulfan II	ND		ug/kg	1.76	0.588	1	A
Endosulfan sulfate	ND		ug/kg	0.733	0.349	1	A
Methoxychlor	ND		ug/kg	3.30	1.03	1	A
Toxaphene	ND		ug/kg	33.0	9.24	1	A
cis-Chlordane	ND		ug/kg	2.20	0.613	1	A
trans-Chlordane	ND	IP	ug/kg	2.20	0.581	1	B
Chlordane	ND		ug/kg	14.7	5.83	1	A

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-12 Date Collected: 03/29/23 12:25

Client ID: SB-9 (0-2') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	75		30-150	A
Decachlorobiphenyl	90		30-150	A
2,4,5,6-Tetrachloro-m-xylene	74		30-150	B
Decachlorobiphenyl	82		30-150	B

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-13
Client ID: SB-10 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 12:53
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8081B
Analytical Date: 04/11/23 12:05
Analyst: MMG
Percent Solids: 88%

Extraction Method: EPA 3546
Extraction Date: 04/09/23 00:51
Cleanup Method: EPA 3620B
Cleanup Date: 04/10/23
Cleanup Method: EPA 3660B
Cleanup Date: 04/11/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							
Delta-BHC	ND		ug/kg	1.78	0.348	1	A
Lindane	ND		ug/kg	0.740	0.331	1	A
Alpha-BHC	ND		ug/kg	0.740	0.210	1	A
Beta-BHC	ND		ug/kg	1.78	0.674	1	A
Heptachlor	ND		ug/kg	0.888	0.398	1	A
Aldrin	ND		ug/kg	1.78	0.626	1	A
Heptachlor epoxide	ND		ug/kg	3.33	1.00	1	A
Endrin	ND		ug/kg	0.740	0.304	1	A
Endrin aldehyde	ND		ug/kg	2.22	0.777	1	A
Endrin ketone	ND		ug/kg	1.78	0.458	1	A
Dieldrin	ND		ug/kg	1.11	0.555	1	A
4,4'-DDE	ND		ug/kg	1.78	0.411	1	A
4,4'-DDD	ND		ug/kg	1.78	0.634	1	A
4,4'-DDT	ND		ug/kg	1.78	1.43	1	A
Endosulfan I	ND		ug/kg	1.78	0.420	1	A
Endosulfan II	ND		ug/kg	1.78	0.594	1	A
Endosulfan sulfate	ND		ug/kg	0.740	0.352	1	A
Methoxychlor	ND		ug/kg	3.33	1.04	1	A
Toxaphene	ND		ug/kg	33.3	9.33	1	A
cis-Chlordane	1.56	J	ug/kg	2.22	0.619	1	A
trans-Chlordane	1.38	JIP	ug/kg	2.22	0.586	1	B
Chlordane	12.9	J	ug/kg	14.8	5.89	1	A

Project Name: ST. JOSEPH
Lab Number: L2316525
Project Number: 26518.05
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-13
Client ID: SB-10 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 12:53
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	77		30-150	A
Decachlorobiphenyl	96		30-150	A
2,4,5,6-Tetrachloro-m-xylene	74		30-150	B
Decachlorobiphenyl	88		30-150	B

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-14
Client ID: SB-11 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 13:25
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8081B
Analytical Date: 04/11/23 12:17
Analyst: MMG
Percent Solids: 91%

Extraction Method: EPA 3546
Extraction Date: 04/09/23 00:51
Cleanup Method: EPA 3620B
Cleanup Date: 04/10/23
Cleanup Method: EPA 3660B
Cleanup Date: 04/11/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							
Delta-BHC	ND		ug/kg	1.70	0.332	1	A
Lindane	ND		ug/kg	0.708	0.316	1	A
Alpha-BHC	ND		ug/kg	0.708	0.201	1	A
Beta-BHC	ND		ug/kg	1.70	0.644	1	A
Heptachlor	8.03		ug/kg	0.849	0.381	1	B
Aldrin	ND		ug/kg	1.70	0.598	1	A
Heptachlor epoxide	3.61	IP	ug/kg	3.18	0.955	1	B
Endrin	ND		ug/kg	0.708	0.290	1	A
Endrin aldehyde	ND		ug/kg	2.12	0.743	1	A
Endrin ketone	ND		ug/kg	1.70	0.437	1	A
Dieldrin	ND		ug/kg	1.06	0.531	1	A
4,4'-DDE	ND		ug/kg	1.70	0.393	1	A
4,4'-DDD	ND		ug/kg	1.70	0.606	1	A
4,4'-DDT	ND		ug/kg	1.70	1.36	1	A
Endosulfan I	ND		ug/kg	1.70	0.401	1	A
Endosulfan II	ND		ug/kg	1.70	0.567	1	A
Endosulfan sulfate	ND		ug/kg	0.708	0.337	1	A
Methoxychlor	ND		ug/kg	3.18	0.991	1	A
Toxaphene	ND		ug/kg	31.8	8.92	1	A
cis-Chlordane	151	IP	ug/kg	2.12	0.592	1	B
trans-Chlordane	216		ug/kg	2.12	0.560	1	A
Chlordane	931	E	ug/kg	14.2	5.62	1	B

Project Name: ST. JOSEPH **Lab Number:** L2316525

Project Number: 26518.05 **Report Date:** 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-14 Date Collected: 03/29/23 13:25

Client ID: SB-11 (0-2') Date Received: 03/29/23

Sample Location: 484 E. 178TH STREET, BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	82		30-150	A
Decachlorobiphenyl	101		30-150	A
2,4,5,6-Tetrachloro-m-xylene	77		30-150	B
Decachlorobiphenyl	98		30-150	B

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-14 D
Client ID: SB-11 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Sample Depth:
Matrix: Soil
Analytical Method: 1,8081B
Analytical Date: 04/12/23 07:00
Analyst: AKM
Percent Solids: 91%

Date Collected: 03/29/23 13:25
Date Received: 03/29/23
Field Prep: Not Specified

Extraction Method: EPA 3546
Extraction Date: 04/09/23 00:51
Cleanup Method: EPA 3620B
Cleanup Date: 04/10/23
Cleanup Method: EPA 3660B
Cleanup Date: 04/11/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							
Chlordane	1040		ug/kg	708	281.	50	B

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-15
Client ID: SB-11 (6.5'-8.5')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 13:27
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8081B
Analytical Date: 04/11/23 12:28
Analyst: MMG
Percent Solids: 89%

Extraction Method: EPA 3546
Extraction Date: 04/09/23 00:51
Cleanup Method: EPA 3620B
Cleanup Date: 04/10/23
Cleanup Method: EPA 3660B
Cleanup Date: 04/11/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							
Delta-BHC	ND		ug/kg	1.72	0.336	1	A
Lindane	ND		ug/kg	0.716	0.320	1	A
Alpha-BHC	ND		ug/kg	0.716	0.203	1	A
Beta-BHC	ND		ug/kg	1.72	0.652	1	A
Heptachlor	849	E	ug/kg	0.859	0.385	1	B
Aldrin	ND		ug/kg	1.72	0.605	1	A
Heptachlor epoxide	94.6		ug/kg	3.22	0.967	1	A
Endrin	ND		ug/kg	0.716	0.294	1	A
Endrin aldehyde	ND		ug/kg	2.15	0.752	1	A
Endrin ketone	ND		ug/kg	1.72	0.442	1	A
Dieldrin	ND		ug/kg	1.07	0.537	1	A
4,4'-DDE	ND		ug/kg	1.72	0.397	1	A
4,4'-DDD	ND		ug/kg	1.72	0.613	1	A
4,4'-DDT	164		ug/kg	1.72	1.38	1	A
Endosulfan I	ND		ug/kg	1.72	0.406	1	A
Endosulfan II	ND		ug/kg	1.72	0.574	1	A
Endosulfan sulfate	ND		ug/kg	0.716	0.341	1	A
Methoxychlor	ND		ug/kg	3.22	1.00	1	A
Toxaphene	ND		ug/kg	32.2	9.02	1	A
cis-Chlordane	3470	PE	ug/kg	2.15	0.599	1	A
trans-Chlordane	3540	E	ug/kg	2.15	0.567	1	A
Chlordane	24000	E	ug/kg	14.3	5.69	1	B

Project Name: ST. JOSEPH
Lab Number: L2316525
Project Number: 26518.05
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-15
Client ID: SB-11 (6.5'-8.5')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 13:27
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	102		30-150	A
Decachlorobiphenyl	93		30-150	A
2,4,5,6-Tetrachloro-m-xylene	97		30-150	B
Decachlorobiphenyl	131		30-150	B

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-15 D
Client ID: SB-11 (6.5'-8.5')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 13:27
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8081B
Analytical Date: 04/11/23 15:29
Analyst: MMG
Percent Solids: 89%

Extraction Method: EPA 3546
Extraction Date: 04/09/23 00:51
Cleanup Method: EPA 3620B
Cleanup Date: 04/10/23
Cleanup Method: EPA 3660B
Cleanup Date: 04/11/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							
Heptachlor	699		ug/kg	43.0	19.3	50	B
cis-Chlordane	1890	IP	ug/kg	107	29.9	50	B
trans-Chlordane	3110		ug/kg	107	28.4	50	A
Chlordane	21200		ug/kg	716	285.	50	B

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-16
Client ID: SB-6 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 14:00
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8081B
Analytical Date: 04/11/23 12:40
Analyst: MMG
Percent Solids: 97%

Extraction Method: EPA 3546
Extraction Date: 04/09/23 00:51
Cleanup Method: EPA 3620B
Cleanup Date: 04/10/23
Cleanup Method: EPA 3660B
Cleanup Date: 04/11/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							
Delta-BHC	ND		ug/kg	1.56	0.306	1	A
Lindane	ND		ug/kg	0.652	0.291	1	A
Alpha-BHC	ND		ug/kg	0.652	0.185	1	A
Beta-BHC	ND		ug/kg	1.56	0.593	1	A
Heptachlor	ND		ug/kg	0.782	0.351	1	A
Aldrin	ND		ug/kg	1.56	0.551	1	A
Heptachlor epoxide	ND		ug/kg	2.93	0.880	1	A
Endrin	ND		ug/kg	0.652	0.267	1	A
Endrin aldehyde	ND		ug/kg	1.96	0.684	1	A
Endrin ketone	ND		ug/kg	1.56	0.403	1	A
Dieldrin	ND		ug/kg	0.978	0.489	1	A
4,4'-DDE	ND		ug/kg	1.56	0.362	1	A
4,4'-DDD	ND		ug/kg	1.56	0.558	1	A
4,4'-DDT	ND		ug/kg	1.56	1.26	1	A
Endosulfan I	ND		ug/kg	1.56	0.370	1	A
Endosulfan II	ND		ug/kg	1.56	0.523	1	A
Endosulfan sulfate	ND		ug/kg	0.652	0.310	1	A
Methoxychlor	ND		ug/kg	2.93	0.912	1	A
Toxaphene	ND		ug/kg	29.3	8.21	1	A
cis-Chlordane	1.98	IP	ug/kg	1.96	0.545	1	B
trans-Chlordane	1.82	JIP	ug/kg	1.96	0.516	1	B
Chlordane	ND		ug/kg	13.0	5.18	1	A

Project Name: ST. JOSEPH
Lab Number: L2316525
Project Number: 26518.05
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-16
Client ID: SB-6 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 14:00
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	73		30-150	A
Decachlorobiphenyl	91		30-150	A
2,4,5,6-Tetrachloro-m-xylene	70		30-150	B
Decachlorobiphenyl	81		30-150	B

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-17
Client ID: SB-8 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY

Date Collected: 03/29/23 14:09
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8081B
Analytical Date: 04/11/23 12:51
Analyst: MMG
Percent Solids: 88%

Extraction Method: EPA 3546
Extraction Date: 04/09/23 00:51
Cleanup Method: EPA 3620B
Cleanup Date: 04/10/23
Cleanup Method: EPA 3660B
Cleanup Date: 04/11/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							
Delta-BHC	ND		ug/kg	1.72	0.337	1	A
Lindane	ND		ug/kg	0.717	0.321	1	A
Alpha-BHC	ND		ug/kg	0.717	0.204	1	A
Beta-BHC	ND		ug/kg	1.72	0.653	1	A
Heptachlor	ND		ug/kg	0.861	0.386	1	A
Aldrin	ND		ug/kg	1.72	0.606	1	A
Heptachlor epoxide	ND		ug/kg	3.23	0.968	1	A
Endrin	ND		ug/kg	0.717	0.294	1	A
Endrin aldehyde	ND		ug/kg	2.15	0.753	1	A
Endrin ketone	ND		ug/kg	1.72	0.443	1	A
Dieldrin	ND		ug/kg	1.08	0.538	1	A
4,4'-DDE	ND		ug/kg	1.72	0.398	1	A
4,4'-DDD	ND		ug/kg	1.72	0.614	1	A
4,4'-DDT	1.84		ug/kg	1.72	1.38	1	A
Endosulfan I	ND		ug/kg	1.72	0.407	1	A
Endosulfan II	ND		ug/kg	1.72	0.575	1	A
Endosulfan sulfate	ND		ug/kg	0.717	0.341	1	A
Methoxychlor	ND		ug/kg	3.23	1.00	1	A
Toxaphene	ND		ug/kg	32.3	9.04	1	A
cis-Chlordane	ND		ug/kg	2.15	0.600	1	A
trans-Chlordane	ND		ug/kg	2.15	0.568	1	A
Chlordane	ND		ug/kg	14.3	5.70	1	A

Project Name: ST. JOSEPH
Lab Number: L2316525
Project Number: 26518.05
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-17
Client ID: SB-8 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 14:09
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Westborough Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	74		30-150	A
Decachlorobiphenyl	89		30-150	A
2,4,5,6-Tetrachloro-m-xylene	70		30-150	B
Decachlorobiphenyl	80		30-150	B

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316525
Report Date: 04/12/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8081B
Analytical Date: 04/11/23 09:14
Analyst: MMG

Extraction Method: EPA 3546
Extraction Date: 04/09/23 00:42
Cleanup Method: EPA 3620B
Cleanup Date: 04/10/23
Cleanup Method: EPA 3660B
Cleanup Date: 04/11/23

Parameter	Result	Qualifier	Units	RL	MDL	Column
Organochlorine Pesticides by GC - Westborough Lab for sample(s): 01-17 Batch: WG1764412-1						
Delta-BHC	ND		ug/kg	1.54	0.301	A
Lindane	ND		ug/kg	0.641	0.287	A
Alpha-BHC	ND		ug/kg	0.641	0.182	A
Beta-BHC	ND		ug/kg	1.54	0.584	A
Heptachlor	ND		ug/kg	0.770	0.345	A
Aldrin	ND		ug/kg	1.54	0.542	A
Heptachlor epoxide	ND		ug/kg	2.89	0.866	A
Endrin	ND		ug/kg	0.641	0.263	A
Endrin aldehyde	ND		ug/kg	1.92	0.674	A
Endrin ketone	ND		ug/kg	1.54	0.396	A
Dieldrin	ND		ug/kg	0.962	0.481	A
4,4'-DDE	ND		ug/kg	1.54	0.356	A
4,4'-DDD	ND		ug/kg	1.54	0.549	A
4,4'-DDT	ND		ug/kg	1.54	1.24	A
Endosulfan I	ND		ug/kg	1.54	0.364	A
Endosulfan II	ND		ug/kg	1.54	0.514	A
Endosulfan sulfate	ND		ug/kg	0.641	0.305	A
Methoxychlor	ND		ug/kg	2.89	0.898	A
Toxaphene	ND		ug/kg	28.9	8.08	A
cis-Chlordane	ND		ug/kg	1.92	0.536	A
trans-Chlordane	ND		ug/kg	1.92	0.508	A
Chlordane	ND		ug/kg	12.8	5.10	A

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316525
Report Date: 04/12/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8081B
Analytical Date: 04/11/23 09:14
Analyst: MMG

Extraction Method: EPA 3546
Extraction Date: 04/09/23 00:42
Cleanup Method: EPA 3620B
Cleanup Date: 04/10/23
Cleanup Method: EPA 3660B
Cleanup Date: 04/11/23

Parameter	Result	Qualifier	Units	RL	MDL	Column
Organochlorine Pesticides by GC - Westborough Lab for sample(s): 01-17 Batch: WG1764412-1						

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	71		30-150	A
Decachlorobiphenyl	103		30-150	A
2,4,5,6-Tetrachloro-m-xylene	70		30-150	B
Decachlorobiphenyl	92		30-150	B

Lab Control Sample Analysis
Batch Quality Control

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316525
Report Date: 04/12/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Organochlorine Pesticides by GC - Westborough Lab Associated sample(s): 01-17 Batch: WG1764412-2 WG1764412-3									
Delta-BHC	97		92		30-150	5		30	A
Lindane	90		88		30-150	2		30	A
Alpha-BHC	96		93		30-150	3		30	A
Beta-BHC	86		84		30-150	2		30	A
Heptachlor	90		88		30-150	2		30	A
Aldrin	92		90		30-150	2		30	A
Heptachlor epoxide	87		85		30-150	2		30	A
Endrin	92		93		30-150	1		30	A
Endrin aldehyde	76		65		30-150	16		30	A
Endrin ketone	86		78		30-150	10		30	A
Dieldrin	98		98		30-150	0		30	A
4,4'-DDE	95		97		30-150	2		30	A
4,4'-DDD	99		101		30-150	2		30	A
4,4'-DDT	89		95		30-150	7		30	A
Endosulfan I	90		90		30-150	0		30	A
Endosulfan II	92		88		30-150	4		30	A
Endosulfan sulfate	69		58		30-150	17		30	A
Methoxychlor	92		91		30-150	1		30	A
cis-Chlordane	96		97		30-150	1		30	A
trans-Chlordane	116		114		30-150	2		30	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: ST. JOSEPH

Project Number: 26518.05

Lab Number: L2316525

Report Date: 04/12/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Organochlorine Pesticides by GC - Westborough Lab Associated sample(s): 01-17 Batch: WG1764412-2 WG1764412-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	76		73		30-150	A
Decachlorobiphenyl	91		108		30-150	A
2,4,5,6-Tetrachloro-m-xylene	76		72		30-150	B
Decachlorobiphenyl	81		96		30-150	B

METALS

Project Name: ST. JOSEPH
Lab Number: L2316525
Project Number: 26518.05
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-01
Client ID: SB-1 (0'-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 09:05
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	5580		mg/kg	8.62	2.33	2	04/03/23 20:43	04/06/23 10:58	EPA 3050B	1,6010D	JMF
Antimony, Total	ND		mg/kg	4.31	0.328	2	04/03/23 20:43	04/06/23 10:58	EPA 3050B	1,6010D	JMF
Arsenic, Total	4.73		mg/kg	0.862	0.179	2	04/03/23 20:43	04/06/23 10:58	EPA 3050B	1,6010D	JMF
Barium, Total	44.9		mg/kg	0.862	0.150	2	04/03/23 20:43	04/06/23 10:58	EPA 3050B	1,6010D	JMF
Beryllium, Total	0.130	J	mg/kg	0.431	0.028	2	04/03/23 20:43	04/06/23 10:58	EPA 3050B	1,6010D	JMF
Cadmium, Total	0.115	J	mg/kg	0.862	0.085	2	04/03/23 20:43	04/06/23 10:58	EPA 3050B	1,6010D	JMF
Calcium, Total	222000		mg/kg	86.2	30.2	20	04/03/23 20:43	04/06/23 17:34	EPA 3050B	1,6010D	AMW
Chromium, Total	6.95		mg/kg	0.862	0.083	2	04/03/23 20:43	04/06/23 10:58	EPA 3050B	1,6010D	JMF
Cobalt, Total	2.48		mg/kg	1.72	0.143	2	04/03/23 20:43	04/06/23 10:58	EPA 3050B	1,6010D	JMF
Copper, Total	27.3		mg/kg	0.862	0.222	2	04/03/23 20:43	04/06/23 10:58	EPA 3050B	1,6010D	JMF
Iron, Total	6370		mg/kg	4.31	0.778	2	04/03/23 20:43	04/06/23 10:58	EPA 3050B	1,6010D	JMF
Lead, Total	67.7		mg/kg	4.31	0.231	2	04/03/23 20:43	04/06/23 10:58	EPA 3050B	1,6010D	JMF
Magnesium, Total	75900		mg/kg	86.2	13.3	20	04/03/23 20:43	04/06/23 17:34	EPA 3050B	1,6010D	AMW
Manganese, Total	151		mg/kg	0.862	0.137	2	04/03/23 20:43	04/06/23 10:58	EPA 3050B	1,6010D	JMF
Mercury, Total	ND		mg/kg	0.080	0.052	1	04/03/23 21:58	04/11/23 20:16	EPA 7471B	1,7471B	DMB
Nickel, Total	6.58		mg/kg	2.15	0.208	2	04/03/23 20:43	04/06/23 10:58	EPA 3050B	1,6010D	JMF
Potassium, Total	1190		mg/kg	215	12.4	2	04/03/23 20:43	04/06/23 10:58	EPA 3050B	1,6010D	JMF
Selenium, Total	ND		mg/kg	1.72	0.222	2	04/03/23 20:43	04/06/23 10:58	EPA 3050B	1,6010D	JMF
Silver, Total	ND		mg/kg	0.431	0.244	2	04/03/23 20:43	04/06/23 10:58	EPA 3050B	1,6010D	JMF
Sodium, Total	131	J	mg/kg	172	2.71	2	04/03/23 20:43	04/06/23 10:58	EPA 3050B	1,6010D	JMF
Thallium, Total	0.498	J	mg/kg	1.72	0.271	2	04/03/23 20:43	04/06/23 10:58	EPA 3050B	1,6010D	JMF
Vanadium, Total	9.56		mg/kg	0.862	0.175	2	04/03/23 20:43	04/06/23 10:58	EPA 3050B	1,6010D	JMF
Zinc, Total	46.0		mg/kg	4.31	0.252	2	04/03/23 20:43	04/06/23 10:58	EPA 3050B	1,6010D	JMF

Project Name: ST. JOSEPH
Lab Number: L2316525
Project Number: 26518.05
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-02
Client ID: SB-1 (5'-6.5')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 09:09
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	4470		mg/kg	8.79	2.37	2	04/03/23 20:43	04/06/23 11:03	EPA 3050B	1,6010D	JMF
Antimony, Total	ND		mg/kg	4.40	0.334	2	04/03/23 20:43	04/06/23 11:03	EPA 3050B	1,6010D	JMF
Arsenic, Total	3.12		mg/kg	0.879	0.183	2	04/03/23 20:43	04/06/23 11:03	EPA 3050B	1,6010D	JMF
Barium, Total	25.2		mg/kg	0.879	0.153	2	04/03/23 20:43	04/06/23 11:03	EPA 3050B	1,6010D	JMF
Beryllium, Total	0.093	J	mg/kg	0.440	0.029	2	04/03/23 20:43	04/06/23 11:03	EPA 3050B	1,6010D	JMF
Cadmium, Total	ND		mg/kg	0.879	0.086	2	04/03/23 20:43	04/06/23 11:03	EPA 3050B	1,6010D	JMF
Calcium, Total	190000		mg/kg	87.9	30.8	20	04/03/23 20:43	04/06/23 17:39	EPA 3050B	1,6010D	AMW
Chromium, Total	4.43		mg/kg	0.879	0.084	2	04/03/23 20:43	04/06/23 11:03	EPA 3050B	1,6010D	JMF
Cobalt, Total	1.19	J	mg/kg	1.76	0.146	2	04/03/23 20:43	04/06/23 11:03	EPA 3050B	1,6010D	JMF
Copper, Total	2.65		mg/kg	0.879	0.227	2	04/03/23 20:43	04/06/23 11:03	EPA 3050B	1,6010D	JMF
Iron, Total	4410		mg/kg	4.40	0.794	2	04/03/23 20:43	04/06/23 11:03	EPA 3050B	1,6010D	JMF
Lead, Total	12.4		mg/kg	4.40	0.236	2	04/03/23 20:43	04/06/23 11:03	EPA 3050B	1,6010D	JMF
Magnesium, Total	90400		mg/kg	87.9	13.5	20	04/03/23 20:43	04/06/23 17:39	EPA 3050B	1,6010D	AMW
Manganese, Total	440		mg/kg	0.879	0.140	2	04/03/23 20:43	04/06/23 11:03	EPA 3050B	1,6010D	JMF
Mercury, Total	ND		mg/kg	0.073	0.048	1	04/03/23 21:58	04/11/23 20:19	EPA 7471B	1,7471B	DMB
Nickel, Total	3.40		mg/kg	2.20	0.213	2	04/03/23 20:43	04/06/23 11:03	EPA 3050B	1,6010D	JMF
Potassium, Total	1730		mg/kg	220	12.7	2	04/03/23 20:43	04/06/23 11:03	EPA 3050B	1,6010D	JMF
Selenium, Total	ND		mg/kg	1.76	0.227	2	04/03/23 20:43	04/06/23 11:03	EPA 3050B	1,6010D	JMF
Silver, Total	ND		mg/kg	0.440	0.249	2	04/03/23 20:43	04/06/23 11:03	EPA 3050B	1,6010D	JMF
Sodium, Total	99.4	J	mg/kg	176	2.77	2	04/03/23 20:43	04/06/23 11:03	EPA 3050B	1,6010D	JMF
Thallium, Total	0.316	J	mg/kg	1.76	0.277	2	04/03/23 20:43	04/06/23 11:03	EPA 3050B	1,6010D	JMF
Vanadium, Total	5.84		mg/kg	0.879	0.178	2	04/03/23 20:43	04/06/23 11:03	EPA 3050B	1,6010D	JMF
Zinc, Total	12.5		mg/kg	4.40	0.258	2	04/03/23 20:43	04/06/23 11:03	EPA 3050B	1,6010D	JMF

Project Name: ST. JOSEPH
Lab Number: L2316525
Project Number: 26518.05
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-03
Client ID: SB-2 (0'-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 09:45
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	5460		mg/kg	8.53	2.30	2	04/03/23 20:43	04/06/23 11:08	EPA 3050B	1,6010D	JMF
Antimony, Total	ND		mg/kg	4.26	0.324	2	04/03/23 20:43	04/06/23 11:08	EPA 3050B	1,6010D	JMF
Arsenic, Total	4.05		mg/kg	0.853	0.177	2	04/03/23 20:43	04/06/23 11:08	EPA 3050B	1,6010D	JMF
Barium, Total	29.5		mg/kg	0.853	0.148	2	04/03/23 20:43	04/06/23 11:08	EPA 3050B	1,6010D	JMF
Beryllium, Total	0.131	J	mg/kg	0.426	0.028	2	04/03/23 20:43	04/06/23 11:08	EPA 3050B	1,6010D	JMF
Cadmium, Total	ND		mg/kg	0.853	0.084	2	04/03/23 20:43	04/06/23 11:08	EPA 3050B	1,6010D	JMF
Calcium, Total	220000		mg/kg	85.3	29.8	20	04/03/23 20:43	04/06/23 17:43	EPA 3050B	1,6010D	AMW
Chromium, Total	6.63		mg/kg	0.853	0.082	2	04/03/23 20:43	04/06/23 11:08	EPA 3050B	1,6010D	JMF
Cobalt, Total	2.32		mg/kg	1.70	0.142	2	04/03/23 20:43	04/06/23 11:08	EPA 3050B	1,6010D	JMF
Copper, Total	11.5		mg/kg	0.853	0.220	2	04/03/23 20:43	04/06/23 11:08	EPA 3050B	1,6010D	JMF
Iron, Total	6050		mg/kg	4.26	0.770	2	04/03/23 20:43	04/06/23 11:08	EPA 3050B	1,6010D	JMF
Lead, Total	38.6		mg/kg	4.26	0.228	2	04/03/23 20:43	04/06/23 11:08	EPA 3050B	1,6010D	JMF
Magnesium, Total	73100		mg/kg	85.3	13.1	20	04/03/23 20:43	04/06/23 17:43	EPA 3050B	1,6010D	AMW
Manganese, Total	159		mg/kg	0.853	0.136	2	04/03/23 20:43	04/06/23 11:08	EPA 3050B	1,6010D	JMF
Mercury, Total	0.051	J	mg/kg	0.077	0.050	1	04/03/23 21:58	04/11/23 20:22	EPA 7471B	1,7471B	DMB
Nickel, Total	4.96		mg/kg	2.13	0.206	2	04/03/23 20:43	04/06/23 11:08	EPA 3050B	1,6010D	JMF
Potassium, Total	1340		mg/kg	213	12.3	2	04/03/23 20:43	04/06/23 11:08	EPA 3050B	1,6010D	JMF
Selenium, Total	ND		mg/kg	1.70	0.220	2	04/03/23 20:43	04/06/23 11:08	EPA 3050B	1,6010D	JMF
Silver, Total	ND		mg/kg	0.426	0.241	2	04/03/23 20:43	04/06/23 11:08	EPA 3050B	1,6010D	JMF
Sodium, Total	143	J	mg/kg	170	2.69	2	04/03/23 20:43	04/06/23 11:08	EPA 3050B	1,6010D	JMF
Thallium, Total	0.409	J	mg/kg	1.70	0.269	2	04/03/23 20:43	04/06/23 11:08	EPA 3050B	1,6010D	JMF
Vanadium, Total	9.10		mg/kg	0.853	0.173	2	04/03/23 20:43	04/06/23 11:08	EPA 3050B	1,6010D	JMF
Zinc, Total	31.8		mg/kg	4.26	0.250	2	04/03/23 20:43	04/06/23 11:08	EPA 3050B	1,6010D	JMF

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-04
Client ID: SB-2 (10'-12')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 09:47
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	2040		mg/kg	8.61	2.32	2	04/03/23 20:43	04/06/23 11:13	EPA 3050B	1,6010D	JMF
Antimony, Total	ND		mg/kg	4.31	0.327	2	04/03/23 20:43	04/06/23 11:13	EPA 3050B	1,6010D	JMF
Arsenic, Total	2.68		mg/kg	0.861	0.179	2	04/03/23 20:43	04/06/23 11:13	EPA 3050B	1,6010D	JMF
Barium, Total	12.3		mg/kg	0.861	0.150	2	04/03/23 20:43	04/06/23 11:13	EPA 3050B	1,6010D	JMF
Beryllium, Total	0.071	J	mg/kg	0.431	0.028	2	04/03/23 20:43	04/06/23 11:13	EPA 3050B	1,6010D	JMF
Cadmium, Total	ND		mg/kg	0.861	0.084	2	04/03/23 20:43	04/06/23 11:13	EPA 3050B	1,6010D	JMF
Calcium, Total	206000		mg/kg	43.1	15.1	10	04/03/23 20:43	04/06/23 16:23	EPA 3050B	1,6010D	AMW
Chromium, Total	3.76		mg/kg	0.861	0.083	2	04/03/23 20:43	04/06/23 11:13	EPA 3050B	1,6010D	JMF
Cobalt, Total	0.992	J	mg/kg	1.72	0.143	2	04/03/23 20:43	04/06/23 11:13	EPA 3050B	1,6010D	JMF
Copper, Total	4.61		mg/kg	0.861	0.222	2	04/03/23 20:43	04/06/23 11:13	EPA 3050B	1,6010D	JMF
Iron, Total	2760		mg/kg	4.31	0.778	2	04/03/23 20:43	04/06/23 11:13	EPA 3050B	1,6010D	JMF
Lead, Total	14.2		mg/kg	4.31	0.231	2	04/03/23 20:43	04/06/23 11:13	EPA 3050B	1,6010D	JMF
Magnesium, Total	59800		mg/kg	43.1	6.63	10	04/03/23 20:43	04/06/23 16:23	EPA 3050B	1,6010D	AMW
Manganese, Total	89.3		mg/kg	0.861	0.137	2	04/03/23 20:43	04/06/23 11:13	EPA 3050B	1,6010D	JMF
Mercury, Total	0.058	J	mg/kg	0.076	0.050	1	04/03/23 21:58	04/11/23 20:32	EPA 7471B	1,7471B	DMB
Nickel, Total	2.75		mg/kg	2.15	0.208	2	04/03/23 20:43	04/06/23 11:13	EPA 3050B	1,6010D	JMF
Potassium, Total	1060		mg/kg	215	12.4	2	04/03/23 20:43	04/06/23 11:13	EPA 3050B	1,6010D	JMF
Selenium, Total	ND		mg/kg	1.72	0.222	2	04/03/23 20:43	04/06/23 11:13	EPA 3050B	1,6010D	JMF
Silver, Total	ND		mg/kg	0.431	0.244	2	04/03/23 20:43	04/06/23 11:13	EPA 3050B	1,6010D	JMF
Sodium, Total	88.5	J	mg/kg	172	2.71	2	04/03/23 20:43	04/06/23 11:13	EPA 3050B	1,6010D	JMF
Thallium, Total	0.376	J	mg/kg	1.72	0.271	2	04/03/23 20:43	04/06/23 11:13	EPA 3050B	1,6010D	JMF
Vanadium, Total	3.57		mg/kg	0.861	0.175	2	04/03/23 20:43	04/06/23 11:13	EPA 3050B	1,6010D	JMF
Zinc, Total	17.3		mg/kg	4.31	0.252	2	04/03/23 20:43	04/06/23 11:13	EPA 3050B	1,6010D	JMF

Project Name: ST. JOSEPH
Lab Number: L2316525
Project Number: 26518.05
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-05
Client ID: SB-3 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 10:25
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	9590		mg/kg	8.68	2.34	2	04/03/23 20:43	04/06/23 11:17	EPA 3050B	1,6010D	JMF
Antimony, Total	ND		mg/kg	4.34	0.330	2	04/03/23 20:43	04/06/23 11:17	EPA 3050B	1,6010D	JMF
Arsenic, Total	4.90		mg/kg	0.868	0.181	2	04/03/23 20:43	04/06/23 11:17	EPA 3050B	1,6010D	JMF
Barium, Total	50.1		mg/kg	0.868	0.151	2	04/03/23 20:43	04/06/23 11:17	EPA 3050B	1,6010D	JMF
Beryllium, Total	0.156	J	mg/kg	0.434	0.029	2	04/03/23 20:43	04/06/23 11:17	EPA 3050B	1,6010D	JMF
Cadmium, Total	ND		mg/kg	0.868	0.085	2	04/03/23 20:43	04/06/23 11:17	EPA 3050B	1,6010D	JMF
Calcium, Total	195000		mg/kg	43.4	15.2	10	04/03/23 20:43	04/06/23 16:28	EPA 3050B	1,6010D	AMW
Chromium, Total	9.44		mg/kg	0.868	0.083	2	04/03/23 20:43	04/06/23 11:17	EPA 3050B	1,6010D	JMF
Cobalt, Total	2.62		mg/kg	1.74	0.144	2	04/03/23 20:43	04/06/23 11:17	EPA 3050B	1,6010D	JMF
Copper, Total	6.18		mg/kg	0.868	0.224	2	04/03/23 20:43	04/06/23 11:17	EPA 3050B	1,6010D	JMF
Iron, Total	7930		mg/kg	4.34	0.784	2	04/03/23 20:43	04/06/23 11:17	EPA 3050B	1,6010D	JMF
Lead, Total	26.1		mg/kg	4.34	0.233	2	04/03/23 20:43	04/06/23 11:17	EPA 3050B	1,6010D	JMF
Magnesium, Total	87200		mg/kg	43.4	6.69	10	04/03/23 20:43	04/06/23 16:28	EPA 3050B	1,6010D	AMW
Manganese, Total	802		mg/kg	0.868	0.138	2	04/03/23 20:43	04/06/23 11:17	EPA 3050B	1,6010D	JMF
Mercury, Total	0.080		mg/kg	0.076	0.050	1	04/03/23 21:58	04/11/23 20:36	EPA 7471B	1,7471B	DMB
Nickel, Total	8.21		mg/kg	2.17	0.210	2	04/03/23 20:43	04/06/23 11:17	EPA 3050B	1,6010D	JMF
Potassium, Total	3530		mg/kg	217	12.5	2	04/03/23 20:43	04/06/23 11:17	EPA 3050B	1,6010D	JMF
Selenium, Total	ND		mg/kg	1.74	0.224	2	04/03/23 20:43	04/06/23 11:17	EPA 3050B	1,6010D	JMF
Silver, Total	ND		mg/kg	0.434	0.246	2	04/03/23 20:43	04/06/23 11:17	EPA 3050B	1,6010D	JMF
Sodium, Total	203		mg/kg	174	2.74	2	04/03/23 20:43	04/06/23 11:17	EPA 3050B	1,6010D	JMF
Thallium, Total	0.496	J	mg/kg	1.74	0.274	2	04/03/23 20:43	04/06/23 11:17	EPA 3050B	1,6010D	JMF
Vanadium, Total	12.0		mg/kg	0.868	0.176	2	04/03/23 20:43	04/06/23 11:17	EPA 3050B	1,6010D	JMF
Zinc, Total	17.8		mg/kg	4.34	0.254	2	04/03/23 20:43	04/06/23 11:17	EPA 3050B	1,6010D	JMF

Project Name: ST. JOSEPH
Lab Number: L2316525
Project Number: 26518.05
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-06
Client ID: SB-3 (6'-8')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 10:30
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	5250		mg/kg	8.63	2.33	2	04/03/23 20:43	04/06/23 11:22	EPA 3050B	1,6010D	JMF
Antimony, Total	ND		mg/kg	4.31	0.328	2	04/03/23 20:43	04/06/23 11:22	EPA 3050B	1,6010D	JMF
Arsenic, Total	4.08		mg/kg	0.863	0.179	2	04/03/23 20:43	04/06/23 11:22	EPA 3050B	1,6010D	JMF
Barium, Total	28.1		mg/kg	0.863	0.150	2	04/03/23 20:43	04/06/23 11:22	EPA 3050B	1,6010D	JMF
Beryllium, Total	0.140	J	mg/kg	0.431	0.029	2	04/03/23 20:43	04/06/23 11:22	EPA 3050B	1,6010D	JMF
Cadmium, Total	ND		mg/kg	0.863	0.085	2	04/03/23 20:43	04/06/23 11:22	EPA 3050B	1,6010D	JMF
Calcium, Total	177000		mg/kg	43.1	15.1	10	04/03/23 20:43	04/06/23 16:33	EPA 3050B	1,6010D	AMW
Chromium, Total	5.34		mg/kg	0.863	0.083	2	04/03/23 20:43	04/06/23 11:22	EPA 3050B	1,6010D	JMF
Cobalt, Total	1.74		mg/kg	1.72	0.143	2	04/03/23 20:43	04/06/23 11:22	EPA 3050B	1,6010D	JMF
Copper, Total	7.66		mg/kg	0.863	0.223	2	04/03/23 20:43	04/06/23 11:22	EPA 3050B	1,6010D	JMF
Iron, Total	4990		mg/kg	4.31	0.779	2	04/03/23 20:43	04/06/23 11:22	EPA 3050B	1,6010D	JMF
Lead, Total	24.4		mg/kg	4.31	0.231	2	04/03/23 20:43	04/06/23 11:22	EPA 3050B	1,6010D	JMF
Magnesium, Total	60100		mg/kg	43.1	6.64	10	04/03/23 20:43	04/06/23 16:33	EPA 3050B	1,6010D	AMW
Manganese, Total	120		mg/kg	0.863	0.137	2	04/03/23 20:43	04/06/23 11:22	EPA 3050B	1,6010D	JMF
Mercury, Total	ND		mg/kg	0.077	0.050	1	04/03/23 21:58	04/11/23 20:39	EPA 7471B	1,7471B	DMB
Nickel, Total	3.46		mg/kg	2.16	0.209	2	04/03/23 20:43	04/06/23 11:22	EPA 3050B	1,6010D	JMF
Potassium, Total	961		mg/kg	216	12.4	2	04/03/23 20:43	04/06/23 11:22	EPA 3050B	1,6010D	JMF
Selenium, Total	ND		mg/kg	1.72	0.223	2	04/03/23 20:43	04/06/23 11:22	EPA 3050B	1,6010D	JMF
Silver, Total	ND		mg/kg	0.431	0.244	2	04/03/23 20:43	04/06/23 11:22	EPA 3050B	1,6010D	JMF
Sodium, Total	309		mg/kg	172	2.72	2	04/03/23 20:43	04/06/23 11:22	EPA 3050B	1,6010D	JMF
Thallium, Total	0.354	J	mg/kg	1.72	0.272	2	04/03/23 20:43	04/06/23 11:22	EPA 3050B	1,6010D	JMF
Vanadium, Total	8.45		mg/kg	0.863	0.175	2	04/03/23 20:43	04/06/23 11:22	EPA 3050B	1,6010D	JMF
Zinc, Total	25.4		mg/kg	4.31	0.253	2	04/03/23 20:43	04/06/23 11:22	EPA 3050B	1,6010D	JMF

Project Name: ST. JOSEPH
Lab Number: L2316525
Project Number: 26518.05
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-07
Client ID: SB-4 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 10:55
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	7320		mg/kg	8.61	2.32	2	04/03/23 20:43	04/06/23 11:27	EPA 3050B	1,6010D	JMF
Antimony, Total	ND		mg/kg	4.31	0.327	2	04/03/23 20:43	04/06/23 11:27	EPA 3050B	1,6010D	JMF
Arsenic, Total	7.10		mg/kg	0.861	0.179	2	04/03/23 20:43	04/06/23 11:27	EPA 3050B	1,6010D	JMF
Barium, Total	366		mg/kg	0.861	0.150	2	04/03/23 20:43	04/06/23 11:27	EPA 3050B	1,6010D	JMF
Beryllium, Total	0.041	J	mg/kg	0.431	0.028	2	04/03/23 20:43	04/06/23 11:27	EPA 3050B	1,6010D	JMF
Cadmium, Total	0.498	J	mg/kg	0.861	0.084	2	04/03/23 20:43	04/06/23 11:27	EPA 3050B	1,6010D	JMF
Calcium, Total	39400		mg/kg	43.1	15.1	10	04/03/23 20:43	04/06/23 16:37	EPA 3050B	1,6010D	AMW
Chromium, Total	16.6		mg/kg	0.861	0.083	2	04/03/23 20:43	04/06/23 11:27	EPA 3050B	1,6010D	JMF
Cobalt, Total	5.23		mg/kg	1.72	0.143	2	04/03/23 20:43	04/06/23 11:27	EPA 3050B	1,6010D	JMF
Copper, Total	27.0		mg/kg	0.861	0.222	2	04/03/23 20:43	04/06/23 11:27	EPA 3050B	1,6010D	JMF
Iron, Total	11000		mg/kg	4.31	0.778	2	04/03/23 20:43	04/06/23 11:27	EPA 3050B	1,6010D	JMF
Lead, Total	178		mg/kg	4.31	0.231	2	04/03/23 20:43	04/06/23 11:27	EPA 3050B	1,6010D	JMF
Magnesium, Total	7730		mg/kg	43.1	6.63	10	04/03/23 20:43	04/06/23 16:37	EPA 3050B	1,6010D	AMW
Manganese, Total	290		mg/kg	0.861	0.137	2	04/03/23 20:43	04/06/23 11:27	EPA 3050B	1,6010D	JMF
Mercury, Total	0.173		mg/kg	0.075	0.049	1	04/03/23 21:58	04/11/23 20:42	EPA 7471B	1,7471B	DMB
Nickel, Total	11.8		mg/kg	2.15	0.208	2	04/03/23 20:43	04/06/23 11:27	EPA 3050B	1,6010D	JMF
Potassium, Total	919		mg/kg	215	12.4	2	04/03/23 20:43	04/06/23 11:27	EPA 3050B	1,6010D	JMF
Selenium, Total	ND		mg/kg	1.72	0.222	2	04/03/23 20:43	04/06/23 11:27	EPA 3050B	1,6010D	JMF
Silver, Total	ND		mg/kg	0.431	0.244	2	04/03/23 20:43	04/06/23 11:27	EPA 3050B	1,6010D	JMF
Sodium, Total	183		mg/kg	172	2.71	2	04/03/23 20:43	04/06/23 11:27	EPA 3050B	1,6010D	JMF
Thallium, Total	0.569	J	mg/kg	1.72	0.271	2	04/03/23 20:43	04/06/23 11:27	EPA 3050B	1,6010D	JMF
Vanadium, Total	28.3		mg/kg	0.861	0.175	2	04/03/23 20:43	04/06/23 11:27	EPA 3050B	1,6010D	JMF
Zinc, Total	292		mg/kg	4.31	0.252	2	04/03/23 20:43	04/06/23 11:27	EPA 3050B	1,6010D	JMF

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-08
Client ID: SB-4 (4-6')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 11:00
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 69%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	7710		mg/kg	11.5	3.11	2	04/03/23 20:43	04/06/23 11:32	EPA 3050B	1,6010D	JMF
Antimony, Total	ND		mg/kg	5.76	0.438	2	04/03/23 20:43	04/06/23 11:32	EPA 3050B	1,6010D	JMF
Arsenic, Total	5.05		mg/kg	1.15	0.240	2	04/03/23 20:43	04/06/23 11:32	EPA 3050B	1,6010D	JMF
Barium, Total	66.9		mg/kg	1.15	0.200	2	04/03/23 20:43	04/06/23 11:32	EPA 3050B	1,6010D	JMF
Beryllium, Total	ND		mg/kg	0.576	0.038	2	04/03/23 20:43	04/06/23 11:32	EPA 3050B	1,6010D	JMF
Cadmium, Total	0.121	J	mg/kg	1.15	0.113	2	04/03/23 20:43	04/06/23 11:32	EPA 3050B	1,6010D	JMF
Calcium, Total	46000		mg/kg	57.6	20.2	10	04/03/23 20:43	04/06/23 16:42	EPA 3050B	1,6010D	AMW
Chromium, Total	16.7		mg/kg	1.15	0.110	2	04/03/23 20:43	04/06/23 11:32	EPA 3050B	1,6010D	JMF
Cobalt, Total	5.64		mg/kg	2.30	0.191	2	04/03/23 20:43	04/06/23 11:32	EPA 3050B	1,6010D	JMF
Copper, Total	18.5		mg/kg	1.15	0.297	2	04/03/23 20:43	04/06/23 11:32	EPA 3050B	1,6010D	JMF
Iron, Total	13100		mg/kg	5.76	1.04	2	04/03/23 20:43	04/06/23 11:32	EPA 3050B	1,6010D	JMF
Lead, Total	77.8		mg/kg	5.76	0.309	2	04/03/23 20:43	04/06/23 11:32	EPA 3050B	1,6010D	JMF
Magnesium, Total	17000		mg/kg	57.6	8.87	10	04/03/23 20:43	04/06/23 16:42	EPA 3050B	1,6010D	AMW
Manganese, Total	250		mg/kg	1.15	0.183	2	04/03/23 20:43	04/06/23 11:32	EPA 3050B	1,6010D	JMF
Mercury, Total	0.214		mg/kg	0.107	0.070	1	04/03/23 21:58	04/11/23 20:45	EPA 7471B	1,7471B	DMB
Nickel, Total	20.1		mg/kg	2.88	0.279	2	04/03/23 20:43	04/06/23 11:32	EPA 3050B	1,6010D	JMF
Potassium, Total	1440		mg/kg	288	16.6	2	04/03/23 20:43	04/06/23 11:32	EPA 3050B	1,6010D	JMF
Selenium, Total	ND		mg/kg	2.30	0.297	2	04/03/23 20:43	04/06/23 11:32	EPA 3050B	1,6010D	JMF
Silver, Total	ND		mg/kg	0.576	0.326	2	04/03/23 20:43	04/06/23 11:32	EPA 3050B	1,6010D	JMF
Sodium, Total	130	J	mg/kg	230	3.63	2	04/03/23 20:43	04/06/23 11:32	EPA 3050B	1,6010D	JMF
Thallium, Total	0.575	J	mg/kg	2.30	0.363	2	04/03/23 20:43	04/06/23 11:32	EPA 3050B	1,6010D	JMF
Vanadium, Total	20.4		mg/kg	1.15	0.234	2	04/03/23 20:43	04/06/23 11:32	EPA 3050B	1,6010D	JMF
Zinc, Total	55.4		mg/kg	5.76	0.338	2	04/03/23 20:43	04/06/23 11:32	EPA 3050B	1,6010D	JMF

Project Name: ST. JOSEPH
Lab Number: L2316525
Project Number: 26518.05
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-09
Client ID: SB-5 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 11:39
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	8030		mg/kg	8.99	2.43	2	04/03/23 20:43	04/06/23 11:37	EPA 3050B	1,6010D	JMF
Antimony, Total	ND		mg/kg	4.50	0.342	2	04/03/23 20:43	04/06/23 11:37	EPA 3050B	1,6010D	JMF
Arsenic, Total	8.27		mg/kg	0.899	0.187	2	04/03/23 20:43	04/06/23 11:37	EPA 3050B	1,6010D	JMF
Barium, Total	352		mg/kg	0.899	0.156	2	04/03/23 20:43	04/06/23 11:37	EPA 3050B	1,6010D	JMF
Beryllium, Total	ND		mg/kg	0.450	0.030	2	04/03/23 20:43	04/06/23 11:37	EPA 3050B	1,6010D	JMF
Cadmium, Total	0.304	J	mg/kg	0.899	0.088	2	04/03/23 20:43	04/06/23 11:37	EPA 3050B	1,6010D	JMF
Calcium, Total	11900		mg/kg	45.0	15.7	10	04/03/23 20:43	04/06/23 16:46	EPA 3050B	1,6010D	AMW
Chromium, Total	19.5		mg/kg	0.899	0.086	2	04/03/23 20:43	04/06/23 11:37	EPA 3050B	1,6010D	JMF
Cobalt, Total	6.12		mg/kg	1.80	0.149	2	04/03/23 20:43	04/06/23 11:37	EPA 3050B	1,6010D	JMF
Copper, Total	26.0		mg/kg	0.899	0.232	2	04/03/23 20:43	04/06/23 11:37	EPA 3050B	1,6010D	JMF
Iron, Total	13600		mg/kg	4.50	0.812	2	04/03/23 20:43	04/06/23 11:37	EPA 3050B	1,6010D	JMF
Lead, Total	141		mg/kg	4.50	0.241	2	04/03/23 20:43	04/06/23 11:37	EPA 3050B	1,6010D	JMF
Magnesium, Total	3650		mg/kg	45.0	6.92	10	04/03/23 20:43	04/06/23 16:46	EPA 3050B	1,6010D	AMW
Manganese, Total	248		mg/kg	0.899	0.143	2	04/03/23 20:43	04/06/23 11:37	EPA 3050B	1,6010D	JMF
Mercury, Total	0.143		mg/kg	0.081	0.053	1	04/03/23 21:58	04/11/23 20:49	EPA 7471B	1,7471B	DMB
Nickel, Total	13.6		mg/kg	2.25	0.218	2	04/03/23 20:43	04/06/23 11:37	EPA 3050B	1,6010D	JMF
Potassium, Total	1510		mg/kg	225	12.9	2	04/03/23 20:43	04/06/23 11:37	EPA 3050B	1,6010D	JMF
Selenium, Total	ND		mg/kg	1.80	0.232	2	04/03/23 20:43	04/06/23 11:37	EPA 3050B	1,6010D	JMF
Silver, Total	ND		mg/kg	0.450	0.254	2	04/03/23 20:43	04/06/23 11:37	EPA 3050B	1,6010D	JMF
Sodium, Total	114	J	mg/kg	180	2.83	2	04/03/23 20:43	04/06/23 11:37	EPA 3050B	1,6010D	JMF
Thallium, Total	0.431	J	mg/kg	1.80	0.283	2	04/03/23 20:43	04/06/23 11:37	EPA 3050B	1,6010D	JMF
Vanadium, Total	27.4		mg/kg	0.899	0.182	2	04/03/23 20:43	04/06/23 11:37	EPA 3050B	1,6010D	JMF
Zinc, Total	261		mg/kg	4.50	0.263	2	04/03/23 20:43	04/06/23 11:37	EPA 3050B	1,6010D	JMF

Project Name: ST. JOSEPH
Lab Number: L2316525
Project Number: 26518.05
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-11
Client ID: SB-7 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 12:05
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	4860		mg/kg	8.92	2.41	2	04/03/23 20:43	04/06/23 11:41	EPA 3050B	1,6010D	JMF
Antimony, Total	ND		mg/kg	4.46	0.339	2	04/03/23 20:43	04/06/23 11:41	EPA 3050B	1,6010D	JMF
Arsenic, Total	3.93		mg/kg	0.892	0.186	2	04/03/23 20:43	04/06/23 11:41	EPA 3050B	1,6010D	JMF
Barium, Total	27.0		mg/kg	0.892	0.155	2	04/03/23 20:43	04/06/23 11:41	EPA 3050B	1,6010D	JMF
Beryllium, Total	0.078	J	mg/kg	0.446	0.029	2	04/03/23 20:43	04/06/23 11:41	EPA 3050B	1,6010D	JMF
Cadmium, Total	ND		mg/kg	0.892	0.088	2	04/03/23 20:43	04/06/23 11:41	EPA 3050B	1,6010D	JMF
Calcium, Total	162000		mg/kg	44.6	15.6	10	04/03/23 20:43	04/06/23 16:51	EPA 3050B	1,6010D	AMW
Chromium, Total	6.10		mg/kg	0.892	0.086	2	04/03/23 20:43	04/06/23 11:41	EPA 3050B	1,6010D	JMF
Cobalt, Total	1.91		mg/kg	1.78	0.148	2	04/03/23 20:43	04/06/23 11:41	EPA 3050B	1,6010D	JMF
Copper, Total	12.6		mg/kg	0.892	0.230	2	04/03/23 20:43	04/06/23 11:41	EPA 3050B	1,6010D	JMF
Iron, Total	4920		mg/kg	4.46	0.806	2	04/03/23 20:43	04/06/23 11:41	EPA 3050B	1,6010D	JMF
Lead, Total	80.0		mg/kg	4.46	0.239	2	04/03/23 20:43	04/06/23 11:41	EPA 3050B	1,6010D	JMF
Magnesium, Total	56900		mg/kg	44.6	6.87	10	04/03/23 20:43	04/06/23 16:51	EPA 3050B	1,6010D	AMW
Manganese, Total	128		mg/kg	0.892	0.142	2	04/03/23 20:43	04/06/23 11:41	EPA 3050B	1,6010D	JMF
Mercury, Total	ND		mg/kg	0.081	0.053	1	04/03/23 21:58	04/11/23 20:52	EPA 7471B	1,7471B	DMB
Nickel, Total	4.20		mg/kg	2.23	0.216	2	04/03/23 20:43	04/06/23 11:41	EPA 3050B	1,6010D	JMF
Potassium, Total	1090		mg/kg	223	12.8	2	04/03/23 20:43	04/06/23 11:41	EPA 3050B	1,6010D	JMF
Selenium, Total	ND		mg/kg	1.78	0.230	2	04/03/23 20:43	04/06/23 11:41	EPA 3050B	1,6010D	JMF
Silver, Total	ND		mg/kg	0.446	0.253	2	04/03/23 20:43	04/06/23 11:41	EPA 3050B	1,6010D	JMF
Sodium, Total	112	J	mg/kg	178	2.81	2	04/03/23 20:43	04/06/23 11:41	EPA 3050B	1,6010D	JMF
Thallium, Total	0.424	J	mg/kg	1.78	0.281	2	04/03/23 20:43	04/06/23 11:41	EPA 3050B	1,6010D	JMF
Vanadium, Total	8.16		mg/kg	0.892	0.181	2	04/03/23 20:43	04/06/23 11:41	EPA 3050B	1,6010D	JMF
Zinc, Total	28.3		mg/kg	4.46	0.262	2	04/03/23 20:43	04/06/23 11:41	EPA 3050B	1,6010D	JMF

Project Name: ST. JOSEPH
Lab Number: L2316525
Project Number: 26518.05
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-12
Client ID: SB-9 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 12:25
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	5010		mg/kg	8.92	2.41	2	04/03/23 20:43	04/06/23 14:07	EPA 3050B	1,6010D	MRC
Antimony, Total	ND		mg/kg	4.46	0.339	2	04/03/23 20:43	04/06/23 14:07	EPA 3050B	1,6010D	MRC
Arsenic, Total	4.19		mg/kg	0.892	0.186	2	04/03/23 20:43	04/06/23 14:07	EPA 3050B	1,6010D	MRC
Barium, Total	26.4		mg/kg	0.892	0.155	2	04/03/23 20:43	04/06/23 14:07	EPA 3050B	1,6010D	MRC
Beryllium, Total	0.100	J	mg/kg	0.446	0.029	2	04/03/23 20:43	04/06/23 14:07	EPA 3050B	1,6010D	MRC
Cadmium, Total	ND		mg/kg	0.892	0.087	2	04/03/23 20:43	04/06/23 14:07	EPA 3050B	1,6010D	MRC
Calcium, Total	177000		mg/kg	89.2	31.2	20	04/03/23 20:43	04/06/23 17:48	EPA 3050B	1,6010D	AMW
Chromium, Total	6.86		mg/kg	0.892	0.086	2	04/03/23 20:43	04/06/23 14:07	EPA 3050B	1,6010D	MRC
Cobalt, Total	2.50		mg/kg	1.78	0.148	2	04/03/23 20:43	04/06/23 14:07	EPA 3050B	1,6010D	MRC
Copper, Total	17.0		mg/kg	0.892	0.230	2	04/03/23 20:43	04/06/23 14:07	EPA 3050B	1,6010D	MRC
Iron, Total	7880		mg/kg	44.6	8.05	20	04/03/23 20:43	04/06/23 17:48	EPA 3050B	1,6010D	AMW
Lead, Total	29.5		mg/kg	4.46	0.239	2	04/03/23 20:43	04/06/23 14:07	EPA 3050B	1,6010D	MRC
Magnesium, Total	65500		mg/kg	89.2	13.7	20	04/03/23 20:43	04/06/23 17:48	EPA 3050B	1,6010D	AMW
Manganese, Total	174		mg/kg	0.892	0.142	2	04/03/23 20:43	04/06/23 14:07	EPA 3050B	1,6010D	MRC
Mercury, Total	0.052	J	mg/kg	0.073	0.047	1	04/03/23 21:58	04/11/23 20:55	EPA 7471B	1,7471B	DMB
Nickel, Total	5.34		mg/kg	2.23	0.216	2	04/03/23 20:43	04/06/23 14:07	EPA 3050B	1,6010D	MRC
Potassium, Total	1190		mg/kg	223	12.8	2	04/03/23 20:43	04/06/23 14:07	EPA 3050B	1,6010D	MRC
Selenium, Total	ND		mg/kg	1.78	0.230	2	04/03/23 20:43	04/06/23 14:07	EPA 3050B	1,6010D	MRC
Silver, Total	ND		mg/kg	0.446	0.252	2	04/03/23 20:43	04/06/23 14:07	EPA 3050B	1,6010D	MRC
Sodium, Total	125	J	mg/kg	178	2.81	2	04/03/23 20:43	04/06/23 14:07	EPA 3050B	1,6010D	MRC
Thallium, Total	ND		mg/kg	1.78	0.281	2	04/03/23 20:43	04/06/23 14:07	EPA 3050B	1,6010D	MRC
Vanadium, Total	9.88		mg/kg	0.892	0.181	2	04/03/23 20:43	04/06/23 14:07	EPA 3050B	1,6010D	MRC
Zinc, Total	26.8		mg/kg	4.46	0.261	2	04/03/23 20:43	04/06/23 14:07	EPA 3050B	1,6010D	MRC

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-13
Client ID: SB-10 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 12:53
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	4880		mg/kg	8.96	2.42	2	04/03/23 20:43	04/06/23 14:12	EPA 3050B	1,6010D	MRC
Antimony, Total	ND		mg/kg	4.48	0.340	2	04/03/23 20:43	04/06/23 14:12	EPA 3050B	1,6010D	MRC
Arsenic, Total	4.22		mg/kg	0.896	0.186	2	04/03/23 20:43	04/06/23 14:12	EPA 3050B	1,6010D	MRC
Barium, Total	40.6		mg/kg	0.896	0.156	2	04/03/23 20:43	04/06/23 14:12	EPA 3050B	1,6010D	MRC
Beryllium, Total	0.071	J	mg/kg	0.448	0.030	2	04/03/23 20:43	04/06/23 14:12	EPA 3050B	1,6010D	MRC
Cadmium, Total	ND		mg/kg	0.896	0.088	2	04/03/23 20:43	04/06/23 14:12	EPA 3050B	1,6010D	MRC
Calcium, Total	148000		mg/kg	89.6	31.4	20	04/03/23 20:43	04/06/23 17:53	EPA 3050B	1,6010D	AMW
Chromium, Total	6.04		mg/kg	0.896	0.086	2	04/03/23 20:43	04/06/23 14:12	EPA 3050B	1,6010D	MRC
Cobalt, Total	1.92		mg/kg	1.79	0.149	2	04/03/23 20:43	04/06/23 14:12	EPA 3050B	1,6010D	MRC
Copper, Total	55.3		mg/kg	0.896	0.231	2	04/03/23 20:43	04/06/23 14:12	EPA 3050B	1,6010D	MRC
Iron, Total	4950		mg/kg	44.8	8.09	20	04/03/23 20:43	04/06/23 17:53	EPA 3050B	1,6010D	AMW
Lead, Total	15.1		mg/kg	4.48	0.240	2	04/03/23 20:43	04/06/23 14:12	EPA 3050B	1,6010D	MRC
Magnesium, Total	41800		mg/kg	89.6	13.8	20	04/03/23 20:43	04/06/23 17:53	EPA 3050B	1,6010D	AMW
Manganese, Total	113		mg/kg	0.896	0.142	2	04/03/23 20:43	04/06/23 14:12	EPA 3050B	1,6010D	MRC
Mercury, Total	ND		mg/kg	0.077	0.050	1	04/03/23 21:58	04/11/23 20:59	EPA 7471B	1,7471B	DMB
Nickel, Total	4.63		mg/kg	2.24	0.217	2	04/03/23 20:43	04/06/23 14:12	EPA 3050B	1,6010D	MRC
Potassium, Total	778		mg/kg	224	12.9	2	04/03/23 20:43	04/06/23 14:12	EPA 3050B	1,6010D	MRC
Selenium, Total	ND		mg/kg	1.79	0.231	2	04/03/23 20:43	04/06/23 14:12	EPA 3050B	1,6010D	MRC
Silver, Total	ND		mg/kg	0.448	0.254	2	04/03/23 20:43	04/06/23 14:12	EPA 3050B	1,6010D	MRC
Sodium, Total	169	J	mg/kg	179	2.82	2	04/03/23 20:43	04/06/23 14:12	EPA 3050B	1,6010D	MRC
Thallium, Total	ND		mg/kg	1.79	0.282	2	04/03/23 20:43	04/06/23 14:12	EPA 3050B	1,6010D	MRC
Vanadium, Total	6.88		mg/kg	0.896	0.182	2	04/03/23 20:43	04/06/23 14:12	EPA 3050B	1,6010D	MRC
Zinc, Total	41.3		mg/kg	4.48	0.262	2	04/03/23 20:43	04/06/23 14:12	EPA 3050B	1,6010D	MRC

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-14
Client ID: SB-11 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 13:25
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	5700		mg/kg	8.73	2.36	2	04/03/23 20:43	04/06/23 14:17	EPA 3050B	1,6010D	MRC
Antimony, Total	ND		mg/kg	4.36	0.332	2	04/03/23 20:43	04/06/23 14:17	EPA 3050B	1,6010D	MRC
Arsenic, Total	13.4		mg/kg	0.873	0.182	2	04/03/23 20:43	04/06/23 14:17	EPA 3050B	1,6010D	MRC
Barium, Total	34.2		mg/kg	0.873	0.152	2	04/03/23 20:43	04/06/23 14:17	EPA 3050B	1,6010D	MRC
Beryllium, Total	0.031	J	mg/kg	0.436	0.029	2	04/03/23 20:43	04/06/23 14:17	EPA 3050B	1,6010D	MRC
Cadmium, Total	ND		mg/kg	0.873	0.086	2	04/03/23 20:43	04/06/23 14:17	EPA 3050B	1,6010D	MRC
Calcium, Total	27800		mg/kg	8.73	3.05	2	04/03/23 20:43	04/06/23 20:42	EPA 3050B	1,6010D	AMW
Chromium, Total	11.4		mg/kg	0.873	0.084	2	04/03/23 20:43	04/06/23 14:17	EPA 3050B	1,6010D	MRC
Cobalt, Total	2.44		mg/kg	1.74	0.145	2	04/03/23 20:43	04/06/23 14:17	EPA 3050B	1,6010D	MRC
Copper, Total	9.87		mg/kg	0.873	0.225	2	04/03/23 20:43	04/06/23 14:17	EPA 3050B	1,6010D	MRC
Iron, Total	7180		mg/kg	4.36	0.788	2	04/03/23 20:43	04/06/23 20:42	EPA 3050B	1,6010D	AMW
Lead, Total	21.8		mg/kg	4.36	0.234	2	04/03/23 20:43	04/06/23 14:17	EPA 3050B	1,6010D	MRC
Magnesium, Total	5960		mg/kg	8.73	1.34	2	04/03/23 20:43	04/06/23 20:42	EPA 3050B	1,6010D	AMW
Manganese, Total	122		mg/kg	0.873	0.139	2	04/03/23 20:43	04/06/23 14:17	EPA 3050B	1,6010D	MRC
Mercury, Total	0.049	J	mg/kg	0.069	0.045	1	04/03/23 21:58	04/11/23 21:02	EPA 7471B	1,7471B	DMB
Nickel, Total	7.26		mg/kg	2.18	0.211	2	04/03/23 20:43	04/06/23 14:17	EPA 3050B	1,6010D	MRC
Potassium, Total	994		mg/kg	218	12.6	2	04/03/23 20:43	04/06/23 14:17	EPA 3050B	1,6010D	MRC
Selenium, Total	ND		mg/kg	1.74	0.225	2	04/03/23 20:43	04/06/23 14:17	EPA 3050B	1,6010D	MRC
Silver, Total	ND		mg/kg	0.436	0.247	2	04/03/23 20:43	04/06/23 14:17	EPA 3050B	1,6010D	MRC
Sodium, Total	438		mg/kg	174	2.75	2	04/03/23 20:43	04/06/23 14:17	EPA 3050B	1,6010D	MRC
Thallium, Total	0.340	J	mg/kg	1.74	0.275	2	04/03/23 20:43	04/06/23 14:17	EPA 3050B	1,6010D	MRC
Vanadium, Total	15.9		mg/kg	0.873	0.177	2	04/03/23 20:43	04/06/23 14:17	EPA 3050B	1,6010D	MRC
Zinc, Total	29.9		mg/kg	4.36	0.256	2	04/03/23 20:43	04/06/23 14:17	EPA 3050B	1,6010D	MRC

Project Name: ST. JOSEPH
Lab Number: L2316525
Project Number: 26518.05
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-15
Client ID: SB-11 (6.5'-8.5')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 13:27
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	6480		mg/kg	8.98	2.42	2	04/06/23 22:36	04/07/23 11:48	EPA 3050B	1,6010D	JMF
Antimony, Total	1.69	J	mg/kg	4.49	0.341	2	04/06/23 22:36	04/07/23 11:48	EPA 3050B	1,6010D	JMF
Arsenic, Total	93.8		mg/kg	0.898	0.187	2	04/06/23 22:36	04/07/23 11:48	EPA 3050B	1,6010D	JMF
Barium, Total	67.2		mg/kg	0.898	0.156	2	04/06/23 22:36	04/07/23 11:48	EPA 3050B	1,6010D	JMF
Beryllium, Total	0.254	J	mg/kg	0.449	0.030	2	04/06/23 22:36	04/07/23 11:48	EPA 3050B	1,6010D	JMF
Cadmium, Total	0.111	J	mg/kg	0.898	0.088	2	04/06/23 22:36	04/07/23 11:48	EPA 3050B	1,6010D	JMF
Calcium, Total	53400		mg/kg	8.98	3.14	2	04/06/23 22:36	04/07/23 11:48	EPA 3050B	1,6010D	JMF
Chromium, Total	8.09		mg/kg	0.898	0.086	2	04/06/23 22:36	04/07/23 11:48	EPA 3050B	1,6010D	JMF
Cobalt, Total	2.64		mg/kg	1.80	0.149	2	04/06/23 22:36	04/07/23 11:48	EPA 3050B	1,6010D	JMF
Copper, Total	34.5		mg/kg	0.898	0.232	2	04/06/23 22:36	04/07/23 11:48	EPA 3050B	1,6010D	JMF
Iron, Total	4930		mg/kg	4.49	0.811	2	04/06/23 22:36	04/07/23 11:48	EPA 3050B	1,6010D	JMF
Lead, Total	23.2		mg/kg	4.49	0.241	2	04/06/23 22:36	04/07/23 11:48	EPA 3050B	1,6010D	JMF
Magnesium, Total	8980		mg/kg	8.98	1.38	2	04/06/23 22:36	04/07/23 11:48	EPA 3050B	1,6010D	JMF
Manganese, Total	106		mg/kg	0.898	0.143	2	04/06/23 22:36	04/07/23 11:48	EPA 3050B	1,6010D	JMF
Mercury, Total	0.118		mg/kg	0.075	0.049	1	04/06/23 23:21	04/07/23 10:45	EPA 7471B	1,7471B	ZNK
Nickel, Total	7.66		mg/kg	2.24	0.217	2	04/06/23 22:36	04/07/23 11:48	EPA 3050B	1,6010D	JMF
Potassium, Total	1220		mg/kg	224	12.9	2	04/06/23 22:36	04/07/23 11:48	EPA 3050B	1,6010D	JMF
Selenium, Total	0.351	J	mg/kg	1.80	0.232	2	04/06/23 22:36	04/07/23 11:48	EPA 3050B	1,6010D	JMF
Silver, Total	0.364	J	mg/kg	0.449	0.254	2	04/06/23 22:36	04/07/23 11:48	EPA 3050B	1,6010D	JMF
Sodium, Total	292		mg/kg	180	2.83	2	04/06/23 22:36	04/07/23 11:48	EPA 3050B	1,6010D	JMF
Thallium, Total	0.672	J	mg/kg	1.80	0.283	2	04/06/23 22:36	04/07/23 11:48	EPA 3050B	1,6010D	JMF
Vanadium, Total	12.6		mg/kg	0.898	0.182	2	04/06/23 22:36	04/07/23 11:48	EPA 3050B	1,6010D	JMF
Zinc, Total	25.6		mg/kg	4.49	0.263	2	04/06/23 22:36	04/07/23 11:48	EPA 3050B	1,6010D	JMF

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-16
Client ID: SB-6 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 14:00
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 97%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	5140		mg/kg	8.05	2.17	2	04/03/23 22:32	04/06/23 19:27	EPA 3050B	1,6010D	AMW
Antimony, Total	ND		mg/kg	4.03	0.306	2	04/03/23 22:32	04/06/23 19:27	EPA 3050B	1,6010D	AMW
Arsenic, Total	5.51		mg/kg	0.805	0.167	2	04/03/23 22:32	04/06/23 19:27	EPA 3050B	1,6010D	AMW
Barium, Total	71.1		mg/kg	0.805	0.140	2	04/03/23 22:32	04/06/23 19:27	EPA 3050B	1,6010D	AMW
Beryllium, Total	0.104	J	mg/kg	0.403	0.027	2	04/03/23 22:32	04/06/23 19:27	EPA 3050B	1,6010D	AMW
Cadmium, Total	ND		mg/kg	0.805	0.079	2	04/03/23 22:32	04/06/23 19:27	EPA 3050B	1,6010D	AMW
Calcium, Total	168000		mg/kg	80.5	28.2	20	04/03/23 22:32	04/06/23 21:05	EPA 3050B	1,6010D	AMW
Chromium, Total	6.73		mg/kg	0.805	0.077	2	04/03/23 22:32	04/06/23 19:27	EPA 3050B	1,6010D	AMW
Cobalt, Total	2.24		mg/kg	1.61	0.134	2	04/03/23 22:32	04/06/23 19:27	EPA 3050B	1,6010D	AMW
Copper, Total	7.64		mg/kg	0.805	0.208	2	04/03/23 22:32	04/06/23 19:27	EPA 3050B	1,6010D	AMW
Iron, Total	6350		mg/kg	4.03	0.727	2	04/03/23 22:32	04/06/23 19:27	EPA 3050B	1,6010D	AMW
Lead, Total	398		mg/kg	4.03	0.216	2	04/03/23 22:32	04/06/23 19:27	EPA 3050B	1,6010D	AMW
Magnesium, Total	85100		mg/kg	80.5	12.4	20	04/03/23 22:32	04/06/23 21:05	EPA 3050B	1,6010D	AMW
Manganese, Total	627		mg/kg	0.805	0.128	2	04/03/23 22:32	04/06/23 19:27	EPA 3050B	1,6010D	AMW
Mercury, Total	0.078		mg/kg	0.067	0.044	1	04/03/23 23:30	04/11/23 15:18	EPA 7471B	1,7471B	DMB
Nickel, Total	4.87		mg/kg	2.01	0.195	2	04/03/23 22:32	04/06/23 19:27	EPA 3050B	1,6010D	AMW
Potassium, Total	713		mg/kg	201	11.6	2	04/03/23 22:32	04/06/23 19:27	EPA 3050B	1,6010D	AMW
Selenium, Total	ND		mg/kg	1.61	0.208	2	04/03/23 22:32	04/06/23 19:27	EPA 3050B	1,6010D	AMW
Silver, Total	ND		mg/kg	0.403	0.228	2	04/03/23 22:32	04/06/23 19:27	EPA 3050B	1,6010D	AMW
Sodium, Total	56.6	J	mg/kg	161	2.54	2	04/03/23 22:32	04/06/23 19:27	EPA 3050B	1,6010D	AMW
Thallium, Total	ND		mg/kg	1.61	0.254	2	04/03/23 22:32	04/06/23 19:27	EPA 3050B	1,6010D	AMW
Vanadium, Total	11.7		mg/kg	0.805	0.163	2	04/03/23 22:32	04/06/23 19:27	EPA 3050B	1,6010D	AMW
Zinc, Total	48.5		mg/kg	4.03	0.236	2	04/03/23 22:32	04/06/23 19:27	EPA 3050B	1,6010D	AMW

Project Name: ST. JOSEPH
Lab Number: L2316525
Project Number: 26518.05
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-17
Client ID: SB-8 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Date Collected: 03/29/23 14:09
Date Received: 03/29/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	6110		mg/kg	8.57	2.31	2	04/03/23 22:32	04/06/23 19:32	EPA 3050B	1,6010D	AMW
Antimony, Total	ND		mg/kg	4.28	0.326	2	04/03/23 22:32	04/06/23 19:32	EPA 3050B	1,6010D	AMW
Arsenic, Total	4.33		mg/kg	0.857	0.178	2	04/03/23 22:32	04/06/23 19:32	EPA 3050B	1,6010D	AMW
Barium, Total	25.6		mg/kg	0.857	0.149	2	04/03/23 22:32	04/06/23 19:32	EPA 3050B	1,6010D	AMW
Beryllium, Total	0.057	J	mg/kg	0.428	0.028	2	04/03/23 22:32	04/06/23 19:32	EPA 3050B	1,6010D	AMW
Cadmium, Total	ND		mg/kg	0.857	0.084	2	04/03/23 22:32	04/06/23 19:32	EPA 3050B	1,6010D	AMW
Calcium, Total	193000		mg/kg	85.7	30.0	20	04/03/23 22:32	04/06/23 20:10	EPA 3050B	1,6010D	AMW
Chromium, Total	6.52		mg/kg	0.857	0.082	2	04/03/23 22:32	04/06/23 19:32	EPA 3050B	1,6010D	AMW
Cobalt, Total	1.76		mg/kg	1.71	0.142	2	04/03/23 22:32	04/06/23 19:32	EPA 3050B	1,6010D	AMW
Copper, Total	6.64		mg/kg	0.857	0.221	2	04/03/23 22:32	04/06/23 19:32	EPA 3050B	1,6010D	AMW
Iron, Total	5220		mg/kg	4.28	0.774	2	04/03/23 22:32	04/06/23 19:32	EPA 3050B	1,6010D	AMW
Lead, Total	17.1		mg/kg	4.28	0.230	2	04/03/23 22:32	04/06/23 19:32	EPA 3050B	1,6010D	AMW
Magnesium, Total	65600		mg/kg	8.57	1.32	2	04/03/23 22:32	04/06/23 19:32	EPA 3050B	1,6010D	AMW
Manganese, Total	115		mg/kg	0.857	0.136	2	04/03/23 22:32	04/06/23 19:32	EPA 3050B	1,6010D	AMW
Mercury, Total	ND		mg/kg	0.072	0.047	1	04/03/23 23:30	04/11/23 15:21	EPA 7471B	1,7471B	DMB
Nickel, Total	3.98		mg/kg	2.14	0.207	2	04/03/23 22:32	04/06/23 19:32	EPA 3050B	1,6010D	AMW
Potassium, Total	1100		mg/kg	214	12.3	2	04/03/23 22:32	04/06/23 19:32	EPA 3050B	1,6010D	AMW
Selenium, Total	ND		mg/kg	1.71	0.221	2	04/03/23 22:32	04/06/23 19:32	EPA 3050B	1,6010D	AMW
Silver, Total	ND		mg/kg	0.428	0.242	2	04/03/23 22:32	04/06/23 19:32	EPA 3050B	1,6010D	AMW
Sodium, Total	112	J	mg/kg	171	2.70	2	04/03/23 22:32	04/06/23 19:32	EPA 3050B	1,6010D	AMW
Thallium, Total	ND		mg/kg	1.71	0.270	2	04/03/23 22:32	04/06/23 19:32	EPA 3050B	1,6010D	AMW
Vanadium, Total	10.2		mg/kg	0.857	0.174	2	04/03/23 22:32	04/06/23 19:32	EPA 3050B	1,6010D	AMW
Zinc, Total	20.2		mg/kg	4.28	0.251	2	04/03/23 22:32	04/06/23 19:32	EPA 3050B	1,6010D	AMW

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-09,11-14 Batch: WG1762148-1										
Aluminum, Total	ND		mg/kg	4.00	1.08	1	04/03/23 20:43	04/04/23 07:26	1,6010D	DHL
Antimony, Total	ND		mg/kg	2.00	0.152	1	04/03/23 20:43	04/04/23 07:26	1,6010D	DHL
Arsenic, Total	ND		mg/kg	0.400	0.083	1	04/03/23 20:43	04/04/23 07:26	1,6010D	DHL
Barium, Total	ND		mg/kg	0.400	0.070	1	04/03/23 20:43	04/04/23 07:26	1,6010D	DHL
Beryllium, Total	ND		mg/kg	0.200	0.013	1	04/03/23 20:43	04/04/23 07:26	1,6010D	DHL
Cadmium, Total	ND		mg/kg	0.400	0.039	1	04/03/23 20:43	04/04/23 07:26	1,6010D	DHL
Calcium, Total	ND		mg/kg	4.00	1.40	1	04/03/23 20:43	04/04/23 07:26	1,6010D	DHL
Chromium, Total	0.226	J	mg/kg	0.400	0.038	1	04/03/23 20:43	04/04/23 07:26	1,6010D	DHL
Cobalt, Total	ND		mg/kg	0.800	0.066	1	04/03/23 20:43	04/04/23 07:26	1,6010D	DHL
Copper, Total	ND		mg/kg	0.400	0.103	1	04/03/23 20:43	04/04/23 07:26	1,6010D	DHL
Iron, Total	0.858	J	mg/kg	2.00	0.361	1	04/03/23 20:43	04/04/23 07:26	1,6010D	DHL
Lead, Total	ND		mg/kg	2.00	0.107	1	04/03/23 20:43	04/04/23 07:26	1,6010D	DHL
Magnesium, Total	ND		mg/kg	4.00	0.616	1	04/03/23 20:43	04/04/23 07:26	1,6010D	DHL
Manganese, Total	ND		mg/kg	0.400	0.064	1	04/03/23 20:43	04/04/23 07:26	1,6010D	DHL
Nickel, Total	0.215	J	mg/kg	1.00	0.097	1	04/03/23 20:43	04/04/23 07:26	1,6010D	DHL
Potassium, Total	ND		mg/kg	100	5.76	1	04/03/23 20:43	04/04/23 07:26	1,6010D	DHL
Selenium, Total	ND		mg/kg	0.800	0.103	1	04/03/23 20:43	04/04/23 07:26	1,6010D	DHL
Silver, Total	ND		mg/kg	0.200	0.113	1	04/03/23 20:43	04/04/23 07:26	1,6010D	DHL
Sodium, Total	3.81	J	mg/kg	80.0	1.26	1	04/03/23 20:43	04/04/23 07:26	1,6010D	DHL
Thallium, Total	ND		mg/kg	0.800	0.126	1	04/03/23 20:43	04/04/23 07:26	1,6010D	DHL
Vanadium, Total	ND		mg/kg	0.400	0.081	1	04/03/23 20:43	04/04/23 07:26	1,6010D	DHL
Zinc, Total	ND		mg/kg	2.00	0.117	1	04/03/23 20:43	04/04/23 07:26	1,6010D	DHL

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-09,11-14 Batch: WG1762149-1										
Mercury, Total	ND		mg/kg	0.083	0.054	1	04/03/23 21:58	04/04/23 08:18	1,7471B	ZNK

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

Method Blank Analysis
Batch Quality Control

Prep Information

Digestion Method: EPA 7471B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 15 Batch: WG1762164-1										
Aluminum, Total	ND		mg/kg	4.00	1.08	1	04/06/23 22:36	04/07/23 11:41	1,6010D	JMF
Antimony, Total	ND		mg/kg	2.00	0.152	1	04/06/23 22:36	04/07/23 11:41	1,6010D	JMF
Arsenic, Total	ND		mg/kg	0.400	0.083	1	04/06/23 22:36	04/07/23 11:41	1,6010D	JMF
Barium, Total	ND		mg/kg	0.400	0.070	1	04/06/23 22:36	04/07/23 11:41	1,6010D	JMF
Beryllium, Total	ND		mg/kg	0.200	0.013	1	04/06/23 22:36	04/07/23 11:41	1,6010D	JMF
Cadmium, Total	ND		mg/kg	0.400	0.039	1	04/06/23 22:36	04/07/23 11:41	1,6010D	JMF
Calcium, Total	ND		mg/kg	4.00	1.40	1	04/06/23 22:36	04/07/23 11:41	1,6010D	JMF
Chromium, Total	ND		mg/kg	0.400	0.038	1	04/06/23 22:36	04/07/23 11:41	1,6010D	JMF
Cobalt, Total	ND		mg/kg	0.800	0.066	1	04/06/23 22:36	04/07/23 11:41	1,6010D	JMF
Copper, Total	ND		mg/kg	0.400	0.103	1	04/06/23 22:36	04/07/23 11:41	1,6010D	JMF
Iron, Total	0.466	J	mg/kg	2.00	0.361	1	04/06/23 22:36	04/07/23 11:41	1,6010D	JMF
Lead, Total	ND		mg/kg	2.00	0.107	1	04/06/23 22:36	04/07/23 11:41	1,6010D	JMF
Magnesium, Total	ND		mg/kg	4.00	0.616	1	04/06/23 22:36	04/07/23 11:41	1,6010D	JMF
Manganese, Total	ND		mg/kg	0.400	0.064	1	04/06/23 22:36	04/07/23 11:41	1,6010D	JMF
Nickel, Total	ND		mg/kg	1.00	0.097	1	04/06/23 22:36	04/07/23 11:41	1,6010D	JMF
Potassium, Total	ND		mg/kg	100	5.76	1	04/06/23 22:36	04/07/23 11:41	1,6010D	JMF
Selenium, Total	ND		mg/kg	0.800	0.103	1	04/06/23 22:36	04/07/23 11:41	1,6010D	JMF
Silver, Total	ND		mg/kg	0.200	0.113	1	04/06/23 22:36	04/07/23 11:41	1,6010D	JMF
Sodium, Total	7.46	J	mg/kg	80.0	1.26	1	04/06/23 22:36	04/07/23 11:41	1,6010D	JMF
Thallium, Total	0.136	J	mg/kg	0.800	0.126	1	04/06/23 22:36	04/07/23 11:41	1,6010D	JMF
Vanadium, Total	ND		mg/kg	0.400	0.081	1	04/06/23 22:36	04/07/23 11:41	1,6010D	JMF
Zinc, Total	ND		mg/kg	2.00	0.117	1	04/06/23 22:36	04/07/23 11:41	1,6010D	JMF

Prep Information

Digestion Method: EPA 3050B

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 15 Batch: WG1762165-1										
Mercury, Total	ND		mg/kg	0.083	0.054	1	04/06/23 23:21	04/07/23 10:26	1,7471B	ZNK

Prep Information

Digestion Method: EPA 7471B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 16-17 Batch: WG1762189-1										
Aluminum, Total	ND		mg/kg	4.00	1.08	1	04/03/23 22:32	04/04/23 07:30	1,6010D	DHL
Antimony, Total	ND		mg/kg	2.00	0.152	1	04/03/23 22:32	04/04/23 07:30	1,6010D	DHL
Arsenic, Total	ND		mg/kg	0.400	0.083	1	04/03/23 22:32	04/04/23 07:30	1,6010D	DHL
Barium, Total	ND		mg/kg	0.400	0.070	1	04/03/23 22:32	04/04/23 07:30	1,6010D	DHL
Beryllium, Total	ND		mg/kg	0.200	0.013	1	04/03/23 22:32	04/04/23 07:30	1,6010D	DHL
Cadmium, Total	ND		mg/kg	0.400	0.039	1	04/03/23 22:32	04/04/23 07:30	1,6010D	DHL
Calcium, Total	ND		mg/kg	4.00	1.40	1	04/03/23 22:32	04/04/23 07:30	1,6010D	DHL
Chromium, Total	ND		mg/kg	0.400	0.038	1	04/03/23 22:32	04/04/23 07:30	1,6010D	DHL
Cobalt, Total	ND		mg/kg	0.800	0.066	1	04/03/23 22:32	04/04/23 07:30	1,6010D	DHL
Copper, Total	ND		mg/kg	0.400	0.103	1	04/03/23 22:32	04/04/23 07:30	1,6010D	DHL
Iron, Total	ND		mg/kg	2.00	0.361	1	04/03/23 22:32	04/04/23 07:30	1,6010D	DHL
Lead, Total	ND		mg/kg	2.00	0.107	1	04/03/23 22:32	04/04/23 07:30	1,6010D	DHL
Magnesium, Total	ND		mg/kg	4.00	0.616	1	04/03/23 22:32	04/04/23 07:30	1,6010D	DHL
Manganese, Total	ND		mg/kg	0.400	0.064	1	04/03/23 22:32	04/04/23 07:30	1,6010D	DHL
Nickel, Total	ND		mg/kg	1.00	0.097	1	04/03/23 22:32	04/04/23 07:30	1,6010D	DHL
Potassium, Total	ND		mg/kg	100	5.76	1	04/03/23 22:32	04/04/23 07:30	1,6010D	DHL
Selenium, Total	ND		mg/kg	0.800	0.103	1	04/03/23 22:32	04/04/23 07:30	1,6010D	DHL
Silver, Total	ND		mg/kg	0.200	0.113	1	04/03/23 22:32	04/04/23 07:30	1,6010D	DHL
Sodium, Total	2.57	J	mg/kg	80.0	1.26	1	04/03/23 22:32	04/04/23 07:30	1,6010D	DHL
Thallium, Total	ND		mg/kg	0.800	0.126	1	04/03/23 22:32	04/04/23 07:30	1,6010D	DHL
Vanadium, Total	ND		mg/kg	0.400	0.081	1	04/03/23 22:32	04/04/23 07:30	1,6010D	DHL
Zinc, Total	ND		mg/kg	2.00	0.117	1	04/03/23 22:32	04/04/23 07:30	1,6010D	DHL

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

Method Blank Analysis
Batch Quality Control

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 16-17 Batch: WG1762190-1										
Mercury, Total	ND		mg/kg	0.083	0.054	1	04/03/23 23:30	04/04/23 08:41	1,7471B	ZNK

Prep Information

Digestion Method: EPA 7471B

Lab Control Sample Analysis

Batch Quality Control

Project Name: ST. JOSEPH

Project Number: 26518.05

Lab Number: L2316525

Report Date: 04/12/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-09,11-14 Batch: WG1762148-2 SRM Lot Number: D116-540								
Aluminum, Total	86		-		45-155	-		
Antimony, Total	175		-		2-205	-		
Arsenic, Total	113		-		82-119	-		
Barium, Total	97		-		82-118	-		
Beryllium, Total	117		-		82-118	-		
Cadmium, Total	108		-		82-118	-		
Calcium, Total	105		-		81-119	-		
Chromium, Total	114		-		81-118	-		
Cobalt, Total	110		-		83-117	-		
Copper, Total	113		-		83-117	-		
Iron, Total	113		-		58-142	-		
Lead, Total	106		-		83-117	-		
Magnesium, Total	99		-		75-125	-		
Manganese, Total	104		-		82-118	-		
Nickel, Total	110		-		82-118	-		
Potassium, Total	96		-		68-131	-		
Selenium, Total	119		-		78-122	-		
Silver, Total	112		-		79-121	-		
Sodium, Total	104		-		71-130	-		
Thallium, Total	112		-		80-120	-		
Vanadium, Total	109		-		78-122	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: ST. JOSEPH

Project Number: 26518.05

Lab Number: L2316525

Report Date: 04/12/23

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-09,11-14 Batch: WG1762148-2 SRM Lot Number: D116-540					
Zinc, Total	108	-	80-120	-	
Total Metals - Mansfield Lab Associated sample(s): 01-09,11-14 Batch: WG1762149-2 SRM Lot Number: D116-540					
Mercury, Total	95	-	58-142	-	

Lab Control Sample Analysis

Batch Quality Control

Project Name: ST. JOSEPH

Project Number: 26518.05

Lab Number: L2316525

Report Date: 04/12/23

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 15 Batch: WG1762164-2 SRM Lot Number: D116-540					
Aluminum, Total	78	-	45-155	-	
Antimony, Total	166	-	2-205	-	
Arsenic, Total	104	-	82-119	-	
Barium, Total	96	-	82-118	-	
Beryllium, Total	103	-	82-118	-	
Cadmium, Total	102	-	82-118	-	
Calcium, Total	96	-	81-119	-	
Chromium, Total	98	-	81-118	-	
Cobalt, Total	99	-	83-117	-	
Copper, Total	105	-	83-117	-	
Iron, Total	94	-	58-142	-	
Lead, Total	102	-	83-117	-	
Magnesium, Total	91	-	75-125	-	
Manganese, Total	98	-	82-118	-	
Nickel, Total	102	-	82-118	-	
Potassium, Total	86	-	68-131	-	
Selenium, Total	105	-	78-122	-	
Silver, Total	105	-	79-121	-	
Sodium, Total	103	-	71-130	-	
Thallium, Total	106	-	80-120	-	
Vanadium, Total	100	-	78-122	-	

Lab Control Sample Analysis

Batch Quality Control

Project Name: ST. JOSEPH

Project Number: 26518.05

Lab Number: L2316525

Report Date: 04/12/23

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 15 Batch: WG1762164-2 SRM Lot Number: D116-540					
Zinc, Total	99	-	80-120	-	
Total Metals - Mansfield Lab Associated sample(s): 15 Batch: WG1762165-2 SRM Lot Number: D116-540					
Mercury, Total	98	-	58-142	-	

Lab Control Sample Analysis

Batch Quality Control

Project Name: ST. JOSEPH

Project Number: 26518.05

Lab Number: L2316525

Report Date: 04/12/23

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 16-17 Batch: WG1762189-2 SRM Lot Number: D116-540					
Aluminum, Total	90	-	45-155	-	
Antimony, Total	186	-	2-205	-	
Arsenic, Total	112	-	82-119	-	
Barium, Total	95	-	82-118	-	
Beryllium, Total	107	-	82-118	-	
Cadmium, Total	102	-	82-118	-	
Calcium, Total	103	-	81-119	-	
Chromium, Total	108	-	81-118	-	
Cobalt, Total	105	-	83-117	-	
Copper, Total	111	-	83-117	-	
Iron, Total	118	-	58-142	-	
Lead, Total	105	-	83-117	-	
Magnesium, Total	100	-	75-125	-	
Manganese, Total	98	-	82-118	-	
Nickel, Total	103	-	82-118	-	
Potassium, Total	98	-	68-131	-	
Selenium, Total	113	-	78-122	-	
Silver, Total	111	-	79-121	-	
Sodium, Total	105	-	71-130	-	
Thallium, Total	109	-	80-120	-	
Vanadium, Total	105	-	78-122	-	

Lab Control Sample Analysis

Batch Quality Control

Project Name: ST. JOSEPH

Project Number: 26518.05

Lab Number: L2316525

Report Date: 04/12/23

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 16-17 Batch: WG1762189-2 SRM Lot Number: D116-540					
Zinc, Total	105	-	80-120	-	
Total Metals - Mansfield Lab Associated sample(s): 16-17 Batch: WG1762190-2 SRM Lot Number: D116-540					
Mercury, Total	97	-	58-142	-	

Matrix Spike Analysis
Batch Quality Control

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316525
Report Date: 04/12/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-09,11-14 QC Batch ID: WG1762148-3 QC Sample: L2316864-02 Client ID: MS Sample												
Aluminum, Total	4720	187	6200	**790**	Q	-	-		75-125	-		20
Antimony, Total	3.82J	46.8	49.6	106		-	-		75-125	-		20
Arsenic, Total	8.09	11.2	18.9	96		-	-		75-125	-		20
Barium, Total	72.0	187	260	100		-	-		75-125	-		20
Beryllium, Total	0.575	4.68	5.79	111		-	-		75-125	-		20
Cadmium, Total	0.450J	4.96	5.17	104		-	-		75-125	-		20
Calcium, Total	7010	937	5790	**0**	Q	-	-		75-125	-		20
Chromium, Total	10.1	18.7	31.4	114		-	-		75-125	-		20
Cobalt, Total	7.04	46.8	53.4	99		-	-		75-125	-		20
Copper, Total	130	23.4	109	**0**	Q	-	-		75-125	-		20
Iron, Total	20900	93.7	16500	**0**	Q	-	-		75-125	-		20
Lead, Total	192	49.6	195	**6**	Q	-	-		75-125	-		20
Magnesium, Total	2060	937	3360	**139**	Q	-	-		75-125	-		20
Manganese, Total	306	46.8	303	**0**	Q	-	-		75-125	-		20
Nickel, Total	14.0	46.8	58.9	96		-	-		75-125	-		20
Potassium, Total	633	937	1840	**129**	Q	-	-		75-125	-		20
Selenium, Total	ND	11.2	11.2	100		-	-		75-125	-		20
Silver, Total	ND	4.68	4.91	105		-	-		75-125	-		20
Sodium, Total	132J	937	1120	120		-	-		75-125	-		20
Thallium, Total	ND	11.2	11.1	99		-	-		75-125	-		20
Vanadium, Total	16.9	46.8	64.1	101		-	-		75-125	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316525
Report Date: 04/12/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery		MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-09,11-14 QC Batch ID: WG1762148-3 QC Sample: L2316864-02 Client ID: MS Sample										
Zinc, Total	190	46.8	218	**60**	Q	-	-	75-125	-	20
Total Metals - Mansfield Lab Associated sample(s): 01-09,11-14 QC Batch ID: WG1762149-3 QC Sample: L2316864-02 Client ID: MS Sample										
Mercury, Total	0.666	1.7	2.73	**121**	Q	-	-	80-120	-	20

Matrix Spike Analysis
Batch Quality Control

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316525
Report Date: 04/12/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery		MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 15 QC Batch ID: WG1762164-3 QC Sample: L2317039-01 Client ID: MS Sample										
Aluminum, Total	11200	192	11800	**313**	Q	-	-	75-125	-	20
Antimony, Total	ND	48	28.6	**60**	Q	-	-	75-125	-	20
Arsenic, Total	5.38	11.5	17.6	106		-	-	75-125	-	20
Barium, Total	99.9	192	266	86		-	-	75-125	-	20
Beryllium, Total	0.497	4.8	4.82	90		-	-	75-125	-	20
Cadmium, Total	0.292J	5.08	3.98	78		-	-	75-125	-	20
Calcium, Total	46800	959	48000	125		-	-	75-125	-	20
Chromium, Total	16.6	19.2	31.7	79		-	-	75-125	-	20
Cobalt, Total	9.92	48	47.1	78		-	-	75-125	-	20
Copper, Total	21.9	24	46.1	101		-	-	75-125	-	20
Iron, Total	19600	95.9	18700	**0**	Q	-	-	75-125	-	20
Lead, Total	14.4	50.8	65.4	100		-	-	75-125	-	20
Magnesium, Total	17100	959	17000	**0**	Q	-	-	75-125	-	20
Manganese, Total	453	48	470	**35**	Q	-	-	75-125	-	20
Nickel, Total	21.6	48	56.9	**74**	Q	-	-	75-125	-	20
Potassium, Total	1400	959	2380	102		-	-	75-125	-	20
Selenium, Total	ND	11.5	11.1	96		-	-	75-125	-	20
Silver, Total	0.448	4.8	5.09	97		-	-	75-125	-	20
Sodium, Total	163	959	1130	101		-	-	75-125	-	20
Thallium, Total	0.261J	11.5	11.4	99		-	-	75-125	-	20
Vanadium, Total	21.6	48	62.0	84		-	-	75-125	-	20

Matrix Spike Analysis
Batch Quality Control

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316525
Report Date: 04/12/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery		MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 15 QC Batch ID: WG1762164-3 QC Sample: L2317039-01 Client ID: MS Sample										
Zinc, Total	51.6	48	85.7	**71**	Q	-	-	75-125	-	20
Total Metals - Mansfield Lab Associated sample(s): 15 QC Batch ID: WG1762165-3 QC Sample: L2317039-01 Client ID: MS Sample										
Mercury, Total	ND	1.75	1.90	108		-	-	80-120	-	20

Matrix Spike Analysis
Batch Quality Control

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316525
Report Date: 04/12/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery		MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 16-17 QC Batch ID: WG1762189-3 QC Sample: L2315627-03 Client ID: MS Sample										
Aluminum, Total	7950	256	8790	**328**	Q	-	-	75-125	-	20
Antimony, Total	53.6	64	94.1	**63**	Q	-	-	75-125	-	20
Arsenic, Total	27.2	15.4	33.7	**42**	Q	-	-	75-125	-	20
Barium, Total	190	256	379	**74**	Q	-	-	75-125	-	20
Beryllium, Total	0.722	6.4	6.68	93		-	-	75-125	-	20
Cadmium, Total	7.79	6.79	11.5	**55**	Q	-	-	75-125	-	20
Calcium, Total	9330	1280	6110	**0**	Q	-	-	75-125	-	20
Chromium, Total	38.9	25.6	55.2	**64**	Q	-	-	75-125	-	20
Cobalt, Total	12.3	64	71.5	92		-	-	75-125	-	20
Copper, Total	614	32	537	**0**	Q	-	-	75-125	-	20
Iron, Total	28600	128	30300	**1330**	Q	-	-	75-125	-	20
Lead, Total	350	67.9	308	**0**	Q	-	-	75-125	-	20
Magnesium, Total	3950	1280	6190	**175**	Q	-	-	75-125	-	20
Manganese, Total	272	64	305	**52**	Q	-	-	75-125	-	20
Nickel, Total	33.6	64	84.7	80		-	-	75-125	-	20
Potassium, Total	536	1280	1680	89		-	-	75-125	-	20
Selenium, Total	0.777J	15.4	15.7	102		-	-	75-125	-	20
Silver, Total	46.7	6.4	46.7	**0**	Q	-	-	75-125	-	20
Sodium, Total	284	1280	1690	110		-	-	75-125	-	20
Thallium, Total	0.430J	15.4	13.9	90		-	-	75-125	-	20
Vanadium, Total	92.5	64	230	**215**	Q	-	-	75-125	-	20

Matrix Spike Analysis
Batch Quality Control

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316525
Report Date: 04/12/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery		MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 16-17 QC Batch ID: WG1762189-3 QC Sample: L2315627-03 Client ID: MS Sample										
Zinc, Total	3060	64	2310	**0**	Q	-	-	75-125	-	20
Total Metals - Mansfield Lab Associated sample(s): 16-17 QC Batch ID: WG1762190-3 QC Sample: L2315627-03 Client ID: MS Sample										
Mercury, Total	54.0	2.14	100	**2150**	Q	-	-	80-120	-	20

Lab Duplicate Analysis
Batch Quality Control

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316525
Report Date: 04/12/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-09,11-14 QC Batch ID: WG1762148-4 QC Sample: L2316864-02 Client ID: DUP Sample						
Aluminum, Total	4720	6320	mg/kg	**29**	Q	20
Antimony, Total	3.82J	3.72J	mg/kg	NC		20
Arsenic, Total	8.09	10.8	mg/kg	**29**	Q	20
Barium, Total	72.0	126	mg/kg	**55**	Q	20
Beryllium, Total	0.575	0.753	mg/kg	**27**	Q	20
Cadmium, Total	0.450J	0.511J	mg/kg	NC		20
Calcium, Total	7010	6340	mg/kg	10		20
Chromium, Total	10.1	15.7	mg/kg	**43**	Q	20
Cobalt, Total	7.04	7.61	mg/kg	8		20
Copper, Total	130	98.3	mg/kg	**28**	Q	20
Iron, Total	20900	21000	mg/kg	0		20
Lead, Total	192	304	mg/kg	**45**	Q	20
Magnesium, Total	2060	2820	mg/kg	**31**	Q	20
Manganese, Total	306	318	mg/kg	4		20
Nickel, Total	14.0	15.3	mg/kg	9		20
Potassium, Total	633	832	mg/kg	**27**	Q	20
Selenium, Total	ND	ND	mg/kg	NC		20
Silver, Total	ND	ND	mg/kg	NC		20
Sodium, Total	132J	122J	mg/kg	NC		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316525
Report Date: 04/12/23

Parameter	Native Sample	Duplicate Sample	Units	RPD		RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-09,11-14 QC Batch ID: WG1762148-4 QC Sample: L2316864-02 Client ID: DUP Sample						
Thallium, Total	ND	ND	mg/kg	NC		20
Vanadium, Total	16.9	23.0	mg/kg	**31**	Q	20
Zinc, Total	190	247	mg/kg	**26**	Q	20
Total Metals - Mansfield Lab Associated sample(s): 01-09,11-14 QC Batch ID: WG1762149-4 QC Sample: L2316864-02 Client ID: DUP Sample						
Mercury, Total	0.666	1.07	mg/kg	**47**	Q	20
Total Metals - Mansfield Lab Associated sample(s): 15 QC Batch ID: WG1762164-4 QC Sample: L2317039-01 Client ID: DUP Sample						
Arsenic, Total	5.38	4.84	mg/kg	11		20
Barium, Total	99.9	82.0	mg/kg	20		20
Beryllium, Total	0.497	0.474	mg/kg	5		20
Cadmium, Total	0.292J	0.172J	mg/kg	NC		20
Chromium, Total	16.6	14.4	mg/kg	14		20
Copper, Total	21.9	20.1	mg/kg	9		20
Lead, Total	14.4	16.1	mg/kg	11		20
Manganese, Total	453	414	mg/kg	9		20
Nickel, Total	21.6	18.8	mg/kg	14		20
Selenium, Total	ND	ND	mg/kg	NC		20
Silver, Total	0.448	0.366	mg/kg	20		20
Zinc, Total	51.6	47.1	mg/kg	9		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: ST. JOSEPH

Project Number: 26518.05

Lab Number: L2316525

Report Date: 04/12/23

Parameter	Native Sample	Duplicate Sample	Units	RPD		RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 15 QC Batch ID: WG1762165-4 QC Sample: L2317039-01 Client ID: DUP Sample						
Mercury, Total	ND	ND	mg/kg	NC		20
Total Metals - Mansfield Lab Associated sample(s): 16-17 QC Batch ID: WG1762189-4 QC Sample: L2315627-03 Client ID: DUP Sample						
Antimony, Total	53.6	15.6	mg/kg	**110**	Q	20
Arsenic, Total	27.2	12.9	mg/kg	**71**	Q	20
Lead, Total	350	169	mg/kg	**70**	Q	20
Total Metals - Mansfield Lab Associated sample(s): 16-17 QC Batch ID: WG1762190-4 QC Sample: L2315627-03 Client ID: DUP Sample						
Mercury, Total	54.0	94.1	mg/kg	**54**	Q	20

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Serial Dilution Analysis
Batch Quality Control

Lab Number: L2316525
Report Date: 04/12/23

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-09,11-14 QC Batch ID: WG1762148-6 QC Sample: L2316864-02 Client ID: DUP Sample						
Aluminum, Total	4720	4600	mg/kg	3		20
Barium, Total	72.0	69.2	mg/kg	4		20
Calcium, Total	7010	6960	mg/kg	1		20
Copper, Total	130	124	mg/kg	5		20
Iron, Total	20900	20800	mg/kg	0		20
Lead, Total	192	200	mg/kg	4		20
Magnesium, Total	2060	2020	mg/kg	2		20
Manganese, Total	306	302	mg/kg	1		20
Zinc, Total	190	200	mg/kg	5		20
Total Metals - Mansfield Lab Associated sample(s): 15 QC Batch ID: WG1762164-6 QC Sample: L2317039-01 Client ID: DUP Sample						
Barium, Total	99.9	108	mg/kg	8		20
Chromium, Total	16.6	19.0	mg/kg	14		20
Copper, Total	21.9	22.9	mg/kg	5		20
Manganese, Total	453	526	mg/kg	16		20
Total Metals - Mansfield Lab Associated sample(s): 16-17 QC Batch ID: WG1762189-6 QC Sample: L2315627-03 Client ID: DUP Sample						
Arsenic, Total	27.2	27.2	mg/kg	0		20
Lead, Total	350	378	mg/kg	8		20

INORGANICS
&
MISCELLANEOUS

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-01
Client ID: SB-1 (0'-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Sample Depth:
Matrix: Soil
Date Collected: 03/29/23 09:05
Date Received: 03/29/23
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.9		%	0.100	NA	1	-	03/30/23 12:48	121,2540G	ROI

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-02
Client ID: SB-1 (5'-6.5')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Sample Depth:
Matrix: Soil

Date Collected: 03/29/23 09:09
Date Received: 03/29/23
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.9		%	0.100	NA	1	-	03/30/23 12:48	121,2540G	ROI

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-03
Client ID: SB-2 (0'-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Sample Depth:
Matrix: Soil

Date Collected: 03/29/23 09:45
Date Received: 03/29/23
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.9		%	0.100	NA	1	-	03/30/23 12:48	121,2540G	ROI

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-04
Client ID: SB-2 (10'-12')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Sample Depth:
Matrix: Soil
Date Collected: 03/29/23 09:47
Date Received: 03/29/23
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.1		%	0.100	NA	1	-	03/30/23 12:48	121,2540G	ROI

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-05
Client ID: SB-3 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Sample Depth:
Matrix: Soil

Date Collected: 03/29/23 10:25
Date Received: 03/29/23
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.3		%	0.100	NA	1	-	03/30/23 12:48	121,2540G	ROI

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-06
Client ID: SB-3 (6'-8')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Sample Depth:
Matrix: Soil

Date Collected: 03/29/23 10:30
Date Received: 03/29/23
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.2		%	0.100	NA	1	-	03/30/23 12:48	121,2540G	ROI

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-07
Client ID: SB-4 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Sample Depth:
Matrix: Soil
Date Collected: 03/29/23 10:55
Date Received: 03/29/23
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89.5		%	0.100	NA	1	-	03/30/23 12:48	121,2540G	ROI

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-08
Client ID: SB-4 (4-6')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Sample Depth:
Matrix: Soil
Date Collected: 03/29/23 11:00
Date Received: 03/29/23
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	69.0		%	0.100	NA	1	-	03/30/23 12:48	121,2540G	ROI

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-09
Client ID: SB-5 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Sample Depth:
Matrix: Soil
Date Collected: 03/29/23 11:39
Date Received: 03/29/23
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.2		%	0.100	NA	1	-	03/30/23 12:48	121,2540G	ROI

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-10
Client ID: SB-5 (12-14')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Sample Depth:
Matrix: Soil
Date Collected: 03/29/23 11:40
Date Received: 03/29/23
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91.9		%	0.100	NA	1	-	03/30/23 12:48	121,2540G	ROI

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-11
Client ID: SB-7 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Sample Depth:
Matrix: Soil
Date Collected: 03/29/23 12:05
Date Received: 03/29/23
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.8		%	0.100	NA	1	-	03/30/23 12:48	121,2540G	ROI

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-12
Client ID: SB-9 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Sample Depth:
Matrix: Soil
Date Collected: 03/29/23 12:25
Date Received: 03/29/23
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.0		%	0.100	NA	1	-	03/30/23 12:48	121,2540G	ROI

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-13
Client ID: SB-10 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Sample Depth:
Matrix: Soil
Date Collected: 03/29/23 12:53
Date Received: 03/29/23
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.1		%	0.100	NA	1	-	03/30/23 12:48	121,2540G	ROI

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-14
Client ID: SB-11 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Sample Depth:
Matrix: Soil
Date Collected: 03/29/23 13:25
Date Received: 03/29/23
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91.0		%	0.100	NA	1	-	03/30/23 12:59	121,2540G	ROI

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-15
Client ID: SB-11 (6.5'-8.5')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Sample Depth:
Matrix: Soil
Date Collected: 03/29/23 13:27
Date Received: 03/29/23
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.6		%	0.100	NA	1	-	03/30/23 12:59	121,2540G	ROI

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-16
Client ID: SB-6 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Sample Depth:
Matrix: Soil
Date Collected: 03/29/23 14:00
Date Received: 03/29/23
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	97.1		%	0.100	NA	1	-	03/30/23 12:59	121,2540G	ROI

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316525
Report Date: 04/12/23

SAMPLE RESULTS

Lab ID: L2316525-17
Client ID: SB-8 (0-2')
Sample Location: 484 E. 178TH STREET, BRONX, NY
Sample Depth:
Matrix: Soil
Date Collected: 03/29/23 14:09
Date Received: 03/29/23
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.0		%	0.100	NA	1	-	03/30/23 12:59	121,2540G	ROI

Lab Duplicate Analysis

Batch Quality Control

Project Name: ST. JOSEPH

Project Number: 26518.05

Lab Number: L2316525

Report Date: 04/12/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-13 QC Batch ID: WG1760643-1 QC Sample: L2316525-01 Client ID: SB-1 (0'-2')						
Solids, Total	87.9	87.1	%	1		20
General Chemistry - Westborough Lab Associated sample(s): 14-17 QC Batch ID: WG1760644-1 QC Sample: L2316501-01 Client ID: DUP Sample						
Solids, Total	96.0	96.0	%	0		20

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316525
Report Date: 04/12/23

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2316525-01A	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L2316525-01B	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L2316525-01C	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L2316525-01D	Plastic 2oz unpreserved for TS	A	NA		3.3	Y	Absent		TS(7)
L2316525-01E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.3	Y	Absent		BE-TI(180),BA-TI(180),AS-TI(180),AG-TI(180),AL-TI(180),TL-TI(180),CR-TI(180),NI-TI(180),SE-TI(180),ZN-TI(180),SB-TI(180),CU-TI(180),PB-TI(180),V-TI(180),CO-TI(180),MN-TI(180),HG-T(28),MG-TI(180),FE-TI(180),CA-TI(180),CD-TI(180),K-TI(180),NA-TI(180)
L2316525-01F	Glass 250ml/8oz unpreserved	A	NA		3.3	Y	Absent		NYTCL-8270(14),NYTCL-8081(14),NYTCL-8082(365)
L2316525-01X	Vial MeOH preserved split	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L2316525-01Y	Vial Water preserved split	A	NA		3.3	Y	Absent	30-MAR-23 10:53	NYTCL-8260HLW(14)
L2316525-01Z	Vial Water preserved split	A	NA		3.3	Y	Absent	30-MAR-23 10:53	NYTCL-8260HLW(14)
L2316525-02A	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L2316525-02B	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L2316525-02C	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L2316525-02D	Plastic 2oz unpreserved for TS	A	NA		3.3	Y	Absent		TS(7)
L2316525-02E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.3	Y	Absent		BE-TI(180),BA-TI(180),AS-TI(180),AG-TI(180),AL-TI(180),NI-TI(180),CR-TI(180),TL-TI(180),CU-TI(180),SE-TI(180),PB-TI(180),ZN-TI(180),SB-TI(180),CO-TI(180),V-TI(180),MG-TI(180),FE-TI(180),MN-TI(180),HG-T(28),CA-TI(180),NA-TI(180),CD-TI(180),K-TI(180)
L2316525-02F	Glass 250ml/8oz unpreserved	A	NA		3.3	Y	Absent		NYTCL-8270(14),NYTCL-8081(14),NYTCL-8082(365)
L2316525-02X	Vial MeOH preserved split	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2316525-02Y	Vial Water preserved split	A	NA		3.3	Y	Absent	30-MAR-23 10:53	NYTCL-8260HLW(14)
L2316525-02Z	Vial Water preserved split	A	NA		3.3	Y	Absent	30-MAR-23 10:53	NYTCL-8260HLW(14)
L2316525-03A	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L2316525-03B	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L2316525-03C	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L2316525-03D	Plastic 2oz unpreserved for TS	A	NA		3.3	Y	Absent		TS(7)
L2316525-03E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.3	Y	Absent		BE-TI(180),BA-TI(180),AS-TI(180),AG-TI(180),TL-TI(180),CR-TI(180),AL-TI(180),NI-TI(180),CU-TI(180),SE-TI(180),SB-TI(180),ZN-TI(180),PB-TI(180),CO-TI(180),V-TI(180),MG-TI(180),MN-TI(180),FE-TI(180),HG-T(28),K-TI(180),CD-TI(180),CA-TI(180),NA-TI(180)
L2316525-03F	Glass 250ml/8oz unpreserved	A	NA		3.3	Y	Absent		NYTCL-8270(14),NYTCL-8081(14),NYTCL-8082(365)
L2316525-03X	Vial MeOH preserved split	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L2316525-03Y	Vial Water preserved split	A	NA		3.3	Y	Absent	30-MAR-23 10:53	NYTCL-8260HLW(14)
L2316525-03Z	Vial Water preserved split	A	NA		3.3	Y	Absent	30-MAR-23 10:53	NYTCL-8260HLW(14)
L2316525-04A	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L2316525-04B	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L2316525-04C	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L2316525-04D	Plastic 2oz unpreserved for TS	A	NA		3.3	Y	Absent		TS(7)
L2316525-04E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.3	Y	Absent		BE-TI(180),BA-TI(180),AS-TI(180),AG-TI(180),CR-TI(180),TL-TI(180),AL-TI(180),NI-TI(180),CU-TI(180),SE-TI(180),SB-TI(180),ZN-TI(180),PB-TI(180),CO-TI(180),V-TI(180),FE-TI(180),MG-TI(180),MN-TI(180),HG-T(28),CD-TI(180),NA-TI(180),CA-TI(180),K-TI(180)
L2316525-04F	Glass 250ml/8oz unpreserved	A	NA		3.3	Y	Absent		NYTCL-8270(14),NYTCL-8081(14),NYTCL-8082(365)
L2316525-04X	Vial MeOH preserved split	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L2316525-04Y	Vial Water preserved split	A	NA		3.3	Y	Absent	30-MAR-23 10:53	NYTCL-8260HLW(14)
L2316525-04Z	Vial Water preserved split	A	NA		3.3	Y	Absent	30-MAR-23 10:53	NYTCL-8260HLW(14)
L2316525-05A	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L2316525-05B	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L2316525-05C	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)

*Values in parentheses indicate holding time in days

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316525
Report Date: 04/12/23

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2316525-05D	Plastic 2oz unpreserved for TS	A	NA		3.3	Y	Absent		TS(7)
L2316525-05E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.3	Y	Absent		BE-TI(180),BA-TI(180),AS-TI(180),AG-TI(180),TL-TI(180),CR-TI(180),NI-TI(180),AL-TI(180),CU-TI(180),SE-TI(180),PB-TI(180),SB-TI(180),ZN-TI(180),V-TI(180),CO-TI(180),MG-TI(180),HG-T(28),FE-TI(180),MN-TI(180),NA-TI(180),K-TI(180),CD-TI(180),CA-TI(180)
L2316525-05F	Glass 250ml/8oz unpreserved	A	NA		3.3	Y	Absent		NYTCL-8270(14),NYTCL-8081(14),NYTCL-8082(365)
L2316525-05X	Vial MeOH preserved split	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L2316525-05Y	Vial Water preserved split	A	NA		3.3	Y	Absent	30-MAR-23 10:53	NYTCL-8260HLW(14)
L2316525-05Z	Vial Water preserved split	A	NA		3.3	Y	Absent	30-MAR-23 10:53	NYTCL-8260HLW(14)
L2316525-06A	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L2316525-06B	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L2316525-06C	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L2316525-06D	Plastic 2oz unpreserved for TS	A	NA		3.3	Y	Absent		TS(7)
L2316525-06E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.3	Y	Absent		BE-TI(180),BA-TI(180),AS-TI(180),AG-TI(180),TL-TI(180),AL-TI(180),CR-TI(180),NI-TI(180),CU-TI(180),SE-TI(180),PB-TI(180),SB-TI(180),ZN-TI(180),V-TI(180),CO-TI(180),HG-T(28),MG-TI(180),FE-TI(180),MN-TI(180),K-TI(180),CA-TI(180),NA-TI(180),CD-TI(180)
L2316525-06F	Glass 250ml/8oz unpreserved	A	NA		3.3	Y	Absent		NYTCL-8270(14),NYTCL-8081(14),NYTCL-8082(365)
L2316525-06X	Vial MeOH preserved split	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L2316525-06Y	Vial Water preserved split	A	NA		3.3	Y	Absent	30-MAR-23 10:53	NYTCL-8260HLW(14)
L2316525-07A	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L2316525-07B	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L2316525-07C	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L2316525-07D	Plastic 2oz unpreserved for TS	A	NA		3.3	Y	Absent		TS(7)
L2316525-07E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.3	Y	Absent		BE-TI(180),BA-TI(180),AS-TI(180),AG-TI(180),AL-TI(180),TL-TI(180),CR-TI(180),NI-TI(180),SE-TI(180),CU-TI(180),PB-TI(180),ZN-TI(180),SB-TI(180),V-TI(180),CO-TI(180),MG-TI(180),FE-TI(180),HG-T(28),MN-TI(180),K-TI(180),CA-TI(180),CD-TI(180),NA-TI(180)
L2316525-07F	Glass 250ml/8oz unpreserved	A	NA		3.3	Y	Absent		NYTCL-8270(14),NYTCL-8081(14),NYTCL-8082(365)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2316525-07X	Vial MeOH preserved split	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L2316525-07Y	Vial Water preserved split	A	NA		3.3	Y	Absent	30-MAR-23 10:53	NYTCL-8260HLW(14)
L2316525-07Z	Vial Water preserved split	A	NA		3.3	Y	Absent	30-MAR-23 10:53	NYTCL-8260HLW(14)
L2316525-08A	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L2316525-08B	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L2316525-08C	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L2316525-08D	Plastic 2oz unpreserved for TS	A	NA		3.3	Y	Absent		TS(7)
L2316525-08E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.3	Y	Absent		BE-TI(180),AS-TI(180),BA-TI(180),AG-TI(180),CR-TI(180),NI-TI(180),TL-TI(180),AL-TI(180),SB-TI(180),PB-TI(180),CU-TI(180),SE-TI(180),ZN-TI(180),CO-TI(180),V-TI(180),MN-TI(180),FE-TI(180),MG-TI(180),HG-T(28),CA-TI(180),CD-TI(180),NA-TI(180),K-TI(180)
L2316525-08F	Glass 250ml/8oz unpreserved	A	NA		3.3	Y	Absent		NYTCL-8270(14),NYTCL-8081(14),NYTCL-8082(365)
L2316525-08X	Vial MeOH preserved split	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L2316525-08Y	Vial Water preserved split	A	NA		3.3	Y	Absent	30-MAR-23 10:53	NYTCL-8260HLW(14)
L2316525-08Z	Vial Water preserved split	A	NA		3.3	Y	Absent	30-MAR-23 10:53	NYTCL-8260HLW(14)
L2316525-09A	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L2316525-09B	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L2316525-09C	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L2316525-09D	Plastic 2oz unpreserved for TS	A	NA		3.3	Y	Absent		TS(7)
L2316525-09E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.3	Y	Absent		BE-TI(180),AS-TI(180),BA-TI(180),AG-TI(180),CR-TI(180),AL-TI(180),NI-TI(180),TL-TI(180),CU-TI(180),PB-TI(180),SE-TI(180),SB-TI(180),ZN-TI(180),V-TI(180),CO-TI(180),FE-TI(180),HG-T(28),MG-TI(180),MN-TI(180),K-TI(180),CA-TI(180),NA-TI(180),CD-TI(180)
L2316525-09F	Glass 250ml/8oz unpreserved	A	NA		3.3	Y	Absent		NYTCL-8270(14),NYTCL-8081(14),NYTCL-8082(365)
L2316525-09X	Vial MeOH preserved split	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L2316525-09Y	Vial Water preserved split	A	NA		3.3	Y	Absent	30-MAR-23 10:53	NYTCL-8260HLW(14)
L2316525-09Z	Vial Water preserved split	A	NA		3.3	Y	Absent	30-MAR-23 10:53	NYTCL-8260HLW(14)
L2316525-10A	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L2316525-10B	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)

*Values in parentheses indicate holding time in days

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316525
Report Date: 04/12/23

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2316525-10C	5 gram Encore Sampler	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L2316525-10D	Plastic 2oz unpreserved for TS	A	NA		3.3	Y	Absent		TS(7)
L2316525-10E	Glass 60mL/2oz unpreserved	A	NA		3.3	Y	Absent		NYTCL-8270(14),NYTCL-8081(14),NYTCL-8082(365)
L2316525-10F	Glass 250ml/8oz unpreserved	A	NA		3.3	Y	Absent		NYTCL-8270(14),NYTCL-8081(14),NYTCL-8082(365)
L2316525-10X	Vial MeOH preserved split	A	NA		3.3	Y	Absent		NYTCL-8260HLW(14)
L2316525-10Y	Vial Water preserved split	A	NA		3.3	Y	Absent	30-MAR-23 11:26	NYTCL-8260HLW(14)
L2316525-10Z	Vial Water preserved split	A	NA		3.3	Y	Absent	30-MAR-23 11:26	NYTCL-8260HLW(14)
L2316525-11A	5 gram Encore Sampler	B	NA		2.7	Y	Absent		NYTCL-8260HLW(14)
L2316525-11B	5 gram Encore Sampler	B	NA		2.7	Y	Absent		NYTCL-8260HLW(14)
L2316525-11C	5 gram Encore Sampler	B	NA		2.7	Y	Absent		NYTCL-8260HLW(14)
L2316525-11D	Plastic 2oz unpreserved for TS	B	NA		2.7	Y	Absent		TS(7)
L2316525-11E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.7	Y	Absent		BE-TI(180),AS-TI(180),BA-TI(180),AG-TI(180),CR-TI(180),TL-TI(180),AL-TI(180),NI-TI(180),ZN-TI(180),SE-TI(180),SB-TI(180),CU-TI(180),PB-TI(180),CO-TI(180),V-TI(180),HG-T(28),FE-TI(180),MG-TI(180),MN-TI(180),NA-TI(180),CA-TI(180),K-TI(180),CD-TI(180)
L2316525-11F	Glass 250ml/8oz unpreserved	B	NA		2.7	Y	Absent		NYTCL-8270(14),NYTCL-8081(14),NYTCL-8082(365)
L2316525-11X	Vial MeOH preserved split	B	NA		2.7	Y	Absent		NYTCL-8260HLW(14)
L2316525-11Y	Vial Water preserved split	B	NA		2.7	Y	Absent	30-MAR-23 11:26	NYTCL-8260HLW(14)
L2316525-11Z	Vial Water preserved split	B	NA		2.7	Y	Absent	30-MAR-23 11:26	NYTCL-8260HLW(14)
L2316525-12A	5 gram Encore Sampler	B	NA		2.7	Y	Absent		NYTCL-8260HLW(14)
L2316525-12B	5 gram Encore Sampler	B	NA		2.7	Y	Absent		NYTCL-8260HLW(14)
L2316525-12C	5 gram Encore Sampler	B	NA		2.7	Y	Absent		NYTCL-8260HLW(14)
L2316525-12D	Plastic 2oz unpreserved for TS	B	NA		2.7	Y	Absent		TS(7)
L2316525-12E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.7	Y	Absent		BE-TI(180),AS-TI(180),BA-TI(180),AG-TI(180),TL-TI(180),AL-TI(180),CR-TI(180),NI-TI(180),ZN-TI(180),PB-TI(180),CU-TI(180),SB-TI(180),SE-TI(180),V-TI(180),CO-TI(180),MG-TI(180),MN-TI(180),FE-TI(180),HG-T(28),CA-TI(180),K-TI(180),CD-TI(180),NA-TI(180)
L2316525-12F	Glass 250ml/8oz unpreserved	B	NA		2.7	Y	Absent		NYTCL-8270(14),NYTCL-8081(14),NYTCL-8082(365)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2316525-12X	Vial MeOH preserved split	B	NA		2.7	Y	Absent		NYTCL-8260HLW(14)
L2316525-12Y	Vial Water preserved split	B	NA		2.7	Y	Absent	30-MAR-23 11:26	NYTCL-8260HLW(14)
L2316525-12Z	Vial Water preserved split	B	NA		2.7	Y	Absent	30-MAR-23 11:26	NYTCL-8260HLW(14)
L2316525-13A	5 gram Encore Sampler	B	NA		2.7	Y	Absent		NYTCL-8260HLW(14)
L2316525-13B	5 gram Encore Sampler	B	NA		2.7	Y	Absent		NYTCL-8260HLW(14)
L2316525-13C	5 gram Encore Sampler	B	NA		2.7	Y	Absent		NYTCL-8260HLW(14)
L2316525-13D	Plastic 2oz unpreserved for TS	B	NA		2.7	Y	Absent		TS(7)
L2316525-13E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.7	Y	Absent		BE-TI(180),AS-TI(180),BA-TI(180),AG-TI(180),NI-TI(180),CR-TI(180),AL-TI(180),TL-TI(180),SB-TI(180),CU-TI(180),PB-TI(180),ZN-TI(180),SE-TI(180),CO-TI(180),V-TI(180),MG-TI(180),HG-T(28),FE-TI(180),MN-TI(180),CA-TI(180),NA-TI(180),K-TI(180),CD-TI(180)
L2316525-13F	Glass 250ml/8oz unpreserved	B	NA		2.7	Y	Absent		NYTCL-8270(14),NYTCL-8081(14),NYTCL-8082(365)
L2316525-13X	Vial MeOH preserved split	B	NA		2.7	Y	Absent		NYTCL-8260HLW(14)
L2316525-13Y	Vial Water preserved split	B	NA		2.7	Y	Absent	30-MAR-23 11:26	NYTCL-8260HLW(14)
L2316525-13Z	Vial Water preserved split	B	NA		2.7	Y	Absent	30-MAR-23 11:26	NYTCL-8260HLW(14)
L2316525-14A	5 gram Encore Sampler	B	NA		2.7	Y	Absent		NYTCL-8260HLW(14)
L2316525-14B	5 gram Encore Sampler	B	NA		2.7	Y	Absent		NYTCL-8260HLW(14)
L2316525-14C	5 gram Encore Sampler	B	NA		2.7	Y	Absent		NYTCL-8260HLW(14)
L2316525-14D	Plastic 2oz unpreserved for TS	B	NA		2.7	Y	Absent		TS(7)
L2316525-14E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.7	Y	Absent		BE-TI(180),BA-TI(180),AS-TI(180),AG-TI(180),NI-TI(180),AL-TI(180),CR-TI(180),TL-TI(180),CU-TI(180),ZN-TI(180),SE-TI(180),SB-TI(180),PB-TI(180),CO-TI(180),V-TI(180),HG-T(28),MG-TI(180),FE-TI(180),MN-TI(180),NA-TI(180),K-TI(180),CA-TI(180),CD-TI(180)
L2316525-14F	Glass 250ml/8oz unpreserved	B	NA		2.7	Y	Absent		NYTCL-8270(14),NYTCL-8081(14),NYTCL-8082(365)
L2316525-14X	Vial MeOH preserved split	B	NA		2.7	Y	Absent		NYTCL-8260HLW(14)
L2316525-14Y	Vial Water preserved split	B	NA		2.7	Y	Absent	30-MAR-23 11:26	NYTCL-8260HLW(14)
L2316525-14Z	Vial Water preserved split	B	NA		2.7	Y	Absent	30-MAR-23 11:26	NYTCL-8260HLW(14)
L2316525-15A	5 gram Encore Sampler	B	NA		2.7	Y	Absent		NYTCL-8260HLW(14)
L2316525-15B	5 gram Encore Sampler	B	NA		2.7	Y	Absent		NYTCL-8260HLW(14)

*Values in parentheses indicate holding time in days

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316525
Report Date: 04/12/23

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2316525-15C	5 gram Encore Sampler	B	NA		2.7	Y	Absent		NYTCL-8260HLW(14)
L2316525-15D	Plastic 2oz unpreserved for TS	B	NA		2.7	Y	Absent		TS(7)
L2316525-15E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.7	Y	Absent		BE-TI(180),BA-TI(180),AS-TI(180),AG-TI(180),CR-TI(180),TL-TI(180),NI-TI(180),AL-TI(180),SB-TI(180),PB-TI(180),ZN-TI(180),SE-TI(180),CU-TI(180),V-TI(180),CO-TI(180),HG-T(28),MG-TI(180),MN-TI(180),FE-TI(180),K-TI(180),CA-TI(180),CD-TI(180),NA-TI(180)
L2316525-15F	Glass 250ml/8oz unpreserved	B	NA		2.7	Y	Absent		NYTCL-8270(14),NYTCL-8081(14),NYTCL-8082(365)
L2316525-15X	Vial MeOH preserved split	B	NA		2.7	Y	Absent		NYTCL-8260HLW(14)
L2316525-15Y	Vial Water preserved split	B	NA		2.7	Y	Absent	30-MAR-23 11:26	NYTCL-8260HLW(14)
L2316525-15Z	Vial Water preserved split	B	NA		2.7	Y	Absent	30-MAR-23 11:26	NYTCL-8260HLW(14)
L2316525-16A	5 gram Encore Sampler	B	NA		2.7	Y	Absent		NYTCL-8260HLW(14)
L2316525-16B	5 gram Encore Sampler	B	NA		2.7	Y	Absent		NYTCL-8260HLW(14)
L2316525-16C	5 gram Encore Sampler	B	NA		2.7	Y	Absent		NYTCL-8260HLW(14)
L2316525-16D	Plastic 2oz unpreserved for TS	B	NA		2.7	Y	Absent		TS(7)
L2316525-16E	Plastic 2oz unpreserved for TS	B	NA		2.7	Y	Absent		TS(7)
L2316525-16F	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.7	Y	Absent		BE-TI(180),BA-TI(180),AS-TI(180),AG-TI(180),AL-TI(180),CR-TI(180),NI-TI(180),TL-TI(180),SB-TI(180),CU-TI(180),SE-TI(180),PB-TI(180),ZN-TI(180),V-TI(180),CO-TI(180),MG-TI(180),HG-T(28),FE-TI(180),MN-TI(180),K-TI(180),NA-TI(180),CD-TI(180),CA-TI(180)
L2316525-16G	Plastic 8oz unpreserved	B	NA		2.7	Y	Absent		A2-NY-1633-DRAFT-21(90)
L2316525-16H	Glass 250ml/8oz unpreserved	B	NA		2.7	Y	Absent		NYTCL-8270(14),NYTCL-8081(14),NYTCL-8082(365)
L2316525-16X	Vial MeOH preserved split	B	NA		2.7	Y	Absent		NYTCL-8260HLW(14)
L2316525-16Y	Vial Water preserved split	B	NA		2.7	Y	Absent	30-MAR-23 11:26	NYTCL-8260HLW(14)
L2316525-16Z	Vial Water preserved split	B	NA		2.7	Y	Absent	30-MAR-23 11:26	NYTCL-8260HLW(14)
L2316525-17A	5 gram Encore Sampler	B	NA		2.7	Y	Absent		NYTCL-8260HLW(14)
L2316525-17B	5 gram Encore Sampler	B	NA		2.7	Y	Absent		NYTCL-8260HLW(14)
L2316525-17C	5 gram Encore Sampler	B	NA		2.7	Y	Absent		NYTCL-8260HLW(14)
L2316525-17D	Plastic 2oz unpreserved for TS	B	NA		2.7	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316525
Report Date: 04/12/23

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2316525-17E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.7	Y	Absent		BE-TI(180),BA-TI(180),AS-TI(180),AG-TI(180),AL-TI(180),CR-TI(180),TL-TI(180),NI-TI(180),CU-TI(180),SE-TI(180),ZN-TI(180),PB-TI(180),SB-TI(180),CO-TI(180),V-TI(180),FE-TI(180),HG-T(28),MN-TI(180),MG-TI(180),CA-TI(180),CD-TI(180),NA-TI(180),K-TI(180)
L2316525-17F	Glass 250ml/8oz unpreserved	B	NA		2.7	Y	Absent		NYTCL-8270(14),NYTCL-8081(14),NYTCL-8082(365)
L2316525-17X	Vial MeOH preserved split	B	NA		2.7	Y	Absent		NYTCL-8260HLW(14)
L2316525-17Y	Vial Water preserved split	B	NA		2.7	Y	Absent	30-MAR-23 11:26	NYTCL-8260HLW(14)
L2316525-17Z	Vial Water preserved split	B	NA		2.7	Y	Absent	30-MAR-23 11:26	NYTCL-8260HLW(14)

*Values in parentheses indicate holding time in days

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316525
Report Date: 04/12/23

PFAS PARAMETER SUMMARY

Parameter	Acronym	CAS Number
PERFLUOROALKYL CARBOXYLIC ACIDS (PFCAs)		
Perfluorooctadecanoic Acid	PFODA	16517-11-6
Perfluorohexadecanoic Acid	PFHxDA	67905-19-5
Perfluorotetradecanoic Acid	PFTA/PFTeDA	376-06-7
Perfluorotridecanoic Acid	PFTrDA	72629-94-8
Perfluorododecanoic Acid	PFDoA	307-55-1
Perfluoroundecanoic Acid	PFUnA	2058-94-8
Perfluorodecanoic Acid	PFDA	335-76-2
Perfluorononanoic Acid	PFNA	375-95-1
Perfluorooctanoic Acid	PFOA	335-67-1
Perfluoroheptanoic Acid	PFHpA	375-85-9
Perfluorohexanoic Acid	PFHxA	307-24-4
Perfluoropentanoic Acid	PFPeA	2706-90-3
Perfluorobutanoic Acid	PFBA	375-22-4
PERFLUOROALKYL SULFONIC ACIDS (PFSAs)		
Perfluorododecanesulfonic Acid	PFDoDS/PFDoS	79780-39-5
Perfluorodecanesulfonic Acid	PFDS	335-77-3
Perfluorononanesulfonic Acid	PFNS	68259-12-1
Perfluorooctanesulfonic Acid	PFOS	1763-23-1
Perfluoroheptanesulfonic Acid	PFHpS	375-92-8
Perfluorohexanesulfonic Acid	PFHxS	355-46-4
Perfluoropentanesulfonic Acid	PFPeS	2706-91-4
Perfluorobutanesulfonic Acid	PFBS	375-73-5
Perfluoropropanesulfonic Acid	PFPrS	423-41-6
FLUOROTELOMERS		
1H,1H,2H,2H-Perfluorododecanesulfonic Acid	10:2FTS	120226-60-0
1H,1H,2H,2H-Perfluorodecanesulfonic Acid	8:2FTS	39108-34-4
1H,1H,2H,2H-Perfluorooctanesulfonic Acid	6:2FTS	27619-97-2
1H,1H,2H,2H-Perfluorohexanesulfonic Acid	4:2FTS	757124-72-4
PERFLUOROALKANE SULFONAMIDES (FASAs)		
Perfluorooctanesulfonamide	FOSA/PFOSA	754-91-6
N-Ethyl Perfluorooctane Sulfonamide	NEtFOSA	4151-50-2
N-Methyl Perfluorooctane Sulfonamide	NMeFOSA	31506-32-8
PERFLUOROALKANE SULFONYL SUBSTANCES		
N-Ethyl Perfluorooctanesulfonamido Ethanol	NEtFOSE	1691-99-2
N-Methyl Perfluorooctanesulfonamido Ethanol	NMeFOSE	24448-09-7
N-Ethyl Perfluorooctanesulfonamidoacetic Acid	NEtFOSAA	2991-50-6
N-Methyl Perfluorooctanesulfonamidoacetic Acid	NMeFOSAA	2355-31-9
PER- and POLYFLUOROALKYL ETHER CARBOXYLIC ACIDS		
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid	HFPO-DA	13252-13-6
4,8-Dioxa-3h-Perfluorononanoic Acid	ADONA	919005-14-4
CHLORO-PERFLUOROALKYL SULFONIC ACIDS		
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid	11Cl-PF3OUdS	763051-92-9
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid	9Cl-PF3ONS	756426-58-1
PERFLUOROETHER SULFONIC ACIDS (PFESAs)		
Perfluoro(2-Ethoxyethane)Sulfonic Acid	PFEESA	113507-82-7
PERFLUOROETHER/POLYETHER CARBOXYLIC ACIDS (PFPCAs)		
Perfluoro-3-Methoxypropanoic Acid	PFMPA	377-73-1
Perfluoro-4-Methoxybutanoic Acid	PFMBA	863090-89-5
Nonafluoro-3,6-Dioxaheptanoic Acid	NFDHA	151772-58-6

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316525
Report Date: 04/12/23

PFAS PARAMETER SUMMARY

Parameter	Acronym	CAS Number
FLUOROTELOMER CARBOXYLIC ACIDS (FTCAs)		
3-Perfluoroheptyl Propanoic Acid	7:3FTCA	812-70-4
2H,2H,3H,3H-Perfluorooctanoic Acid	5:3FTCA	914637-49-3
3-Perfluoropropyl Propanoic Acid	3:3FTCA	356-02-5

Project Name:	ST. JOSEPH	**Lab Number:**	L2316525
Project Number:	26518.05	**Report Date:**	04/12/23

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

NR - No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Project Name:	ST. JOSEPH	**Lab Number:**	L2316525
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Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Report Format: DU Report with 'J' Qualifiers

Project Name:	ST. JOSEPH	**Lab Number:**	L2316525
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Data Qualifiers

Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Project Name:	ST. JOSEPH	**Lab Number:**	L2316525
Project Number:	26518.05	**Report Date:**	04/12/23

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

144 Analysis of Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous, Solid, Biosolids, and Tissue Samples by LC-MS/MS. Draft EPA Method 1633, EPA Document 821-D-22-001, June 2022.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

Soil

NEW YORK CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581 — 8 Walkup Dr. — TEL: 508-898-9220 — FAX: 508-898-9193
Mansfield, MA 02048 — 320 Forbes Blvd — TEL: 508-822-9300 — FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 2

Date Rec'd in Lab: 03/30/23

ALPHA Job #: L2316525

Client Information
Client: VHB
Address: One Penn Plaza, Suite 715
New York, NY 10119
Phone: 212-857-7350
Fax:
Email: flester@VHB.com, mielczarek@VHB.com

Project Information
Project Name: St. Joseph
Project Location: 484 E. 178th Street, Bronx, NY
Project #: 26518.05
(Use Project name as Project #)
Project Manager: Isabel Mielczarek
ALPHAQuote #:

Turn-Around Time
Standard ☑ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables
☑ ASP-A ☐ ~~ASP-B~~
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement
☐ NY TOGS ☑ NY Part 375
☐ AWQ Standards ☑ NY CP-51
☑ NY Restricted Use ☐ Other
☑ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information
☑ Same as Client Info
PO #

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TCL VOCs 8260	TCL SVOCs 8270	TCL Pesticides (625 via 8081/8082)	Total Solids	TAL Metals via 6010 + Hg				Sample Specific Comments	Total Bottle
16525 -01	SB-1 (0'-2')	03-29-23	09:05	S	JL	X	X	X	X	X				Include Encores for VOCs	6
-02	SB-1 (5-6.5')		09:09	S	IM	X	X	X	X	X					6
-03	SB-2 (0'-2')		09:45	S	JL	X	X	X	X	X					6
-04	SB-2 (10'-12')		09:47	S	IM	X	X	X	X	X					6
-05	SB-3 (0-2')		10:25	S	JL	X	X	X	X	X					6
-06	SB-3 (6'-8')		10:30	S	IM	X	X	X	X	X					6
-07	SB-4 (0-2')		10:55	S	JL	X	X	X	X	X					6
-08	SB-4 (4-6')		11:00	S	IM	X	X	X	X	X					6
-09	SB-5 (0-2'		11:39	S	JL	X	X	X	X	X					6
-10	SB-5 (~~8~~-12-14')	03-29-23	11:40	S	IM	X	X	X	X						6
	Container Type					E			P						
	Preservative					A	A	A	A						

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
[illegible]	03-29-2023/1640	(AAL)	3/29/23 1646
(AAL)	3/29-23 1840	[illegible]	3-29-23 2100
[illegible]	3.29.23 0030	[illegible]	3-30-23 0030
[illegible]	3-30-23 0240	[illegible]	3/30/23 0240

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

Soil

NEW YORK CHAIN OF CUSTODY

ALPHA ANALYTICAL
Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 2 of 2

Date Rec'd in Lab: 03/30/23

ALPHA Job #: L2316525

Client Information

Client: VHB
Address: one Penn Plaza, Suite 715
New York, NY 10119
Phone: 212-857-7350
Fax:
Email: IMielczarek@VHB.com CLESTER@VHB.com

Project Information

Project Name: St. Joseph
Project Location: 484 E. 178th Street, Bronx, NY
Project # 26518.05
(Use Project name as Project #)
Project Manager: Isabel Mielczarek
ALPHAQuote #:

Turn-Around Time

Standard ☑ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables

☑ ASP-A ☐ ~~ASP-B~~
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement

☐ NY TOGS ☑ NY Part 375
☐ AWQ Standards ☑ NY CP-51
☑ NY Restricted Use ☐ Other
☑ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information

☐ Same as Client Info
PO #

Disposal Site Information

Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TCL VOCs 8260	TCL SVOCs 8270	TCL Pesticides/PCBs via 8081/8082	Total Solids	TAL Metals via 6010 + Hg	PFAS 537 Modified			Sample Specific Comments	Total # Bottles
16525-11	SB-7 (0-2')	03/29/23	12:05	S	IM	1	1	1	1	1				Includes Encores for VOCs.	6
-12	SB-9 (0-2')	03/29/23	12:25	S	IM	1	1	1	1	1					6
-13	SB-10 (0-2')	03/29/23	12:53	S	IM	1	1	1	1	1					6
-14	SB-11 (0-2')	"	13:25	S	IM	1	1	1	1	1					6
-15	SB-11 (6.5'-8.5')	"	13:27	S	JL	1	1	1	1	1					6
-16	SB-6 (0-2')	"	14:00	S	IM/JL	1	1	1	1	1	1			Includes for PFAS	8
-17	SB-8 (0-2')	3/29/23	14:09	S	IM	1	1	1	1	1					6

Container Type: E P
Preservative: A A A A

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
Johnny Joseph	03-29-2023 16:46	(AHL)	3/29/23 1646
(AHL)	3/29/23 1840		3.29.23 2100
	3.29.23 0030		3.30.23 0030
	3.30.23 0240		3/30/23 0240

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

APPENDIX E

ANALYTICAL REPORT

Lab Number:	L2316775
Client:	VHB One Penn Plaza Suite 715 New York, NY 10119
ATTN:	Isabel Mielczarek
Phone:	(212) 857-7381
Project Name:	ST. JOSEPH
Project Number:	26518.05
Report Date:	04/11/23

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA030), NH NELAP (2062), CT (PH-0141), DoD (L2474), FL (E87814), IL (200081), LA (85084), ME (MA00030), MD (350), NJ (MA015), NY (11627), NC (685), OH (CL106), PA (68-02089), RI (LAO00299), TX (T104704419), VT (VT-0015), VA (460194), WA (C954), US Army Corps of Engineers, USDA (Permit #P330-17-00150), USFWS (Permit #206964).

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316775
Report Date: 04/11/23

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2316775-01	SV-1	SOIL_VAPOR	484 E. 178TH STREET BRONX, NY	03/30/23 10:51	03/30/23
L2316775-02	SV-2	SOIL_VAPOR	484 E. 178TH STREET BRONX, NY	03/30/23 11:02	03/30/23
L2316775-03	SV-3	SOIL_VAPOR	484 E. 178TH STREET BRONX, NY	03/30/23 11:49	03/30/23
L2316775-04	SV-4	SOIL_VAPOR	484 E. 178TH STREET BRONX, NY	03/30/23 12:20	03/30/23
L2316775-05	SV-5	SOIL_VAPOR	484 E. 178TH STREET BRONX, NY	03/30/23 12:42	03/30/23
L2316775-06	SV-6	SOIL_VAPOR	484 E. 178TH STREET BRONX, NY	03/30/23 16:03	03/30/23
L2316775-07	SV-7	SOIL_VAPOR	484 E. 178TH STREET BRONX, NY	03/30/23 14:13	03/30/23
L2316775-08	SV-8	SOIL_VAPOR	484 E. 178TH STREET BRONX, NY	03/30/23 14:28	03/30/23
L2316775-09	SV-9	SOIL_VAPOR	484 E. 178TH STREET BRONX, NY	03/30/23 14:37	03/30/23
L2316775-10	SV-10	SOIL_VAPOR	484 E. 178TH STREET BRONX, NY	03/30/23 15:31	03/30/23

Project Name:	ST. JOSEPH	**Lab Number:**	L2316775
Project Number:	26518.05	**Report Date:**	04/11/23

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name:	ST. JOSEPH	**Lab Number:**	L2316775
Project Number:	26518.05	**Report Date:**	04/11/23

Case Narrative (continued)

Volatile Organics in Air

Canisters were released from the laboratory on February 28, 2023. The canister certification results are provided as an addendum.

L2316775-05D, -09D, and -10D: The samples have elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the samples.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Christopher J. Anderson

Title: Technical Director/Representative Date: 04/11/23

AIR

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316775
Report Date: 04/11/23

SAMPLE RESULTS

Lab ID: L2316775-01
Client ID: SV-1
Sample Location: 484 E. 178TH STREET BRONX, NY

Date Collected: 03/30/23 10:51
Date Received: 03/30/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 04/10/23 18:26
Analyst: TJS

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Dichlorodifluoromethane	0.433	0.200	--	2.14	0.989	--		1
Chloromethane	0.323	0.200	--	0.667	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acetone	5.58	1.00	--	13.3	2.38	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Tertiary butyl Alcohol	0.942	0.500	--	2.86	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	0.622	0.500	--	1.83	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316775
Report Date: 04/11/23

SAMPLE RESULTS

Lab ID: L2316775-01
Client ID: SV-1
Sample Location: 484 E. 178TH STREET BRONX, NY

Date Collected: 03/30/23 10:51
Date Received: 03/30/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	0.595	0.200	--	2.10	0.705	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Benzene	0.256	0.200	--	0.818	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	0.707	0.200	--	2.66	0.754	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Tetrachloroethene	8.81	0.200	--	59.7	1.36	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	0.217	0.200	--	0.943	0.869	--		1

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316775
Report Date: 04/11/23

SAMPLE RESULTS

Lab ID: L2316775-01
Client ID: SV-1
Sample Location: 484 E. 178TH STREET BRONX, NY

Date Collected: 03/30/23 10:51
Date Received: 03/30/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
p/m-Xylene	0.989	0.400	--	4.30	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	0.396	0.200	--	1.72	0.869	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
1,2,4-Trimethylbenzene	0.841	0.200	--	4.13	0.983	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	96		60-140
Bromochloromethane	95		60-140
chlorobenzene-d5	101		60-140

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316775
Report Date: 04/11/23

SAMPLE RESULTS

Lab ID: L2316775-02
Client ID: SV-2
Sample Location: 484 E. 178TH STREET BRONX, NY

Date Collected: 03/30/23 11:02
Date Received: 03/30/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 04/10/23 19:06
Analyst: TJS

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Dichlorodifluoromethane	0.428	0.200	--	2.12	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acetone	8.73	1.00	--	20.7	2.38	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Tertiary butyl Alcohol	0.973	0.500	--	2.95	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	3.40	0.500	--	10.0	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316775
Report Date: 04/11/23

SAMPLE RESULTS

Lab ID: L2316775-02
Client ID: SV-2
Sample Location: 484 E. 178TH STREET BRONX, NY

Date Collected: 03/30/23 11:02
Date Received: 03/30/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	0.536	0.500	--	1.58	1.47	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	0.207	0.200	--	0.730	0.705	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Heptane	0.521	0.200	--	2.14	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	1.92	0.200	--	7.24	0.754	--		1
2-Hexanone	0.321	0.200	--	1.32	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Tetrachloroethene	38.9	0.200	--	264	1.36	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	0.777	0.200	--	3.37	0.869	--		1

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316775
Report Date: 04/11/23

SAMPLE RESULTS

Lab ID: L2316775-02
Client ID: SV-2
Sample Location: 484 E. 178TH STREET BRONX, NY

Date Collected: 03/30/23 11:02
Date Received: 03/30/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
p/m-Xylene	3.59	0.400	--	15.6	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	1.37	0.200	--	5.95	0.869	--		1
4-Ethyltoluene	0.336	0.200	--	1.65	0.983	--		1
1,3,5-Trimethylbenzene	0.376	0.200	--	1.85	0.983	--		1
1,2,4-Trimethylbenzene	1.36	0.200	--	6.69	0.983	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	99		60-140
Bromochloromethane	98		60-140
chlorobenzene-d5	99		60-140

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316775
Report Date: 04/11/23

SAMPLE RESULTS

Lab ID: L2316775-03
Client ID: SV-3
Sample Location: 484 E. 178TH STREET BRONX, NY

Date Collected: 03/30/23 11:49
Date Received: 03/30/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 04/10/23 19:45
Analyst: TJS

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Dichlorodifluoromethane	0.438	0.200	--	2.17	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acetone	11.4	1.00	--	27.1	2.38	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Tertiary butyl Alcohol	0.569	0.500	--	1.72	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	0.313	0.200	--	0.975	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	6.16	0.500	--	18.2	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316775
Report Date: 04/11/23

SAMPLE RESULTS

Lab ID: L2316775-03
Client ID: SV-3
Sample Location: 484 E. 178TH STREET BRONX, NY

Date Collected: 03/30/23 11:49
Date Received: 03/30/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	0.511	0.200	--	1.80	0.705	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Heptane	0.392	0.200	--	1.61	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	4.94	0.200	--	18.6	0.754	--		1
2-Hexanone	0.492	0.200	--	2.02	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Tetrachloroethene	23.4	0.200	--	159	1.36	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	0.505	0.200	--	2.19	0.869	--		1

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316775
Report Date: 04/11/23

SAMPLE RESULTS

Lab ID: L2316775-03
Client ID: SV-3
Sample Location: 484 E. 178TH STREET BRONX, NY

Date Collected: 03/30/23 11:49
Date Received: 03/30/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
p/m-Xylene	2.36	0.400	--	10.3	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	0.260	0.200	--	1.11	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	1.13	0.200	--	4.91	0.869	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	0.342	0.200	--	1.68	0.983	--		1
1,2,4-Trimethylbenzene	1.38	0.200	--	6.78	0.983	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	96		60-140
Bromochloromethane	96		60-140
chlorobenzene-d5	99		60-140

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316775
Report Date: 04/11/23

SAMPLE RESULTS

Lab ID: L2316775-04
Client ID: SV-4
Sample Location: 484 E. 178TH STREET BRONX, NY

Date Collected: 03/30/23 12:20
Date Received: 03/30/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 04/10/23 20:25
Analyst: TJS

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Dichlorodifluoromethane	0.434	0.200	--	2.15	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acetone	10.0	1.00	--	23.8	2.38	--		1
Trichlorofluoromethane	0.201	0.200	--	1.13	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Tertiary butyl Alcohol	1.61	0.500	--	4.88	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	7.57	0.500	--	22.3	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316775
Report Date: 04/11/23

SAMPLE RESULTS

Lab ID: L2316775-04
Client ID: SV-4
Sample Location: 484 E. 178TH STREET BRONX, NY

Date Collected: 03/30/23 12:20
Date Received: 03/30/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	1.78	0.500	--	5.25	1.47	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	1.10	0.200	--	3.88	0.705	--		1
1,1,1-Trichloroethane	0.502	0.200	--	2.74	1.09	--		1
Benzene	0.273	0.200	--	0.872	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Heptane	0.879	0.200	--	3.60	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	0.770	0.200	--	2.90	0.754	--		1
2-Hexanone	0.495	0.200	--	2.03	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Tetrachloroethene	13.8	0.200	--	93.6	1.36	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	0.923	0.200	--	4.01	0.869	--		1

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316775
Report Date: 04/11/23

SAMPLE RESULTS

Lab ID: L2316775-04
Client ID: SV-4
Sample Location: 484 E. 178TH STREET BRONX, NY

Date Collected: 03/30/23 12:20
Date Received: 03/30/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
p/m-Xylene	1.60	0.400	--	6.95	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	0.531	0.200	--	2.31	0.869	--		1
4-Ethyltoluene	0.229	0.200	--	1.13	0.983	--		1
1,3,5-Trimethylbenzene	0.211	0.200	--	1.04	0.983	--		1
1,2,4-Trimethylbenzene	0.746	0.200	--	3.67	0.983	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	99		60-140
Bromochloromethane	99		60-140
chlorobenzene-d5	103		60-140

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316775
Report Date: 04/11/23

SAMPLE RESULTS

Lab ID: L2316775-05 D
Client ID: SV-5
Sample Location: 484 E. 178TH STREET BRONX, NY

Date Collected: 03/30/23 12:42
Date Received: 03/30/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 04/10/23 21:02
Analyst: TJS

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Dichlorodifluoromethane	0.454	0.400	--	2.24	1.98	--		2
Chloromethane	ND	0.400	--	ND	0.826	--		2
Freon-114	ND	0.400	--	ND	2.80	--		2
Vinyl chloride	ND	0.400	--	ND	1.02	--		2
1,3-Butadiene	ND	0.400	--	ND	0.885	--		2
Bromomethane	ND	0.400	--	ND	1.55	--		2
Chloroethane	ND	0.400	--	ND	1.06	--		2
Ethanol	ND	10.0	--	ND	18.8	--		2
Vinyl bromide	ND	0.400	--	ND	1.75	--		2
Acetone	12.9	2.00	--	30.6	4.75	--		2
Trichlorofluoromethane	ND	0.400	--	ND	2.25	--		2
Isopropanol	ND	1.00	--	ND	2.46	--		2
1,1-Dichloroethene	ND	0.400	--	ND	1.59	--		2
Tertiary butyl Alcohol	1.98	1.00	--	6.00	3.03	--		2
Methylene chloride	ND	1.00	--	ND	3.47	--		2
3-Chloropropene	ND	0.400	--	ND	1.25	--		2
Carbon disulfide	ND	0.400	--	ND	1.25	--		2
Freon-113	ND	0.400	--	ND	3.07	--		2
trans-1,2-Dichloroethene	ND	0.400	--	ND	1.59	--		2
1,1-Dichloroethane	ND	0.400	--	ND	1.62	--		2
Methyl tert butyl ether	ND	0.400	--	ND	1.44	--		2
2-Butanone	ND	1.00	--	ND	2.95	--		2
cis-1,2-Dichloroethene	ND	0.400	--	ND	1.59	--		2

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316775
Report Date: 04/11/23

SAMPLE RESULTS

Lab ID: L2316775-05 D
Client ID: SV-5
Sample Location: 484 E. 178TH STREET BRONX, NY

Date Collected: 03/30/23 12:42
Date Received: 03/30/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Ethyl Acetate	ND	1.00	--	ND	3.60	--		2
Chloroform	ND	0.400	--	ND	1.95	--		2
Tetrahydrofuran	ND	1.00	--	ND	2.95	--		2
1,2-Dichloroethane	ND	0.400	--	ND	1.62	--		2
n-Hexane	1.61	0.400	--	5.67	1.41	--		2
1,1,1-Trichloroethane	ND	0.400	--	ND	2.18	--		2
Benzene	ND	0.400	--	ND	1.28	--		2
Carbon tetrachloride	ND	0.400	--	ND	2.52	--		2
Cyclohexane	ND	0.400	--	ND	1.38	--		2
1,2-Dichloropropane	ND	0.400	--	ND	1.85	--		2
Bromodichloromethane	ND	0.400	--	ND	2.68	--		2
1,4-Dioxane	ND	0.400	--	ND	1.44	--		2
Trichloroethene	ND	0.400	--	ND	2.15	--		2
2,2,4-Trimethylpentane	ND	0.400	--	ND	1.87	--		2
Heptane	2.49	0.400	--	10.2	1.64	--		2
cis-1,3-Dichloropropene	ND	0.400	--	ND	1.82	--		2
4-Methyl-2-pentanone	ND	1.00	--	ND	4.10	--		2
trans-1,3-Dichloropropene	ND	0.400	--	ND	1.82	--		2
1,1,2-Trichloroethane	ND	0.400	--	ND	2.18	--		2
Toluene	5.48	0.400	--	20.7	1.51	--		2
2-Hexanone	ND	0.400	--	ND	1.64	--		2
Dibromochloromethane	ND	0.400	--	ND	3.41	--		2
1,2-Dibromoethane	ND	0.400	--	ND	3.07	--		2
Tetrachloroethene	97.1	0.400	--	658	2.71	--		2
Chlorobenzene	ND	0.400	--	ND	1.84	--		2
Ethylbenzene	1.65	0.400	--	7.17	1.74	--		2

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316775
Report Date: 04/11/23

SAMPLE RESULTS

Lab ID: L2316775-05 D
Client ID: SV-5
Sample Location: 484 E. 178TH STREET BRONX, NY

Date Collected: 03/30/23 12:42
Date Received: 03/30/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
p/m-Xylene	6.40	0.800	--	27.8	3.47	--		2
Bromoform	ND	0.400	--	ND	4.14	--		2
Styrene	ND	0.400	--	ND	1.70	--		2
1,1,2,2-Tetrachloroethane	ND	0.400	--	ND	2.75	--		2
o-Xylene	2.33	0.400	--	10.1	1.74	--		2
4-Ethyltoluene	0.564	0.400	--	2.77	1.97	--		2
1,3,5-Trimethylbenzene	0.468	0.400	--	2.30	1.97	--		2
1,2,4-Trimethylbenzene	1.70	0.400	--	8.36	1.97	--		2
Benzyl chloride	ND	0.400	--	ND	2.07	--		2
1,3-Dichlorobenzene	ND	0.400	--	ND	2.40	--		2
1,4-Dichlorobenzene	ND	0.400	--	ND	2.40	--		2
1,2-Dichlorobenzene	ND	0.400	--	ND	2.40	--		2
1,2,4-Trichlorobenzene	ND	0.400	--	ND	2.97	--		2
Hexachlorobutadiene	ND	0.400	--	ND	4.27	--		2

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	97		60-140
Bromochloromethane	95		60-140
chlorobenzene-d5	96		60-140

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316775
Report Date: 04/11/23

SAMPLE RESULTS

Lab ID: L2316775-06
Client ID: SV-6
Sample Location: 484 E. 178TH STREET BRONX, NY

Date Collected: 03/30/23 16:03
Date Received: 03/30/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 04/10/23 21:42
Analyst: TJS

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Dichlorodifluoromethane	0.456	0.200	--	2.25	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acetone	31.7	1.00	--	75.3	2.38	--		1
Trichlorofluoromethane	0.203	0.200	--	1.14	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Tertiary butyl Alcohol	3.31	0.500	--	10.0	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	0.462	0.200	--	1.44	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	1.01	0.500	--	2.98	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316775
Report Date: 04/11/23

SAMPLE RESULTS

Lab ID: L2316775-06
Client ID: SV-6
Sample Location: 484 E. 178TH STREET BRONX, NY

Date Collected: 03/30/23 16:03
Date Received: 03/30/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	0.246	0.200	--	0.867	0.705	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Heptane	0.465	0.200	--	1.91	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	1.43	0.200	--	5.39	0.754	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Tetrachloroethene	28.6	0.200	--	194	1.36	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	0.566	0.200	--	2.46	0.869	--		1

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316775
Report Date: 04/11/23

SAMPLE RESULTS

Lab ID: L2316775-06
Client ID: SV-6
Sample Location: 484 E. 178TH STREET BRONX, NY

Date Collected: 03/30/23 16:03
Date Received: 03/30/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
p/m-Xylene	2.73	0.400	--	11.9	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	1.03	0.200	--	4.47	0.869	--		1
4-Ethyltoluene	0.458	0.200	--	2.25	0.983	--		1
1,3,5-Trimethylbenzene	0.431	0.200	--	2.12	0.983	--		1
1,2,4-Trimethylbenzene	2.02	0.200	--	9.93	0.983	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	94		60-140
Bromochloromethane	93		60-140
chlorobenzene-d5	96		60-140

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316775
Report Date: 04/11/23

SAMPLE RESULTS

Lab ID: L2316775-07
Client ID: SV-7
Sample Location: 484 E. 178TH STREET BRONX, NY

Date Collected: 03/30/23 14:13
Date Received: 03/30/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 04/10/23 23:02
Analyst: TJS

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Dichlorodifluoromethane	0.451	0.200	--	2.23	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acetone	15.1	1.00	--	35.9	2.38	--		1
Trichlorofluoromethane	0.214	0.200	--	1.20	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Tertiary butyl Alcohol	0.814	0.500	--	2.47	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	0.249	0.200	--	0.775	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	13.7	0.500	--	40.4	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316775
Report Date: 04/11/23

SAMPLE RESULTS

Lab ID: L2316775-07
Client ID: SV-7
Sample Location: 484 E. 178TH STREET BRONX, NY

Date Collected: 03/30/23 14:13
Date Received: 03/30/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	1.38	0.200	--	4.86	0.705	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Benzene	0.206	0.200	--	0.658	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Heptane	0.335	0.200	--	1.37	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	1.70	0.200	--	6.41	0.754	--		1
2-Hexanone	1.22	0.200	--	5.00	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Tetrachloroethene	20.9	0.200	--	142	1.36	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	0.597	0.200	--	2.59	0.869	--		1

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316775
Report Date: 04/11/23

SAMPLE RESULTS

Lab ID: L2316775-07
Client ID: SV-7
Sample Location: 484 E. 178TH STREET BRONX, NY

Date Collected: 03/30/23 14:13
Date Received: 03/30/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
p/m-Xylene	2.24	0.400	--	9.73	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	0.917	0.200	--	3.98	0.869	--		1
4-Ethyltoluene	0.273	0.200	--	1.34	0.983	--		1
1,3,5-Trimethylbenzene	0.222	0.200	--	1.09	0.983	--		1
1,2,4-Trimethylbenzene	0.944	0.200	--	4.64	0.983	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	95		60-140
Bromochloromethane	94		60-140
chlorobenzene-d5	96		60-140

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316775
Report Date: 04/11/23

SAMPLE RESULTS

Lab ID: L2316775-08
Client ID: SV-8
Sample Location: 484 E. 178TH STREET BRONX, NY

Date Collected: 03/30/23 14:28
Date Received: 03/30/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 04/10/23 23:42
Analyst: TJS

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Dichlorodifluoromethane	0.461	0.200	--	2.28	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acetone	24.8	1.00	--	58.9	2.38	--		1
Trichlorofluoromethane	0.206	0.200	--	1.16	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Tertiary butyl Alcohol	2.59	0.500	--	7.85	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	0.835	0.200	--	2.60	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	1.08	0.500	--	3.19	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316775
Report Date: 04/11/23

SAMPLE RESULTS

Lab ID: L2316775-08
Client ID: SV-8
Sample Location: 484 E. 178TH STREET BRONX, NY

Date Collected: 03/30/23 14:28
Date Received: 03/30/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	0.471	0.200	--	1.66	0.705	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Benzene	0.275	0.200	--	0.879	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Heptane	0.677	0.200	--	2.77	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	2.40	0.200	--	9.04	0.754	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Tetrachloroethene	47.5	0.200	--	322	1.36	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	1.00	0.200	--	4.34	0.869	--		1

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316775
Report Date: 04/11/23

SAMPLE RESULTS

Lab ID: L2316775-08
Client ID: SV-8
Sample Location: 484 E. 178TH STREET BRONX, NY

Date Collected: 03/30/23 14:28
Date Received: 03/30/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
p/m-Xylene	4.06	0.400	--	17.6	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	1.51	0.200	--	6.56	0.869	--		1
4-Ethyltoluene	0.546	0.200	--	2.68	0.983	--		1
1,3,5-Trimethylbenzene	0.479	0.200	--	2.35	0.983	--		1
1,2,4-Trimethylbenzene	2.19	0.200	--	10.8	0.983	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	95		60-140
Bromochloromethane	94		60-140
chlorobenzene-d5	96		60-140

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316775
Report Date: 04/11/23

SAMPLE RESULTS

Lab ID: L2316775-09 D
Client ID: SV-9
Sample Location: 484 E. 178TH STREET BRONX, NY

Date Collected: 03/30/23 14:37
Date Received: 03/30/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 04/11/23 00:20
Analyst: TJS

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Dichlorodifluoromethane	0.461	0.286	--	2.28	1.41	--		1.429
Chloromethane	ND	0.286	--	ND	0.591	--		1.429
Freon-114	ND	0.286	--	ND	2.00	--		1.429
Vinyl chloride	ND	0.286	--	ND	0.731	--		1.429
1,3-Butadiene	ND	0.286	--	ND	0.633	--		1.429
Bromomethane	ND	0.286	--	ND	1.11	--		1.429
Chloroethane	ND	0.286	--	ND	0.755	--		1.429
Ethanol	ND	7.14	--	ND	13.5	--		1.429
Vinyl bromide	ND	0.286	--	ND	1.25	--		1.429
Acetone	33.2	1.43	--	78.9	3.40	--		1.429
Trichlorofluoromethane	ND	0.286	--	ND	1.61	--		1.429
Isopropanol	ND	0.714	--	ND	1.76	--		1.429
1,1-Dichloroethene	ND	0.286	--	ND	1.13	--		1.429
Tertiary butyl Alcohol	3.04	0.714	--	9.22	2.16	--		1.429
Methylene chloride	ND	0.714	--	ND	2.48	--		1.429
3-Chloropropene	ND	0.286	--	ND	0.895	--		1.429
Carbon disulfide	1.92	0.286	--	5.98	0.891	--		1.429
Freon-113	ND	0.286	--	ND	2.19	--		1.429
trans-1,2-Dichloroethene	ND	0.286	--	ND	1.13	--		1.429
1,1-Dichloroethane	ND	0.286	--	ND	1.16	--		1.429
Methyl tert butyl ether	ND	0.286	--	ND	1.03	--		1.429
2-Butanone	1.30	0.714	--	3.83	2.11	--		1.429
cis-1,2-Dichloroethene	ND	0.286	--	ND	1.13	--		1.429

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316775
Report Date: 04/11/23

SAMPLE RESULTS

Lab ID: L2316775-09 D
Client ID: SV-9
Sample Location: 484 E. 178TH STREET BRONX, NY

Date Collected: 03/30/23 14:37
Date Received: 03/30/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Ethyl Acetate	ND	0.714	--	ND	2.57	--		1.429
Chloroform	ND	0.286	--	ND	1.40	--		1.429
Tetrahydrofuran	ND	0.714	--	ND	2.11	--		1.429
1,2-Dichloroethane	ND	0.286	--	ND	1.16	--		1.429
n-Hexane	3.83	0.286	--	13.5	1.01	--		1.429
1,1,1-Trichloroethane	ND	0.286	--	ND	1.56	--		1.429
Benzene	0.427	0.286	--	1.36	0.914	--		1.429
Carbon tetrachloride	ND	0.286	--	ND	1.80	--		1.429
Cyclohexane	ND	0.286	--	ND	0.984	--		1.429
1,2-Dichloropropane	ND	0.286	--	ND	1.32	--		1.429
Bromodichloromethane	ND	0.286	--	ND	1.92	--		1.429
1,4-Dioxane	ND	0.286	--	ND	1.03	--		1.429
Trichloroethene	ND	0.286	--	ND	1.54	--		1.429
2,2,4-Trimethylpentane	ND	0.286	--	ND	1.34	--		1.429
Heptane	1.34	0.286	--	5.49	1.17	--		1.429
cis-1,3-Dichloropropene	ND	0.286	--	ND	1.30	--		1.429
4-Methyl-2-pentanone	ND	0.714	--	ND	2.93	--		1.429
trans-1,3-Dichloropropene	ND	0.286	--	ND	1.30	--		1.429
1,1,2-Trichloroethane	ND	0.286	--	ND	1.56	--		1.429
Toluene	4.63	0.286	--	17.4	1.08	--		1.429
2-Hexanone	ND	0.286	--	ND	1.17	--		1.429
Dibromochloromethane	ND	0.286	--	ND	2.44	--		1.429
1,2-Dibromoethane	ND	0.286	--	ND	2.20	--		1.429
Tetrachloroethene	60.8	0.286	--	412	1.94	--		1.429
Chlorobenzene	ND	0.286	--	ND	1.32	--		1.429
Ethylbenzene	1.35	0.286	--	5.86	1.24	--		1.429

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316775
Report Date: 04/11/23

SAMPLE RESULTS

Lab ID: L2316775-09 D
Client ID: SV-9
Sample Location: 484 E. 178TH STREET BRONX, NY

Date Collected: 03/30/23 14:37
Date Received: 03/30/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
p/m-Xylene	5.10	0.571	--	22.2	2.48	--		1.429
Bromoform	ND	0.286	--	ND	2.96	--		1.429
Styrene	ND	0.286	--	ND	1.22	--		1.429
1,1,2,2-Tetrachloroethane	ND	0.286	--	ND	1.96	--		1.429
o-Xylene	1.89	0.286	--	8.21	1.24	--		1.429
4-Ethyltoluene	0.547	0.286	--	2.69	1.41	--		1.429
1,3,5-Trimethylbenzene	0.503	0.286	--	2.47	1.41	--		1.429
1,2,4-Trimethylbenzene	2.03	0.286	--	9.98	1.41	--		1.429
Benzyl chloride	ND	0.286	--	ND	1.48	--		1.429
1,3-Dichlorobenzene	ND	0.286	--	ND	1.72	--		1.429
1,4-Dichlorobenzene	ND	0.286	--	ND	1.72	--		1.429
1,2-Dichlorobenzene	ND	0.286	--	ND	1.72	--		1.429
1,2,4-Trichlorobenzene	ND	0.286	--	ND	2.12	--		1.429
Hexachlorobutadiene	ND	0.286	--	ND	3.05	--		1.429

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	95		60-140
Bromochloromethane	93		60-140
chlorobenzene-d5	97		60-140

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316775
Report Date: 04/11/23

SAMPLE RESULTS

Lab ID: L2316775-10 D
Client ID: SV-10
Sample Location: 484 E. 178TH STREET BRONX, NY

Date Collected: 03/30/23 15:31
Date Received: 03/30/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 04/11/23 00:58
Analyst: TJS

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Dichlorodifluoromethane	0.456	0.370	--	2.25	1.83	--		1.852
Chloromethane	ND	0.370	--	ND	0.764	--		1.852
Freon-114	ND	0.370	--	ND	2.59	--		1.852
Vinyl chloride	ND	0.370	--	ND	0.946	--		1.852
1,3-Butadiene	ND	0.370	--	ND	0.819	--		1.852
Bromomethane	ND	0.370	--	ND	1.44	--		1.852
Chloroethane	ND	0.370	--	ND	0.976	--		1.852
Ethanol	ND	9.26	--	ND	17.4	--		1.852
Vinyl bromide	ND	0.370	--	ND	1.62	--		1.852
Acetone	28.0	1.85	--	66.5	4.39	--		1.852
Trichlorofluoromethane	ND	0.370	--	ND	2.08	--		1.852
Isopropanol	ND	0.926	--	ND	2.28	--		1.852
1,1-Dichloroethene	ND	0.370	--	ND	1.47	--		1.852
Tertiary butyl Alcohol	3.38	0.926	--	10.2	2.81	--		1.852
Methylene chloride	ND	0.926	--	ND	3.22	--		1.852
3-Chloropropene	ND	0.370	--	ND	1.16	--		1.852
Carbon disulfide	ND	0.370	--	ND	1.15	--		1.852
Freon-113	ND	0.370	--	ND	2.84	--		1.852
trans-1,2-Dichloroethene	ND	0.370	--	ND	1.47	--		1.852
1,1-Dichloroethane	ND	0.370	--	ND	1.50	--		1.852
Methyl tert butyl ether	ND	0.370	--	ND	1.33	--		1.852
2-Butanone	ND	0.926	--	ND	2.73	--		1.852
cis-1,2-Dichloroethene	ND	0.370	--	ND	1.47	--		1.852

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316775
Report Date: 04/11/23

SAMPLE RESULTS

Lab ID: L2316775-10 D
Client ID: SV-10
Sample Location: 484 E. 178TH STREET BRONX, NY

Date Collected: 03/30/23 15:31
Date Received: 03/30/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Ethyl Acetate	ND	0.926	--	ND	3.34	--		1.852
Chloroform	ND	0.370	--	ND	1.81	--		1.852
Tetrahydrofuran	ND	0.926	--	ND	2.73	--		1.852
1,2-Dichloroethane	ND	0.370	--	ND	1.50	--		1.852
n-Hexane	ND	0.370	--	ND	1.30	--		1.852
1,1,1-Trichloroethane	ND	0.370	--	ND	2.02	--		1.852
Benzene	ND	0.370	--	ND	1.18	--		1.852
Carbon tetrachloride	ND	0.370	--	ND	2.33	--		1.852
Cyclohexane	ND	0.370	--	ND	1.27	--		1.852
1,2-Dichloropropane	ND	0.370	--	ND	1.71	--		1.852
Bromodichloromethane	ND	0.370	--	ND	2.48	--		1.852
1,4-Dioxane	ND	0.370	--	ND	1.33	--		1.852
Trichloroethene	ND	0.370	--	ND	1.99	--		1.852
2,2,4-Trimethylpentane	ND	0.370	--	ND	1.73	--		1.852
Heptane	1.37	0.370	--	5.61	1.52	--		1.852
cis-1,3-Dichloropropene	ND	0.370	--	ND	1.68	--		1.852
4-Methyl-2-pentanone	ND	0.926	--	ND	3.79	--		1.852
trans-1,3-Dichloropropene	ND	0.370	--	ND	1.68	--		1.852
1,1,2-Trichloroethane	ND	0.370	--	ND	2.02	--		1.852
Toluene	4.29	0.370	--	16.2	1.39	--		1.852
2-Hexanone	ND	0.370	--	ND	1.52	--		1.852
Dibromochloromethane	ND	0.370	--	ND	3.15	--		1.852
1,2-Dibromoethane	ND	0.370	--	ND	2.84	--		1.852
Tetrachloroethene	81.1	0.370	--	550	2.51	--		1.852
Chlorobenzene	ND	0.370	--	ND	1.70	--		1.852
Ethylbenzene	1.38	0.370	--	5.99	1.61	--		1.852

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316775
Report Date: 04/11/23

SAMPLE RESULTS

Lab ID: L2316775-10 D
Client ID: SV-10
Sample Location: 484 E. 178TH STREET BRONX, NY

Date Collected: 03/30/23 15:31
Date Received: 03/30/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
p/m-Xylene	5.97	0.741	--	25.9	3.22	--		1.852
Bromoform	ND	0.370	--	ND	3.83	--		1.852
Styrene	ND	0.370	--	ND	1.58	--		1.852
1,1,2,2-Tetrachloroethane	ND	0.370	--	ND	2.54	--		1.852
o-Xylene	2.18	0.370	--	9.47	1.61	--		1.852
4-Ethyltoluene	0.668	0.370	--	3.28	1.82	--		1.852
1,3,5-Trimethylbenzene	0.600	0.370	--	2.95	1.82	--		1.852
1,2,4-Trimethylbenzene	2.40	0.370	--	11.8	1.82	--		1.852
Benzyl chloride	ND	0.370	--	ND	1.92	--		1.852
1,3-Dichlorobenzene	ND	0.370	--	ND	2.22	--		1.852
1,4-Dichlorobenzene	ND	0.370	--	ND	2.22	--		1.852
1,2-Dichlorobenzene	ND	0.370	--	ND	2.22	--		1.852
1,2,4-Trichlorobenzene	ND	0.370	--	ND	2.75	--		1.852
Hexachlorobutadiene	ND	0.370	--	ND	3.95	--		1.852

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	95		60-140
Bromochloromethane	94		60-140
chlorobenzene-d5	97		60-140

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316775
Report Date: 04/11/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15
Analytical Date: 04/10/23 16:02

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab for sample(s): 01-10 Batch: WG1764894-4								
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316775
Report Date: 04/11/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15
Analytical Date: 04/10/23 16:02

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab for sample(s): 01-10 Batch: WG1764894-4								
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1

Project Name: ST. JOSEPH
Project Number: 26518.05
Lab Number: L2316775
Report Date: 04/11/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15
Analytical Date: 04/10/23 16:02

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab for sample(s): 01-10 Batch: WG1764894-4								
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	ND	0.200	--	ND	0.869	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Lab Control Sample Analysis
Batch Quality Control

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316775
Report Date: 04/11/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-10 Batch: WG1764894-3								
Dichlorodifluoromethane	89		-		70-130	-		
Chloromethane	92		-		70-130	-		
Freon-114	95		-		70-130	-		
Vinyl chloride	96		-		70-130	-		
1,3-Butadiene	98		-		70-130	-		
Bromomethane	95		-		70-130	-		
Chloroethane	94		-		70-130	-		
Ethanol	100		-		40-160	-		
Vinyl bromide	106		-		70-130	-		
Acetone	82		-		40-160	-		
Trichlorofluoromethane	92		-		70-130	-		
Isopropanol	98		-		40-160	-		
1,1-Dichloroethene	100		-		70-130	-		
Tertiary butyl Alcohol	104		-		70-130	-		
Methylene chloride	99		-		70-130	-		
3-Chloropropene	107		-		70-130	-		
Carbon disulfide	94		-		70-130	-		
Freon-113	103		-		70-130	-		
trans-1,2-Dichloroethene	98		-		70-130	-		
1,1-Dichloroethane	102		-		70-130	-		
Methyl tert butyl ether	99		-		70-130	-		
2-Butanone	96		-		70-130	-		
cis-1,2-Dichloroethene	102		-		70-130	-		

Lab Control Sample Analysis
Batch Quality Control

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316775
Report Date: 04/11/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-10 Batch: WG1764894-3								
Ethyl Acetate	108		-		70-130	-		
Chloroform	98		-		70-130	-		
Tetrahydrofuran	100		-		70-130	-		
1,2-Dichloroethane	92		-		70-130	-		
n-Hexane	102		-		70-130	-		
1,1,1-Trichloroethane	98		-		70-130	-		
Benzene	95		-		70-130	-		
Carbon tetrachloride	97		-		70-130	-		
Cyclohexane	103		-		70-130	-		
1,2-Dichloropropane	106		-		70-130	-		
Bromodichloromethane	98		-		70-130	-		
1,4-Dioxane	104		-		70-130	-		
Trichloroethene	102		-		70-130	-		
2,2,4-Trimethylpentane	106		-		70-130	-		
Heptane	103		-		70-130	-		
cis-1,3-Dichloropropene	110		-		70-130	-		
4-Methyl-2-pentanone	108		-		70-130	-		
trans-1,3-Dichloropropene	94		-		70-130	-		
1,1,2-Trichloroethane	107		-		70-130	-		
Toluene	104		-		70-130	-		
2-Hexanone	114		-		70-130	-		
Dibromochloromethane	111		-		70-130	-		
1,2-Dibromoethane	108		-		70-130	-		

Lab Control Sample Analysis
Batch Quality Control

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316775
Report Date: 04/11/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-10 Batch: WG1764894-3								
Tetrachloroethene	105		-		70-130	-		
Chlorobenzene	108		-		70-130	-		
Ethylbenzene	110		-		70-130	-		
p/m-Xylene	112		-		70-130	-		
Bromoform	111		-		70-130	-		
Styrene	112		-		70-130	-		
1,1,2,2-Tetrachloroethane	109		-		70-130	-		
o-Xylene	113		-		70-130	-		
4-Ethyltoluene	110		-		70-130	-		
1,3,5-Trimethylbenzene	106		-		70-130	-		
1,2,4-Trimethylbenzene	114		-		70-130	-		
Benzyl chloride	125		-		70-130	-		
1,3-Dichlorobenzene	109		-		70-130	-		
1,4-Dichlorobenzene	108		-		70-130	-		
1,2-Dichlorobenzene	107		-		70-130	-		
1,2,4-Trichlorobenzene	103		-		70-130	-		
Hexachlorobutadiene	101		-		70-130	-		

Lab Duplicate Analysis
Batch Quality Control

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316775
Report Date: 04/11/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-10 QC Batch ID: WG1764894-5 QC Sample: L2316775-06 Client ID: SV-6						
Dichlorodifluoromethane	0.456	0.455	ppbV	0		25
Chloromethane	ND	ND	ppbV	NC		25
Freon-114	ND	ND	ppbV	NC		25
Vinyl chloride	ND	ND	ppbV	NC		25
1,3-Butadiene	ND	ND	ppbV	NC		25
Bromomethane	ND	ND	ppbV	NC		25
Chloroethane	ND	ND	ppbV	NC		25
Ethanol	ND	ND	ppbV	NC		25
Vinyl bromide	ND	ND	ppbV	NC		25
Acetone	31.7	31.8	ppbV	0		25
Trichlorofluoromethane	0.203	0.209	ppbV	3		25
Isopropanol	ND	ND	ppbV	NC		25
1,1-Dichloroethene	ND	ND	ppbV	NC		25
Tertiary butyl Alcohol	3.31	3.31	ppbV	0		25
Methylene chloride	ND	ND	ppbV	NC		25
3-Chloropropene	ND	ND	ppbV	NC		25
Carbon disulfide	0.462	0.460	ppbV	0		25
Freon-113	ND	ND	ppbV	NC		25
trans-1,2-Dichloroethene	ND	ND	ppbV	NC		25
1,1-Dichloroethane	ND	ND	ppbV	NC		25
Methyl tert butyl ether	ND	ND	ppbV	NC		25

Lab Duplicate Analysis
Batch Quality Control

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316775
Report Date: 04/11/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-10 QC Batch ID: WG1764894-5 QC Sample: L2316775-06 Client ID: SV-6						
2-Butanone	1.01	1.01	ppbV	0		25
cis-1,2-Dichloroethene	ND	ND	ppbV	NC		25
Ethyl Acetate	ND	ND	ppbV	NC		25
Chloroform	ND	ND	ppbV	NC		25
Tetrahydrofuran	ND	ND	ppbV	NC		25
1,2-Dichloroethane	ND	ND	ppbV	NC		25
n-Hexane	0.246	0.254	ppbV	3		25
1,1,1-Trichloroethane	ND	ND	ppbV	NC		25
Benzene	ND	ND	ppbV	NC		25
Carbon tetrachloride	ND	ND	ppbV	NC		25
Cyclohexane	ND	ND	ppbV	NC		25
1,2-Dichloropropane	ND	ND	ppbV	NC		25
Bromodichloromethane	ND	ND	ppbV	NC		25
1,4-Dioxane	ND	ND	ppbV	NC		25
Trichloroethene	ND	ND	ppbV	NC		25
2,2,4-Trimethylpentane	ND	ND	ppbV	NC		25
Heptane	0.465	0.479	ppbV	3		25
cis-1,3-Dichloropropene	ND	ND	ppbV	NC		25
4-Methyl-2-pentanone	ND	ND	ppbV	NC		25
trans-1,3-Dichloropropene	ND	ND	ppbV	NC		25
1,1,2-Trichloroethane	ND	ND	ppbV	NC		25

Lab Duplicate Analysis
Batch Quality Control

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316775
Report Date: 04/11/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-10 QC Batch ID: WG1764894-5 QC Sample: L2316775-06 Client ID: SV-6						
Toluene	1.43	1.51	ppbV	5		25
2-Hexanone	ND	ND	ppbV	NC		25
Dibromochloromethane	ND	ND	ppbV	NC		25
1,2-Dibromoethane	ND	ND	ppbV	NC		25
Tetrachloroethene	28.6	30.1	ppbV	5		25
Chlorobenzene	ND	ND	ppbV	NC		25
Ethylbenzene	0.566	0.586	ppbV	3		25
p/m-Xylene	2.73	2.85	ppbV	4		25
Bromoform	ND	ND	ppbV	NC		25
Styrene	ND	ND	ppbV	NC		25
1,1,2,2-Tetrachloroethane	ND	ND	ppbV	NC		25
o-Xylene	1.03	1.08	ppbV	5		25
4-Ethyltoluene	0.458	0.483	ppbV	5		25
1,3,5-Trimethylbenzene	0.431	0.442	ppbV	3		25
1,2,4-Trimethylbenzene	2.02	2.14	ppbV	6		25
Benzyl chloride	ND	ND	ppbV	NC		25
1,3-Dichlorobenzene	ND	ND	ppbV	NC		25
1,4-Dichlorobenzene	ND	ND	ppbV	NC		25
1,2-Dichlorobenzene	ND	ND	ppbV	NC		25
1,2,4-Trichlorobenzene	ND	ND	ppbV	NC		25
Hexachlorobutadiene	ND	ND	ppbV	NC		25

Project Name: ST. JOSEPH

Project Number: 26518.05

Lab Number: L2316775

Report Date: 04/11/23

Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Date Prepared	Bottle Order	Cleaning Batch ID	Can Leak Check	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Controler Leak Chk	Flow Out mL/min	Flow In mL/min	% RPD
L2316775-01	SV-1	01949	Flow 2	02/28/23	414961		-	-	-	Pass	40.0	38.7	3
L2316775-01	SV-1	3153	6.0L Can	02/28/23	414961	L2308975-04	Pass	-29.5	-3.8	-	-	-	-
L2316775-02	SV-2	0141	Flow 2	02/28/23	414961		-	-	-	Pass	40.0	44.1	10
L2316775-02	SV-2	1661	6.0L Can	02/28/23	414961	L2308975-04	Pass	-29.5	-4.2	-	-	-	-
L2316775-03	SV-3	0257	Flow 2	02/28/23	414961		-	-	-	Pass	40.0	41.7	4
L2316775-03	SV-3	941	6.0L Can	02/28/23	414961	L2308975-03	Pass	-29.6	-4.4	-	-	-	-
L2316775-04	SV-4	01692	Flow 2	02/28/23	414961		-	-	-	Pass	40.1	40.6	1
L2316775-04	SV-4	2779	6.0L Can	02/28/23	414961	L2308975-03	Pass	-29.6	-4.6	-	-	-	-
L2316775-05	SV-5	0822	Flow 2	02/28/23	414961		-	-	-	Pass	40.0	46.6	15
L2316775-05	SV-5	2801	6.0L Can	02/28/23	414961	L2308975-03	Pass	-29.5	-5.4	-	-	-	-
L2316775-06	SV-6	01547	Flow 2	02/28/23	414961		-	-	-	Pass	40.2	42.5	6
L2316775-06	SV-6	3598	6.0L Can	02/28/23	414961	L2308975-03	Pass	-29.7	-5.2	-	-	-	-
L2316775-07	SV-7	0490	Flow 2	02/28/23	414961		-	-	-	Pass	40.0	41.3	3
L2316775-07	SV-7	2659	6.0L Can	02/28/23	414961	L2308975-03	Pass	-29.3	-4.5	-	-	-	-
L2316775-08	SV-8	02105	Flow 2	02/28/23	414961		-	-	-	Pass	40.3	40.1	0

Project Name: ST. JOSEPH

Project Number: 26518.05

Lab Number: L2316775

Report Date: 04/11/23

Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Date Prepared	Bottle Order	Cleaning Batch ID	Can Leak Check	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Controler Leak Chk	Flow Out mL/min	Flow In mL/min	% RPD
L2316775-08	SV-8	687	6.0L Can	02/28/23	414961	L2308975-04	Pass	-29.6	-6.2	-	-	-	-
L2316775-09	SV-9	01518	Flow 2	02/28/23	414961		-	-	-	Pass	40.0	39.7	1
L2316775-09	SV-9	3329	6.0L Can	02/28/23	414961	L2308975-04	Pass	-29.7	-5.4	-	-	-	-
L2316775-10	SV-10	01331	Flow 2	02/28/23	414961		-	-	-	Pass	40.2	41.3	3
L2316775-10	SV-10	2059	6.0L Can	02/28/23	414961	L2308975-04	Pass	-29.7	-5.1	-	-	-	-

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L2308975
Report Date: 04/11/23

Air Canister Certification Results

Lab ID: L2308975-03
Client ID: CAN 3043 SHELF 41
Sample Location:

Date Collected: 02/20/23 10:00
Date Received: 02/20/23
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15
Analytical Date: 02/20/23 20:09
Analyst: JMB

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	--	ND	0.707	--		1
Propylene	ND	0.500	--	ND	0.861	--		1
Propane	ND	0.500	--	ND	0.902	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Methanol	ND	5.00	--	ND	6.55	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Butane	ND	0.200	--	ND	0.475	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Dichlorofluoromethane	ND	0.200	--	ND	0.842	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acrolein	ND	0.500	--	ND	1.15	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Acetonitrile	ND	0.200	--	ND	0.336	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
Pentane	ND	0.200	--	ND	0.590	--		1
Ethyl ether	ND	0.200	--	ND	0.606	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2308975
Report Date: 04/11/23

Air Canister Certification Results

Lab ID: L2308975-03
Client ID: CAN 3043 SHELF 41
Sample Location:

Date Collected: 02/20/23 10:00
Date Received: 02/20/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
Vinyl acetate	ND	1.00	--	ND	3.52	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
Xylenes, total	ND	0.600	--	ND	0.869	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
2,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
Diisopropyl ether	ND	0.200	--	ND	0.836	--		1
tert-Butyl Ethyl Ether	ND	0.200	--	ND	0.836	--		1
1,2-Dichloroethene (total)	ND	1.00	--	ND	1.00	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
1,1-Dichloropropene	ND	0.200	--	ND	0.908	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
tert-Amyl Methyl Ether	ND	0.200	--	ND	0.836	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2308975
Report Date: 04/11/23

Air Canister Certification Results

Lab ID: L2308975-03
Client ID: CAN 3043 SHELF 41
Sample Location:

Date Collected: 02/20/23 10:00
Date Received: 02/20/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Dibromomethane	ND	0.200	--	ND	1.42	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Methyl Methacrylate	ND	0.500	--	ND	2.05	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
1,3-Dichloropropane	ND	0.200	--	ND	0.924	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Butyl acetate	ND	0.500	--	ND	2.38	--		1
Octane	ND	0.200	--	ND	0.934	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
1,1,1,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2308975
Report Date: 04/11/23

Air Canister Certification Results

Lab ID: L2308975-03
Client ID: CAN 3043 SHELF 41
Sample Location:

Date Collected: 02/20/23 10:00
Date Received: 02/20/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
o-Xylene	ND	0.200	--	ND	0.869	--		1
1,2,3-Trichloropropane	ND	0.200	--	ND	1.21	--		1
Nonane	ND	0.200	--	ND	1.05	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
Bromobenzene	ND	0.200	--	ND	0.793	--		1
2-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
n-Propylbenzene	ND	0.200	--	ND	0.983	--		1
4-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
tert-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Decane	ND	0.200	--	ND	1.16	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2-Dibromo-3-chloropropane	ND	0.200	--	ND	1.93	--		1
Undecane	ND	0.200	--	ND	1.28	--		1
Dodecane	ND	0.200	--	ND	1.39	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Naphthalene	ND	0.200	--	ND	1.05	--		1
1,2,3-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2308975
Report Date: 04/11/23

Air Canister Certification Results

Lab ID: L2308975-03
Client ID: CAN 3043 SHELF 41
Sample Location:

Date Collected: 02/20/23 10:00
Date Received: 02/20/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								

	Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds					

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	98		60-140
Bromochloromethane	99		60-140
chlorobenzene-d5	97		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2308975
Report Date: 04/11/23

Air Canister Certification Results

Lab ID: L2308975-03
Client ID: CAN 3043 SHELF 41
Sample Location:

Date Collected: 02/20/23 10:00
Date Received: 02/20/23
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15-SIM
Analytical Date: 02/20/23 20:09
Analyst: JMB

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.050	--	ND	0.349	--		1
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
1,3-Butadiene	ND	0.020	--	ND	0.044	--		1
Bromomethane	ND	0.020	--	ND	0.078	--		1
Chloroethane	ND	0.100	--	ND	0.264	--		1
Acrolein	ND	0.050	--	ND	0.115	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Trichlorofluoromethane	ND	0.050	--	ND	0.281	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
Freon-113	ND	0.050	--	ND	0.383	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Benzene	ND	0.100	--	ND	0.319	--		1
Carbon tetrachloride	ND	0.020	--	ND	0.126	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2308975
Report Date: 04/11/23

Air Canister Certification Results

Lab ID: L2308975-03
Client ID: CAN 3043 SHELF 41
Sample Location:

Date Collected: 02/20/23 10:00
Date Received: 02/20/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
1,2-Dichloropropane	ND	0.020	--	ND	0.092	--		1
Bromodichloromethane	ND	0.020	--	ND	0.134	--		1
1,4-Dioxane	ND	0.100	--	ND	0.360	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
cis-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Toluene	ND	0.100	--	ND	0.377	--		1
Dibromochloromethane	ND	0.020	--	ND	0.170	--		1
1,2-Dibromoethane	ND	0.020	--	ND	0.154	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
1,1,1,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
Chlorobenzene	ND	0.100	--	ND	0.461	--		1
Ethylbenzene	ND	0.020	--	ND	0.087	--		1
p/m-Xylene	ND	0.040	--	ND	0.174	--		1
Bromoform	ND	0.020	--	ND	0.207	--		1
Styrene	ND	0.020	--	ND	0.085	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
o-Xylene	ND	0.020	--	ND	0.087	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
4-Ethyltoluene	ND	0.020	--	ND	0.098	--		1
1,3,5-Trimethybenzene	ND	0.020	--	ND	0.098	--		1
1,2,4-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
Benzyl chloride	ND	0.100	--	ND	0.518	--		1
1,3-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,4-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1

Project Name: BATCH CANISTER CERTIFICATION **Lab Number:** L2308975

Project Number: CANISTER QC BAT **Report Date:** 04/11/23

Air Canister Certification Results

Lab ID: L2308975-03
Client ID: CAN 3043 SHELF 41
Sample Location:

Date Collected: 02/20/23 10:00
Date Received: 02/20/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Naphthalene	ND	0.050	--	ND	0.262	--		1
1,2,3-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Hexachlorobutadiene	ND	0.050	--	ND	0.533	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	94		60-140
bromochloromethane	97		60-140
chlorobenzene-d5	95		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L2308975
Report Date: 04/11/23

Air Canister Certification Results

Lab ID: L2308975-04
Client ID: CAN 1983 SHELF 42
Sample Location:

Date Collected: 02/20/23 10:00
Date Received: 02/20/23
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15
Analytical Date: 02/20/23 20:48
Analyst: JMB

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	--	ND	0.707	--		1
Propylene	ND	0.500	--	ND	0.861	--		1
Propane	ND	0.500	--	ND	0.902	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Methanol	ND	5.00	--	ND	6.55	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Butane	ND	0.200	--	ND	0.475	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Dichlorofluoromethane	ND	0.200	--	ND	0.842	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acrolein	ND	0.500	--	ND	1.15	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Acetonitrile	ND	0.200	--	ND	0.336	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
Pentane	ND	0.200	--	ND	0.590	--		1
Ethyl ether	ND	0.200	--	ND	0.606	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1

Project Name: BATCH CANISTER CERTIFICATION **Lab Number:** L2308975

Project Number: CANISTER QC BAT **Report Date:** 04/11/23

Air Canister Certification Results

Lab ID: L2308975-04
Client ID: CAN 1983 SHELF 42
Sample Location:

Date Collected: 02/20/23 10:00
Date Received: 02/20/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
Vinyl acetate	ND	1.00	--	ND	3.52	--		1
Xylenes, total	ND	0.600	--	ND	0.869	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
2,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
Diisopropyl ether	ND	0.200	--	ND	0.836	--		1
tert-Butyl Ethyl Ether	ND	0.200	--	ND	0.836	--		1
1,2-Dichloroethene (total)	ND	1.00	--	ND	1.00	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
1,1-Dichloropropene	ND	0.200	--	ND	0.908	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
tert-Amyl Methyl Ether	ND	0.200	--	ND	0.836	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2308975
Report Date: 04/11/23

Air Canister Certification Results

Lab ID: L2308975-04
Client ID: CAN 1983 SHELF 42
Sample Location:

Date Collected: 02/20/23 10:00
Date Received: 02/20/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Dibromomethane	ND	0.200	--	ND	1.42	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Methyl Methacrylate	ND	0.500	--	ND	2.05	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
1,3-Dichloropropane	ND	0.200	--	ND	0.924	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Butyl acetate	ND	0.500	--	ND	2.38	--		1
Octane	ND	0.200	--	ND	0.934	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
1,1,1,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2308975
Report Date: 04/11/23

Air Canister Certification Results

Lab ID: L2308975-04
Client ID: CAN 1983 SHELF 42
Sample Location:

Date Collected: 02/20/23 10:00
Date Received: 02/20/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
o-Xylene	ND	0.200	--	ND	0.869	--		1
1,2,3-Trichloropropane	ND	0.200	--	ND	1.21	--		1
Nonane	ND	0.200	--	ND	1.05	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
Bromobenzene	ND	0.200	--	ND	0.793	--		1
2-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
n-Propylbenzene	ND	0.200	--	ND	0.983	--		1
4-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
tert-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Decane	ND	0.200	--	ND	1.16	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2-Dibromo-3-chloropropane	ND	0.200	--	ND	1.93	--		1
Undecane	ND	0.200	--	ND	1.28	--		1
Dodecane	ND	0.200	--	ND	1.39	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Naphthalene	ND	0.200	--	ND	1.05	--		1
1,2,3-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2308975
Report Date: 04/11/23

Air Canister Certification Results

Lab ID: L2308975-04
Client ID: CAN 1983 SHELF 42
Sample Location:

Date Collected: 02/20/23 10:00
Date Received: 02/20/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								

	Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds					

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	97		60-140
Bromochloromethane	99		60-140
chlorobenzene-d5	96		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L2308975
Report Date: 04/11/23

Air Canister Certification Results

Lab ID: L2308975-04
Client ID: CAN 1983 SHELF 42
Sample Location:

Date Collected: 02/20/23 10:00
Date Received: 02/20/23
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15-SIM
Analytical Date: 02/20/23 20:48
Analyst: JMB

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.050	--	ND	0.349	--		1
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
1,3-Butadiene	ND	0.020	--	ND	0.044	--		1
Bromomethane	ND	0.020	--	ND	0.078	--		1
Chloroethane	ND	0.100	--	ND	0.264	--		1
Acrolein	ND	0.050	--	ND	0.115	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Trichlorofluoromethane	ND	0.050	--	ND	0.281	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
Freon-113	ND	0.050	--	ND	0.383	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Benzene	ND	0.100	--	ND	0.319	--		1
Carbon tetrachloride	ND	0.020	--	ND	0.126	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2308975
Report Date: 04/11/23

Air Canister Certification Results

Lab ID: L2308975-04
Client ID: CAN 1983 SHELF 42
Sample Location:

Date Collected: 02/20/23 10:00
Date Received: 02/20/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
1,2-Dichloropropane	ND	0.020	--	ND	0.092	--		1
Bromodichloromethane	ND	0.020	--	ND	0.134	--		1
1,4-Dioxane	ND	0.100	--	ND	0.360	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
cis-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Toluene	ND	0.100	--	ND	0.377	--		1
Dibromochloromethane	ND	0.020	--	ND	0.170	--		1
1,2-Dibromoethane	ND	0.020	--	ND	0.154	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
1,1,1,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
Chlorobenzene	ND	0.100	--	ND	0.461	--		1
Ethylbenzene	ND	0.020	--	ND	0.087	--		1
p/m-Xylene	ND	0.040	--	ND	0.174	--		1
Bromoform	ND	0.020	--	ND	0.207	--		1
Styrene	ND	0.020	--	ND	0.085	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
o-Xylene	ND	0.020	--	ND	0.087	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
4-Ethyltoluene	ND	0.020	--	ND	0.098	--		1
1,3,5-Trimethybenzene	ND	0.020	--	ND	0.098	--		1
1,2,4-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
Benzyl chloride	ND	0.100	--	ND	0.518	--		1
1,3-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,4-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1

Project Name: BATCH CANISTER CERTIFICATION **Lab Number:** L2308975

Project Number: CANISTER QC BAT **Report Date:** 04/11/23

Air Canister Certification Results

Lab ID: L2308975-04
Client ID: CAN 1983 SHELF 42
Sample Location:

Date Collected: 02/20/23 10:00
Date Received: 02/20/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Naphthalene	ND	0.050	--	ND	0.262	--		1
1,2,3-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Hexachlorobutadiene	ND	0.050	--	ND	0.533	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	93		60-140
bromochloromethane	97		60-140
chlorobenzene-d5	94		60-140

Project Name: ST. JOSEPH
Project Number: 26518.05

Lab Number: L2316775
Report Date: 04/11/23

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
NA	Present/Intact

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2316775-01A	Canister - 6 Liter	NA	NA			Y	Absent		TO15-LL(30)
L2316775-02A	Canister - 6 Liter	NA	NA			Y	Absent		TO15-LL(30)
L2316775-03A	Canister - 6 Liter	NA	NA			Y	Absent		TO15-LL(30)
L2316775-04A	Canister - 6 Liter	NA	NA			Y	Absent		TO15-LL(30)
L2316775-05A	Canister - 6 Liter	NA	NA			Y	Absent		TO15-LL(30)
L2316775-06A	Canister - 6 Liter	NA	NA			Y	Absent		TO15-LL(30)
L2316775-07A	Canister - 6 Liter	NA	NA			Y	Absent		TO15-LL(30)
L2316775-08A	Canister - 6 Liter	NA	NA			Y	Absent		TO15-LL(30)
L2316775-09A	Canister - 6 Liter	NA	NA			Y	Absent		TO15-LL(30)
L2316775-10A	Canister - 6 Liter	NA	NA			Y	Absent		TO15-LL(30)

*Values in parentheses indicate holding time in days

Project Name:	ST. JOSEPH	**Lab Number:**	L2316775
Project Number:	26518.05	**Report Date:**	04/11/23

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

NR - No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: Data Usability Report

Project Name:	ST. JOSEPH	**Lab Number:**	L2316775
Project Number:	26518.05	**Report Date:**	04/11/23

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

Report Format: Data Usability Report

Project Name:	ST. JOSEPH	**Lab Number:**	L2316775
Project Number:	26518.05	**Report Date:**	04/11/23

Data Qualifiers

ND - Not detected at the reporting limit (RL) for the sample.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: Data Usability Report

REFERENCES

48 Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air. Second Edition. EPA/625/R-96/010b, January 1999.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

AIR ANALYSIS

ALPHA ANALYTICAL — CHAIN OF CUSTODY

PAGE 1 OF 1

320 Forbes Blvd, Mansfield, MA 02048
TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 3/31/23

ALPHA Job #: L2316775

Client Information

Client: VHB
Address: One Penn Plaza, Suite 715
New York, NY 10119
Phone: 212-857-7350
Fax:
Email: GLester@VHB.com
IMielczarek@VHB.com
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: St. Joseph
Project Location: 484 E. 178th Street Bronx NY
Project #: 26518.05
Project Manager: Isabel Mielczarek
ALPHA Quote #:

Turn-Around Time

☑ Standard ☐ RUSH (only confirmed if pre-approved)
Date Due: Time:

Report Information - Data Deliverables

☐ FAX
☐ ADEx
Criteria Checker:
(Default based on Regulatory Criteria Indicated)
Other Formats:
☐ EMAIL (standard pdf report)
☐ Additional Deliverables:
Report to: (if different than Project Manager)

Billing Information

☑ Same as Client info PO #: 26518.05

Regulatory Requirements/Report Limits

State/Fed	Program	Res / Comm

Other Project Specific Requirements/Comments: Two Blue Crates.

Project-Specific Target Compound List: ☐

All Columns Below Must Be Filled Out

ALPHA Lab ID (Lab Use Only)	Sample ID	COLLECTION End Date	Start Time	End Time	Initial Vacuum	Final Vacuum	Sample Matrix*	Sampler's Initials	Can Size	ID Can	ID - Flow Controller	ANALYSIS TO-15	TO-15 SIM	APH (Subtract Non-petroleum HCs ☐)	Fixed Gases	Sulfides & Mercaptans by TO-15	Sample Comments (i.e. PID)
16775-01	SV-1	3/30/23	9:22	10:51	-30.80	-5.35	SV	JL	6L	3153	01949	1					
-02	SV-2		9:31	11:02	-30.53	-5.63	SV	JL	6L	1661	0141	1					
-03	SV-3		10:05	11:49	-31.72	-5.64	SV	JL	6L	941	0257	1					
-04	SV-4		10:30	12:20	-30.80	-5.96	SV	JL	6L	2779	01692	1					
-05	SV-5		11:26	12:42	-30.70	-6.42	SV	JL	6L	2801	0822	1					
-06	SV-6		14:06	16:03	-30.54	-5.78	SV	JL	6L	3598	01547	1					
-07	SV-7		12:30	14:13	-30.80	-5.94	SV	JL	6L	2659	0490	1					
-08	SV-8		12:24	14:28	-30.43	-7.63	SV	JL	6L	687	02105	1					
-09	SV-9		12:40	14:37	-30.75	-5.70	SV	JL	6L	3329	01518	1					
-10	SV-10		13:36	15:31	-30.63	-5.20	SV	JL	6L	2059	01331	1					

*SAMPLE MATRIX CODES
AA = Ambient Air (Indoor/Outdoor)
SV = Soil Vapor/Landfill Gas/SVE
Other = Please Specify

Container Type: 6Lmm

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

Relinquished By:	Date/Time	Received By:	Date/Time:
(VHB)	03-30-23/16:22	SSMI	3/30/23 16:23
SSMI	3-30-23 18:03 (405)		3-30-23 2100
(405)	3-30-23 0030		3-31-23 0030
	3-31-23 0435		3/31/23 04:35

Form No: 101-02 Rev: (25-Sep-15)

PILLORI ASSOCIATES, P.A.
Geotechnical Engineering

GEOTECHNICAL INVESTIGATION REPORT

1949 Bathgate Avenue
Bronx, New York

Prepared For:

St. Joseph Apartments LLC
C/o: Association of New York Catholic Homes
80 Maiden Lane, 13th Floor
New York, New York 10038

Prepared By:

Pillori Associates, P.A.
333 Meadowlands Pkwy, Suite 102
Secaucus, New Jersey 07094

May 2021
Project # 201108

PILLORI ASSOCIATES, P.A.
Geotechnical Engineering

May 3, 2021
Email: Susan.Albrecht@archny.org

St. Joseph Apartments LLC
C/o: Association of New York Catholic Homes
80 Maiden Lane, 13th Floor
New York, NY 10038

Attn: Susan Albrecht

Re: Geotechnical Investigation Report
1949 Bathgate Avenue, Bronx, NY

Madam:

Presented herein is the geotechnical investigation report for the referenced project. We are confident that the subsurface information and engineering recommendations contained herein will meet the needs of the project. Thank you for the opportunity to be of service. Please call if you have any questions or if we can be of further assistance.

Sincerely,

Gregory Pillori

Pillori Associates, PA

71 Route 35, Laurence Harbor, NJ 08879 • Tel: (732) 335-0059 • Fax: (732) 335-8515
333 Meadowlands Pkwy, Suite 102, Secaucus, NJ 07094 • Tel: (201) 558-0065 • Fax: (201) 558-1427
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Boring Logs — B-1 thru B-10
Rock Probes — RP-1 thru RP-26
Test Pit Logs — TP-1 thru TP-2
Soil Classification Chart

Introduction

Presented herein are the results of the geotechnical investigation conducted for the proposed development at 1949 Bathgate Avenue, Bronx, New York. The geotechnical investigation was performed in accordance with our proposal dated January 28, 2021. The purpose of the investigation was to identify the subsurface soil/rock and groundwater conditions in order to determine the relative soil parameters for the design and construction of new foundations and related earthwork.

Project Description

The project site is located on the southeast corner of Washington Avenue and East 178th Street, Bronx, New York, as shown on the nearby Site Vicinity Map, Figure 1. Currently, the site is vacant. City streets along the northern, western and eastern property lines bound the project site.

The proposed development includes a new 10-story building with a cellar and subcellar below street grade. The new building will occupy a base footprint of approximately 25,000 square feet.

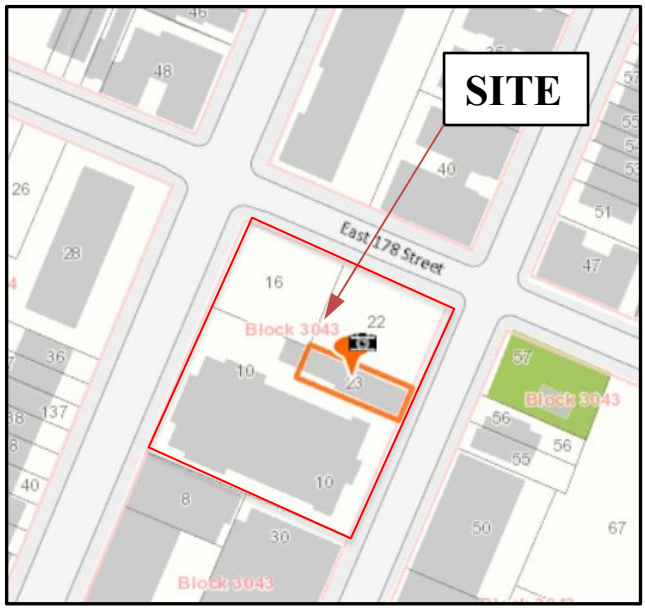


Figure 1 - Site Vicinity Map

Geotechnical Investigation

The geotechnical investigation consisted of excavating two exploratory test pits (TP-1 through TP-2), drilling ten exploratory soil borings (B-1 through B-10) and drilling twenty-six exploratory rock probes (RP-1 through RP-26). PG Environmental Services, Inc performed all geotechnical explorations between the dates of March 10 and March 24, 2021.

Borings

Borings B-1, B-2, B-4, B-6W, B-8, B-9 and B-10 were advanced 5 feet into competent bedrock at completion elevation ranging between EL. 41.46+/- and EL. 60.68+/- (NAVD 88). Standard Penetration Tests (SPTs) were performed within the overburden soils at regular 5-foot intervals in accordance with procedures specified in ASTM D1586. The underlying bedrock was core drilled using a double tube core barrel in accordance with ASTM D2113. Boring B-3, B-5 and B-7 were advanced to top of rock using SPT sampling to confirm the thickness of the overburden soil and the depth to refusal on top of rock. The underlying bedrock was not core drilled in these three boings. A

groundwater observation well consisting of 1-1/4" PVC riser pipe and well screen was installed in the completed boring B-6W.

Rock Probes

Rock probes, RP-1 through RP-17 and RP-22 through RP-24, which were located on relatively flat and truck accessible areas of the site, were advanced using a track mounted drill rig employing rotary drilling techniques; however, rock probes RP-18 through RP-21, RP-25 and RP-26, were advanced using portable drilling equipment employing a chop-n-wash drilling technique. The portable drilling equipment was able to access the elevated area at the northeast corner of the site, which was walled off from the streets and the remainder of the site. No soil or rock sampling was performed in the rock probes.

Test Pits

Both test pits, TP-1 and TP-2 were excavated against the north wall of the neighboring 4-story building located on Washington Avenue to the south of the site. The test pits were excavated to explore the depth, size and type of the neighboring foundations along with the shallow bearing soil/rock conditions. Cross-sections showing the exposed foundation configurations are shown on the test pit logs attached to this report.

Special Inspection

Full-time special inspection was provided by Pillori Associates to locate the explorations in the field, direct drilling and sampling activities, and maintain continuous logs of the explorations. Soil/rock types observed in the borings were visually classified according to the Unified Soil Classification System (USCS) and the New York City Building Code (NYCBC). The boring, probe and test pit locations are shown on the Boring and Probe Location Plan, Drawing No. 1, attached to this report.

At the conclusion of the investigation program, the soil and rock samples were delivered to our soil laboratory for re-examination and further classification. The individual sample classifications were combined according to soil group and geologic origin, and their descriptions were recorded on finalized logs. The final logs of the borings and soil/rock profiles, Section A-A, Section B-B, Section C-C, and Section D-D illustrating the stratigraphy encountered in the borings and rock probes are attached to this report along with the Unified Soils Classification System chart.

Stratigraphy

In general, the subsurface conditions consisted of a surface layer of miscellaneous fill, overlying glacial till/Decomposed Rock, which in turn was underlain by competent Inwood Marble/Granitic Gneiss bedrock. Detailed descriptions of the subsurface stratigraphy encountered in the borings are presented on boring logs attached to this report. Generalized descriptions are presented below in order of increasing depth.

Fill (F): A miscellaneous fill layer was encountered just below the existing grade/concrete pavement. The fill was a heterogeneous mixture of sand, silt and gravel with brick, stone and concrete fragments and miscellaneous debris. The fill depth ranged from 4'-3" to 14'-0" below the existing grade and was loose to medium compact in terms of relative density. The fill was classified as nominally unsatisfactory bearing material, Class 7, in accordance with the NYCBC.

Glacial Till: Glacial till was encountered beneath the fill layer in in borings B-9 and B-10. The glacial till was very compact in terms of relative density and was classified as SW, Class 3a material, in accordance with USCS and NYCBC, respectively.

Decomposed Rock (DR): Decomposed rock derived from complete weathering of the underlying parent bedrock was encountered beneath the fill and glacial till in all borings. The thickness of this layer varied from 0.5 to 3 feet. The decomposed rock maintained the fabric and structure of the parent bedrock but was typically weak and could be broken with moderate hand pressure. The decomposed rock was classified as, Class 1d material, in accordance with the NYCBC.

Inwood Marble/Granitic Gneiss Bedrock (R): Competent Inwood Marble and Granitic Gneiss bedrock was encountered beneath the decomposed rock. The top of rock elevations varied widely across the site, from a high point at about Elevation 83.96 at the northeast corner of the site to about Elevation 46.46 at the southwest corner of the site. The rock core samples possessed recovery values (REC) ranging from 20% to 100% and rock quality designation values (RQD) ranging from 13.3 to 71.67%. In general, the bedrock samples were medium hard, slightly to moderately weathered, and closely to widely jointed, and were classified as "Medium Hard Rock" or "Intermediate Rock," Classes 1b and 1c material, in accordance with NYCBC.

Groundwater: Groundwater was measured in the groundwater observation well installed in boring, B-6W at a depth of 11'-6", or elevation 59.54+/- (NAVD 88). We anticipate that groundwater levels across the site will vary with the underlying bedrock elevations, and may be as high as about 3 to 4 feet above the decomposed rock.

Existing Foundations

Two test pits (TP-1 and TP-2) were located along the south property line, adjacent to the 4-story brick neighboring building at 1932 Washington Ave. The bottom of the foundation wall in TP-1 was observed bearing on Inwood Marble bedrock at Elevation 59.9, while the bottom of the foundation wall in TP-2 was obstructed from view by a remnant foundation wall on the project side of the property line, but was assumed to be founded at the same elevation as the remnant wall, at Elevation 47.2. Since the neighboring building, 1925 Bathgate Ave, was offset 7-foot from the property line, test pits TP-3 and TP-4 were canceled, because permission was not granted to enter the neighboring property.

Seismic Evaluation and Criteria

The proposed structure must be designed in accordance with all applicable New York City Building Code seismic design criteria. The site classes are based on the average soil/rock properties in the upper 100 feet. The soils and rock encountered in the borings most closely resembles a "Hard Rock Profile," Site Class A, provided the new building foundations bear on bedrock or within 10 feet of the top of bedrock. The profile is based on Table 1613.5.2 of the NYCBC. Peak accelerations may be estimated using Tables 1813.2.1 and values for the site coefficients Fa and Fv may be estimated using Tables 1613.5.3(1) and 1613.5.3(2), respectively. The building code requires an evaluation of the liquefaction potential of non-cohesive soils below the groundwater table and to a depth of 50 feet below the ground surface. The soil underlying the site was classified as "Liquefaction Evaluation Not Required" in accordance with Figure 1813.1 of the NYCBC.

Geotechnical Engineering Evaluation

Suitable bearing soil and/or bedrock was found beneath the surface fill across the entire site, making conventional shallow footings or mat foundations feasible. Depending on depth of the cellar and the location on the site, typical excavations for the new cellar will extend through the surface fill, stopping on either the underlining glacial soil, decomposed rock or sound bedrock. Groundwater was measured at elevation of 59.54+/- in boring B-6W located at the north side of the site, but in all likelihood will probably be encountered at or slightly above bedrock elevations across the site. Because the natural soils and bedrock are relatively impermeable, localized dewatering may be required during excavation. We believe that localized dewatering can be accomplished by pumping from drywells or sump pits located in wet areas found on the site.

The dense glacial soil possessed an allowable bearing capacity of 6 tons per square foot (tsf), whereas underlying decomposed rock and sound rock possessed allowable bearing pressures of 8 tsf and 20 tsf, respectively. Considering the proposed cellar and sub-cellar slab elevations shown on the proposed Boring and Test Pit Location Plan provided for our evaluation, substantial rock removal will be required over the northern ¾ of the building footprint while little or no rock removal will be required at the southern ¼ of the footprint. Typically, about 5 feet of rock removal will be required over most of the northern footprint, with as much as 20 feet of rock removal required on the high spot, at the northwest corner of the property. Conversely, excavations for footing subgrades at the southern end of the building footprint will remain above bedrock elevations, stopping on either compact glacial soil or decomposed rock. As such, all three allowable bearing capacities would be feasible; however, for design purposes we suggest simplifying the allowable bearing capacities to 6 tsf for glacial soil and decomposed rock, and 20 tsf for medium hard or intermediate rock. Adjustments to the actual footing bearing pressures, if required, can be made in the field by the special inspector.

Given the soil and rock conditions encountered during the investigation, conventional shallow foundations (spread/strip footings) appear as the most suitable foundation

solution for the proposed 10-story structure; however, full or partial mat foundations may also prove desirable if substantial dewatering and/or waterproofing systems are required to maintain dry conditions within cellar or sub-cellar spaces.

Where foundation excavations extend below the top of bedrock, the slabs or mat foundations, and all exterior foundation walls should be waterproofed and designed for the full hydrostatic pressure. Alternately, a blanket drain (constructed in accordance with the recommendations below) can be installed to remove hydrostatic pressure from under the cellar slabs or mat foundations; however, the exterior foundation walls should be designed for a minimum hydrostatic pressure equivalent to a height of 2-feet above the surrounding bedrock elevation. As a failsafe, envelope waterproofing should be provided for all ground supported slabs and exterior walls to prevent seepage and humid conditions within below ground spaces.

Engineering Recommendations

Conventional Shallow Foundations

Bedrock was encountered at the proposed cellar and sub-cellar elevations across most of the site, except at the southern end of the building footprint. Footings bearing on intermediate rock or medium hard rock can be proportioned for allowable bearing pressures of 20 or 40 tons per square foot (tsf); however, because of the rock's inherent variability, we recommend that all the footings be designed for an average bearing pressure of 20 tsf. If warranted, the geotechnical engineer performing the special inspections of the footing subgrades can upgrade or downgrade the rock at the footing subgrades and recommend a higher or lower allowable bearing pressure.

Footings at the southern end of the building footprint can be brought to bear on compact glacial soil or decomposed rock, whichever is first encountered at the bottom of the surface fill layer. To avoid confusion, the footings be design for a uniform allowable bearing capacity of 6 tsf.

All foundations should be designed and constructed in accordance with Section 1804 of the New York City Building Code. The following table provides a summary of the parameters for the foundation design and excavation support.

Table 1 – Design Criteria

Allowable Bearing Pressure – Bedrock	20 tsf
Allowable Bearing Pressure – Decomposed Bedrock/Glacial Soil	6 tsf
Equivalent Fluid Pressure – Below Top of Rock (γK_O)	20 psf + hydrostatic
Equivalent Fluid Pressure – Above Top of Rock (γ)	55 psf

Prior to placement of reinforcing steel, the footing subgrades should be thoroughly cleaned of loose soil and rock, mud, debris and all other deleterious material. An engineer

licensed in the State of New York should inspect the prepared subgrade. Foundation settlements will be negligible for footings bearing on the rock.

Tiedown Anchors

If large uplift forces are anticipated, the loads can be resisted using double corrosion protected tiedown anchors. Typically, tiedown anchors are installed and secured to column or wall footings bearing directly on bedrock. Tiedown anchors are capable of a wide range of capacities (50 to 150 kips) and can be installed with conventional drilling equipment. A licensed professional engineer should design, test and approve each anchor in accordance with recognized criteria.

Exterior Foundation Walls and Cellar Floor Slab

Because of the rock's low permeability, water will tend to collect behind the exterior foundation walls during periods of prolonged rain. In order to eliminate hydrostatic pressure, the exterior foundation walls should be backfilled with clean crushed stone to allow vertical drainage. The stone layer should be a minimum of 2-feet in width. If the overcut is insufficient for a 2-foot drainage layer or if one-sided foundation walls are constructed, we recommend installing drainage material such as JDR J-Drain or Mirafi Miradrain for vertical drainage. A collector pipe should be installed at the bottom of the footing to convey the water to an interior sump pit(s) for removal from the building. If sufficient space isn't available for installation of collector pipes, then weep holes can be provided through base of the foundation walls, below the level of the cellar slab. The walls should be waterproofed to prevent dampness from penetrating to the inside face of the wall. The drainage layer and waterproofing should extend the full height of the foundation walls.

Groundwater will also tend to collect under the cellar slab. Here again, to eliminate hydrostatic pressure, we recommend installing a drainage layer beneath the cellar slab, consisting of a minimum of ¾-inch crushed stone with 4-inch diameter perforated PVC pipes pitched to convey water to a sand trap and sump pit system located below the slab or mat foundation. A continuous waterproofing membrane should be placed between the drainage layer and the concrete slab. Alternatively, the cellar slab can be designed for a hydrostatic pressure equivalent to the height of bedrock with a continuous waterproofing membrane.

Rock Removal

Conventional excavation equipment may be able to penetrate the decomposed rock and 1 or 2 feet into the underlying intermediate and hard rock; however, deeper excavations will require chipping, and/or drilling and splitting. Line drilling will be needed to control breakout along the open excavation lines, whereas channel drilling may be required adjacent to existing structures.

Line drilling consists of 2-inch or 3-inch diameter holes spaced no further than 12 inches apart (center to center). Channel drilling consists of the same 2-inch or 3-inch diameter holes, but the holes are spaced adjacent to each other. Drilling with guides or placement of steel pipes inside completed holes will be required to keep the drill bit vertical while drilling adjacent to completed holes. The holes should not deviate more than 2-inches out of plumb. If excessive bit wonder is encountered, then the successive line/channel drilling should be performed at incremental lifts or excavation depths. Relief holes may also be required to increase rock removal production. The relief holes can be drilled on a 4-foot by 4-foot staggered grid throughout selected areas of hard or difficult to remove bedrock.

Excavation Support

Temporary support of excavation (SOE) walls may be required along the street lines and along open lot lines where bedrock drops below 4 feet from grade. Because the bedrock is shallow, either concrete piers and timber lagging or drilled soldier piles and timber lagging can be used for the temporary SOE walls above the bedrock. The temporary SOE walls should be designed to withstand the appropriate lateral earth and surcharge pressures. Where required, tiebacks or internal braces can be used to laterally support the SOE walls. The temporary SOE walls should be designed for a maximum deflection of 1-inch along open lot lines and 0.5-inches adjacent to the sidewalks, roadways and underground utilities. Periodic optical survey measurements should be performed on the SOE walls to monitor the structural deflections and potential ground movements.

Above the bedrock, temporary shallow excavations with vertical sides less than 4 feet high will generally be stable, although a potential for sloughing within loose fill layers may be evident. Temporary excavation sides greater than 4 feet in depth may be sloped back at an inclination of 1.5:1 (horizontal to vertical). Some erosion or unraveling of surface soils exposed to weather should be anticipated. All applicable safety requirements and regulations, including OSHA requirements, should be met.

Dewatering

Excavations that reach or extend below the measured groundwater level will quickly destabilize, consequently, dewatering must be accomplished prior to excavating below the groundwater level on the site. As a result, we recommend that a dewatering system be designed and installed before any excavation proceeds below the measured groundwater level on the site. The dewatering probably can be accomplished by pumping from deep sumps or well points installed throughout the cellar footprints and should be maintained until sufficient building weight is constructed to resist uplift forces.

Interior Backfill

All compact fill and backfill placed beneath the floor slabs and against foundation walls, and used for backfilling utility trenches should be performed in a controlled manner using the select fill, free of organic matter and debris. The fill material should be placed in 8-inch loose lifts and compacted to 95% of the maximum dry density as determined ASTM

D1557. Compaction can be performed using walk-behind-vibratory plate, vibratory roller, or "jumping jack" type compactors. Lift thickness may be increased to 12 inches for larger compaction equipment. The imported fill material should conform to the gradation requirements for Select Fill presented in Table 2 below. The material should be sampled, tested and approved prior to use on the site.

Underpinning

We understand that the footing elevations for the proposed building are intended to match the neighboring footing elevations so as to avoid underpinning. However, if underpinning is required, we recommend that all underpinning be performed within lagged pits constructed in such a manner as to prevent ground loss and soil migration. The individual underpinning pits should be three to four feet wide and should extend to the top of bedrock or at least one foot below the bottom of the planned excavations. The concrete pour should be held 3 inches below the bottom of the existing footings to allow space for inserting steel plates and wedges to transfer the foundation loads. After the foundation loads are transferred, the 3-inch gap can be filled with dry pack concrete. The pits should be excavated in an alternating sequence, in which, every fourth pit is completed prior to beginning a new sequence. The sequence should then be repeated until the entire lengths of the existing foundations are continuously supported on the new concrete underpinning. Once each underpinning pit is completed, the approach pits should be backfilled to above the original foundation level. After all the underpinning pits are completed and backfilled, staged excavation inside can commence allowing for installation of braces and/or tieback soil anchors.

Underpinning and Support of Excavation drawings should be signed and sealed by a professional engineer licensed in the State of New York. Also, the professional engineer should inspect the actual underpinning work in accordance with the NYCBC.

Exterior Earthwork for Pavement Support

The existing fill in its current condition is unsuitable for the support of exterior paved surfaces. As an alternate to total removal and replacement with imported controlled fill, a ground improvement program is recommended to consolidate the otherwise unstable fill and to minimize the potential for ground loss or soil migration within the surface fill layer on the site.

In general, the ground improvement program should consist of excavating to a nominal depth of 36 inches below existing grade. Remnant building foundations encountered in the excavation should be demolished to the same depths. The resulting subgrades should be thoroughly compacted using a heavy vibratory roller (10-ton dead weight) making a minimum of 10 passes. The roller passes should crisscross and overlap to promote maximum knitting of the underlying material. In areas too narrow for large compaction equipment, smaller walk-behind vibratory rollers or jumping jack type compactors may be used provided a sufficient number of passes are made to gain the appearance and hardness of the subgrades compacted using larger, heavy compaction equipment. The

prepared subgrades should be inspected and approved by a New York State licensed professional engineer.

Once approved, additional fill can be placed to raise grade. The fill should comply with the gradation requirements present in Table 2 below. The material should be placed in 12-inch lifts and compacted to 95% of the maximum dry density as determined by ASTM D1557. Each lift should be tested and approved prior to placing successive lifts. The final subgrade preparation should consist of placing and compacting a 4-inch layer of ¾-inch crushed stone.

Underground utilities can be installed and backfilled once the subgrades are approved. The backfill should be placed and compacted in accordance with utility pipe manufacturer recommendations and industry standards.

Table 2 – Select Fill

Sieve Size	Percent Passing
1”	100
3/4”	100 - 80
No.4	80 - 60
No. 40	60 - 30
No. 200	0 - 12

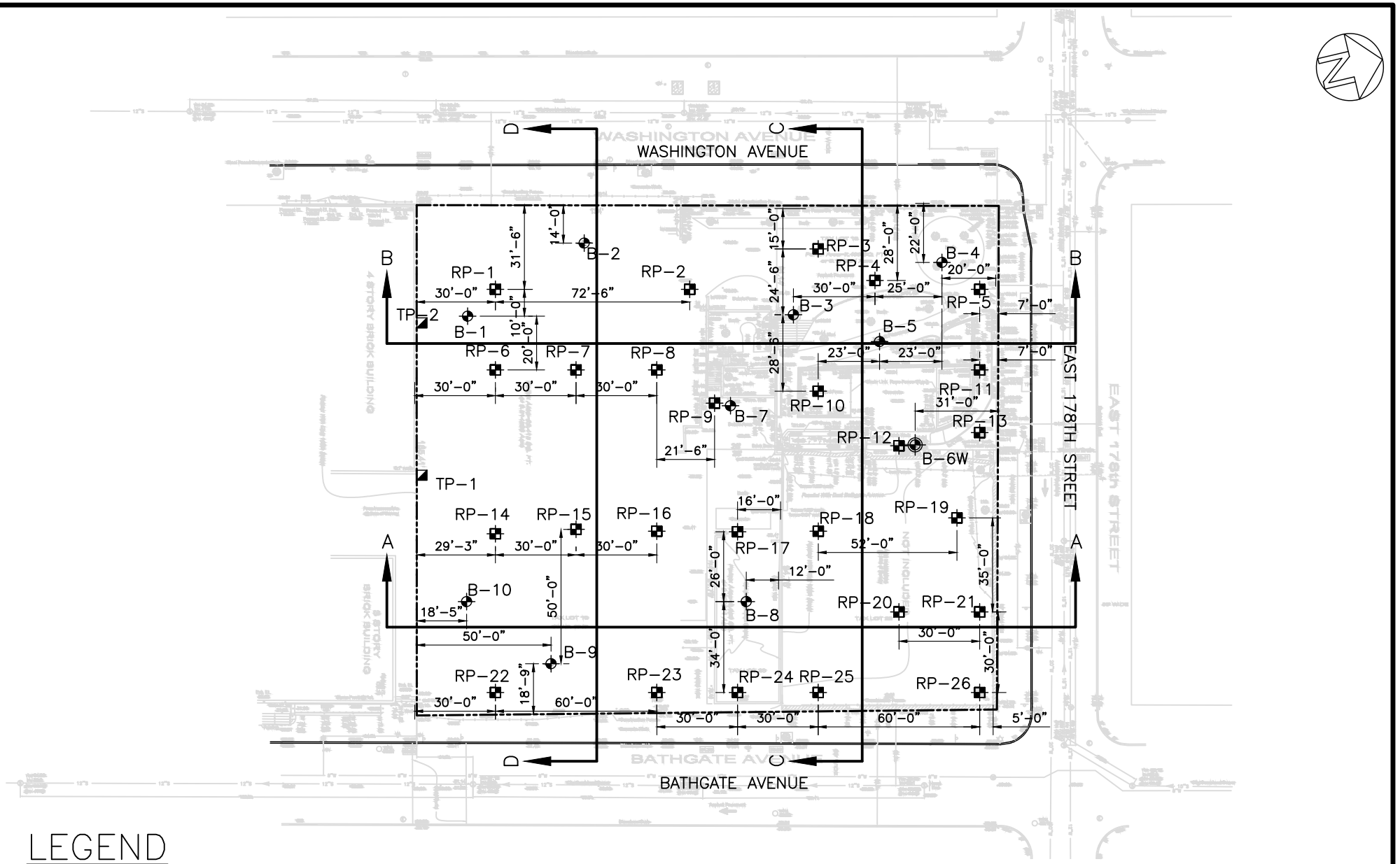
Protection of Adjacent Structure

We strongly recommend that a pre-construction survey be conducted for the neighboring buildings adjacent to the site. The survey should be completed prior to construction. Each building should be inspected and photographed, inside and out, to record existing conditions. In addition, crack monitors should be installed on all visible cracks greater than 1/16 inches.

Vibration and optical survey monitoring programs should be implemented to record potential ground movements of the neighboring buildings. The monitoring program should be initiated prior to the start of construction, and periodic readings be taken during construction. Any landmark buildings located within 90 feet of the site must be monitored in accordance with TPPN 10/88.

Closure

This report presents the results of the geotechnical investigation performed at 1949 Bathgate Avenue, Bronx, New York. This report is not a bid document, and any contractor reviewing this report must draw his own conclusions regarding specific construction techniques to be used on this project.



LEGEND

B-1	BORING LOCATION
B-6W	BORING LOCATION WITH WELL
RP-1	ROCK PROBE LOCATION
TP-1	TEST PIT LOCATION

SCALE: 1" = 50'

Title:
BORING & PROBE LOCATION PLAN

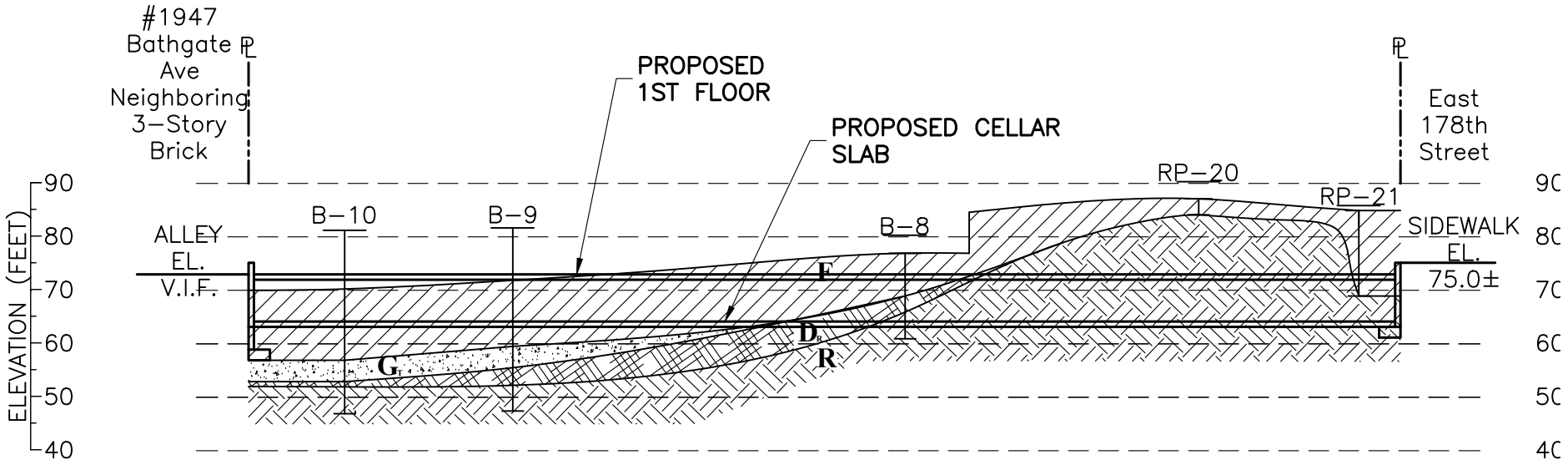
Project: 1949 BATHGATE AVE
BRONX, NEW YORK

PILLORI ASSOCIATES, P.A.
Geotechnical Engineering
71 Route 35, Laurence Harbor, NJ 08879
333 Meadowlands Parkway, Suite 102
Secaucus, NJ 07094

Date: 04/30/2021

Job No.: 201108

Dwg No. 1



SUBSURFACE SECTION A–A

LEGEND

- F — FILL
- G_T — GLACIAL TILL
- D_R — DECOMPOSED ROCK
- R — INWOOD MARBLE/ GRANITIC GNEISS BEDROCK

0' 10' 20' 30' 60'

Title: SUBSURFACE SECTION A–A

Project: 1949 BATHGATE AVE
BRONX, NEW YORK

PILLORI ASSOCIATES, P.A.
Geotechnical Engineering
71 Route 35, Laurence Harbor, NJ 08879
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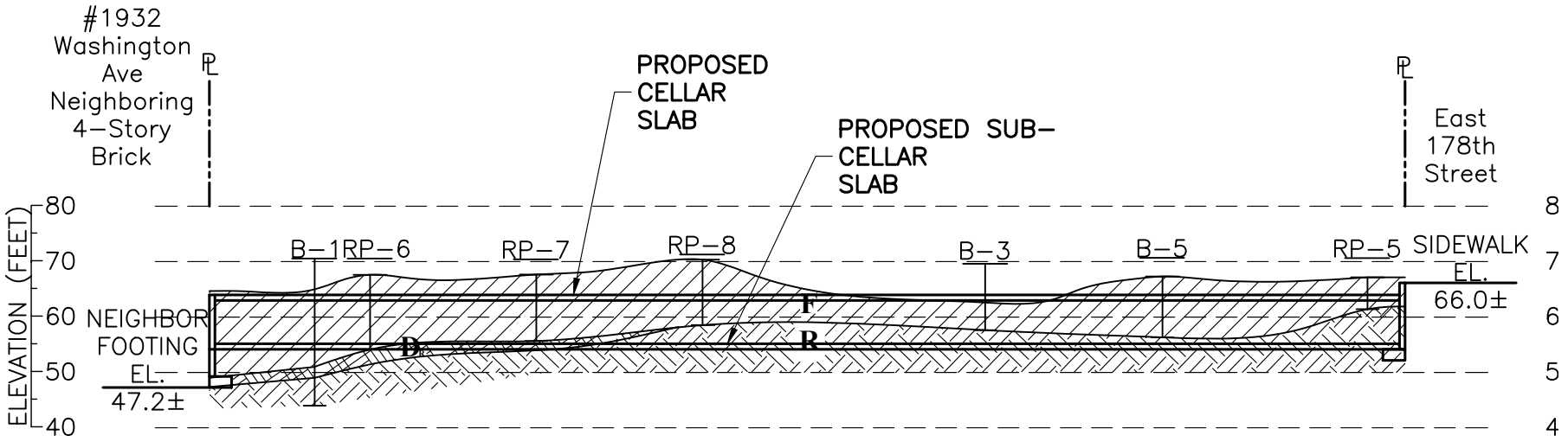
Secaucus, NJ 07094

Date: 04/01/2021

Job No.: 201108

Dwg No. 2



SUBSURFACE SECTION B–B

LEGEND

F — FILL

D — DECOMPOSED ROCK

R — INWOOD MARBLE/ GRANITIC GNEISS BEDROCK

0' 10' 20' 30' 60'

Title: SUBSURFACE SECTION B–B

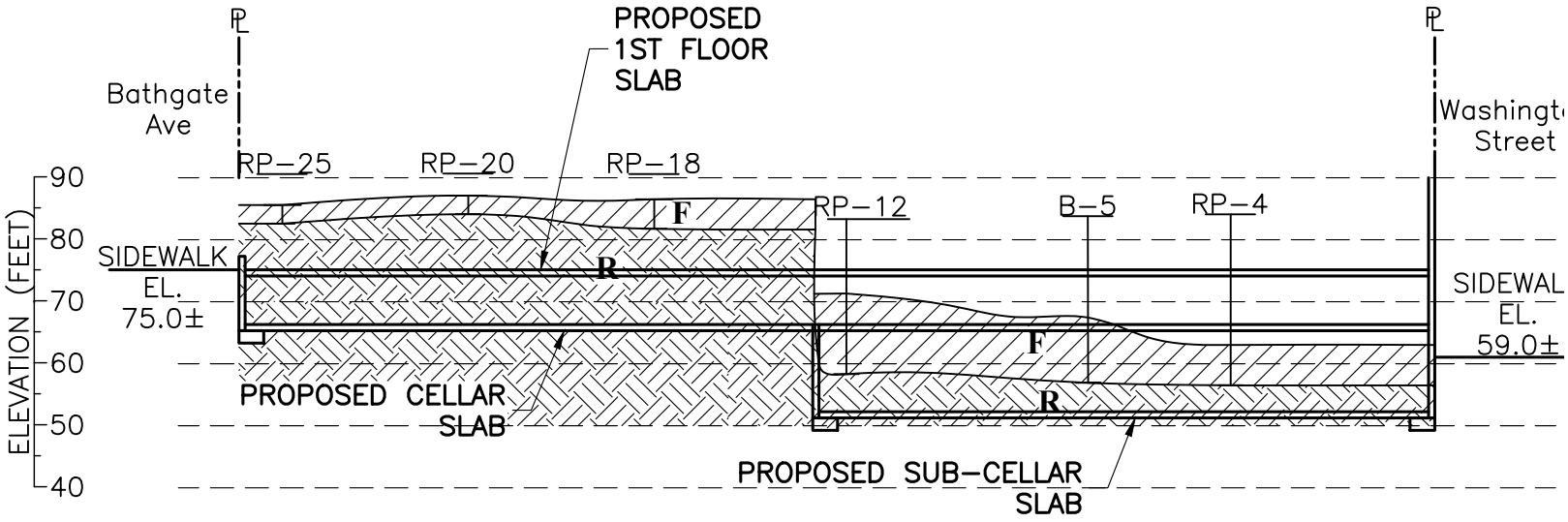
Project: 1949 BATHGATE AVE
BRONX, NEW YORK

PILLORI ASSOCIATES, P.A.
Geotechnical Engineering
71 Route 35, Laurence Harbor, NJ 08879
333 Meadowlands Parkway, Suite 102
Secaucus, NJ 07094

Date: 04/01/2021

Job No.: 201108

Dwg No. 3



SUBSURFACE SECTION C–C

0' 10' 20' 30' 60'

LEGEND

F — FILL

R — INWOOD MARBLE/
GRANITIC GNEISS
BEDROCK

Title: SUBSURFACE SECTION C–C

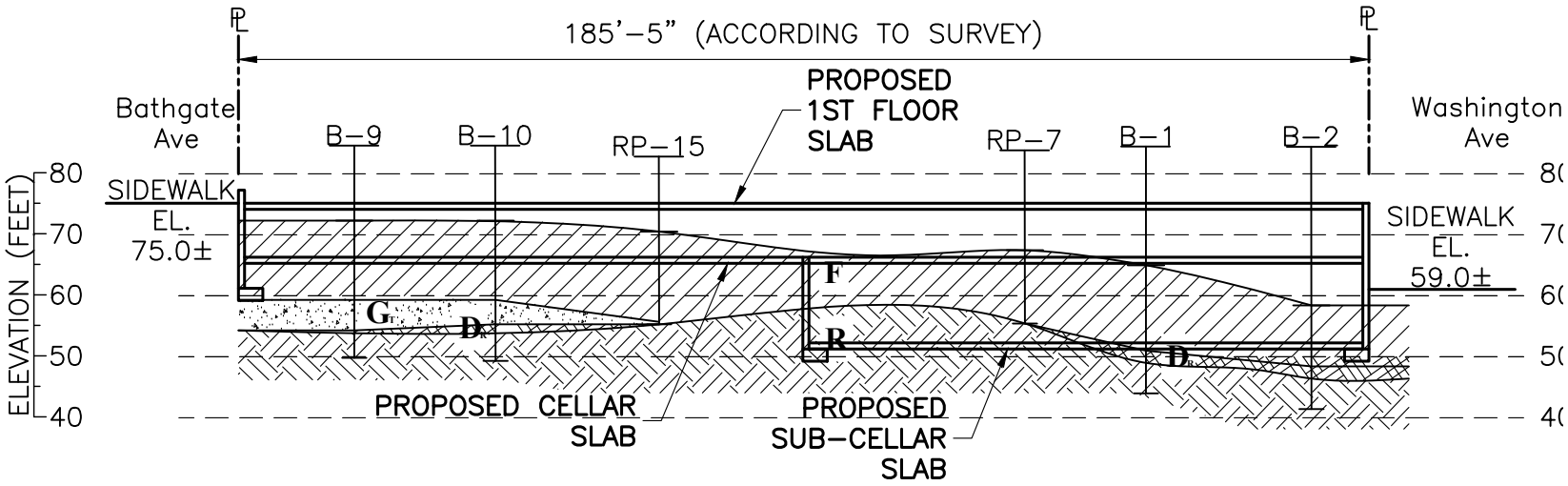
Project: 1949 BATHGATE AVE
BRONX, NEW YORK

PILLORI ASSOCIATES, P.A.
Geotechnical Engineering
71 Route 35, Laurence Harbor, NJ 08879
333 Meadowlands Parkway, Suite 102
Secaucus, NJ 07094

Date: 04/01/2021

Job No.: 201108

Dwg No. 4



SUBSURFACE SECTION D–D

LEGEND

- F — FILL
- G_T — GLACIAL TILL
- D_R — DECOMPOSED ROCK
- R — INWOOD MARBLE/ GRANITIC GNEISS BEDROCK

0' 10' 20' 30' 60'

Title: SUBSURFACE SECTION D–D

Project: 1949 BATHGATE AVE
BRONX, NEW YORK

PILLORI ASSOCIATES, P.A.
Geotechnical Engineering
71 Route 35, Laurence Harbor, NJ 08879
333 Meadowlands Parkway, Suite 102
Secaucus, NJ 07094

Date: 04/01/2021

Job No.: 201108

Dwg No. 5

Project: **1949 Bathgate Ave**
Bronx, New York 10457
Date: 03/16/21
Contractor: PGE Services, Inc.

Boring No.: B-1
Sheet: 1 of 1
Ground El: 64.84±
Groundwater Depth: NA

Depth Feet	SAMPLES Number	Blows / 6"	Strata	SOIL DESCRIPTION	Classification Depth Elevation
	S-1	10-8-8-5	F	Brown coarse to fine Sand, little fine Gravel w/brick, concrete, stone fragments, & miscellaneous debris	
	S-2	9-5-9-9			
5	S-3	7-20-7-7		Light Brown coarse to fine Sand, little medium to fine Gravel w/brick, concrete, stone fragments, & miscellaneous debris	FILL (7)
	S-4	5-11-12-13			
	S-5	14-15-25-42		Hard drilling; possible brick layer	
10					
					14'-0" 50.84
15			D_R	Decomposed Rock	(1d)
					16'-0" 48.84
		RUN = 60" 16.0' - 21.0' REC = 100% RQD = 56.67%	R	Inwood Marble Bedrock: Medium Hard, slightly weathered, closely to widely jointed	(1b)
20					
					21'-0" 43.84
				End of Boring	
25					

Project: **1949 Bathgate Ave**
Bronx, New York 10457
Date: 03/16/21
Contractor: PGE Services, Inc.

Boring No.: B-2
Sheet: 1 of 1
Ground El: 58.46±
Groundwater Depth: NA

Depth Feet	SAMPLES Number	Blows / 6"	Strata	SOIL DESCRIPTION	Classification Depth Elevation
	S-1	14-13-15-16	F	Brown coarse to fine Sand, little medium to fine Gravel w/brick, concrete, stone fragments, & miscellaneous debris	
	S-2	9-5-4-9			
5	S-3	2-7-7-6		Brown coarse to fine Sand w/brick fragments	FILL (7)
	S-4	4-4-5-3		Light Brown coarse to fine Sand w/brick fragments; fragments of decompoed rock found on spoon tip	
	S-5	12-14-24-50/2"			10'-0" 48.46
10			D_R	Decomposed Rock	(1d) 12'-0" 46.46
		RUN = 60" 12.0' - 17.0' REC = 20% RQD = 0%	R	Inwood Marble Bedrock: Soft, intensely weathered, closely jointed	(1d) 17'-0"
15				End of Boring	41.46
20					
25					

PILLORI ASSOCIATES, P.A. ***Geotechnical Engineering***

Project No.: 201108

Project: **1949 Bathgate Ave**
Bronx, New York 10457

Date: 03/17/21

Contractor: PGE Services, Inc.

Boring No.: B-3

Sheet: 1 of 1

Ground El: 62.46±

Groundwater Depth: NA

Depth Feet	SAMPLES Number	Blows / 6"	Strata	SOIL DESCRIPTION	Classification Depth Elevation
	S-1	6-2-5-2	F	Brown coarse to fine Sand, little fine Gravel w/brick, asphalt fragments, & miscellaneous debris	FILL (7)
	S-2	4-1-3-1			
	S-3	26-100/5"			4'-6"
5			D_R	Decomposed rock fragments	57.96 (1d)
				End of Boring	5'-0"/57.46
10					
15					
20					
25					

Project: **1949 Bathgate Ave**
Bronx, New York 10457
Date: 03/17/21
Contractor: PGE Services, Inc.

Boring No.: B-4
Sheet: 1 of 1
Ground El: 65.0±
Groundwater Depth: NA

Depth Feet	SAMPLES Number	Blows / 6"	Strata	SOIL DESCRIPTION	Classification Depth Elevation
	S-1	4-11-17-11	F	Brown coarse to fine Sand, little fine Gravel w/brick, fragments	FILL (7)
	S-2	9-12-9-22			
	S-3	60/3"			4'-3"
5			D_R	Decomposed Rock	60.75 (1d) 6'-0"
		RUN = 60" 6.0' - 11.0' REC = 100% RQD = 63.3%	R	Inwood Marble Bedrock: Medium Hard, slightly weathered, closely to widely jointed	59.00 (1b)
10					11'-0"
				End of Boring	54.00
15					
20					
25					

Project: **1949 Bathgate Ave**
Bronx, New York 10457
Date: 03/18/21
Contractor: PGE Services, Inc.

Boring No.: B-5
Sheet: 1 of 1
Ground El: 67.16±
Groundwater Depth: NA

Depth Feet	SAMPLES Number	Blows / 6"	Strata	SOIL DESCRIPTION	Classification Depth Elevation
	S-1	6-4-11-16	F	Brown coarse to fine Sand, little medium to fine Gravel w/brick, concrete fragments, & miscellaneous debris	
	S-2	1-2-2-2			
5	S-3	2-3-6-3		Brown coarse to fine Sand, little fine Gravel w/brick, asphalt, stone fragments, & miscellaneous debris	FILL (7)
	S-4	6-15-6-5			
				Brown coarse to fine Sand, little fine Gravel with fragments of decomposed rock on tip of spoon	
10	S-5	6-80/5"			10'-6"
			D_R	Decomposed Rock	56.76(1d)
				End of Boring	11'-0"/56.16
15					
20					
25					

Project: **1949 Bathgate Ave**
Bronx, New York 10457
Date: 03/22/21
Contractor: PGE Services, Inc.

Boring No.: B-6W
Sheet: 1 of 1
Ground El: 71.04±
Groundwater Depth: 11.5'

Depth Feet	SAMPLES Number	Blows / 6"	Strata	SOIL DESCRIPTION	Classification Depth Elevation
	S-1	5-2-4-5	F	Brown coarse to fine Sand, little fine Gravel w/brick fragments, & miscellaneous debris	
	S-2	4-4-3-2			
5	S-3	2-5-5-1		Light Brown coarse to fine Sand, little medium to fine Gravel w/brick, concrete, stone fragments, & miscellaneous debris	FILL (7)
10				Obstruction at 9'	
					13'-0"
			D_R	Decomposed Rock	58.04 14'-0" (1d)
					57.04
15		RUN = 60" 14.0' - 19.0' REC = 100% RQD = 71.67%	R	Inwood Marble/ Granitic Gneiss Bedrock: Hard, slightly to moderately weathered, mediumly to widely jointed	(1b)
					19'-0"
				End of Boring	52.04
20					
25					

Project: **1949 Bathgate Ave**
Bronx, New York 10457
Date: 03/23/21
Contractor: PGE Services, Inc.

Boring No.: B-7
Sheet: 1 of 1
Ground El: 75.85±
Groundwater Depth: NA

Depth Feet	SAMPLES Number	Blows / 6"	Strata	SOIL DESCRIPTION	Classification Depth Elevation
	S-1	3-7-3-1	F	Brown coarse to fine Sand,trace Silt, little fine Gravel	
	S-2	1-WOH-WOH-1			
5	S-3	1-1-WOH-1			FILL (7)
	S-4	2-1-1-1		Low Recovery	
	S-5	6-80/5"			9'-6"
10			D_R	Residual Soil/Decomposed Rock	66.35 (1d)
				End of Boring	10'-0"/65.85
15					
20					
25					

Project: **1949 Bathgate Ave**
Bronx, New York 10457

Boring No.: B-8

Sheet: 1 of 1

Date: 03/16/21

Ground El: 76.68±

Contractor: PGE Services, Inc.

Groundwater Depth: NA

Depth Feet	SAMPLES Number	Blows / 6"	Strata	SOIL DESCRIPTION	Classification Depth Elevation
	S-1	4-5-4-7	F	Brown coarse to fine Sand, little medium to fine Gravel w/brick, concrete, stone fragments, & miscellaneous debris	FILL (7)
	S-2	8-7-5-5			
5	S-3	6-4-3-4			
	S-4	3-3-30-100/5"		Light Gray coarse to fine Sand, little fine Gravel with fragments of decomposed rock on tip of spoon	8'-0"
			D_R	Decomposed Rock	68.68 (1d)
10					11'-0"
		RUN = 60" 11.0' - 16.0' REC = 90% RQD = 56.67%	R	Granitic Gneiss Bedrock: Medium Hard, slightly weathered, closely to mediumly jointed	65.68 (1c)
15					16'-0"
				End of Boring	60.68
20					
25					

Project: **1949 Bathgate Ave**
Bronx, New York 10457
Date: 03/11/21
Contractor: PGE Services, Inc.

Boring No.: B-9
Sheet: 1 of 1
Ground El: 72.36±
Groundwater Depth: NA

Depth Feet	SAMPLES Number	Blows / 6"	Strata	SOIL DESCRIPTION	Classification Depth Elevation
	S-1	7-7-9-10		Brown coarse to fine Sand, little medium fine Gravel w/brick, concrete, wood fragments, & miscellaneous debris	
	S-2	11-16-15-14			
5	S-3	14-15-17-21			
	S-4	13-18-19-21	F	Light Brown coarse to fine Sand, little fine Gravel w/brick, stone fragments, & miscellaneous debris	FILL (7)
10	S-5	10-15-10-13		Dark Gray coarse to fine Sand, little fine Gravel w/brick, stone fragments, & miscellaneous debris	13'-0" 59.36
15	S-6	5-9-14-9*	GT	Light Gray coarse to fine Sand, little fine Gravel w/ decomposed rock fragments (Drilling Rig Chatter)	SW (3a) 17'-0"
			DR	Decomposed Rock	55.36 (1d)
20		RUN = 60" 17.5' - 22.5' REC = 67% RQD = 13.3%	R	Inwood Marble Bedrock: Soft, slightly to moderately weathered, closely jointed	17'-6"/54.86 (1d) 22'-6"
				End of Boring	49.86
25				* Very Dense Soil Disturbed by Drilling Procedures	

Project: **1949 Bathgate Ave**
Bronx, New York 10457

Boring No.: B-10
Sheet: 1 of 1

Date: 03/15/21
Ground El: 69.76±

Contractor: PGE Services, Inc.
Groundwater Depth: NA

Depth Feet	SAMPLES Number	Blows / 6"	Strata	SOIL DESCRIPTION	Classification Depth Elevation
	S-1	7-11-11-12	F	Brown coarse to fine Sand, little medium fine Gravel w/brick, concrete, wood fragments, & miscellaneous debris	FILL (7)
	S-2	11-7-14-4			
5	S-3	8-9-8-6			
	S-4	9-12-26-28		Light Brown coarse to fine Sand, little fine Gravel w/brick, stone fragments, & miscellaneous debris	
10	S-5	36-100/1"		Gray coarse to fine Sand, little fine Gravel w/brick, stone fragments, & miscellaneous debris	13'-0" 56.76
15			G_T	Light Gray coarse to fine Sand, little fine Gravel w/ decomposed rock fragments (Drilling Rig Chatter)	SW (3a) 17'-0"
			D_R	Decomposed Rock	52.76 18'-0" (1d)
20		RUN = 60" 18' - 23' REC = 96.67% RQD = 66.67%	R	Granitic Gneiss/Inwood Marble Bedrock: Hard, slightly weathered, closely to mediumly jointed	51.76 (1b) 23'-0"
				End of Boring	46.76
25					

PILLORI ASSOCIATES, P.A. ***Geotechnical Engineering***

Project No.: 201108

Project: **1949 Bathgate Ave**
Bronx, New York 10457
Date: 3/19/21
Contractor: PGE Services, Inc.

Probe No.: RP-1
Sheet: 1 of 1
Ground El: 62.98±
Groundwater Depth: NA

Depth Feet	SOIL DESCRIPTION	Depth Elevation
	FILL	
	Refusal on Possible Bedrock	8'-0"
	End of Probe	54.98

Project: **1949 Bathgate Ave**
Bronx, New York 10457
Date: 3/19/21
Contractor: PGE Services, Inc.

Probe No.: RP-2
Sheet: 1 of 1
Ground El: 63.8±
Groundwater Depth: NA

Depth Feet	SOIL DESCRIPTION	Depth Elevation
5	FILL	
10		
15	Refusal on Possible Bedrock	16'-8"
	End of Probe	47.13
20		
25		

Project: **1949 Bathgate Ave**
Bronx, New York 10457
Date: 3/18/21
Contractor: PGE Services, Inc.

Probe No.: RP-3
Sheet: 1 of 1
Ground El: 61.81±
Groundwater Depth: NA

Depth Feet	SOIL DESCRIPTION	Depth Elevation
	FILL	
	Refusal on Possible Bedrock	3'-0"
	End of Probe	58.81

5
10
15
20
25

PILLORI ASSOCIATES, P.A. ***Geotechnical Engineering***

Project No.: 201108

Project: **1949 Bathgate Ave**
Bronx, New York 10457
Date: 3/18/21
Contractor: PGE Services, Inc.

Probe No.: RP-4
Sheet: 1 of 1
Ground El: 62.74±
Groundwater Depth: NA

Depth Feet	SOIL DESCRIPTION	Depth Elevation
	FILL	
5		
	Refusal on Possible Bedrock	6'-6"
	End of Probe	56.24
10		
15		
20		
25		

Project: **1949 Bathgate Ave**
Bronx, New York 10457
Date: 3/18/21
Contractor: PGE Services, Inc.

Probe No.: RP-5
Sheet: 1 of 1
Ground El: 67±
Groundwater Depth: NA

Depth Feet	SOIL DESCRIPTION	Depth Elevation
	FILL	
5	Refusal on Possible Bedrock	5'-9"
	End of Probe	61.25
10		
15		
20		
25		

Project: **1949 Bathgate Ave**
Bronx, New York 10457
Date: 3/19/21
Contractor: PGE Services, Inc.

Probe No.: RP-6
Sheet: 1 of 1
Ground El: 67.46±
Groundwater Depth: NA

Depth Feet	SOIL DESCRIPTION	Depth Elevation
	FILL	
	Refusal on Possible Bedrock	13'-6"
	End of Probe	53.96

5
10
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PILLORI ASSOCIATES, P.A. ***Geotechnical Engineering***

Project No.: 201108

Project: **1949 Bathgate Ave**
Bronx, New York 10457
Date: 3/19/21
Contractor: PGE Services, Inc.

Probe No.: RP-7
Sheet: 1 of 1
Ground El: 67.5±
Groundwater Depth: NA

Depth Feet	SOIL DESCRIPTION	Depth Elevation
5	FILL	
10	Refusal on Possible Bedrock	12'-0"
	End of Probe	55.50
15		
20		
25		

Project: **1949 Bathgate Ave**
Bronx, New York 10457
Date: 3/19/21
Contractor: PGE Services, Inc.

Probe No.: RP-8
Sheet: 1 of 1
Ground El: 70.2±
Groundwater Depth: NA

Depth Feet	SOIL DESCRIPTION	Depth Elevation
5	FILL	
10	Refusal on Possible Bedrock	11'-10" 58.37
	End of Probe	
15		
20		
25		

Project: **1949 Bathgate Ave**
Bronx, New York 10457
Date: 3/23/21
Contractor: PGE Services, Inc.

Probe No.: RP-9
Sheet: 1 of 1
Ground El: 75.85±
Groundwater Depth: NA

Depth Feet	SOIL DESCRIPTION	Depth Elevation
5	FILL	
10	Refusal on Possible Bedrock	10'-0"
	End of Probe	65.85
15		
20		
25		

PILLORI ASSOCIATES, P.A. ***Geotechnical Engineering***

Project No.: 201108

Project: **1949 Bathgate Ave**
Bronx, New York 10457
Date: 3/18/21
Contractor: PGE Services, Inc.

Probe No.: RP-10
Sheet: 1 of 1
Ground El: 70.86±
Groundwater Depth: NA

Depth Feet	SOIL DESCRIPTION	Depth Elevation
5	FILL	
10	Refusal on Possible Bedrock	12'-0"
	End of Probe	58.86
15		
20		
25		

Project: **1949 Bathgate Ave**
Bronx, New York 10457
Date: 3/18/21
Contractor: PGE Services, Inc.

Probe No.: RP-11
Sheet: 1 of 1
Ground El: 68±
Groundwater Depth: NA

Depth Feet	SOIL DESCRIPTION	Depth Elevation
5	FILL	
10	Refusal on Possible Bedrock	11'-0"
	End of Probe	57.00
15		
20		
25		

Project: **1949 Bathgate Ave**
Bronx, New York 10457

Date: 3/17/21

Contractor: PGE Services, Inc.

Probe No.: RP-12

Sheet: 1 of 1

Ground El: 71.04±

Groundwater Depth: NA

Depth Feet	SOIL DESCRIPTION	Depth Elevation
5	FILL	
10		
	Refusal on Possible Bedrock	13'-0"
	End of Probe	58.04
15		
20		
25		

Project: **1949 Bathgate Ave**
Bronx, New York 10457
Date: 3/18/21
Contractor: PGE Services, Inc.

Probe No.: RP-13
Sheet: 1 of 1
Ground El: 70.96±
Groundwater Depth: NA

Depth Feet	SOIL DESCRIPTION	Depth Elevation
5	FILL	
10		
	Refusal on Possible Bedrock	14'-0"
	End of Probe	56.96
15		
20		
25		

Project: **1949 Bathgate Ave**
Bronx, New York 10457

Probe No.: RP-14

Sheet: 1 of 1

Date: 3/19/21

Ground El: 69.74±

Contractor: PGE Services, Inc.

Groundwater Depth: NA

Depth Feet	SOIL DESCRIPTION	Depth Elevation
	FILL	
	Refusal on Possible Bedrock	16'-0"
	End of Probe	53.74

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Project No.: 201108

Project: **1949 Bathgate Ave**
Bronx, New York 10457

Date: 3/19/21

Contractor: PGE Services, Inc.

Probe No.: RP-15

Sheet: 1 of 1

Ground El: 70.56±

Groundwater Depth: NA

Depth Feet	SOIL DESCRIPTION	Depth Elevation
5	FILL	
10		
15	Refusal on Possible Bedrock	15'-2"
	End of Probe	55.36
20		
25		

Project: **1949 Bathgate Ave**
Bronx, New York 10457
Date: 3/19/21
Contractor: PGE Services, Inc.

Probe No.: RP-16
Sheet: 1 of 1
Ground El: 74.76±
Groundwater Depth: NA

Depth Feet	SOIL DESCRIPTION	Depth Elevation
5		
10	FILL	
15		
	Refusal on Possible Bedrock	19'-10"
20	End of Probe	54.96
25		

Project: **1949 Bathgate Ave**
Bronx, New York 10457
Date: 3/12/21
Contractor: PGE Services, Inc.

Probe No.: RP-17
Sheet: 1 of 1
Ground El: 75.34±
Groundwater Depth: NA

Depth Feet	SOIL DESCRIPTION	Depth Elevation
	FILL	
	Refusal on Possible Bedrock	2'-0"
	End of Probe	73.34

5
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15
20
25

Project: **1949 Bathgate Ave**
Bronx, New York 10457
Date: 3/10/21
Contractor: PGE Services, Inc.

Probe No.: RP-18
Sheet: 1 of 1
Ground El: 86.36±
Groundwater Depth: NA

Depth Feet	SOIL DESCRIPTION	Depth Elevation
	FILL	
	Refusal on Possible Bedrock	4'-9"
5	End of Probe	81.61
10		
15		
20		
25		

Project: **1949 Bathgate Ave**
Bronx, New York 10457
Date: 3/10/21
Contractor: PGE Services, Inc.

Probe No.: RP-19
Sheet: 1 of 1
Ground El: 86.7±
Groundwater Depth: NA

Depth Feet	SOIL DESCRIPTION	Depth Elevation
	FILL	
	Refusal on Possible Bedrock	3'-0"
	End of Probe	83.70

5
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PILLORI ASSOCIATES, P.A. ***Geotechnical Engineering***

Project No.: 201108

Project: **1949 Bathgate Ave**
Bronx, New York 10457
Date: 3/10/21
Contractor: PGE Services, Inc.

Probe No.: RP-20
Sheet: 1 of 1
Ground El: 86.96±
Groundwater Depth: NA

Depth Feet	SOIL DESCRIPTION	Depth Elevation
	FILL	
	Refusal on Possible Bedrock	3'-0"
	End of Probe	83.96

5
10
15
20
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Project: **1949 Bathgate Ave**
Bronx, New York 10457
Date: 3/10/21
Contractor: PGE Services, Inc.

Probe No.: RP-21
Sheet: 1 of 1
Ground El: 84.78±
Groundwater Depth: NA

Depth Feet	SOIL DESCRIPTION	Depth Elevation
	FILL	
	Refusal on Possible Bedrock	8'-0"
	End of Probe	68.78

PILLORI ASSOCIATES, P.A. ***Geotechnical Engineering***

Project No.: 201108

Project: **1949 Bathgate Ave**
Bronx, New York 10457

Probe No.: RP-22

Sheet: 1 of 1

Date: 3/12/21

Ground El: 71.31±

Contractor: PGE Services, Inc.

Groundwater Depth: NA

Depth Feet	SOIL DESCRIPTION	Depth Elevation
	FILL	
	Refusal on Possible Bedrock	2'-0"
	End of Probe	69.31

5

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Project: **1949 Bathgate Ave**
Bronx, New York 10457
Date: 3/12/21
Contractor: PGE Services, Inc.

Probe No.: RP-23
Sheet: 1 of 1
Ground El: 73.66±
Groundwater Depth: NA

Depth Feet	SOIL DESCRIPTION	Depth Elevation
	FILL	
	Refusal on Possible Bedrock	17'-0"
	End of Probe	56.66

5
10
15
20
25

Project: **1949 Bathgate Ave**
Bronx, New York 10457
Date: 3/12/21
Contractor: PGE Services, Inc.

Probe No.: RP-24
Sheet: 1 of 1
Ground El: 75.76±
Groundwater Depth: NA

Depth Feet	SOIL DESCRIPTION	Depth Elevation
	FILL	
	Refusal on Possible Bedrock	1'-0"
	End of Probe	74.76

5
10
15
20
25

PILLORI ASSOCIATES, P.A. ***Geotechnical Engineering***

Project No.: 201108

Project: **1949 Bathgate Ave**
Bronx, New York 10457

Probe No.: RP-25

Sheet: 1 of 1

Date: 3/10/21

Ground El: 85.44±

Contractor: PGE Services, Inc.

Groundwater Depth: NA

Depth Feet	SOIL DESCRIPTION	Depth Elevation
	FILL	
	Refusal on Possible Bedrock	3'-0"
	End of Probe	82.44

5

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Project: **1949 Bathgate Ave**
Bronx, New York 10457

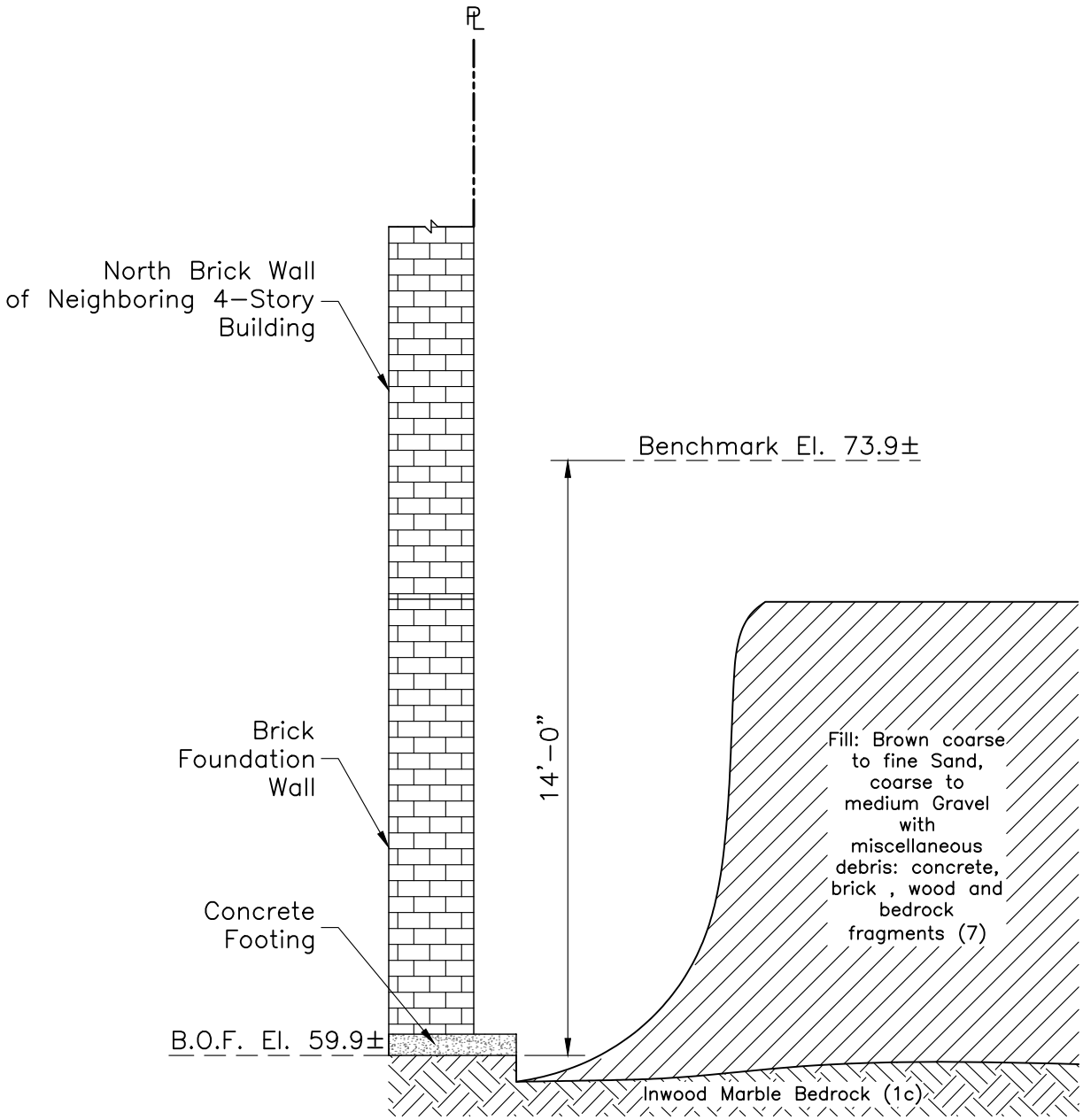
Probe No.: RP-26

Date: 3/10/21
Sheet: 1 of 1
Contractor: PGE Services, Inc.
Ground El: 84.54±
Groundwater Depth: NA

Depth Feet	SOIL DESCRIPTION	Depth Elevation
	FILL	
	Refusal on Possible Bedrock	4'-6"
5	End of Probe	80.04
10		
15		
20		
25		

Project: 1949 Bathgate Ave
Bronx, New York
Date: 3/24/21
Contractor: PGE Services, Inc.

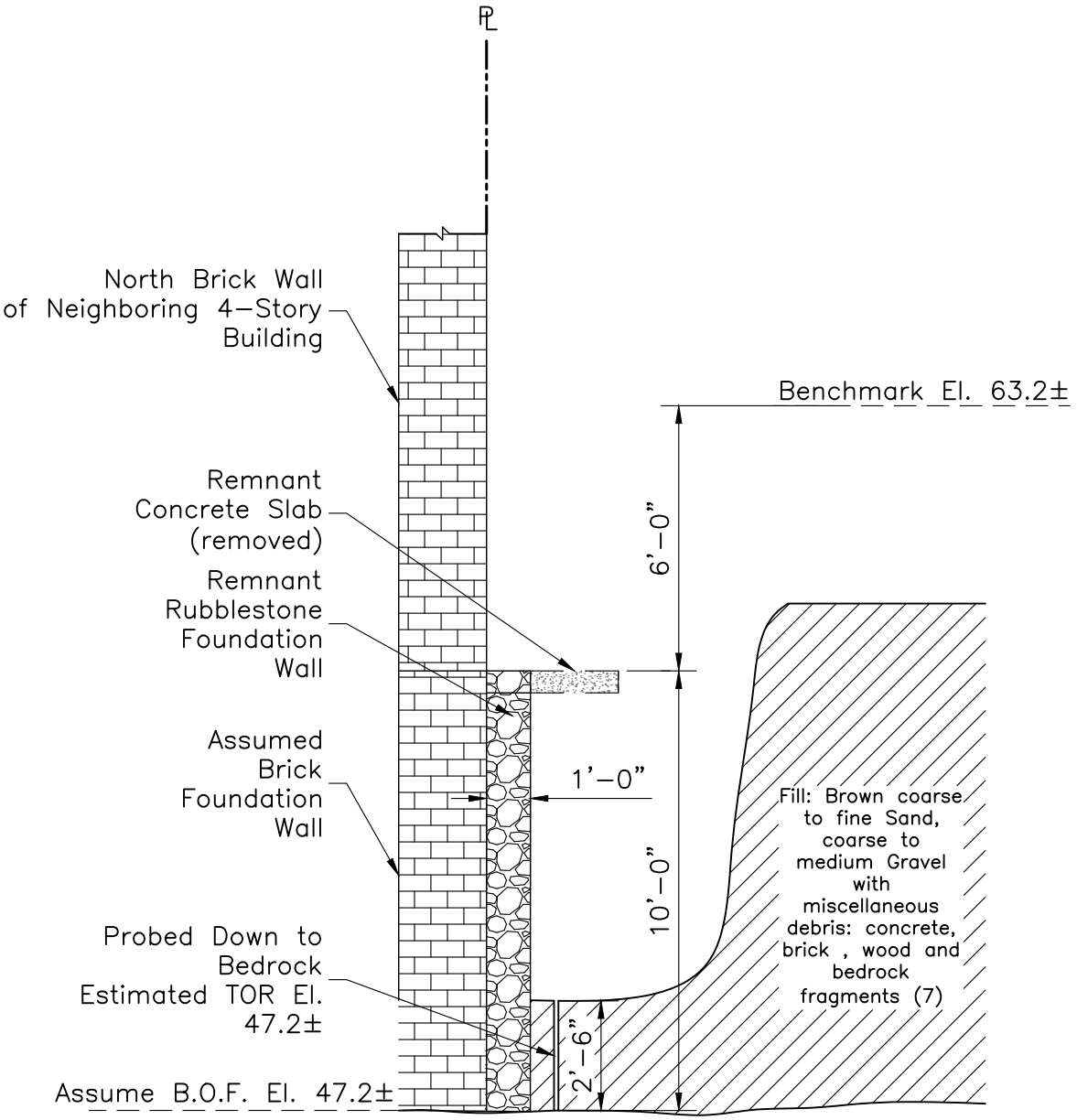
Test Pit No.: TP-1
Sheet: 1 of 1
Ground El: NA
Groundwater Depth: NA



SECTION LOOKING WEST
SCALE: 1" = 4'

Project: 1949 Bathgate Ave
Bronx, New York
Date: 3/23/21
Contractor: PGE Services, Inc.

Test Pit No.: TP-2
Sheet: 1 of 1
Ground El: NA
Groundwater Depth: NA



SECTION LOOKING WEST
SCALE: 1" = 4'

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			GROUP SYMBOLS (ASTM D2487)	TYPICAL DESCRIPTIONS
COARSE-GRAINED SOIL MORE THAN 50% RETAINED ON NO.200 SIEVE*	GRAVEL 50% OR MORE OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVEL	GW	WELL- GRADED GRAVEL & GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
			GP	POORLY GRADED GRAVEL & GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
		GRAVEL WITH FINES	GM	SILTY GRAVEL, GRAVEL SAND CLAY MIXTURES
			GC	CLAYEY GRAVEL, GRAVEL SAND CLAY MIXTURES
	SANDS MORE THAN 50% OF COARSE FRACTION PASSES NO. 4 SIEVE	CLEAN SAND	SW	WELL-GRADED SAND & GRAVELLY SAND, LITTLE OR NO FINES
			SP	POORLY GRADED SAND & GRAVELLY SAND, LITTLE OR NO FINES
		SAND WITH FINES	SM	SILTY SAND, SAND-SILT MIXTURES
			SC	CLAYEY SAND, SAND-CLAY MIXTURES
FINE-GRAINED SOIL 50% OR MORE PASSING NO.200 SIEVE*	SILT & CLAY LIQUID LIMIT LESS THAN 50%		ML	INORGANIC SILT, VERY FINE SAND, ROCK FLOUR, SILTY OR CLAYEY FINE SAND
			CL	INORGANIC CLAY OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAY, SANDY CLAY, SILTY CLAY, LEAN CLAY
			OL	ORGANIC SILT & ORGANIC SILTY CLAY OF LOW PLASTICITY
	SILT & CLAY LIQUID LIMIT GREATER THAN 50%		MH	INORGANIC SILT, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILT, ELASTIC
			CH	INORGANIC CLAY OF HIGH PLASTICITY, FAT CLAY
			OH	ORGANIC CLAY OF MEDIUM TO HIGH PLASTICITY
HIGHLY ORGANIC SOIL			PT	PEAT, MUCK & OTHER HIGHLY ORGANIC SOIL

* BASED ON MATERIAL PASSING THE 3" (75MM) SIEVE

GRADATION**

TERM	% BY WEIGHT
TRACE	1 TO 10
LITTLE	10 TO 20
SOME	20 TO 35
AND	35 TO 50

COMPACTNESS**
(SAND AND/OR GRAVEL)

TERM	% RELATIVE DENSITY
LOOSE	0 TO 40
MEDIUM DENSE	41 TO 70
DENSE	71 TO 90
VERY DENSE	91 TO 100

CONSISTENCY**
(CLAY AND/OR SILT)

SHEAR STRENGTH TERM	TONS/SQ.FT.
SOFT	LESS THAN 0.25
FIRM	0.25 TO 0.5
STIFF	0.5 TO 1.0
VERY STIFF	1.0 TO 2.0
HARD	OVER 2.0

** VALUES ARE FROM LABORATORY OR FIELD TEST DATA, WHERE APPLICABLE, WHEN NO TESTING WAS PERFORMED VALUES ARE ESTIMATED.

APPENDIX C

HEALTH AND SAFETY PLAN

HEALTH AND SAFETY PLAN

FOR

SAINT JOSEPH APARTMENTS
484 EAST 178TH STREET
BRONX, NEW YORK
Bronx Borough Tax Map
Block 3043, Lot 10

Prepared for

St. Joseph Apartments LLC
c/o ANYCH.STJ CORP.
80 Maiden Lane
13th Floor
New York, New York

Prepared by:

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

LANGAN

October 2024
Langan Project No. 170852601

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1.0 INTRODUCTION

1.1 General

This HEALTH AND SAFETY PLAN (HASP) was developed to address disturbance of known and reasonably anticipated subsurface contaminants and comply with Occupational Safety and Health Administration (OSHA) Standard 29 Code of Federal Regulation (CFR) 1910.120(b)(4), Hazardous Waste Operations and Emergency Response during anticipated site work for the property identified as St Joseph Apartments located at 484 East 178th Street in the Tremont neighborhood of the Bronx, New York ("the Site"). The Site is identified on the New York City (NYC) Bronx Borough Tax Map as Tax Block 3043, Lot 10.

This HASP provides the minimum requirements for implementing site operations during future remedial measures. All contractors performing work on this site must implement their own HASP that, at a minimum, adheres to this HASP. The contractor is responsible for their own health and safety and that of their subcontractors. Langan personnel will implement this HASP while onsite.

The content of this HASP may change or undergo revision based upon additional information made available to health and safety personnel, monitoring results, or changes in the work plan.

1.2 Site Location and Background

The site, identified as St Joseph Apartments is located at 484 East 178th Street in the Tremont neighborhood of the Bronx, New York. The Site is identified on the New York City (NYC) Bronx Borough Tax Map as Tax Block 3043, Lot 10. Historically, the lot was formed from the combination of lots 10, 16, 22, and 23. A site location map is included as Figure 1.

According to historical records, the site has been developed since at least 1896. The site was improved with an early iteration of "St. Joseph's Academy" on southern portions, a mixed-use building on northwestern portions and two dwellings on northeastern portions. By 1901, a church structure with a basement for an auditorium, meeting hall, cafeteria, dances, gym, and school counseling was constructed along with another rendition of the academy/convent. A six-story horseshoe-shaped building with a centrally located elevator was constructed on northwestern portions by 1915 and a rectory was constructed by 1950. By 1981, the mixed-use commercial and residential buildings were demolished. The dwellings were demolished by 2012, and the church and remaining buildings were demolished in 2019 for redevelopment of the site.

1.3 Summary of Work Tasks

1.3.1 Geophysical Investigation - Underground Utility Clearance Policy

Prior to the commencement of intrusive field activities (i.e., soil borings);Langan will follow the Langan Underground Utility Clearance Policy including retaining a geophysical consultant to conduct a geophysical survey using ground penetrating radar (GPR) and electromagnetic detection equipment. The objective of the survey will be to identify any underground storage tank (UST) structures, drains, underground utilities, and other subsurface anomalies that may be encountered during the investigation. During this time Langan personnel will inspect the site and confirm investigation locations are both accessible and free of potential utility or other known or suspected subsurface structures.

1.3.2 "Soft-Dig" Clearance of Borehole Locations

If there is no geophysical survey for utility clearance or the results of the geophysical survey are inconclusive at specific locations subject to intrusive work, or otherwise in compliance with Langan's Underground Utility Clearance Policy, the drilling contractor may "soft-dig" each proposed drilling location or a separate contractor may be retained to "soft-dig" the locations to confirm they are free of utilities or other known or suspected subsurface structures. The dimensions of each location should extend to a depth of 5-feet and be about 1.5 times the anticipated diameter of the borehole when drilled. Langan personnel will confirm that the "soft dig" activities are completed to these specifications.

1.3.3 Day Lighting Excavation and Soil Screening

Langan may retain an excavation contractor to daylight buried unidentified structures. The purpose of the daylighting is to confirm if these structures are subsurface structures of concern (USTs, utilities sewer lines, storm water drains, electrical, gas or other utility line as well as other artifacts pertinent to the work plan). The excavation contractor will contact the appropriate utility mark-out authority and make available to their staff the verification number and effective dates.

The excavation contractor will employ "soft dig" methods in accordance with the Langan Underground Utility Clearance Policy when excavating. Langan may screen excavated soil for visual, olfactory, and instrumental indicators suggestive of a potential chemical or petroleum release. Instrument screening for the presence of volatile organic compounds (VOC) may be performed with a duly calibrated photoionization detector (PID). Contractors will notify Langan personnel if they identify indications suggestive of a potential chemical or petroleum release. Contaminated material shall be handled, and property disposed in accordance with federal, state and city regulations, criteria, and guidelines.

1.3.4 Soil Investigation and Sampling

Langan will retain a drilling contractor to advance soil borings to a depth below grade surface (bgs) specified in the work plan. Borings will be installed at the approximate locations indicated in Langan's work plan but may be moved in the field based on utility clearance and accessibility. The drilling contractor will contact the appropriate utility mark-out authority and make available to their drilling staff the verification number and effective dates. Langan will record the verification number and effective dates from the drillers. Langan will also note the location of marked out utilities on the site plan and scan the data into the project folder.

Langan personnel will screen soil for visual, olfactory, and instrumental indicators suggestive of a potential petroleum release. Instrument screening for the presence of VOC may be performed with a duly field calibrated PID (or equivalent). Langan personnel will collect soil samples from the proposed soil boring locations following the sampling plan outlined in the work plan. The borings will be filled with clean soil cuttings, clean sand or bentonite grout and capped at grade to match the surrounding surface after samples are collected.

Soil samples will be submitted to a specific lab per the work plan or to a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP)-certified laboratory and analyzed in accordance with work plan specifications.

1.3.5 Groundwater Investigation and Sampling

Selected soil borings will be converted into groundwater monitoring wells and sampled to evaluate groundwater quality. Groundwater samples will be collected from one or more of the new and if available, pre-existing monitoring wells in accordance with the Langan Low Flow Groundwater Sampling SOP (SOP #12). Groundwater samples will be submitted to an approved laboratory and analyzed for constituents as specified in the work plan. Temporary monitoring wells will be plugged and abandoned during the investigation in the manner defined in Section 1.3.2 for soil boring. Permanent monitoring wells will be completed with a road box set in concrete. Permanent monitoring wells will be eventually backfilled and abandoned in accordance with State and Local regulations.

Groundwater samples will be submitted to a NYSDOH ELAP-certified laboratory and analyzed in accordance with work plan specifications.

1.3.6 Groundwater/Product Gauging

Langan may gauge one or more of the observation/monitoring wells to collect synoptic head data or determine the presence of product. When gauging, Langan may also survey head space VOCs within the well using a duly calibrated PID. When collected, gauging data will be based on the northernmost point at top of casing (TOC) using an interface probe (IP) capable of determining the presence of free product in the monitoring well as light non-aqueous phase liquid (LNAPL) at the top of the water column. If gauging for dense non-aqueous phase liquid (DNAPL) at the base of the monitoring well, the IP may not be appropriate. The field engineer will coordinate with the project team to devise an alternative method to gauge the thickness of DNAPL at base of the well. Langan will decontaminate gauging equipment between wells as required by the work plan.

1.3.7 Product Bailing

Langan may remove free product from on-site monitoring wells as part of this HASP or subsequent SMP activities. Langan will may use a bailer, peristaltic pump or submersible as determined by the work plan. Langan will record the volume of product and groundwater recovered. Recovered product and groundwater will be drummed in accordance with procedures outlined in the work plan.

1.3.8 Sub Slab or Soil Vapor Point Installation and Sampling

Langan (or its contractor) will install one or more sub-slab or soil vapor points at selected locations. If installed, the sub-slab points will be set at or just below the bottom of the slab in accordance with the work plan. The sub-slab points may be installed using an electric hammer drill to advance small diameter borings through the concrete (or equivalent) slab as defined in the work plan. The borings will terminate in and sample from the gravel substrate below the slab. Conditions in the field may require adjustment of sampling locations.

Langan personnel (or contractor) may install VaporPin® vapor points (or equivalent) in accordance with the manufacturer's instructions. If no point is used, Langan (or contractor) will set a sampling tube defined as an open-ended Teflon™-lined polyethylene tubing (or equivalent tubing as approved by the project manager [PM]). The sampling tube will be set either within the base of the concrete slab or within the support gravel underlying the slab.

When using the VaporPin® or equivalent, the installation sleeve will provide the necessary annulus seal required for subsequent sampling. However, if a sampling tube as defined above is use, the annulus at the top of the concrete slab will be filled with bentonite or food grade clay

to seal the slab. A sand pack is not required for sub-slab vapor sampling. Unless specified by the work plan, the sub slab points are temporary and will be pulled after the sampling event and the hole will be patched at grade with material similar to the surrounding surface.

Langan personnel will confirm that the soil vapor points (implants) are 2-inches in length constructed of polyethylene material and are connected to the surface by Teflon™-line polyethylene material (equivalent materials for the point and tubing are acceptable as approved by the PM). The annulus around the implant will be filled with clean sand to 6-inches above the implant. A 1-foot bentonite slurry will be applied to the top of the sand up to seal the sampling points. The remaining soil vapor point annulus may be backfilled with clean cuttings are sand to grade. Unless specified by the work plan, the vapor points are temporary and will be pulled after the sampling event and the hole will be patched at grade with material similar to the surrounding surface.

Vapor samples will be collected in accordance with following guidance including Final Guidance for Evaluating Soil Vapor Intrusion published by the New York State Department of Health (NYSDOH) in October 2006, Langan's Sub-Slab Vapor Sampling SOP (SOP #14) and as specified in the work plan. In addition, ambient air and indoor air samples may be collected for use as a comparison sample. As part of the indoor air sampling program, Langan personnel may complete a building inventory inspection. The inspection may take place prior to the commencement of actual field sampling. Vapor samples may be submitted to a NYSDOH ELAP-certified laboratory and analyzed in accordance with work plan specifications.

1.3.9 Observation/Monitoring Well Plugging and Abandonment

At an unspecified future date, the observation/monitoring wells will be abandoned. Plugging and abandonment will be in accordance with federal and state requirements. Langan may retain a drilling contractor to complete the plugging and abandonment activities. The contractor will contact the appropriate utility mark-out authority and make available to their field staff the verification number and effective dates. Langan may observe the plugging and abandonment of one or more observation/monitoring wells to document that the plugging and abandonment activities were completed in accordance with the work plan and regulations.

1.3.10 QA/QC Sampling

Samples for quality assurance/quality control [QA/QC] may also be collected and submitted to an approved laboratory and analyzed in accordance with work plan specifications. Information regarding the QA/QC samples including required method of analysis may be included in the same COC as the soil samples unless otherwise instructed by the work plan.

1.3.11 Equipment Decontamination

Before the start of the day's sampling and after sampling each run, sampling equipment will be decontaminated by the decontamination process outlined Attachment B - Decontamination Procedures. Decontamination wastes and purge water will be temporarily stored on site pending analytical results.

1.3.12 Management of Investigative-Derived Waste

The investigative-derived waste (IDW) generated during this investigation will be contained in DOT-approved 55-gallon drums. The drums will be temporarily stored on the site or as directed by the client representative. All drums will be filled between to two-thirds full to allow easy maneuvering during drum pickup and disposal. Drum labels are to be provided by Langan (Environmental Closet). All drums will be labeled as "IDW Pending Analysis" until sample data are reported from the laboratory. Drum labels will include date filled and locations where waste was generated along with the standard information required by the labels in accordance with the Langan SOP09, Drum Labeling.

Closed top drums are to be used to store liquids. Debris, including plastic sheeting, polyethylene tubing, personal protection equipment (PPE), decontamination debris, etc. will be segregated from and disposed in large heavy duty garbage bags and disposed of at the site. Excess unused glassware should be returned to the lab along with the last day of collection samples.

1.3.13 Drum Sampling

Langan personnel may collect drum samples, as required, prior to off-site drum disposal. Samples will be placed into laboratory-supplied batch-certified clean glassware and submitted to an approved laboratory and analyzed in accordance with work plan specifications, if required.

1.3.14 Surveying

Surveying activities may be completed by Langan. Surveying will be conducted by licensed surveyors.

2.0 IDENTIFICATION OF KEY PERSONNEL/HEALTH AND SAFETY PERSONNEL

The following briefly describes the health and safety (H&S) designations and general responsibilities that may be employed for this site. The titles have been established to accommodate the project needs and requirements and ensure the safe conduct of site activities.

The H&S personnel requirements for a given work location are based on the proposed site activities.

2.1 Langan Project Manager

The Langan Environmental Project Manager (PM) is Kimberly Nagotko, her responsibilities include:

- Ensuring that this HASP is developed, current, and approved prior to on-site activities.
- Ensuring that the tasks in the project are performed in a manner consistent with Langan's comprehensive *Health and Safety Program for Hazardous Waste Operations* and this HASP.

2.2 Langan Corporate Health and Safety Manager

The Langan Corporate Health and Safety Manager is Tony Moffa. His responsibilities include:

- Updating the *Construction Health and Safety Program for Hazardous Waste Operations*.
- Assisting the site Health and Safety Officer (HSO) with the development of the HASP, updating HASP as dictated by changing conditions, job site inspection results, etc., and approving changes to this HASP.
- Assisting the HSO in the implementation of this HASP and conducting Jobsite Safety Inspections and assisting with communication of results and correction of shortcomings found.
- Maintaining records on personnel (medical evaluation results, training and certifications, accident investigation results, etc.).

2.3 Langan Site Health & Safety Officer

The Langan site HSO is William Bohrer. His responsibilities include:

- Participating in the development and implementation of this HASP.
- When on-site, assisting the Langan Field Team Leader in conducting Tailgate Safety Meetings and Jobsite Safety Inspections and correcting any shortcomings in a timely manner.
- Ensuring that proper PPE is available, worn by employees, and properly stored and maintained.
- Controlling entry into and exit from the site contaminated areas or zones.
- Monitoring employees for signs of stress, such as heat stress, fatigue, and cold exposure.
- Monitoring site hazards and conditions.

- Knowing (and ensuring that all site personnel also know) emergency procedures, evacuation routes, and the telephone numbers of the ambulance, local hospital, poison control center, fire department, and police department.
- Resolving conflicts that may arise concerning safety requirements and working conditions.
- Reporting all incidents, injuries, and near misses to the Langan Incident/Injury Hotline immediately and the client representative.

2.4 Langan Field Team Leader Responsibilities

The Langan Field Team Leader (FTL) is to be determined prior to the start of field activities. The Field Team Leader's responsibilities include:

- The management of the day-to-day site activities and implementation of this HASP in the field.
- Participating in and/or conducting Tailgate Safety Meetings and Jobsite Safety Inspections and correcting any shortcomings in a timely manner.
- When a Community Air Monitoring Operating Program (CAMP) is part of the scope, the FTL will set up and maintain community air monitoring activities and instruct the responsible contractor to implement organic vapor or dust mitigation when necessary.
- Overseeing the implementation of activities specified in the IRMWP.

2.5 Contractor Responsibilities

The contractor must develop and implement their own HASP for their employees, their subcontractors, and consultants. The contractor is responsible for their own health and safety and that of their subcontractors. Contractors operating on the site must designate their own FTL, HSO, and Health and Safety Manager (HSM). The contractor's HASP will be at least as stringent as this HASP. The contractor must be familiar with and abide by the requirements outlined in their own HASP. A contractor may elect to adopt Langan's HASP as its own provided that it has given written notification to Langan, but where Langan's HASP excludes provisions pertinent to the contractor's work (i.e., confined space entry); the contractor must provide written addendums to this HASP. Additionally, the contractor must:

- Ensure their employees are trained in the use of all appropriate PPE for the tasks involved.
- Notify Langan of any hazardous material brought onto the job site or site-related area, the hazards associated with the material, and must provide a material safety data sheet (MSDS) or safety data sheet (SDS) for the material.
- Have knowledge of, understand, and abide by all current federal, state, and local health and safety regulations pertaining to the work.

- Ensure their employees handling hazardous materials, if identified at the Site, have received current training in the appropriate levels of 29 CFR 1910.120, *Hazardous Waste Operations and Emergency Response* (HAZWOPER) if hazardous waste is identified at the Site.
- Ensure their employees handling hazardous materials, if identified at the Site, have been fit-tested within the year on the type of respirator they will wear; and
- Ensure all air monitoring is in place pertaining to the health and safety of their employees as required by OSHA 1910.120; and
- All contractors must adhere to all federal, state, and local regulatory requirements.

3.0 TASK/OPERATION SAFETY AND HEALTH RISK ANALYSES

A Task-Hazard Analysis (Table 1) was completed for general construction hazards that may be encountered at the Site. The potential contaminants that might be encountered during the field activities and the exposure limits are listed in Table 2 complete inventory of MSDS/SDS for chemical products used on site is included in Attachment E.

3.1 Specific Task Safety Analysis

3.1.1 Geophysical Survey

Langan personnel are not permitted to operate or otherwise handle the geophysical equipment including any downhole geophysical equipment subsequently used to survey boreholes. When boring locations are surveyed with surface geophysical equipment, the locations of the borings as well as utilities and other artifacts that may interfere with the subsurface investigation are to be marked with indelible paint, flags, or color tape (when marking indoor locations that the client has specifically requested not be marked with indelible paint). This information must also be added to the site map. When applying paint, proper PPE including at a minimum hand protection should be used.

3.1.2 "Soft Dig" Clearance of Borehole Locations

"Soft-Dig" clearance will be completed by the contractor. Langan personnel are not permitted to operate or otherwise handle the contractor's equipment. Langan will update the site map to include the locations of the cleared borehole locations as well as utilities and other artifacts that may interfere with the subsurface investigation.

3.1.3 Daylighting Test Pit

Excavation daylighting must abide by OSHA excavation standards (Part 1926.651) and conform

to the Langan Underground Utility Clearance Policy. Daily inspections of excavations, the adjacent areas, and protective systems shall be made by a competent person for evidence of a situation that could result in cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions. An inspection shall be conducted by the competent person prior to the start of work and as needed throughout the shift. Inspections shall also be made after every rainstorm or other hazard increasing occurrence. Sampling the soil requires the donning of chemical resistant gloves in addition to the standard PPE. Langan personnel are not to operate excavation equipment. This task is to be completed by the excavation contractor.

3.1.4 Indoor Drilling and Excavation

The work scope may require indoor excavation where there may not be adequate ventilation sufficient to safely operate any rig or excavation equipment powered by an internal combustion engine. Where possible, all such work should be done by equipment powered by electricity. If such equipment is used and must be directly wired to the buildings electrical system or to an independent system, this work must be completed by a licensed electrician in accordance with all electrical codes applicable to the work.

Indoor work which is to be completed with equipment powered by an internal combustion engine must incorporate air monitoring of carbon monoxide (CO) using calibrated air monitoring equipment (MultiRAE or equivalent). In addition, the work plan should incorporate mitigation for venting engine exhaust fumes directly to the outdoors and for circulating fresh air into the work area.

The OSHA Time Weighted Average (TWA) Permissible Exposure Limit (PEL) for CO from 50 to 35 parts per million (ppm). Langan will monitor CO with a suitable monitoring device. If CO levels exceed 5 ppm, Langan will instruct contractors to begin mitigation measures. These measures are at a minimum:

- Increase air circulation using industrial size fans to bring additional fresh air into the building or vent exhaust to the outside.
- Modify the passive exhaust method being used to increase venting circulation by using wider diameter tubing or sealing tubing connections; or
- Modify the work schedule where the rig is turned off to allow time for CO levels to fall back to background.

All work must cease if CO levels reach 35 ppm. The Langan engineer is to report to the PM and H&S officer when an action level is reached.

3.1.5 Soil Investigation and Sampling

Sampling the soil requires the donning of chemical resistant gloves in addition to the standard PPE. Langan personnel are not to operate drilling or excavation equipment nor open sampling devices (acetate liners, sonic sample bags, etc.). These tasks are to be completed by the driller or excavation contractor.

3.1.6 Groundwater Investigation and Sampling

Sampling groundwater requires the donning of chemical resistant gloves in addition to the standard PPE and cut resistant gloves when cutting sampling-tubing to length. Langan personnel are not to operate drilling equipment nor assemble or install monitoring well equipment. These tasks are to be completed by the driller contractor.

1.3.7 Groundwater/Product Gauging

Gauging product requires additional safety considerations including the presence of VOCs and protection of both field cloths and property. Langan will monitor air for VOCs using a duly calibrated PID. Langan will don protective clothing including Tyvek® over-cloths, as necessary. To protect property, Langan will work set a plastic barrier to protect floors or protect landscaping and use absorbent pads as necessary to collect pooled product. If sampling for PFAS from the same well, Langan will complete the product check first, if the well can be sampled without including product, Langan will remove the Tyvek® material from the well head vicinity.

3.1.8 Product Recovery Well Bailing

Langan may bail free product from monitoring wells. Free product bailing requires the donning of Tyvek™ suits, Tyvek™ boots and chemical resistant gloves in addition to the standard PPE and cut resistant gloves when cutting sampling-tubing to length. In addition, Langan will place plastic sheeting around the recovery well head to control spillage during product recovery. Langan will also keep on hand and readily available product absorbing pads to use as needed.

3.1.9 Electrical Pumps

Langan may use an electric pump to collect product from the recovery wells or to sample groundwater. Langan will inspect the electric pump and control box prior to use and specifically note the condition of the electrical connectors, pump, control box and the electrical cord. The electrical connection must be a grounded and connect to the power source using a functional three prong grounded plug. The power source must be a Ground Fault Circuit Interrupter (GFI or

GFCI) receptacle.

3.1.10 Vapor Investigation and Sampling

Sampling vapor requires the donning of work gloves in addition to the standard PPE when assembling the Summa™ canister with the regulator and cut resistant gloves when cutting sampling- or silicone-tubing to length. Langan personnel are not to operate contractor equipment nor assemble or install the contractor vapor point sampling equipment unless instructed by the work plan. When not instructed by the work plan, these tasks are to be completed by the contractor.

3.1.11 Additional Vapor Screening

Langan personnel may prescreen vapor samples for volatile organic compounds (VOCs), methane, hydrogen sulfide and lower explosion limit (LEL) conditions using duly calibrated devices design to screen vapor for these parameters. Langan personnel may also perform atmospheric screening for LEL. Results of the screening may be used in determining which soil vapor samples will be submitted for analysis.

Work activities will immediately cease, and the work area is to be evacuated if the MultiRAE returns a reading of 10% of the LEL (an alarm will sound). Langan personnel will contact the Langan PM. Instrument action levels for monitored gases are provided in Table 4.

3.1.12 Plugging and Abandonment of Observation/Monitoring Wells

Langan personnel are not to operate equipment nor assist in the plugging and abandonment of the observation/monitoring wells. These tasks are to be completed by the contractor.

3.1.13 Drum Sampling

Drilling fluid, rinse water, grossly contaminated soil samples, and cuttings will be containerized in 55-gallon drums for disposal off-site. Each drum must be labeled in accordance with the Langan Drum Labeling Standard Operating Procedure (SOP09). Sampling drums requires the donning of work gloves when opening the drums and chemical resistant gloves when sampling in addition to standard PPE.

Langan personnel and contractors are not to move or open any orphaned (unlabeled) drum found on the site without approval of the project manager.

3.2 Radiation Hazards

No radiation hazards are known or expected at the site.

3.3 Physical Hazards

Physical hazards, which may be encountered during site operations for this project, are detailed in Table 1.

3.3.1 Explosion

No explosion hazards are expected for the scope of work at this site.

3.3.2 Heat Stress

The use of Level C protective equipment, or greater, may create heat stress. Monitoring of personnel wearing personal protective clothing should commence when the ambient temperature is 72^{O}F or above. Table 6 presents the suggested frequency for such monitoring. Monitoring frequency should increase as ambient temperature increases or as slow recovery rates are observed. Refer to Table 7 to assist in assessing when the risk for heat-related illness is likely. To use this table, the ambient temperature and relative humidity must be obtained (a regional weather report should suffice). Heat stress monitoring should be performed by the HSO or the FTL, who must be able to recognize symptoms related to heat stress.

To monitor the workers, be familiar with the following heat-related disorders and their symptoms:

- **Heat Cramps:** Painful spasms of arm, leg, or abdominal muscles, during or after work
- **Heat Exhaustion:** Headache, nausea, dizziness; cool, clammy, moist skin; heavy sweating; weak, fast pulse; shallow respiration, normal temperature
- **Heat Stroke**: Headache, nausea, weakness, hot dry skin, fever, rapid strong pulse, rapid deep respirations, loss of consciousness, convulsions, coma. *This is a life-threatening condition***.**

Do not permit a worker to wear a semi-permeable or impermeable garment when they are showing signs or symptoms of heat-related illness.

To monitor the worker, measure:

- **Heart rate:** Count the radial pulse during a 30-second period as early as possible in the rest period. If the heart rate exceeds 100 beats per minute at the beginning of the rest period, shorten the next work cycle by one-third and keep the rest period the same. If

the heart rate still exceeds 100 beats per minute at the next rest period, shorten the following work cycle by one-third. A worker cannot return to work after a rest period until their heart rate is below 100 beats per minute.

- **Oral temperature:** Use a clinical thermometer (3 minutes under the tongue) or a similar device to measure the oral temperature at the end of the work period (before drinking). If oral temperature exceeds 99.6^{o}F (37.6^{o}C), shorten the next work cycle by one-third without changing the rest period. A worker cannot return to work after a rest period until their oral temperature is below 99.6^{o}F. If oral temperature still exceeds 99.6^{o}F (37.6^{o}C) at the beginning of the next rest period, shorten the following cycle by one-third. Do <u>not</u> permit a worker to wear a semi-permeable or impermeable garment when oral temperature exceeds 100.6^{o}F (38.1^{o}C).

<u>Prevention</u> <u>of</u> <u>Heat</u> <u>Stress</u> - Proper training and preventative measures will aid in averting loss of worker productivity and serious illness. Heat stress prevention is particularly important because once a person suffers from heat stroke or heat exhaustion, that person may be predisposed to additional heat-related illnesses. To avoid heat-stress the following steps should be taken:

- Adjust work schedules.
- Mandate work slowdowns as needed.
- Perform work during cooler hours of the day if possible or at night if adequate lighting can be provided.
- Provide shelter (air-conditioned, if possible) or shaded areas to protect personnel during rest periods.
- Maintain worker's body fluids at normal levels. This is necessary to ensure that the cardiovascular system functions adequately. Daily fluid intake must equal the amount of water lost in sweat, i.e., eight fluid ounces (0.23 liters) of water must be ingested for every eight ounces (0.23 kilograms [kg]) of weight lost. The normal thirst mechanism is not sensitive enough to ensure that enough water will be drunk to replace lost sweat. When heavy sweating occurs, encourage the worker to drink more. The following strategies may be useful:
    - Maintain water temperature 50^{o} to 60^{o}F (10^{o} to 16.6^{o}C).
    - Provide small disposal cups that hold about four ounces (0.1 liters).
    - Have workers drink 16 ounces (0.5 liters) of fluid (preferably water or dilute drinks) before beginning work.
    - Urge workers to drink a cup or two every 15 to 20 minutes, or at each monitoring break. A total of 1 to 1.6 gallons (4 to 6 liters) of fluid per day are recommended, but more may be necessary to maintain body weight.
    - Train workers to recognize the symptoms of heat-related illness.

3.3.3 Cold-Related Illness

If work on this project begins in the winter months, thermal injury due to cold exposure can become a problem for field personnel. Systemic cold exposure is referred to as hypothermia. Local cold exposure is called frostbite.

- **Hypothermia -** Hypothermia is defined as a decrease in the patient core temperature below 96^{O}F. The body temperature is normally maintained by a combination of central (brain and spinal cord) and peripheral (skin and muscle) activity. Interference with any of these mechanisms can result in hypothermia, even in the absence of what normally is considered a "cold" ambient temperature. Symptoms of hypothermia include shivering, apathy, listlessness, sleepiness, and unconsciousness.
- **Frostbite -** Frostbite is both a general and medical term given to areas of local cold injury. Unlike systemic hypothermia, frostbite rarely occurs unless the ambient temperatures are less than freezing and usually less than 20^{O}F. Symptoms of frostbite are a sudden blanching or whitening of the skin; the skin has a waxy or white appearance and is firm to the touch; tissues are cold, pale, and solid.

Prevention of Cold-Related Illness - To prevent cold-related illness:

- Educate workers to recognize the symptoms of frostbite and hypothermia.
- Identify and limit known risk factors:
- Assure the availability of an enclosed, heated environment on or adjacent to the site.
- Assure the availability of dry changes of clothing.
- Assure the availability of warm drinks.
- Start (oral) temperature recording at the job site:
- At the FSO or Field Team Leader's discretion when suspicion is based on changes in a worker's performance or mental status.
- At a worker's request.
- As a screening measure, two times per shift, under unusually hazardous conditions (e.g., wind-chill less than 20^{O}F, or wind-chill less than 30^{O}F with precipitation).
- As a screening measure whenever anyone worker on the site develops hypothermia.

Any person developing moderate hypothermia (a core temperature of 92^{O}F) cannot return to work for 48 hours.

3.3.4 Noise

Work during the proposed activities may be conducted at locations with high noise levels from the operation of equipment. Hearing protection will be used, as necessary.

3.3.5 Hand and Power Tools

The use of hand and power tools can present a variety of hazards, including physical harm from being struck by flying objects, being cut, or struck by the tool, fire, and electrocution. All hand and power tools should be inspected for health and safety hazards prior to use. If deemed unserviceable/un-operable, notify the supervisor and tag equipment out of service. Ground Fault Circuit Interrupters (GFCIs) are required for all power tools requiring direct electrical service.

3.3.6 Slips, Trips, and Fall Hazards

Care should be exercised when walking at the site, especially when carrying equipment. The presence of surface debris, uneven surfaces, pits, facility equipment, and soil piles contribute to tripping hazards and fall hazards. To the extent possible, all hazards should be identified and marked on the site, with hazards communicated to all workers in the area.

3.3.7 Utilities (Electrocution and Fire Hazards)

3.3.7.1 Utility Clearance

The possibility of encountering underground utilities poses fire, explosion, and electrocution hazards. All excavation work will be preceded by a review of available utility drawings and by notification of the subsurface work to N.Y. One –Call--Center.

3.3.7.2 Lockout-Tagout

The potential adverse effects of electrical hazards include burns, arc flashes, and electrocution, which could result in serious injury including death. Therefore, there is a procedure that establishes the requirements for the lockout/tag out (LOTO) of energy isolating devices in accordance with the OSHA electrical lockout and tagging requirements as specified in 29CFR1910.147 and 29 CFR 1926.417. This procedure will be used to ensure that all machines and equipment are isolated from potentially hazardous energy. If possible, equipment that could cause injury due to unexpected energizing, start-up, or release of stored energy will be locked/tagged, before field personnel perform work activities.

The facility owner/operator/representative is to be the authorized person that will initiate and perform the LOTO in accordance with applicable rules and practices. Inerting of electrical power sources is to be completed by an authorized and licensed electrician. Langan personnel will

follow LOTO protocols and practices including adding a separate lock/signature to the LOTO chain in accordance with said protocols and practices.

SPECIAL NOTE: Project personnel will assume that all electrical equipment at the surface, subsurface, and overhead locations are energized until equipment has been designated and confirmed as de-energized by a utility company representative. Langan will notify the designated utility representative prior to working adjacent to this equipment and will verify that the equipment is energized or de-energized in the vicinity of the work location. No project work shall be performed by Langan personnel or subcontractors near energized electrical lines or equipment.

The FTL shall accompany the designated facility owner/operator/representative or authorized/licensed electrician in surveying to locate and identify all energy-isolating devices. Langan will note which switches, valves or other isolating devices are used for inerting the equipment and how they are set assuring LOTO. The lockout/tagout procedure involves, but is not limited to, electricity, motors, steam, natural gas, compressed air, hydraulic systems, digesters, sewers, etc.

3.3.8 Adequate Lighting

Indoor or night activities must be done under adequate lighting conditions. The Langan field engineer must be able to clearly see the equipment, all controls and have sufficient lighting to detail color labels. Battery operated lights are sufficient provided they cast a wide enough field to provide the required lighting and there are back-up batteries and emergency flashlights available. Electrically powered lights are suitable provided the electrical source is equipped with a ground fault interrupt circuit (GFIC) and the extensions cords are visually inspected and not used if they show cracked or missing insulation. If a generator is supplying the electricity, it must be outdoors and properly vented.

3.3.9 Physical Hazard Considerations for Material Handling

There are moderate to severe risks associated with moving heavy objects at the Site. The following physical hazards should be considered when handling materials at the Site:

- Heavy objects will be lifted and moved by mechanical devices rather than manual effort whenever possible.
- The mechanical devices will be appropriate for the lifting of moving tasks and will be operated only by trained and authorized personnel.
- Objects that require special handling or rigging will only be moved under the guidance of a person who has been specifically trained to move such objects.

- Lifting devices will be inspected, certified, and labeled to confirm their weight capacities. Defective equipment will be taken out of service immediately and repaired or destroyed.
- The wheels of any trucks being loaded or unloaded will be choked to prevent movement. Outriggers will be fully extended on a flat, firm surface during operation.
- Personnel will not pass under a raised load, nor will a suspended load be left unattended.
- Personnel will not be carried on lifting equipment unless it is specifically designed to carry passengers.
- All reciprocating, rotating, or other moving parts will be guarded at all times.
- Accessible fire extinguishers, currently (monthly) inspected, will be available in all mechanical lifting devices.
- Verify all loads/materials are secure before transportation.

Material handling tasks that are unusual or require specific guidance will need a written addendum to this HASP. The addendum must identify the lifting protocols before the tasks are performed. Upon approval, the plan must be reviewed with all affected employees and documented. Any deviation from a written plan will require approval by the Langan HSM.

3.3.10 Hearing Conservation

Under the construction industry standard, the maximum permissible occupational noise exposure is 90 A-weighted decibels (dbA) (8-hour TWA), and noise levels in excess of 90 dbA must be reduced through feasible administrative and engineering controls (20 CFR 1926.52). Hearing protection is required when working within 15 feet of vacuum extraction equipment and drill rigs.

3.3.11 Open Water

Employees working over or near water, where the danger of drowning exists, must be provided with U.S. Coast Guard-approved life jackets or buoyant work vests. Prior to and after each use, the buoyant work vests or life preservers must be inspected for defects that would alter their strength or buoyancy. Defective units must not be used.

And should a worker fall into the water, OSHA requires (29 CFR 1926.106(c)) that ring buoys with at least 90 feet of the line must be provided and readily available for emergency rescue operations. The distance between ring buoys must not exceed 200 feet. Another remedial action required by OSHA (29 CFR 1926.106(d)) is the use of lifesaving skiffs.

OSHA requires that at least one lifesaving skiff must be immediately available at locations where employees are working over or adjacent to water and must include the following provisions.

- The skiff must be in the water or capable of being quickly launched by one person.
- At least one person must be present and specifically designated to respond to water emergencies and operate the skiff at all times when there are employees above water.
- When the operator is on break another operator must be designated to provide requisite coverage when there are employees above water.
- The designated operator must either have the skiff staffed at all times or have someone remain in the immediate area such that the operator can quickly reach the skiff and perform rescue services.
- The skiff operator may be assigned other tasks provided the tasks do not interfere with the operator's ability to quickly reach the skiff.
- A communication system, such as a walkie-talkie, must be used to inform the skiff operator of an emergency and to inform the skiff operator where the skiff is needed.
- The skiff must be equipped with both a motor and oars.

With regard to the number of skiffs required and the appropriate maximum response time, the following factors must be evaluated:

- The number of work locations where there is a danger of falling into water.
- The distance to each of those locations.
- Water temperature and currents.
- Other hazards such as, but not limited to, rapids, dams, and water intakes.

Other regulations that present H&S practices and PPE for work on or near water include: 29 CFR 1910, Subpart T (401 – 440)

3.4 Biological Hazards

3.4.1 Animals

There is a possibility of encountering wildlife including reptiles, rodents, and other small and medium-size mammals. Langan personnel are to avoid interacting with any wildlife.

3.4.2 Insects

Ticks and other biting or stinging insects may be encountered during site operations. Langan personnel should take necessary precautions including donning long sleeve shirts and insecticide to prevent bites and stings. After fieldwork, Langan personnel should perform a complete visual inspection of their clothing to insure they are not inadvertently harboring ticks. If they do observe a tick bite, they are to contact the HSM or HSO and report the event.

3.4.3 Plants

Poisonous plants may be encountered during site operations. Langan personnel should take necessary precautions including donning long sleeve shirts and applying preventative poison Ivy/Sumac lotion to prevent or limit the effects of exposure. If after fieldwork, Langan employees do observe a reaction to poisonous plant exposure, they are to contact the HSM or HSO and report the event.

3.4.4 Mold

This section is restricted to subsurface investigations where sampling soil, groundwater, soil or sub-slab vapor or ambient air in an indoor environment with slight to moderate mold impact. Mold exposure symptoms include nasal stuffiness, eye irritation, or wheezing.

The Langan field engineer is required to don a ½ face respirator with a minimum p-100 particulate filter and Tyvek™ type overclothing before entering mold impacted indoor work area. The Langan field engineer must be medically cleared and have been properly fitted for a respirator before donning one.

3.5 Additional Safety Analysis

3.5.1 Presence of Non-Aqueous Phase Liquids (NAPL)

Special care and PPE should be considered when NAPL is observed as NAPL is a typically flammable fluid and releases VOCs known to be toxic and/or carcinogenic. If NAPL is present in a monitoring well, vapors from the well casing may contaminate the work area breathing zone with concentrations of VOCs potentially exceeding health and safety action levels. In addition, all equipment used to monitor or sample NAPL (or ground water from wells containing NAPL) must be intrinsically safe. Equipment that directly contacts NAPL must also be resistant to organic solvents.

At a minimum, a PID should be used to monitor for VOCs when NAPL is observed. If NAPL is expected to be observed in an excavation or enclosed area, air monitoring must be started using calibrated air monitoring equipment designed to sound an audio alarm when atmospheric concentrations of VOC are within 10% of the LEL. In normal atmospheric oxygen concentrations, the LEL monitoring may be done with a Wheatstone bridge/catalytic bead type sensor (i.e., MultiRAE). However, in oxygen-depleted atmospheres (confined space), only an LEL designed to work in low-oxygen environments may be used. Best practices require that the LEL monitoring unit be equipped with a long sniffer tube to allow the LEL unit to remain outside the UST excavation.

When NAPL is present, Langan personnel are required to use disposable nitrile gloves at all times to prevent skin contact with contaminated materials. They should also consider having available a respirator and protective clothing (Tyvek® overalls), especially if NAPL is in abundance and there are high concentrations of VOCs.

All contaminated disposables including PPE and sampling equipment must be properly disposed of in labeled 55-gallon drums.

3.6 Job Safety Analysis

A Job Safety Analysis (JSA) is a process to identify existing and potential hazards associated with each job or task so these hazards can be eliminated, controlled, or minimized. A JSA will be performed at the beginning of each workday, and additionally whenever an employee begins a new task or moves to a new location. All JSAs must be developed and reviewed by all parties involved. A blank JSA form and documentation of completed JSAs are in Attachment G.

4.0 PERSONNEL TRAINING

4.1 Basic Training

Completion of an initial 40-hour HAZWOPER training program as detailed in OSHA's 29 CFR 1910.120(e) is required for all employees working on a site engaged in hazardous substance removal or other activities which expose or potentially expose workers to hazardous substances, health hazards, or safety hazards as defined by 29 CFR 1910.120(a). Annual 8-hour refresher training is also required to maintain competencies to ensure a safe work environment. In addition to these training requirements, all employees must complete the OSHA 10-hour Construction Safety and Health training and supervisory personnel must also receive eight additional hours of specialized management training. Training records are maintained by the HSM.

4.2 Initial Site-Specific Training

Training will be provided to specifically address the activities, procedures, monitoring, and equipment for site operations at the beginning of each field mobilization and the beginning of each discrete phase of work. The training will include the site and facility layout, hazards, and emergency services at the site, and will detail all the provisions contained within this HASP. For a HAZWOPER operation, training on the site must be for a minimum of 3 days. Specific issues that will be addressed include the hazards described in Section 3.0.

4.3 Tailgate Safety Briefings

Before starting work each day or as needed, the Langan HSO will conduct a brief tailgate safety meeting to assist site personnel in conducting their activities safely. Tailgate meetings will be documented in Attachment H. Briefings will include the following:

- Work plan for the day.
- Review of safety information relevant to planned tasks and environmental conditions.
- New activities/tasks being conducted.
- Results of Jobsite Safety Inspection Checklist.
- Changes in work practices.
- Safe work practices; and
- Discussion and remedies for noted or observed deficiencies.

5.0 MEDICAL SURVEILLANCE

All personnel who will be performing fieldwork involving potential exposure to toxic and hazardous substances (defined by 29 CFR 1910.120(a)) will be required to have passed an initial baseline medical examination, with follow-up medical exams thereafter, consistent with 29 CFR 1910.120(f). Medical evaluations will be performed by, or under the direction of, a physician board-certified in occupational medicine.

Additionally, personnel who may be required to perform work while wearing a respirator must receive medical clearance as required under CFR 1910.134(e), *Respiratory Protection*. Medical evaluations will be performed by, or under the direction of, a physician board-certified in occupational medicine. Results of medical evaluations are maintained by the HSM.

5.1 Mercury Monitoring

Langan includes medical monitoring for mercury during the initial baseline and annual physical.

5.2 Coronavirus

General Preventative Measures

Field personnel must follow general proper hygiene measures while in the field including:

- Avoid touching eyes, nose, and mouth.
- Cover coughs or sneezes with tissue and throw in the trash.
- Wash hands often with soap and water for 20 seconds after going to the bathroom, before eating, after blowing nose, coughing, or sneezing.

- Use hand sanitizer with at least 60% alcohol if soap and water are not available.
- Avoid physical contact with other people (e.g., no handshakes).
- Maintain a safe distance of at least six feet from other people (social distancing).
- Wear face coverings when around other workers to minimize the spread of COVID-19. (May be required in certain states or locations.)

Construction Trailers

Employees should avoid the use of shared construction trailers or where employees cannot maintain a safe distance (minimum 6 feet) from other workers. If trailer use is needed, areas such as desks, phones, chairs, and other common areas, should be cleaned and disinfected before and after use. Protocols should be developed to minimize trailer use to essential personnel, restrict use from any workers who are ill or showing symptoms of being ill, use face coverings and ensure a safe distance of six feet can be established between workers.

Communication

Include Coronavirus topics and prevention topics in daily tailgate meetings to ensure Coronavirus awareness is communicated daily. Discussions can focus on general topics including social distancing, prevention measures for field personnel, signs and symptoms, and recent news on the Coronavirus. Site-specific topics should include minimizing face-to-face contact, disinfecting/sterilizing field equipment, use of PPE to reduce exposure, site security, use of face coverings, and other potential exposure issues/concerns.

Sick/Ill Workers

No Langan employee is permitted to be onsite when ill and/or showing potential symptoms of the Coronavirus. Symptoms of the Coronavirus may appear 2-14 days after exposure and can range from mild to severe. The most common symptoms include fever, fatigue, dry cough, shortness of breath chills, repeated shaking with chills, muscle pain, headache, sore throat, or new loss of taste or smell. If an employee or subcontractor is observed being ill or exhibiting symptoms of Coronavirus, employees must immediately utilize their Stop Work Authority and contact their project manager to address the situation. If an employee observes another worker onsite exhibiting symptoms of Coronavirus, immediately utilize Stop Work Authority, notify their project manager, and site construction manager or safety officer. Work should resume when the safety and health of Langan and subcontractors is adequately addressed.

6.0 PERSONAL PROTECTIVE EQUIPMENT

6.1 Levels of Protection

Langan will provide PPE to Langan employees to protect them from the specific hazards they are likely to encounter on-site. Directly hired contractors will provide their employees with equivalent PPE to protect them from the specific hazards likely to be encountered on-site. Selection of the appropriate PPE must take into consideration: (1) identification of the hazards or suspected hazards; (2) potential exposure routes; and (3) the performance of the PPE construction (materials and seams) in providing a barrier to these hazards.

Human exposure to contaminants found in the subsurface can occur through three primary routes:

- Inhalation of gases, vapors, dust, or mists is a common route of exposure. Chemicals can enter and irritate the airways and the lungs. They can become deposited in the airways or can be absorbed through the lungs into the bloodstream.
- Direct contact of contaminants with the skin or eyes is a common route of exposure. Some substances are absorbed through the skin and can enter the bloodstream. Broken, cut, or cracked skin will allow substances to enter the body more easily.
- Ingestion or swallowing of food, drink, or other substances is the third route of exposure. Chemicals that get in or on food, utensils, or hands can be ingested. Substances can be absorbed into the blood.

Based on anticipated site conditions and the proposed work activities to be performed at the site, Level D protection will be used. The upgrading/downgrading of the level of protection will be based on continuous air monitoring results as described in Section 6.0 (when applicable). The decision to modify standard PPE will be made by the site HSO or FTL after conferring with the PM. The levels of protection are described below.

Level D Protection (as needed)

- Safety glasses with side shields or chemical splash goggles
- Safety boots/shoes
- Coveralls (Tyvek® or equivalent)
- Hard hat
- Long sleeve work shirt and work pants
- Nitrile gloves
- Hearing protection

- Reflective safety vest

Level D Protection (Modified, as needed)

- Safety glasses with side shields or chemical splash goggles
- Safety boots/shoes (toe-protected)
- Disposable chemical-resistant boot covers.
- Coveralls (poly-coated Tyvek or equivalent to be worn when contact with wet contaminated soil, groundwater, or non-aqueous phase liquids is anticipated)
- Hard hat
- Long sleeve work shirt and work pants
- Nitrile gloves
- Hearing protection (as needed)
- Personal floatation device (for work within 5 ft of the water)
- Reflective traffic vest

Level C Protection (as needed)

- Full or Half face, air-purifying respirator, with NIOSH approved High-Efficiency Particulate Air (HEPA) filter.
- Inner (latex) and outer (nitrile) chemical-resistant gloves
- Safety glasses with side shields or chemical splash goggles
- Chemical-resistant safety boots/shoes
- Hard hat
- Long sleeve work shirt and work pants
- Coveralls (Tyvek® or equivalent)
- Hearing protection (as needed)
- Reflective safety vest

The action levels used in determining the necessary levels of respiratory protection and upgrading to Level C are summarized in Table 4. The written Respiratory Protection Program is maintained by the HSM and is available if needed. The monitoring procedures and equipment are outlined in Section 6.0 (when applicable).

6.2 Respirator Fit-Test.

All Langan employees who may be exposed to hazardous substances at the work site must be in possession of a full or half face piece air-purifying respirator and have been successfully fit-tested within the past year. Fit-test records are maintained by the HSM.

6.3 Respirator Cartridge Change-Out Schedule

Respiratory protection is required to be worn when certain action levels (Table 2) are reached. A respirator cartridge change-out schedule has been developed to comply with 29 CFR 1910.134. The respirator cartridge change-out schedule for this project is as follows:

- Cartridges must be removed and disposed of at the end of each shift when cartridges become wet or the wearer experiences a breakthrough, whichever occurs first.
- If the humidity exceeds 85%, then cartridges must be removed and disposed of after 4 hours of use.

Respirators must not be stored at the end of the shift with contaminated cartridges left on. Cartridges must not be worn on the second day, no matter how short the time period was the previous day they were used.

7.0 AIR QUALITY MONITORING AND ACTIONS LEVELS

7.1 Monitoring During Site Operations

Atmospheric air monitoring results may be collected and used to provide data to determine when exclusion zones need to be established and when certain levels of personal protective equipment are required. For all instruments, there are Site-specific action-level criteria that are used in making field health and safety determinations. Other data, such as the visible presence of contamination or the steady state nature of air contaminant concentration, are also used in making field health and safety decisions. Therefore, the HSO may establish an exclusion zone or require a person to wear a respirator even though atmospheric air contaminant concentrations are below established HASP action levels.

During site work involving disturbance of petroleum-impacted or fill material, real-time air monitoring may be conducted for methane and VOCs. A MultiRAE LEL/Oxygen (O2) meter and FID will be used to monitor the LEL of methane, and a PID and/or FID will be used to monitor concentrations of VOCs at personnel breathing-zone height. Air monitoring will be the responsibility of the HSO or designee. Air monitoring may be conducted during intrusive activities associated with the completion of excavation, debris removal, and soil grading. All manufacturers' instructions for instrumentation and calibration will be available onsite.

Subcontractors' air monitoring plans must be equal to or more stringent than the Langan plan.

An air monitoring calibration log is provided in Attachment D of this HASP.

7.1.1 Volatile Organic Compounds

Monitoring with a PID, such as a MiniRAE 2000 (10.6v) or equivalent may occur during intrusive work in the Areas of Concern (AOCs). Colorimetric Indicator Tubes for benzene may be used as a backup for the PID if measurements remain above background monitor every 2 hours. The HSO will monitor the employee's breathing zone at least every 30 minutes, or whenever there is any indication that concentrations may have changed (odors, visible gases, etc.) since the last measurement. If VOC levels are observed above 5 ppm for longer than 5 minutes or if the site PPE is upgraded to Level C, the HSO will begin monitoring the site perimeter at a location downwind of the AOC every 30 minutes in addition to the employee breathing zone. Instrument action levels for monitored gases are provided in Table 4.

7.1.2 Metals

Based upon the site historical fill, there is a potential for the soils to contain Polycyclic Aromatic Hydrocarbons (PAHs) and metals. During invasive procedures which have the potential for creating airborne dust, such as excavation of dry soils, a real-time airborne dust monitor such as a Mini-Ram may be used to monitor for air particulates. The HSO will monitor the employee's breathing zone at least every 30 minutes, or whenever there is any indication that concentrations may have changed (appearance of visible dust) since the last measurement. If dust levels are observed to be greater than 0.100 milligrams per cubic meter (mg/m^3) or visible dust is observed for longer than 15 minutes or if the site PPE is upgraded to Level C, the HSO will begin monitoring the site perimeter at a location downwind of the AOC every 30 minutes in addition to the employee breathing zone. Instrument action levels for dust monitoring are provided in Table 4.

7.1.3 Methane

During soil excavation or other intrusive activities, direct reading air monitoring may be performed in the excavation area to determine exposure to workers. Monitoring with an LEL/O2 meter and FID may occur during intrusive work in the AOCs. The HSO will monitor the employee's breathing zone at least hourly during intrusive activities. If LEL levels are observed above 20% the professional engineer (PE) or their designee will stop work and evacuate the area; warn others; and determine source of readings and take corrective actions. The Contractor will be responsible for mitigating explosive gas levels.

7.2 Monitoring Equipment Calibration and Maintenance

Instrument calibration must be documented and included in a dedicated safety and health logbook or on separate calibration pages of the field book. All instruments must be calibrated

before and after each shift. Calibration checks may be used during the day to confirm instrument accuracy. Duplicate readings may be taken to confirm individual instrument responses.

All instruments must be operated in accordance with the manufacturers' specifications. Manufacturers' literature, including an operation manual for each piece of monitoring equipment, will be maintained on-site by the HSO for reference.

7.3 Determination of Background Levels

Background (BKD) levels for VOCs, dust, and methane will be established prior to intrusive activities within the AOC at an upwind location. A notation of BKD levels will be referenced in the daily monitoring log. BKD levels are a function of prevailing conditions. BKD levels will be taken in an appropriate upwind location as determined by the HSO.

Table 4 lists the instrument action levels.

8.0 COMMUNITY AIR MONITORING PROGRAM

Community air monitoring may be conducted in compliance with local standards. If conducted, Langan will implement the generic CAMP outlined below amended to comply with local conditions or standards:

Monitoring for dust and odors will be conducted during all ground intrusive activities by the FTL. Continuous monitoring of the perimeter of the work zones for odor, VOCs, and dust may be required for all ground intrusive activities such as soil excavation and handling activities. The work zone is defined as the general area in which machinery is operating in support of remediation activities. A portable PID will be used to monitor the work zone and for periodic monitoring for VOCs during activities such as soil and groundwater sampling and soil excavation. The site perimeter will be monitored for fugitive dust emissions by visual observations as well as instrumentation measurements (if required). When required, particulate or dust will be monitored continuously with real-time field instrumentation that will meet, at a minimum, the local standards or, default to the performance standards below:

If VOC monitoring is required, the following actions will be taken based on VOC levels measured:

- If total VOC levels exceed 5 ppm above background for the 15-minute average at the perimeter, work activities will be temporarily halted and monitoring continued. If levels readily decrease (per instantaneous readings) below 5 ppm above background, work activities will resume with continued monitoring.
- If total VOC levels at the downwind perimeter of the hot zone persist at levels in excess of 5 ppm above background but less than 25 ppm, work activities will be halted, the

source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps work activities will resume provided that the total organic vapor level is 200 feet downwind of the hot zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less – but in no case less than 20 feet, is below 5 ppm above background for the 15-minute average.

- If the total VOC level is above 25 ppm at the perimeter of the hot zone, activities will be shut down.

If dust monitoring with field instrumentation is required, the following actions will be taken based on instrumentation measurements:

- If the downwind particulate level is 100 micrograms per cubic meter (µg/m³) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression must be employed. Work may continue with dust suppression techniques provided that downwind particulate matter less than 10 microns (PM10) levels do not exceed 150 µg/m³ above the background level and provided that no visible dust is migrating from the work area.
- If, after implementation of dust suppression techniques, downwind PM10 levels are greater than 150 µg/m³ above the background level, work must be stopped, and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM10 concentration to within 150 µg/m³ of the upwind level and in preventing visible dust migration.

8.1 Dust Suppression Techniques

Preventative measures for dust generation may include wetting site fill and soil, construction of an engineered construction entrance with a gravel pad, a truck wash area, covering soils with tarps, and limiting vehicle speeds to five miles per hour.

Work practices to minimize odors and vapors include limiting the time that the excavations remain open, minimizing stockpiling of contaminated-source soil, and minimizing the handling of contaminated material. Offending odor and organic vapor controls may include the application of foam suppressants or tarps over the odor or VOC source areas. Foam suppressants may include biodegradable foams applied over the source material for short-term control of the odor and VOCs.

If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include direct load-out of soils to trucks for off-site disposal; use of chemical

odorants in spray or misting systems; and use of staff to monitor odors in surrounding neighborhoods.

Where odor nuisances have developed during remedial work and cannot be corrected, or where the release of nuisance odors cannot otherwise be avoided due to on-site conditions or proximity to sensitive receptors, odor control will be achieved by sheltering excavation and handling areas under tented containment structures equipped with appropriate air venting/filtering systems.

9.0 WORK ZONES AND DECONTAMINATION

9.1 Site Control

Work zones are intended to control the potential spread of contamination throughout the site and to assure that only authorized individuals are permitted into potentially hazardous areas.

Any person working in an area where the potential for exposure to site contaminants exists will only be allowed access after providing the HSO with proper training and medical documentation.

Exclusion Zone (EZ) - All activities which may involve exposure to site contaminants, hazardous materials, and/or conditions should be considered an EZ. Decontamination of field equipment will also be conducted in the Contaminant Reduction Zone (CRZ) which will be located on the perimeter of the EZ. The EZ and the CRZ will be delineated by cones, tapes, or other means. The HSO may establish more than one EZ where different levels of protection may be employed, or different hazards exist. The size of the EZ must be determined by the HSO allowing adequate space for the activity to be completed, field members, and emergency equipment.

9.2 Contamination Zone

9.2.1 Personnel Decontamination Station

Personal hygiene, coupled with diligent decontamination, will significantly reduce the potential for exposure.

9.2.2 Minimization of Contact with Contaminants

During the completion of all site activities, personnel should attempt to minimize the chance of contact with contaminated materials. This involves a conscientious effort to keep "clean" during site activities. All personnel should minimize kneeling, splash generation, and another physical contact with contamination as PPE is intended to minimize accidental contact. This may minimize the degree of decontamination required and the generation of waste materials from site operations.

Field procedures will be developed to control spray and runoff and to ensure that unprotected personnel working nearby are not affected.

9.2.3 Personnel Decontamination Sequence

Decontamination may be performed by removing all PPE used in EZ and placing it in drums/trash cans at the CRZ. Baby wipes should be available for wiping hands and face. Drums/trash cans-will be labeled by the field crews in accordance with all local, state, and federal requirements. Management plans for contaminated PPE, and tools are provided below.

9.2.4 Emergency Decontamination

If circumstances dictate that contaminated clothing cannot be readily removed, then remove gross contamination and wrap injured personnel with clean garments/blankets to avoid contaminating other personnel or transporting equipment. If the injured person can be moved, he/she will be decontaminated by site personnel as described above before emergency responders handle the victim. If the person cannot be moved because of the extent of the injury (a back or neck injury), provisions must be made to ensure that emergency response personnel will be able to respond to the victim without being exposed to potentially hazardous atmospheric conditions. If the potential for inhalation hazards exists, such as with open excavation, this area will be covered with polyethylene sheeting to eliminate any potential inhalation hazards. All emergency personnel should be immediately informed of the injured person's condition, and potential contaminants, and provided with all pertinent data.

9.2.5 Hand-Held Equipment Decontamination

Hand-held equipment includes all monitoring instruments as stated earlier, samples, hand tools, and notebooks. The hand-held equipment is dropped at the first decontamination station to be decontaminated by one of the decontamination team members. These items must be decontaminated or discarded as waste prior to removal from the CRZ.

To aid in decontamination, monitoring instruments can be sealed in plastic bags or wrapped in polyethylene. This will also protect the instruments against contaminants. The instruments will be wiped clean using wipes or paper towels if contamination is visually evident. Sampling equipment, hand tools, etc. will be cleaned with non-phosphorous soap to remove any potentially contaminated soil and rinsed with deionized water. All decontamination fluids will be containerized and stored on-site pending waste characterization sampling and appropriate off-site disposal.

9.2.6 Heavy Equipment Decontamination

All heavy equipment and vehicles arriving at the work site will be free from contamination from offsite sources. Any vehicles arriving to work that are suspected of being impacted will not be permitted on the work site. Potentially contaminated heavy equipment will not be permitted to leave the EZ unless it has been thoroughly decontaminated and visually inspected by the HSO or his designee.

9.3 Support Zone

The support zone or cold zone will include the remaining areas of the job site. Break areas and support facilities (including equipment storage and maintenance areas) will be located in this zone. No equipment or personnel will be permitted to enter the cold zone from the hot zone without passing through the decontamination station in the warm zone (if necessitated). Eating, smoking, and drinking will be allowed only in this area.

9.4 Communications

The following communications equipment will be utilized as appropriate.

- Telephones - A cellular telephone will be located with the HSO for communication with the HSM and emergency support services/facilities.
- Hand Signals - Hand signals must be used by field teams, along with the buddy system. The entire field team must know them before operations commence and their use covered during site-specific training. Typical hand signals are the following:

Hand Signal	Meaning
Hand gripping throat	Out of air, cannot breathe
Grip your partner's wrists or place both hands around the waist	Leave immediately without debate
Hands on top of head	Need assistance
Thumbs up	OK; I am all right; I understand
Thumbs down	No; negative
Simulated "stick" break with fists	Take a break; stop work

9.5 The Buddy System

When working in teams of two or more, workers will use the "buddy system" for all work activities to ensure that rapid assistance can be provided in the event of an emergency. This requires work groups to be organized such that workers can remain close together and maintain visual contact with one another. Workers using the "buddy system" have the following responsibilities:

- Provide his/her partner with assistance.
- Observe his/her partner for signs of chemical or heat exposure.
- Periodically check the integrity of his/her partner's PPE.
- Notify the HSO or other site personnel if emergency service is needed.

10.0 NEAREST MEDICAL ASSISTANCE

The address and telephone number of the nearest hospital:

St Barnabas Hospital
4422 Third Ave
Bronx, New York
718-960-9000

A map with directions to the hospital is shown in Figure 2. This information will either be posted prominently at the site or will be available to all personnel all of the time. Further, all field personnel, including the HSO & FTL, will know the directions to the hospital.

11.0 STANDING ORDERS/SAFE WORK PRACTICES

The standing orders, which consist of a description of safe work practices that must always be followed while on-site by Langan employees and contractors, are shown in Attachment A. The site HSO and FTL each have the responsibility for enforcing these practices. The standing orders will be posted prominently at the site or are made available to all personnel at all times. Those who do not abide by these safe work practices will be removed from the site.

12.0 SITE SECURITY

No unauthorized personnel must be permitted access to the work areas.

13.0 UNDERGROUND UTILITIES

As provided in Langan's Underground Utility Clearance Guidelines, the following safe work practices should be followed by Langan personnel and the contractor before and during subsurface work in accordance with federal, state, and local regulations:

- Obtain available utility drawings from the property owner/client or operator.
- Provide utility drawings to the project team.
- In the field, mark the proposed area of subsurface disturbance (when possible).
- Ensure that the utility clearance system has been notified.
- Ensure that utilities are marked before beginning subsurface work.
- Discuss subsurface work locations with the owner/client and contractors.

- Obtain approval from the owner/client and operators for proposed subsurface work locations.
- Use safe digging procedures when applicable.
- Stay at least 10 feet from all equipment performing subsurface work.

14.0 SITE SAFETY INSPECTION

The Langan HSO or alternate will check the work area daily, at the beginning and end of each work shift, or more frequently to ensure safe work conditions. The HSO or alternate must complete the Jobsite Safety Inspection Checklist, found in Attachment F. Any deficiencies must be shared with the FTL, HSM, and PM and will be discussed at the daily tailgate meeting.

15.0 HAND AND POWER TOOLS

All hand- and electric-power tools and similar equipment must be maintained in a safe operating condition. All electric-power tools must be inspected before initial use. Damaged tools must be removed immediately from service or repaired. Tools must be used only for the purpose for which they were designed. All users must be properly trained in their safe operation.

16.0 EMERGENCY RESPONSE

16.1 General

This section establishes procedures and provides information for use during a project emergency. Emergencies happen unexpectedly and quickly, and require an immediate response; therefore, contingency planning and advanced training of staff is essential. Specific elements of emergency support procedures that are addressed in the following subsections include communications, local emergency support units, and preparation for medical emergencies, first aid for injuries incurred on site, record keeping, and emergency site evacuation procedures. In case of emergency, in addition to 911, call *WorkCare - Incident Intervention®* at 1-888-479-7787 to report their injuries. For all other communications, contact the Langan Incident Hotline at **973-560-4699** as soon as possible.

Should outside assistance be needed for accidents, fire, or release of hazardous substances, the emergency numbers will be available and posted at the site (Table 5) where a readily accessible telephone is made available for emergency use.

Also, in the event of an incident where a team member becomes exposed or suffers from an acute symptom from contact with site materials and has to be taken to a hospital, a short medical data sheet (Attachment C) for that individual will be made available to the attending physician. The medical data sheet will include the following:

- Name, address, home phone
- Age, height, weight
- Name of person to be notified in case of an accident.
- Allergies
- Particular sensitivities
- Does he/she wear contact lenses?
- Short checklist of previous illness
- Name of personal physician and phone
- Name of company physician and phone
- Prescription and non-prescription medications currently used.

An incident reporting form is included in Attachment C.

16.2 Responsibilities

16.2.1 Health and Safety Officer (HSO)

The HSO is responsible for ensuring that all personnel are evacuated safely, and that machinery and processes are shut down or stabilized in the event of a stop work order or evacuation. The HSO is responsible for ensuring the HSM is notified of all incidents, all injuries, near misses, fires, spills, releases, or equipment damage. The HSO is required to immediately notify the HSM of any fatalities or catastrophes (three or more workers injured and hospitalized) so that the HSM can notify OSHA within the required time limit.

16.2.2 Emergency Coordinator

The HSO or their designated alternate will serve as the Emergency Coordinator. The Emergency Coordinator is responsible for ensuring that all personnel are evacuated safely, and that machinery and processes are shut down or stabilized in the event of a stop work order or evacuation. They are also responsible for ensuring the HSM is notified of all incidents, all injuries, near misses, fires, spills, releases, or equipment damage. The Emergency Coordinator is required to immediately notify the HSM of any fatalities or catastrophes (three or more workers injured and hospitalized.

The Emergency Coordinator must locate emergency phone numbers and identify hospital routes prior to beginning work on the sites. The Emergency Coordinator must make necessary arrangements to be prepared for any emergencies that could occur.

The Emergency Coordinator is responsible for implementing the Emergency Response Plan.

16.2.3 Site Personnel

Project site personnel are responsible for knowing the Emergency Response Plan and the procedures contained herein. All personnel are expected to notify the Emergency Coordinator of situations that could constitute a site emergency. Project site personnel, including all subcontractors, will be trained in the Emergency Response Plan.

16.3 Communications

Once an emergency situation has been stabilized, the injured Langan personnel should contact *WorkCare - Incident Intervention®* at 1-888-479-7787 to report their injuries. For all other communications, contact the Langan Incident Hotline at **973-560-4699** as soon as possible.

16.4 Local Emergency Support Units

In order to be able to deal with any emergency that might occur during investigative activities at the site, the Emergency Notification Numbers (Table 5) will be posted and provided to all personnel conducting work within the EZ.

Figure 2 shows the hospital route map. Outside emergency number 911 and local ambulance should be relied on for response to medical emergencies and transport to emergency rooms. Always contact first responders when there are serious or life-threatening emergencies on the site. Project personnel are instructed not to drive injured personnel to the Hospital. In the event of an injury, provide first aid and keep the injured party calm and protected from the elements, and treat for shock when necessary.

16.5 Pre-Emergency Planning

Langan will communicate directly with administrative personnel from the emergency room at the hospital to determine whether the hospital has the facilities and personnel needed to treat cases of trauma resulting from any of the contaminants expected to be found on the site. Instructions for finding the hospital will be posted conspicuously in the site office and each site vehicle.

16.6 Emergency Medical Treatment

The procedures and rules in this HASP are designed to prevent employee injury. However, if an injury occurs, no matter how slight, it will be reported to the HSO immediately. First-aid equipment will be available on-site at the following locations:

- First Aid Kit: Contractor Vehicles
- Emergency Eye Wash: Contractor Vehicles

During the site safety briefing, project personnel will be informed of the location of the first aid station(s) that has been set up. Some injuries, such as severe cuts and lacerations or burns, may require immediate treatment. First-aid instructions provided from off-site doctors or paramedics, before an emergency-response squad arrives at the site or before the injured person can be transported to the hospital, will be followed closely. Only in non-emergency situations may an injured person be transported to an urgent care facility. Due to hazards that may be present at the site and the conditions under which operations are conducted, an emergency may develop. Emergencies can be characterized as injury or acute chemical exposure to personnel, fire or explosion, environmental release, or hazardous weather conditions.

16.8 Emergency Site Evacuation Routes and Procedures

All project personnel will be instructed on proper emergency response procedures and locations of emergency telephone numbers during the initial site safety meeting. If an emergency occurs as a result of the site investigation activities, including but not limited to fire, explosion, or significant release of toxic gas into the atmosphere, the Langan Project Manager will be verbally notified immediately. All heavy equipment will be shut down and all personnel will evacuate the work areas and assemble at the nearest intersection to be accounted for and to receive further instructions.

If an emergency arises, the FTL will implement an immediate evacuation of all project personnel due to immediate or impending danger. The FTL will also immediately communicate with the contractor to coordinate any needed evacuation of the property.

The FTL or Site Supervisor will give necessary instructions until the Designated Incident Commander (IC) assumes control. After the emergency has been resolved, the FTL or Site Supervisor will coordinate with the IC and indicate when staff should resume their normal duties. If dangers are present for those at the designated assembly point, another designated location of assembly will be established.

It will be the responsibility of the FTL or Site Supervisor to report a fire or emergency, assess the seriousness of the situation, and initiate emergency measures until the arrival of the local fire fighters or other first responders, should they be necessary. The FTL, working with emergency responders, may also order the closure of the Site for an indefinite period as long as it is deemed necessary.

Under no circumstances will incoming visitors be allowed to proceed to the area of concern once an emergency evacuation has been implemented. Visitors or other persons present in the area of the emergency must be instructed to evacuate the area. The FTL will ensure that access roads

are not obstructed and will remain on-site to provide stand-by assistance upon the arrival of emergency personnel.

If it is necessary to temporarily control traffic in the event of an emergency, those persons controlling traffic will wear proper reflection warning vests until the arrival of police or fire personnel.

16.8.1 Designated Assembly Locations

All personnel will evacuate the site and assemble at a designated assembly location. The assembly location will be designated by Langan personnel and discussed during each shift's pre-job safety briefing.

16.8.2 Accounting for Personnel

All contractor and subcontractor supervisors are responsible for the accounting of all personnel assembled at the designed assembly area. The Designated Incident Commander must be notified if personnel are not found.

16.9 Fire Prevention and Protection

In the event of a fire or explosion, procedures will include immediately evacuating the site and notification of the Langan Project Manager of the investigation activities. Portable fire extinguishers will be provided at the work zone. The extinguishers located in the various locations should also be identified prior to the start of work. No personnel will fight a fire beyond the stage where it can be put out with a portable extinguisher (incipient stage).

16.9.1 Fire Prevention

Fires will be prevented by adhering to the following precautions:

- Good housekeeping and storage of materials.
- Storage of flammable liquids and gases away from oxidizers.
- Shutting off engines to refuel.
- Grounding and bonding metal containers during transfer of flammable liquids.
- Use of UL approved flammable storage cans.
- Fire extinguishers rated at least 10 pounds ABC located on all heavy equipment, in all trailers and near all hot work activities.

The person responsible for the control of fuel source hazards and the maintenance of fire prevention and/or control equipment is the HSO.

16.10 Significant Vapor Release

Based on the proposed tasks, the potential for a significant vapor release is low. However, if a release occurs, the following steps will be taken:

- Move all personnel to an upwind location. All non-essential personnel must evacuate.
- Upgrade to Level C Respiratory Protection.
- Downwind perimeter locations must be monitored for volatile organics.
- If the release poses a potential threat to human health or the environment in the community, the Emergency Coordinator must notify the Langan Project Manager.
- Local emergency response coordinators will be notified.

16.11 Overt Chemical Exposure

The following are standard procedures to treat chemical exposures. Other, specific procedures detailed on the Material Safety Data Sheet (MSDS) will be followed, when necessary.

SKIN AND EYE: Use copious amounts of soap and water from eye-wash kits and portable hand-wash stations.

CONTACT: Wash/rinse affected areas thoroughly, then provide appropriate medical attention. Skin must also be rinsed for 15 minutes if contact with caustics, acids, or hydrogen peroxide occurs. Affected items of clothing must also be removed from contact with skin.

Providing wash water and soap will be the responsibility of each individual contractor or subcontractor on-site.

16.12 Decontamination during Medical Emergencies

If emergency lifesaving first aid and/or medical treatment is required, normal decontamination procedures may need to be abbreviated or omitted. The HSO or designee will accompany contaminated victims to the medical facility to advice on matters involving decontamination when necessary. The outer garments can be removed if they do not cause delays, interfere with treatment, or aggravate the problem. Respiratory equipment must always be removed. Protective clothing can be cut away. If the outer contaminated garments cannot be safely removed on site, a plastic barrier placed between the injured individual and clean surfaces should be used to help prevent contamination of the inside of ambulances and/or medical personnel. Outer garments may then be removed at the medical facility. No attempt will be made to wash or rinse the victim if his/her injuries are life threatening unless it is known that the individual has been contaminated with an extremely toxic or corrosive material which could also cause severe

injury or loss of life to emergency response personnel. For minor medical problems or injuries, normal decontamination procedures will be followed.

16.13 Adverse Weather Conditions

In the event of adverse weather conditions, the HSO will determine if work will continue without potentially risking the safety of all field workers. Some of the items to be considered prior to determining if work should continue are:

- Potential for heat stress and heat-related injuries.
- Potential for cold stress and cold-related injuries.
- Treacherous weather-related working conditions (hail, rain, snow, ice, high winds).
- Limited visibility (fog).
- Potential for electrical storms.
- Earthquakes.
- Other major incidents.

Site activities will be limited to daylight hours, or when suitable artificial light is provided, and acceptable weather conditions prevail. The HSO will determine the need to cease field operations or observe daily weather reports and evacuate, if necessary, in case of severe inclement weather conditions.

16.14 Spill Control and Response

All small spills/environmental releases must be contained as close to the source as possible. Whenever possible, the MSDS will be consulted to assist in determining proper waste characterization and the best means of containment and cleanup. For small spills, sorbent materials such as sand, sawdust, or commercial sorbents should be placed directly on the substance to contain the spill and aid recovery. Any acid spills should be diluted or neutralized carefully prior to attempting recovery. Berms of earthen or sorbent materials can be used to contain the leading edge of the spills. All spill containment materials will be properly disposed of. An exclusion zone of 50 to 100 feet around the spill area should be established depending on the size of the spill.

All contractor vehicles must have spill kits on them with enough material to contain and absorb the worst-case spill from that vehicle. All vehicles and equipment must be inspected prior to being admitted on-site. Any vehicle or piece of equipment that develops a leak will be taken out of service and removed from the job site.

The following seven steps must be taken by the Emergency Coordinator:

1. Determine the nature, identity, and amounts of major spills.
2. Make sure all unnecessary persons are removed from the spill area.
3. Notify the HSO immediately.
4. Use proper PPE in consultation with the HSO.
5. If a flammable liquid, gas, or vapor is involved, remove all ignition sources, and use non-sparking and/or explosion-proof equipment to contain or clean up the spill (diesel-only vehicles, air-operated pumps, etc.)
6. If possible, try to stop the leak with the appropriate material.
7. Remove all surrounding materials that can react or compound with the spill.

In addition to the spill control and response procedures described in this HASP, Langan personnel will coordinate with the designated project manager relative to spill response and control actions. Notification to the Project Manager must be immediate and, to the extent possible, include the following information:

- Time and location of the spill.
- Type and nature of the material spilled.
- Amount spilled.
- Whether the spill has affected or has a potential to affect a waterway or sewer.
- A brief description of affected areas/equipment.
- Whether the spill has been contained.
- Expected time of cleanup completion. If spill cleanup cannot be handled by Langan's on-site personnel alone, such fact must be conveyed to the Project Manager immediately.

Langan field personnel must notify the project manager when they observe a spill or encounter conditions suggesting one might have occurred.

16.15 Emergency Equipment

The following minimum emergency equipment must be kept and maintained on site:

- Industrial first aid kit.
- Fire extinguishers (one per site).

16.16 Restoration and Salvage

After an emergency, prompt restoration of utilities, fire protection equipment, medical supplies, and other equipment will reduce the possibility of further losses. Some of the items that may need to be addressed are:

- Refilling fire extinguishers.
- Refilling medical supplies.
- Recharging eyewashes and/or showers.
- Replenishing spill control supplies.

16.17 Documentation

Immediately following an incident or near miss, unless emergency medical treatment is required, either the employee or a coworker must contact the Langan Incident/Injury Hotline at 1-(800)-9-LANGAN (extension 4699) and the client representative to report the incident or near miss. For emergencies involving personnel injury and/or exposure, the HSO and affected employee will complete and submit an Employee Exposure/Injury Incident Report (Attachment C) to the Langan Corporate Health and Safety Manager as soon as possible following the incident.

17.0 SPECIAL CONDITIONS

This guideline contains information and requirements for special conditions that may not be routinely encountered.

17.1 Scope

The guideline applies to the specific projects identified within this document. Additional provisions will be addressed in each Site-Specific Health and Safety Plan (HASP), as needed.

17.2 Responsibilities

Site Personnel - All site personnel must be alert to safety hazards on work sites and take action to minimize such hazards. Personnel must utilize the buddy system, watch for inappropriate behavior, and be alerted to changes in site conditions.

Health and Safety Officer (HSO) - The HSO is responsible for considering these procedures in the development of site-specific HASPs. The HSO must schedule frequent "tail gate" safety briefings to enhance safety awareness and discuss potential problems.

17.3 Procedures

The procedures outlined below must be followed when such conditions are encountered.

17.3.1 Ladders

Langan safety procedures must be used to ensure employee safety when using ladders in the office or work sites. All ladders must be coated or repaired to prevent injury to the employee from punctures or lacerations and to prevent snagging or clothing. Any wood ladders used must

have an opaque covering except for identification or warning labels, which may be placed on one face only of a side rail.

17.3.1.1 Ladder Use

Employees must only use ladders for the purposes they were designed for and must not be used as scaffolding. Ladders will be maintained and inspected prior to use for slip hazards including oil and grease. Employees must use ladders only on stable and level surfaces unless the ladder is secured to prevent displacement. Ladders should not be used on slippery surfaces unless secured or provided with slip-resistant feet to prevent accidental displacement. Ladders should not be used in locations where they could be displaced by workplace activities or traffic. Ladder rungs, cleats and steps must be parallel, level and uniformly spaced when the ladder is in the use position.

Employees should not be carrying anything including equipment that could cause injury if there was a fall while utilizing the ladder. The top and bottom of the ladder area must remain clear while in use. When ascending and descending the ladder, employees must face the ladder.

Ladders must not be loaded beyond the maximum intended load for which they were built or the manufacturer's rated capacity.

17.3.1.2 Portable Ladders

Rungs, cleats, and steps for portable ladders and fixed ladders must be spaced not less than 10 inches apart, nor more than 14 inches apart, as measured between center lines of the rungs, cleats, and steps. When used to access an upper landing surface, the ladder side rails must extend at least three feet above the upper landing surface to which the ladder is used to gain access. If this is not possible, due to the length of the ladder, then the top of the ladder must be secured at its top to a rigid support.

17.3.1.3 Step Stools

Rungs, cleats, and steps of step stools must not be less than 8 inches apart, nor more than 12 inches apart, as measured between center lines of the rungs, cleats, and steps.

17.3.1.4 Extension Ladders

Rungs, cleats, and steps of the base section of extension trestle ladders must be spaced not less than 8 inches apart, nor more than 18 inches apart, as measured between center lines of the rungs, cleats, and steps. The rung spacing on the extension section of the extension trestle ladder must not be less than 6 inches nor more than 12 inches, as measured between the center

lines of the rungs, cleats and steps. Ladders must be used at an angle such that the horizontal distance from the top support to the foot of the ladder is approximately one-quarter of the working length of the ladder (the distance along the ladder between the foot and the top support).

17.3.1.5 Inspection

Ladders will be inspected for visible detects periodically, prior to utilization or after any occurrence that could have negatively affected the ladder. Portable ladders with defects including broken or missing rungs, cleats, or steps, broken or split rails, corroded components, or other faulty components must not be used. The ladder will be immediately marked as defective, tagged as "Do Not Use" or blocked from being used and removed from service until repaired.

17.3.2 First Aid/Cardiopulmonary Resuscitation (CPR)

Langan field and office personnel will be encouraged to be trained in First Aid and Cardiopulmonary Resuscitation (CPR). Training will be provided free of charge by Langan to all employees. Employees will receive a training certificate that will be kept on file with the Health & Safety Coordinator (HSC). Training and certification will be provided by a credited provider such as American Red Cross or equivalent.

17.3.2.1 Emergency Procedures

Prior to site work, the Langan employees certified in first aid and CPR will be identified in the site-specific HASP. Langan will endear to have at least one employee at a job site trained and able to render first aid and CPR. The site-specific HASP will contain first aid information on both potential chemical and physical hazards. Emergency procedures to be followed in case of injury or illnesses are provided in the HASP. The HASP will include emergency contact information including local police and fire departments, hospital emergency rooms, ambulance services, on-site medical personnel, and physicians. The HASP will also include directions and contact information for the nearest emergency facility in case immediate medical attention is required. The emergency contact information will be conspicuously posted at the worksite. Employees that are injured and require immediate medical attention must call either 911 or the local posted emergency contacts. Employees should use ambulatory services to transport injured workers to the nearest facility for emergency medical care. In areas where 911 is not available, the telephone numbers of physicians, hospitals, or ambulances must be conspicuously posted.

17.3.2.2 First Aid Supplies

First aid supplies are readily available to all Langan employees when required. First aid kits are located in each Langan office. Portable first aid kits are available for employees to use at work

sites. First aid kits should consist of items needed to treat employees for potential chemical and physical injuries. At a minimum, first aid kits should contain items to allow basic first aid to be rendered. Where the eyes or body of an employee may be exposed to corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body must be provided within the work area for immediate emergency use including eye wash.

First aid kits will be weatherproof with individually sealed packages of each item. All portable first aid kits must be inspected by Langan employees before and after use to ensure all used items are replaced. When out in the field, employees must check first aid kits weekly to ensure used items are replaced.

17.3.3 Hydrogen Sulfide

Langan employees with the potential to be exposed to hydrogen sulfide while at work sites must have training in hydrogen sulfide awareness. The training will include the identification of areas where employees could be exposed to hydrogen sulfide, health effects, permissible exposure limits, first aid procedures, and personnel protective equipment. Langan employees could be exposed to hydrogen sulfide while at job sites including petroleum refineries, hazardous waste treatment, storage and disposal facilities, uncontrolled hazardous waste sites, and remediation projects.

17.3.3.1 Characteristics

Hydrogen sulfide is a colorless gas with a strong odor of rotten eggs that is soluble in water. Hydrogen sulfide is used to test and make other chemicals. It is also found as a by-product of chemical reactions, such as in sewer treatment. It is a highly flammable gas and a dangerous fire hazard. Poisonous gases are produced in fires including sulfur oxides. Hydrogen sulfide is not listed as a carcinogen.

17.3.3.2 Health Effects

Hydrogen Sulfide can affect employees if inhaled or through contact with skin or eyes. Acute (or short-term) health effects of hydrogen sulfide exposure include irritation of the nose and throat, dizziness, confusion, headache, and trouble sleeping. Inhalation of hydrogen sulfide can irritate the lungs causing coughing and/or shortness of breath. Higher levels of exposure can cause a build-up of fluid in the lungs (pulmonary edema), a medical emergency, with severe shortness of breath.

Chronic (or long-term) health effects of low levels of exposure to hydrogen sulfide can cause pain and redness of the eyes with blurred vision. Repeated exposure may cause bronchitis with cough, phlegm, and shortness of breath.

17.3.3.3 Protective Clothing and Equipment

Respirators are required for those operations in which employees will be exposed to hydrogen sulfide above OSHA permissible exposure level. The maximum OSHA permissible exposure limit (PEL) for hydrogen sulfide is 20 parts of hydrogen sulfide vapor per million parts of air (20 ppm) for an 8-hour workday and the maximum short-term exposure limit (STEL) is 10 ppm for any 10-minute period.

Where employees are exposed to levels up to 100 parts of hydrogen sulfide vapor per million parts of air (100 ppm), the following types of respiratory protection are allowed:

- Any powered, air-purifying respirator with cartridge(s).
- Any air-purifying, full-facepiece respirator (gas mask) with a chin style, front- or back-mounted canister.
- Any supplied air system with escape self-contained breathing apparatus, if applicable; and,
- Any self-contained breathing apparatus with a full facepiece.

Respirators used by employees must have joint Mine Safety and Health Administration and the National Institute for Occupational Safety and Health (NIOSH) seal of approval. Cartridges or canisters must be replaced before the end of their service life, or the end of the shift, whichever occurs first. Langan employees that have the potential to be exposed to hydrogen sulfide will be trained in the proper use of respirators. Respirator training is discussed under– Langan's Respiratory Protection Program.

Employees with potential exposure to hydrogen sulfide, or when required by the client, will wear a portable hydrogen sulfide gas detector. The detector should have an audible, visual, and vibrating alarm. The detector may also provide detection for carbon monoxide, sulfur dioxide, and oxygen-deficient atmospheres. The hydrogen sulfide monitor will, at a minimum, be calibrated to detect hydrogen sulfide at a level of 20 parts of hydrogen sulfide vapor per million parts of air (20 ppm). Many portable gas detectors will have factory defaults with a low-level alarm at 10 ppm and a high-level alarm at 15 ppm. Langan employees must consult clients to determine if any site-specific threshold levels exist.

If the hydrogen sulfide gas detector sounds and employees are not wearing appropriate respiratory protection, employees must immediately vacate the area and meet at the assigned emergency location. Langan employees may not re- enter the site without proper respiratory protection and approval from the client or property owner if needed.

Employees must wear PPE to prevent eye and skin contact with hydrogen sulfide. Employees must wear appropriate protective clothing including boots, gloves, sleeves, and aprons, over any

parts of their body that could be exposed to hydrogen sulfide. Non-vented, impact-resistant goggles should be worn when working with or exposed to hydrogen sulfide.

17.3.3.4 Emergency and First Aid Procedures

Eye and Face Exposure

If hydrogen sulfide comes in contact with eyes, it should be washed out immediately with large amounts of water for 30 minutes, occasionally lifting the lower and upper eye lids. Seek medical attention immediately.

Skin Exposure

If hydrogen sulfide contaminates clothing or skin, remove the contaminated clothing immediately and wash the exposed skin with large amounts of water and soap. Seek medical attention immediately. Contaminated clothing should either be disposed of or washed before wearing again.

Breathing

If a Langan employee or other personnel breathe in hydrogen sulfide, immediately get the exposed person to fresh air. If breathing has stopped, artificial respiration should be started. Call for medical assistance or a doctor as soon as possible.

Safety Precautions

Hydrogen sulfide is a highly flammable gas and a dangerous fire hazard. Containers of hydrogen sulfide may explode in a fire situation. Poisonous gases are produced during fires.

Langan employees should contact property owners and operators prior to conducting work onsite to be aware of any site-specific contingency plans, identify where hydrogen sulfide is used at the facility, and be informed about additional safety rules or procedures.

17.3.4 Fire Protection/Extinguishers

Langan field personnel that have been provided with portable fire extinguishers for use at worksites will be trained to familiarize employees with general principles of fire extinguisher use and hazards associated with the incipient stage of firefighting. Training will be provided prior to the initial assignment for field work and annually thereafter.

Portable fire extinguishers must be visually inspected monthly and subjected to an annual maintenance check. Langan will retain records of the annual maintenance date.

17.3.5 Overhead lines

When field work is performed near overhead lines, the lines must be de-energized and grounded, or other protective measures must be provided before the work commences. If overhead lines are to be de-energized, arrangements must be made with the client, property owner, or organization that operates or controls the electric circuits involved to de-energize and ground them. If protective measures, such as guarding, isolating, or insulating, are provided, these precautions must prevent employees from contacting such lines directly with any part of their body or indirectly through conductive materials, tools, or equipment.

When unqualified Langan personnel are working in an elevated position near overhead lines, the location must be such that the person and the longest conductive object they may contact cannot come closer to any unguarded, energized overhead line than the following distances:

1. For voltages to ground 50 kilovolts (kV) or below - 10 feet; and
2. For voltages to ground over 50kV - 10 feet, plus 4 inches for every 10kV over 50kV.

As previously indicated, Langan does not retain qualified employees to perform work on energized equipment.

17.3.5.1 Vehicle and Equipment Clearance

Any vehicle or mechanical equipment capable of having parts of its structure elevated near energized overhead lines must be operated so that a clearance of 10 feet is maintained. If the voltage of the overhead lines is higher than 50kV, the clearance must be increased by 4 inches for every 10kV over that voltage.

If any of the following discussed conditions occur, the clearance may be reduced.

- If the vehicle is in transit with its structure lowered, the clearance may be reduced to 4 ft. If the voltage is higher than 50kV, the clearance must be increased to 4 inches for every 10 kV over that voltage.
- If insulating barriers are installed to prevent contact with the lines, and if the barriers are rated for the voltage of the line being guarded and are not a part of or an attachment to the vehicle or its raised structure, the clearance may be reduced to a distance within the designed working dimensions of the insulating barrier.

Employees standing on the ground may not contact the vehicle or mechanical equipment or any of its attachments unless the employee is using protective equipment rated for the voltage, or the equipment is located so that no uninsulated part of its structure (that portion of the structure

that provides a conductive path to employees on the ground) can come closer to the overhead line than permitted.

If any vehicle or mechanical equipment capable of having parts of its structure elevated near energized overhead lines is intentionally grounded, employees working on the ground near the point of grounding may not stand at the grounding location whenever there is a possibility of overhead line contact. Additional precautions, such as the use of barricades or insulation, must be taken to protect employees from hazardous ground potentials, depending on earth resistivity and fault currents, which can develop within the first few feet or more outward from the grounding point.

17.3.6 Trade Secret

Langan employees could potentially be provided trade secret information by the client or property owner when site-specific information is provided about highly hazardous chemicals. Trade secret means any confidential formula, pattern, process, device, information, or compilation of information that is used in an employer's business, and that allows the employer to obtain an advantage over competitors who do not know or use it. Langan employees understand that this information should be kept confident and if required, may enter into a confidentiality agreement with the client.

17.3.7 Bloodborne Pathogens

Langan employees that can anticipate exposure to blood or other potentially infectious material while at work sites must have training in bloodborne pathogens. Applicable employees would include those trained in first aid and serving a designated role as an emergency medical care provider. Bloodborne pathogens are pathogenic microorganisms that are present in human blood and can cause disease in humans. These pathogens include but are not limited to, hepatitis B virus and human immunodeficiency virus.

17.3.7.1 Training

Langan employees with potential occupational exposure to blood or other potentially infectious material must participate in a training program. Training must be conducted prior to the initial assignment where there would be potential for exposure and annually thereafter within one year of previous training. The training program will be provided to Langan employees at no cost to them and during working hours.

Langan will ensure the training program must consist of the following:

- An accessible copy of the regulatory text of 29 CFR 1910.1030 and an explanation of its

contents.

- A general explanation of the epidemiology and symptoms of bloodborne diseases.
- An explanation of the modes of transmission of bloodborne pathogens.
- An explanation of Langan's exposure control plan and how the employee can obtain a copy of the written plan.
- An explanation of the appropriate methods for recognizing tasks and other activities that may involve exposure to blood and other potentially infectious materials.
- An explanation of the use and limitations of personal protective equipment (PPE) to prevent and reduce exposure.
- Information on the types, proper use, location, removal, handling, and disposal of PPE.
- An explanation of the basis for the selection of PPE.
- Information on the hepatitis B vaccine, including information on its efficacy, safety, method of administration, the benefits of being vaccinated, and that the vaccine and vaccination will be offered free of charge.
- Information on the appropriate actions to take and persons to contact in an emergency involving blood or other potentially infectious materials.
- An explanation of the procedure to follow if an exposure incident occurs, including the method of reporting the incident and the medical follow-up that will be made available.
- Information on the post-exposure evaluation and determining whether the employer is required to provide for the employee following an exposure incident.
- An explanation of the signs and labels and/or color coding required by paragraph 29 CFR 1910.1030(g)(1); and
- An opportunity for interactive questions and answers with the person conducting the training session.

Langan will develop and implement a written Exposure Control Plan, which will be designed to eliminate or minimize employee exposure to bloodborne pathogens. The Exposure Control Plan will contain the following elements:

- An exposure determination for employees.
- The schedule and method of implementation for Methods of Compliance (29 CFR 191.1030(d)), Hepatitis B Vaccination and Post-Exposure Evaluation and Follow-up (29 CFR 1910.1030(f)), Communication of Hazards to Employees (29 CFR 1910.1030(g)) and (h) Recordkeeping (29 CFR 1910.1030(h)).
- The procedure for the evaluation of circumstances surrounding exposure incidents.
- Ensure a copy of the Exposure Control Plan will be accessible to employees; and,
- The Exposure Control Plan must be reviewed and updated at least annually.

Langan employees with occupational exposure to bloodborne pathogens include any employees trained in first aid that would be expected to provide emergency medical care. This determination is made without regard to the use of PPE, which could eliminate or minimize exposure.

Universal precautions must be observed to prevent contact with blood or other potentially infectious materials. According to the concept of Universal Precautions, all human blood and certain human body fluids are treated as if known to be infectious for bloodborne pathogens. Under circumstances in which differentiation between body fluid types is difficult or impossible, all body fluids must be considered potentially infectious materials.

Work practice controls must be used to eliminate or minimize employee exposure, if applicable. Since Langan employees will have occupational exposure only during the rendering of first aid, personnel protective equipment will be utilized to reduce or minimize exposure. PPE that could be available to Langan personnel when administering first aid includes safety glasses, gloves, and Tyvek suits or sleeves. PPE and first aid kits will be provided to employees at no cost to them.

Langan employees that render first aid in office areas will have access to hand-washing facilities or restrooms. For first aid rendered at field locations, first aid kits will contain an appropriate antiseptic hand cleanser and clean cloth/paper towels or antiseptic towelettes. After using antiseptic hand cleansers or towelettes, employees must wash their hands with soap and running water as soon as feasible.

After administering first aid, potentially infectious materials, including towels, personnel protective equipment, clothes, and bandages, must be placed in a container, which prevents leakage during collection, handling, processing, storage, transport, or shipping. All PPE will be disposed of after use. Any equipment or working surfaces which was been exposed to blood or potentially infectious materials due to an injury will be decontaminated prior to reuse.

Langan will make available the hepatitis B vaccine and vaccination series to all employees who have occupational exposure, and post-exposure evaluation and follow-up to all employees who have had an exposure incident. These services will be available to the employee at no cost to them through a medical provider.

17.3.7.2 Recordkeeping

Langan will maintain training and medical records for each employee with occupational exposure to blood or potentially infectious materials. Medical and training records will be maintained by Langan's H&S Department.

Training records will include the following:

- Dates of the training sessions.
- Contents or a summary of the training sessions.
- Names and qualifications of persons conducting the training; and
- Names and job titles of all persons attending the training sessions.

Training records must be maintained for 3 years from the date on which the training occurred. Medical records will be preserved and maintained for the duration of employment plus 30 years.

All records will be made available upon request to employees, the Assistant Secretary of Labor for Occupational Safety and Health, and the Director of the National Institute for Occupational Safety and Health Director of OSHA for examination and copying. Medical records must have written consent from the employee before releasing.

If Langan ceases to do business, all records must be transferred to the successor employer. The successor employer must receive and maintain these records.

If there will not be a successor, Langan will notify current employees of their rights to access records at least three months prior to the cessation of business.

18.0 RECORDKEEPING

The following is a summary of required health and safety logs, reports, and recordkeeping.

18.1 Field Change Authorization Request

Any changes to the work to be performed that are not included in the HASP will require an addendum that is approved by the Langan project manager and Langan HSM to be prepared. Approved changes will be reviewed with all field personnel at a safety briefing.

18.2 Medical and Training Records

Copies or verification of training (40-hour, 8-hour, supervisor, site-specific training, documentation of three-day on-the-job training (OJT)), and respirator fit-test records) and medical clearance for site work and respirator use will be maintained in the office and available upon request. Records for all subcontractor employees must also be available upon request. All employee medical records will be maintained by the HSM.

18.3 Onsite Log

A log of personnel on-site each day will be kept by the HSO or designee.

18.4 Daily Safety Meetings ("Tailgate Talks")

Completed safety briefing forms will be maintained by the HSO.

18.5 Exposure Records

All personal monitoring results, laboratory reports, calculations, and air sampling data sheets are part of an employee exposure record. These records will be maintained by the HSO during site work. At the end of the project, they will be maintained according to 29 CFR 1910.1020.

18.6 Hazard Communication Program/MSDS-SDS

Material safety data sheets (MSDS) Safety Data Sheets (SDS) have been obtained for applicable substances and are included in this HASP (Attachment D). Langan's written hazard communication program, in compliance with 29 CFR 1910.1200, is maintained by the HSM.

18.7 Documentation

Immediately following an incident or near miss, unless emergency medical treatment is required, either the employee or a coworker must contact the Langan incident/injury hotline at 1-800-952-6426, extension 4699, and the Project Manager to report the incident or near miss. The Project Manager will contact the client or client representative. A written report must be completed and submitted HSM within 24 hours of the incident. For emergencies involving personnel injury and/or exposure, the employee will complete and submit the Langan incident/injury report to the Langan corporate health and safety manager as soon as possible following the incident. Accidents will be investigated in-depth to identify all causes and to recommend hazard control measures.

18.7.1 Accident and Injury Report Forms

18.7.1.1 Accident/Incident Report

All injuries, no matter how slight, must be reported to the FTL and the PM immediately. The accident/incident report forms, attached in Attachment C, will be filled out on all accidents by the applicable contractor supervision personnel, the FTL, or the HSO. Copies of all accident/incident reports must be kept on-site and available for review. Project personnel will be instructed on the location of the first aid station, hospital, and doctor and ambulance service near the job. The emergency telephone numbers will be conspicuously posted in site vehicles near the work zone. First aid supplies will be centrally located and conspicuously posted between restricted and nonrestricted areas to be readily accessible to all on the site.

18.7.1.2 First Aid Treatment Record

The forms will be used for recording all non-lost time injuries treated by the project first-aid attendant, the local physician or hospital will be entered in detail on this record. "Minor" treatment of scratches, cuts, etc. will receive the same recording attention as treatment of more severe injuries.

18.7.1.3 OSHA Form 300

An OSHA Form 300 will be kept at the Langan Corporate Office in Parsippany, New Jersey. All recordable injuries or illnesses will be recorded on this form. Subcontractor employers must also meet the requirements of maintaining an OSHA 300 form. The Incident Report form used to capture the details of work-related injuries/illnesses meets the requirements of the OSHA Form 301 (supplemental record) and must be maintained with the OSHA Form 300 for all recordable injuries or illnesses. Forms for recording OSHA work-related injuries and illnesses are included in Attachment C.

19.0 CONFINED SPACE ENTRY

Confined spaces are not anticipated at the Site during planned construction activities. If confined spaces are identified, the contractor must implement their own confined space program that all applicable federal, state, and local regulations. Confined spaces **will not** be entered by Langan personnel.

20.0 HASP ACKNOWLEDGEMENT FORM

All Langan personnel and contractors will sign this HASP Compliance Agreement indicating that they have become familiar with this HASP and that they understand it and agree to abide by it.

Printed Name	Signature	Company	Date

TABLES

TABLE 1
TASK HAZARD ANALYSES

Task	Hazard	Description	Control Measures	First Aid
1.3.1 – 1.3.14	Contaminated Soil or Groundwater-Dermal Contact	Contaminated water spills on skin, splashes in eyes; contact with contaminated soil/fill during construction activities or sampling.	Wear proper PPE; follow safe practices, maintain safe distance from construction activities	See Table 2, seek medical attention as required
1.3.1 – 1.3.14	Lacerations, abrasions, punctures	Cutting bailer twine, pump tubing, acetate liners, etc. with knife; cuts from sharp site objects or previously cut piles, tanks, etc.; Using tools in tight spaces	Wear proper PPE; follow safe practices	Clean wound, apply pressure and/or bandages; seek medical attention as required.
1.3.1 – 1.3.14	Contaminated Media Inhalation	Opening drums, tanks, wells; vapors for non-aqueous phase liquids or other contaminated site media; dust inhalation during excavation; vapor accumulation in excavation	Follow air monitoring plan; have quick access to respirator, do not move or open unlabeled drums found at the site, maintain safe distance from construction activities	See Table 2, seek medical attention as required
1.3.1 – 1.3.14	Lifting	Improper lifting/carrying of equipment and materials causing strains	Follow safe lifting techniques. Langan employees are not to carry contractor equipment or materials	Rest, ice, compression, elevation; seek medical attention as required
1.3.1 – 1.3.14	Slips, trips, and falls	Slips, trips, and falls due to uneven surfaces, cords, steep slopes, debris, and equipment in work areas	Good housekeeping at site; constant awareness and focus on the task; avoid climbing on stockpiles; maintain safe distance from construction activities and excavations; avoid elevated areas over six feet unless fully accredited in fall protection and wearing an approved fall protection safety apparatus	Rest, ice, compression, elevation; seek medical attention as required
1.3.1 – 1.3.14	Noise	Excavation equipment, hand tools, drilling equipment.	Wear hearing protection; maintain safe distance from construction activities	Seek medical attention as required
1.3.1 – 1.3.14	Falling objects	Soil material, tools, etc. dropping from drill rigs, front-end loaders, etc.	Hard hats to be worn at all times while in work zones; maintain safe distance from construction activities and excavations	Seek medical attention as required
1.3.1 – 1.3.14	Underground/ overhead utilities	Excavation equipment, drill rig auger contacts underground object; boom touches overhead utility	"One Call" before dig; follow safe practices; confirm utility locations with contractor; wear proper PPE; maintain safe distance from construction activities and excavations	Seek medical attention as required
1.3.1 – 1.3.14	Insects (bees, wasps, hornet, mosquitoes, and spider)	Sings, bites	Insect Repellent; wear proper protective clothing (work boots, socks, and light-colored pants); field personnel who may have insect allergies (e.g., bee sting) should provide this information to the HSO or FSO prior to commencing work and will have allergy medication on site.	Seek medical attention as required
1.3.1 – 1.3.14	Vehicle traffic / Heavy Equipment Operation	Vehicles unable to see workers on site, operation of heavy equipment in tight spaces, equipment failure, malfunctioning alarms	Wear proper PPE, especially visibility vest; use a buddy system to look for traffic; rope off area of work with cones and caution tape or devices at points of hazard, maintain safe distance from construction activities and equipment	Seek medical attention as required

TABLE 2
CONTAMINANT HAZARDS OF CONCERN

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	1,1'-Biphenyl 1,1-Biphenyl Biphenyl Phenyl benzene Diphenyl	92-52-4	None	1 mg/m3 100 mg/m3	Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, throat; headache, nausea, lassitude (weakness, exhaustion), numb limbs; liver damage	Eye: Irrigate immediately Skin: Water flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	1,1-Dichloroethane Asymmetrical dichloroethane Ethylidene chloride 1,1-Ethylidene dichloride 1,1-DCA	75-34-3	PID	100 ppm 3000 ppm	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	irritation to the skin; central nervous system depression; liver, kidney, lung damage	Eye: Irrigate immediately Skin: Soap flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	1,2,4,5-Tetramethylbenzene Durene	95-93-2	NA	None None	Groundwater Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin, nose, throat, respiratory system; bronchitis; hypochromic anemia; headache, drowsiness, lassitude (weakness, exhaustion), dizziness, nausea, incoordination; vomiting, confusion; chemical pneumonitis (aspiration liquid)	Eye: Irrigate immediately Skin: Soap flush immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	1,2,4-Trimethylbenzene	95-63-6	PID	None None	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, skin, nose, throat, respiratory system; bronchitis; hypochromic anemia; headache, drowsiness, lassitude (weakness, exhaustion), dizziness, nausea, incoordination; vomiting, confusion; chemical pneumonitis (aspiration liquid)	Eye: Irrigate immediately Skin: Soap wash Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	1,2-Dichlorobenzene o-DCB	95-50-1	PID	50 ppm 200 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eye, swelling periorbital (situated around the eye); profuse rhinitis; headache, anorexia, nausea, vomiting; weight loss, jaundice, cirrhosis; in animals: liver, kidney injury; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	1,2-Dichloroethane Ethylene dichloride 1,2-DCA DCE[1] Ethane dichloride Dutch liquid, Dutch oil Freon 150 Glycol dichloride	107-06-2	PID	1 ppm 50 ppm	Groundwater Soil Vapor	inhalation, ingestion, skin absorption, skin, and/or eye contact	irritation to the eyes, corneal opacity; central nervous system depression; nausea, vomiting; dermatitis; liver, kidney, cardiovascular system damage; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	1,3,5-Trimethylbenzene Mesitylene sym-Trimethylbenzene	108-67-8	PID	None None	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, skin, nose, throat, respiratory system; bronchitis; hypochromic anemia; headache, drowsiness, lassitude (weakness, exhaustion), dizziness, nausea, incoordination; vomiting, confusion; chemical pneumonitis (aspiration liquid)	Eye: Irrigate immediately Skin: Soap wash Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	1,3-Dichlorobenzene m-Dichlorobenzol; m-Phenylene dichloride m-dichlorobenzene m-DCB	541-73-1	PID	None None	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, swelling periorbital (situated around the eye); profuse rhinitis; headache, anorexia, nausea, vomiting; weight loss, jaundice, cirrhosis; in animals: liver, kidney injury; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	1,4-Dichlorobenzene para-Dichlorobenzene p-Dichlorobenzene 1,4-Dichlorobenzene 1,4-DCB para-Dichlorobenzene p-Dichlorobenzene p-DCB PDB Paramoth Para crystals Paracide Dichlorocide	106-46-7	PID	75 ppm 150 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, swelling periorbital (situated around the eye); profuse rhinitis; headache, anorexia, nausea, vomiting; weight loss, jaundice, cirrhosis; in animals: liver, kidney injury; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	1,4-Dioxane 1,4-Dioxacyclohexane [1,4]Dioxane p-Dioxane [6]-crown-2 Diethylene dioxide Diethylene ether Dioxan Dioxane 1,4-Dioxane	123-91-1	PID	100 ppm 500 ppm	Groundwater Soil Vapor	Inhalation, ingestion, skin, and/or eye contact	Irritant to eyes, skin, mucous membranes, and respiratory system. May be harmful by ingestion, skin absorption and inhalation	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	2-Butanone Ethyl methyl ketone MEK Methyl acetone Methyl ethyl ketone	78-93-3	PID	200 ppm 3000 ppm	Soil Groundwater Vapor	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, skin, nose; headache; dizziness; vomiting; dermatitis	Eye: Irrigate immediately Skin: Water wash immediately Breathing: Fresh air Swallow: Medical attention immediately
1.3.1 – 1.3.14	2-Hexanone Butyl methyl ketone MBK Methyl butyl ketone Methyl n-butyl ketone	591-78-6	PID	100 ppm 1600 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, nose; peripheral neuropathy: lassitude (weakness, exhaustion), paresthesia; dermatitis; headache, drowsiness	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	2-Methylnaphthalene β-methylnaphthalene	91-57-6	PID	NA NA	Groundwater Soil Vapor	inhalation, ingestion or skin, absorption, eye contact	irritation to the skin, eyes, mucous membranes, and upper respiratory tract. It may also cause headaches, nausea, vomiting, diarrhea, anemia, jaundice, euphoria, dermatitis, visual disturbances, convulsions and comatose	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	4,4'-DDD Dichlorodiphenyldichloroethane 1,1'-(2,2-Dichloroethylidene)bis (4-chlorobenzene) p,p'-DDD	72-54-8	None	NA NA	Groundwater Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin; paresthesia tongue, lips, face; tremor; anxiety, dizziness, confusion, malaise (vague feeling of discomfort), headache, lassitude (weakness, exhaustion); convulsions; paresis hands; vomiting; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	4-Isopropyltoulene 1-Methyl-4-(1-methylethyl)benzene 4-Isopropyltoluene; 4-Methylcumene; 1-Methyl-4-isopropylbenzene Dolcymene Camphogen Paracymene Cymene p-Cymene p-Isopropyltoluene	99-87-6	PID	NA NA	Soil Groundwater Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin, mucous membrane; dermatitis; headache, narcosis, coma	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Acenaphthene 1,2-Dihydroacenaphthylene 1,8-Ethylenenaphthalene peri-Ethylenenaphthalene Naphthyleneethylene Tricyclododecapentaene	83-32-9	PID	NA NA	Soil	inhalation, ingestion, skin, and/or eye contact,	irritation to the skin, eyes, mucous membranes, and upper respiratory tract; If ingested, it can cause vomiting	Eye: Irrigate immediately Skin: Soap wash immediately, if redness or irritation develop, seek medical attention immediately Breathing: Move to fresh air Swallow: do not induce vomiting, seek medical attention immediately
1.3.1 – 1.3.14	Acenaphthylene Cycopental(de)naphthalene, Acenaphthalene	208-96-8	PID	NA NA	Soil	inhalation, ingestion, skin, and/or eye contact	irritation to the skin, eyes, mucous membranes, and upper respiratory tract	Eye: Irrigate immediately, seek medical attention immediately, Skin: Soap wash immediately, if redness or irritation develop, seek medical attention immediately Breathing: Move to fresh air Swallow: do not induce vomiting, seek medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Acetone Dimethyl ketone Ketone propane 2-Propanone	67-64-1	PID	1000 ppm 2500 ppm	Groundwater Soil	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, nose, throat; headache, dizziness, central nervous system depression; dermatitis	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Acetophenone 1-phenylethanone Methyl phenyl ketone Phenylethanone	98-86-2	None	NA NA	Groundwater Soil	inhalation, ingestion, skin, and/or eye contact	irritation to the skin, eyes, mucous membranes, and upper respiratory tract	Eye: Irrigate immediately, seek medical attention immediately, Skin: Soap wash immediately, if redness or irritation develop, seek medical attention immediately Breathing: Move to fresh air Swallow: do not induce vomiting, seek medical attention immediately
1.3.1 – 1.3.14	Aldrin 1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a-hexahydro-endo-1,4-exo-5,8-dimethanonaphthalene HHDN Octalene	309-00-2	PID	0.25 ppm 5 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	headache, dizziness; nausea, vomiting, malaise (vague feeling of discomfort); myoclonic jerks of limbs; colonic, tonic convulsions; coma; hematuria (blood in the urine), azotemia; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Alpha-BHC alpha-Hexachlorocyclohexane -alpha,2-alpha,3-beta,4-alpha,5-beta,6-beta-Hexachlorocyclohexane alpha-1,2,3,4,5,6-Hexachlorocyclohexane alpha-Benzenehexachloride α-1,2,3,4,5,6-hexachlorocyclohexane α-HCH α-Benzenehexachloride alpha-hexacloran(e) alpha-Lindane Alpha Hexachlorocyclohexane	319-84-6	PID	NA NA	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin, mucous membrane possible carcinogenic, effects to liver, blood, and central nervous system	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Alpha-Chlordane Alpha Chlordane a-Chlordane	5103-71-9	None	0.5 mg/m^3 100 mg/m^3	Groundwater Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	Blurred vision; confusion; ataxia, delirium; cough; abdominal pain, nausea, vomiting, diarrhea; irritability, tremor, convulsions; anuria	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Aluminum	7429-90-5	None	0.5 mg/m3 50 mg/m3	Soil	inhalation, skin, and/or eye contact	irritation to the eyes, skin, respiratory system	Eye: Irrigate immediately Breathing: Fresh air

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Anthracene	120-12-7	PID	0.2 mg/m^3 80 mg/m^3 (Coal Pitch Tar)	Soil	inhalation, skin, or eye contact, ingestion	irritation to the skin, eyes, mucous membranes, and upper respiratory tract, abdominal pain if ingested.	Eye: Irrigate immediately, seek medical attention immediately, Skin: Soap wash immediately, Breathing: Move to fresh air, refer to medical attention. Swallow: refer to medical attention
1.3.1 – 1.3.14	Antimony	7440-36-0	None	0.5 mg/m3 50 mg/m3	Groundwater Soil	inhalation, ingestion, skin, and/or eye contact	irritation skin, dermatitis; resp distress; diarrhea; muscle tremor, convulsions; possible gastrointestinal tract	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Aroclor 1248	12672-26-6	None	0.5 mg/m3 5 mg/m3	Groundwater Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, chloracne	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Aroclor 1254	11097-69-1	None	0.5 mg/m3 5 mg/m3	Groundwater Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, chloracne	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Aroclor 1260	11096-82-5	None	0.5 mg/m3 5 mg/m3	Groundwater Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, chloracne	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Aroclor 1268	11100-14-4	None	0.5 mg/m3 5 mg/m3	Groundwater Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, chloracne	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Arsenic	NA	None	0.5 mg/m^3 NA	Groundwater Soil	inhalation, ingestion, skin, and/or eye contact	irritation skin, dermatitis; resp distress; diarrhea; muscle tremor, convulsions; possible gastrointestinal tract	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Barium	10022-31-8	None	0.5 mg/m^3 50 mg/m^3	Groundwater Soil	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, skin, upper respiratory system; skin, burns; gastroenteritis; muscle spasm; slow pulse	Eye: Irrigate immediately Skin: Water flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Benzene Benzol Phenyl hydride Alkyl benzene isomers	71-43-2	PID	3.19 mg/m^3 1,595 mg/mg^3	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin, nose, respiratory system; dizziness; headache, nausea, staggered gait; lassitude (weakness, exhaustion) [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Benzo(a)anthracene Benzanthracene Benzanthrene 1,2-Benzanthracene Benzo[b]phenanthrene Tetraphene	56-55-3	PID	0.2 mg/m^3 80 mg/m^3 (Coal Pitch Tar)	Groundwater Soil	inhalation, skin, or eye contact, ingestion	dermatitis, bronchitis, [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Benzo(a)pyrene	50-32-8	PID	0.2 mg/m^3 80 mg/m^3 (Coal Pitch Tar)	Soil	inhalation, skin, or eye contact, ingestion	dermatitis, bronchitis, [potential occupational carcinogen]	Eye: Irrigate immediately, seek medical attention Skin: Soap wash immediately. Breathing: move to fresh air. Swallow: Induce vomiting if conscious, seek medical attention immediately
1.3.1 – 1.3.14	Benzo(b)fluoranthene	205-99-2	PID	0.2 mg/m^3 80 mg/m^3 (Coal Pitch Tar)	Soil	inhalation, skin, or eye contact, ingestion	irritation to eyes and skin, respiratory irritation (dizziness, weakness, fatigue, nausea, headache)	Eye: Irrigate immediately, refer to medical attention Skin: Soap wash immediately Breathing: move to fresh air Swallow: Medical attention immediately
1.3.1 – 1.3.14	Benzo(g,h,i)perylene Benzo(ghi)perylene	191-24-2	PID	0.2 mg/m^3 80 mg/m^3 (Coal Pitch Tar)	Soil	inhalation, skin, or eye contact, ingestion	irritation to eyes and skin, respiratory irritation (dizziness, weakness, fatigue, nausea, headache)	Eye: Irrigate immediately, refer to medical attention Skin: Soap wash immediately Breathing: move to fresh air Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Benzo(k)fluoranthene	207-08-9	PID	0.2 mg/m^3 80 mg/m^3 (Coal Pitch Tar)	Soil	inhalation, skin, or eye contact, ingestion	irritation to eyes and skin, respiratory irritation (dizziness, weakness, fatigue, nausea, headache)	Eye: Irrigate immediately, refer to medical attention Skin: Soap wash immediately Breathing: move to fresh air Swallow: Medical attention immediately
1.3.1 – 1.3.14	Benzoic acid Carboxybenzene E210 Dracylic acid Phenylmethanoic acid Benzenecarboxylic acid Benzoic acid isomer	65-85-0	None	NA NA	Groundwater Soil Vapor	inhalation, skin, or eye contact, ingestion	irritation to eyes with eye damage, skin, causing rash, redness or burning, irritation to nose, throat, and lungs	Eye: Irrigate immediately, refer to medical attention Skin: Soap wash immediately Breathing: move to fresh air
1.3.1 – 1.3.14	Benzyl butyl phthalate Butyl benzyl phthalate Butylbenzylphthalate	86-66-7	None	NA NA	Groundwater Soil Vapor	inhalation, skin, or eye contact, ingestion	irritation to eyes and skin, respiratory irritation (dizziness, weakness, fatigue, nausea, headache	Eye: Irrigate immediately, refer to medical attention Skin: Soap wash immediately Breathing: move to fresh air Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Beryllium	7440-41-7	None	0.002 mg/m^3 4 mg/m^3	Soil	inhalation, skin, and/or eye contact	berylliosis (chronic exposure): anorexia, weight loss, lassitude (weakness, exhaustion), chest pain, cough, clubbing of fingers, cyanosis, pulmonary insufficiency; irritation to the eyes; dermatitis; [potential occupational carcinogen]	Eye: Irrigate immediately Breathing: Fresh air
1.3.1 – 1.3.14	Beta BHC Beta Hexachlorocyclohexane 1-alpha,2-beta,3-alpha,4-beta,5-alpha,6-beta-Hexachlorocyclohexane beta-1,2,3,4,5,6-Hexachlorocyclohexane Beta-BHC	319-85-7	None	NA NA	Groundwater Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin; paresthesia tongue, lips, face; tremor; anxiety, dizziness, confusion, malaise (vague feeling of discomfort), headache, lassitude (weakness, exhaustion); convulsions; paresis hands; vomiting; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Beta-Endosulfan Beta Endosulfan Endosulfan II (beta) Endosulfan II	33213-65-9	None	None	NA NA	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation skin; nausea, confusion, agitation, flushing, dry mouth, tremor, convulsions, headache; in animals: kidney, liver injury; decreased testis weight

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Bis(2-ethylhexyl)phthalate Bis(2-Ethylhexyl) Phthalate Di-sec octyl phthalate DEHP Di(2-ethylhexyl)phthalate Octyl phthalate bis(2-ethylexyl)phthalate	117-81-7	None	5 mg/m3 5000 mg/m3	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, mucous membrane; in animals: liver damage; teratogenic effects; [potential occupational carcinogen	Eye: Irrigate immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Cadmium	7440-43-9	None	0.005 mg/m^3 9 mg/m^3	Soil	inhalation, ingestion	pulmonary edema, dyspnea (breathing difficulty), cough, chest tightness, substernal (occurring beneath the sternum) pain; headache; chills, muscle aches; nausea, vomiting, diarrhea; anosmia (loss of the sense of smell), emphysema, proteinuria, mild anemia; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Calcium	7440-70-2	None	NA	Groundwater Soil	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, skin, upper resp tract; ulcer, perforation nasal septum; pneumonitis; dermatitis	Eye: Irrigate immediately Skin: Water flush immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Carbazole 9-azafluorene Dibenzopyrrole Diphenylenimine diphenyleneimide	86-74-8	None	NA NA	Soil	inhalation, skin absorption (liquid), skin, and/or eye contact	irritation to eyes and skin, respiratory irritation	Eye: Irrigate immediately, refer to medical attention Skin: Soap wash immediately Breathing: move to fresh air Swallow: Medical attention immediately
1.3.1 – 1.3.14	Carbon disulfide	75-15-0	PID	20 ppm 500 ppm	Soil Groundwater Vapor	inhalation, skin, or eye contact, ingestion	irritation to the eyes, skin, respiratory system	Eye: Irrigate immediately (liquid) Skin: Water flush immediately (liquid) Breathing: Respiratory support
1.3.1 – 1.3.14	Carbon tetrachloride Carbon chloride Carbon tet Freon® 10 Halon® 104 Tetrachloromethane	56-23-5	PID	10 ppm 200 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin; central nervous system depression; nausea, vomiting; liver, kidney injury; drowsiness, dizziness, incoordination; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Chlorobenzene benzene chloride monochlorobenzene Phenyl chloride Chlorobenzol MCB	108-90-7	PID	75 ppm 1000 ppm	Groundwater Soil Vapor	inhalation, skin, or eye contact, ingestion	irritation to the eyes, skin, nose; drowsiness, incoordination; central nervous system depression; in animals: liver, lung, kidney injury	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Chloroform Methane trichloride Trichloromethane Chloro-3-methyl phenol	67-66-3	None	50 ppm 500 ppm	Groundwater Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin; dizziness, mental dullness, nausea, confusion; headache, lassitude (weakness, exhaustion); anesthesia; enlarged liver; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Chromium Total Chromium Chromium, Total	7440-47-3	None	1.0 mg/m^3 250 mg/m^3	Groundwater Soil	inhalation absorption ingestion	irritation to eye, skin, and respiratory	Eye: Irrigate immediately Skin: Soap wash Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Chrysene Benzo[a]phenanthrene 1,2-Benzphenanthrene	218-01-9	PID	0.2 mg/m^3 80 mg/m^3 (Coal Pitch Tar)	Groundwater Soil	inhalation, absorption, ingestion, consumption	irritation to eye, skin, and respiratory, gastrointestinal irritation nausea, vomit, diarrhea [potential occupational carcinogen]	Eyes: Irrigate immediately Skin: Soap wash promptly. Breath: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	cis-1,2-Dichloroethylene cis-1,2-Dichloroethene	156-59-2	NA	NA NA	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	Irritant to eyes, skin, mucous membranes, and respiratory system. May be harmful by ingestion, skin absorption and inhalation	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Cobalt	7440-48-4	None	0.1mg/m3 20 mg/m3	Soil	inhalation, ingestion, skin, and/or eye contact	Cough, dyspnea (breathing difficulty), wheezing, decreased pulmonary function; weight loss; dermatitis; diffuse nodular fibrosis; resp hypersensitivity, asthma	Eye: Irrigate immediately Skin: Soap wash Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Copper	7440-50-8	None	1.0 mg/m^3 100 mg/m^3	Groundwater Soil	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, nose, metallic taste; dermatitis; anemia	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Cumene Cumol Isopropylbenzene 2-Phenyl propane 1-methylethy lbenzene Isopropyl Benzene	98-82-8	PID	50 ppm 900 ppm	Groundwater Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin, mucous membrane; dermatitis; headache, narcosis, coma	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Cyanide	57-12-5	None	5 mg/m^3 25 mg/m^3	Groundwater Soil	inhalation, ingestion, skin, and/or eye contact	Exposure to cyanide can cause weakness, headaches, confusion, dizziness, fatigue, anxiety, sleepiness, nausea and vomiting. Breathing can speed up then become slow and gasping. Coma, and convulsions also occur. If copious amounts of cyanide have been absorbed by the body, the person usually collapses, and death can occur very quickly. Long-term exposure to lower levels of cyanide can cause skin, and nose irritation, itching, rashes and thyroid changes.	Eye: Irrigate immediately Skin: Soap wash Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	DDE 4,4-DDE 4,4'-DDE 1,1-bis-(4-chlorophenyl)-2,2-dichloroethene Dichlorodiphenyldichloroethylene p,p'-DDE	72-55-9	None	NA NA	Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	Oral ingestion of food is the primary source of exposure for the general population. Acute and chronic ingestion may cause nausea, vomiting, diarrhea, stomach pain, headache, dizziness, disorientation, tingling, sensation, kidney damage, liver damage, convulsions, coma, and death. 4,4' DDE may cross the placenta and can be excreted in breast milk	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	DDT 4,4-DDT 4,4'-DDT p,p'-DDT Dichlorodiphenyltrichloroethane 1,1,1-Trichloro-2,2-bis(p-chlorophenyl)ethane	50-29-3	None	1 mg/m^3 500 mg/m^3	Groundwater Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin; paresthesia tongue, lips, face; tremor; anxiety, dizziness, confusion, malaise (vague feeling of discomfort), headache, lassitude (weakness, exhaustion); convulsions; paresis hands; vomiting; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Delta BHC Delta-BHC Delta-hexachlorocyclohexane Delta Hexachlorocyclohexane	319-86-8	None	0.5 mg/m^3 50 mg/m^3	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin, nose, throat; headache; nausea; colonic convulsions; resp difficulty; cyanosis; aplastic anemia; muscle spasm; in animals: liver, kidney damage	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Dibenz(a,h)anthracene Dibenzo(a,h)anthracene Dibenzo[a,h]anthracene	53-70-3	PID	0.2 mg/m^3 80 mg/m^3 (Coal Pitch Tar)	Groundwater Soil	inhalation, absorption, ingestion, consumption	irritation to eyes, skin, respiratory, and digestion [potential occupational carcinogen]	Eyes: Irrigate immediately Skin: Soap wash promptly. Breath: Respiratory support PID Swallow: Medical attention immediately
1.3.1 – 1.3.14	Dibenzofuran	132-64-9	None	NA NA	Soil	inhalation, absorption	irritation to eyes, and skin	Eyes: Irrigate immediately Skin: Soap wash promptly.

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Dibutyl phthalate Di-n-butyl phthalate Butyl phthalate n-Butyl phthalate 1,2-Benzenedicarboxylic acid dibutyl ester o-Benzenedicarboxylic acid dibutyl ester DBP Palatinol C, Elaol Dibutyl-1,2-benzene-dicarboxylate Di-n-butylphthalate	84-74-2	None	5 mg/m3 4000 mg/m3	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, upper respiratory system, stomach	Eye: Irrigate immediately Skin: Wash regularly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Dichlorodifluoromethane Difluorodichloromethane, Fluorocarbon 12 Freon 12 Freon® 12 Genetron® 12 Halon® 122 Propellant 12 Refrigerant 12 Dichlorodifluromethane	75-71-8	None	1000 pp, 15,000 ppm	Groundwater Soil Vapor	inhalation, skin, and/or eye contact (liquid)	dizziness, tremor, asphyxia, unconsciousness, cardiac arrhythmias, cardiac arrest; liquid: frostbite	Eye: Frostbite Skin: Frostbite Breathing: Respiratory support
1.3.1 – 1.3.14	Dieldrin HEOD 1,2,3,4,10,10-Hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-1,4-endo exo-5,8-dimethanonaphthalene	60-57-1	PID	0.25 mg/m^3 50 mg/m^3	Groundwater Soil Water	inhalation, skin absorption, ingestion, skin, and/or eye contact	headache, dizziness; nausea, vomiting, malaise (vague feeling of discomfort), sweating; myoclonic limb jerks; colonic, tonic convulsions; coma; [potential occupational carcinogen]; in animals: liver, kidney damage	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Diesel Fuel automotive diesel fuel oil No. 2 distillate diesoline diesel oil diesel oil light diesel oil No. 1-D summer diesel	68334-30-5	PID	NA NA	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, skin, nose, throat; burning sensation in chest; headache, nausea, lassitude (weakness, exhaustion), restlessness, incoordination, confusion, drowsiness; vomiting, diarrhea; dermatitis; chemical pneumonitis (aspiration liquid)	Eye: Irrigate immediately Skin: Soap flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Endosulfan I Alpha Endosulfan	959-98-8	None	NA NA	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation skin; nausea, confusion, agitation, flushing, dry mouth, tremor, convulsions, headache; in animals: kidney, liver injury; decreased testis weight	Eye: Irrigate immediately Skin: Soap flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Endosulfan sulfate 1,4,5,6,7,7-Hexachloro-5-norbornene-2,3-dimethanol, cyclic sulfate 6,7,8,9,10,10-hexachloro01,5,5a,9,9a-hexahydro-6,9-methano-2,4,3-benzodioxathiepin-3,3-dioxide	1031-07-8	None	NA NA	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	Hypersensitive to stimulation, sensation of prickling, tingling, or creeping on skin. Headache, dizziness, nausea, vomiting, incoordination, tremor, mental confusion, hyperexcitable state. In severe cases: convulsions, seizures, coma, and respiratory depression.	Eye: Irrigate immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Endrin 1,2,3,4,10,10-Hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-1,4-endo,endo-5,8-dimethanonaphthalene; Hexadrin	72-20-8	None	0.1 mg/m^3 2 mg/m^3	Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	epileptiform convulsions; stupor, headache, dizziness; abdominal discomfort, nausea, vomiting; insomnia; aggressiveness, confusion; drowsiness, lassitude (weakness, exhaustion); anorexia; in animals: liver damage	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Ethyl benzene Ethylbenzene Ethylbenzol Phenylethane	100-41-4	PID	435 mg/m^3 3,472 mg/m^3	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, skin, mucous membrane; headache; dermatitis; narcosis, coma	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Fluoranthene Benzo(j,k)fluorene	206-44-0	PID	0.2 mg/m^3 80 mg/m^3 (Coal Pitch Tar)	Groundwater Soil	inhalation, skin, or eye contact, ingestion	irritation to eyes and skin, respiratory irritation (dizziness, weakness, fatigue, nausea, headache)	Eye: Irrigate immediately, refer to medical attention Skin: Soap wash immediately Breathing: move to fresh air Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Fluorene	86-73-7	PID	0.2 mg/m^3 80 mg/m^3 (Coal Pitch Tar)	Soil	inhalation, skin, or eye contact, ingestion	irritation to eyes and skin, respiratory irritation (dizziness, weakness, fatigue, nausea, headache)	Eye: Irrigate immediately, refer to medical attention Skin: Soap wash immediately Breathing: move to fresh air Swallow: Medical attention
1.3.1 – 1.3.14	Fuel Oil No. 2	68476-30-2	PID	NA NA	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, skin, nose, throat; burning sensation in chest; headache, nausea, lassitude (weakness, exhaustion), restlessness, incoordination, confusion, drowsiness; vomiting, diarrhea; dermatitis; chemical pneumonitis (aspiration liquid)	Eye: Irrigate immediately Skin: Soap flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	gamma-Chlordane Gamma Chlordane y-Chlordane	5566-34-7	None	0.5 mg/m3 100 mg/m3	Groundwater Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	Blurred vision; confusion; ataxia, delirium; cough; abdominal pain, nausea, vomiting, diarrhea; irritability, tremor, convulsions; anuria	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Gasoline	8006-61-9	PID	NA NA	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin, mucous membrane; dermatitis; headache, lassitude (weakness, exhaustion), blurred vision, dizziness, slurred speech, confusion, convulsions; chemical pneumonitis (aspiration liquid)	Eye: Irrigate immediately Skin: Soap flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Helium	7440-59-7	Helium Detector	NA NA	NA	inhalation	dizziness, headache, and nausea	Breathing: Respiratory support
1.3.1 – 1.3.14	Heptachlor	76-44-8	None	0.5 mg/m^3 35 mg/m^3	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	In animals: tremor, convulsions; liver damage; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Heptachlor epoxide 1,4,5,6,7,8,8-Heptachloro-3a,4,7,7a-tetrahydro-4,7-methano-1H-indene	1024-57-3	None	0.5 mg/m3 35 mg/m3	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	In animals: tremor, convulsions; liver damage; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Heptane n-Heptane	142-82-5	PID	500 ppm 750 ppm	Goundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	dizziness, stupor, incoordination; loss of appetite, nausea; dermatitis; chemical pneumonitis (aspiration liquid); unconsciousness	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Hexachlorobenzene Perchlorobenzene Pentachlorophenylchloride Benzene hexachloride Phenyl perchloryl HCB BHC	118-74-1	NA	NA NA	Groundwater Soil	inhalation, ingestion, skin, and/or eye contact	Irritating to eyes, skin, and mucous membranes. Prolonged periods of ingestion may cause cutaneous porphyria	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Hexavalent Chromium Chromium VI Chromium, Hexavalent	18540-29-9	None	1.0 mg/m^3 250 mg/m^3	Groundwater Soil	inhalation absorption ingestion	irritation to eye, skin, and respiratory	Eye: Irrigate immediately Skin: Soap wash Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Indeno(1,2,3-cd)pyrene Indeno(1,2,3-c,d)Pyrene Indeno[1,2,3-cd]Pyrene	193-39-5	None	0.2 mg/m^3 80 mg/m^3 (Coal Pitch Tar)	Groundwater Soil	inhalation, absorption, ingestion, consumption	irritation to eyes, skin, respiratory, and digestion [potential occupational carcinogen]	Eyes: Irrigate immediately Skin: Soap wash promptly. Breath: Respiratory support Swallow: Medical attention immediately, wash mouth with water

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Iron	7439-89-6	None	10 mg/m3 NA	Groundwater Soil	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, skin, mucous membrane; abdominal pain, diarrhea, vomiting	Eye: Irrigate immediately Skin: Soap wash Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Lead	7439-92-1	None	0.050 mg/m^3 100 mg/m^3	Groundwater Soil	inhalation, ingestion, skin, and/or eye contact	lassitude (weakness, exhaustion), insomnia; facial pallor; anorexia, weight loss, malnutrition; constipation, abdominal pain, colic; anemia; gingival lead line; tremor; paralysis wrist, ankles; encephalopathy; kidney disease; irritation to the eyes; hypertension	Eye: Irrigate immediately Skin: Soap flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Lindane Gamma BHC HCH ã-Hexachlorocyclohexane gamma isomer of 1,2,3,4,5,6-Hexachlorocyclohexane gamma-Hexachlorocyclohexane	58-89-9	None	0.5 mg/m^3 50 mg/m^3	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin, nose, throat; headache; nausea; colonic convulsions; resp difficulty; cyanosis; aplastic anemia; muscle spasm; in animals: liver, kidney damage	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Magnesium	7439-95-4	None	15 mg/m3 NA	Soil	inhalation, skin, and/or eye contact	irritation to the eyes, skin, respiratory system; cough	Eye: Irrigate immediately Breathing: Fresh air

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Manganese	7439-96-5	None	5 mg/m^3 500 mg/m^3	Groundwater Soil	inhalation, ingestion	aerosol is irritating to the respiratory tract	Eye: Irrigate immediately Skin: Soap flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	m-Cresol meta-Cresol 3-Cresol m-Cresylic acid 1-Hydroxy-3-methylbenzene 3-Hydroxytoluene 3-Methylphenol 3-Methylphenols	108-39-4	PID	5 ppm 250 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin, mucous membrane; central nervous system effects: confusion, depression, resp failure; dyspnea (breathing difficulty), irregular rapid respiration, weak pulse; eye, skin, burns; dermatitis; lung, liver, kidney, pancreas damage	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Mercury	7439-97-6	None	0.1 mg/m^3 10 mg/m^3	Groundwater Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin; cough, chest pain, dyspnea (breathing difficulty), bronchitis, pneumonitis; tremor, insomnia, irritability, headache, lassitude (weakness, exhaustion); stomatitis, salivation; gastrointestinal disturbance, anorexia, weight loss; proteinuria	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Methyl Chloride Chloromethane Monochloromethane Refrigerant-40 R-40	74-87-3	NA	100 ppm 2000 ppm	Groundwater Soil	inhalation, skin, and/or eye contact	dizziness, nausea, vomiting; visual disturbance, stagger, slurred speech, convulsions, coma; liver, kidney damage; liquid: frostbite; reproductive, teratogenic effects; [potential occupational carcinogen]	Eye: Frostbite Skin: Frostbite Breathing: Respiratory support
1.3.1 – 1.3.14	Methyl chloroform Chlorothene 1,1,1-Trichloroethane 1,1,1-Trichloroethane-(stabilized) 1,1,1-TCA 1,1,1-Trichbroethane TCA	71-55-6	PID	350 ppm 700 ppm	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, skin; headache, lassitude (weakness, exhaustion), central nervous system depression, poor equilibrium; dermatitis; cardiac arrhythmias; liver damage	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention
1.3.1 – 1.3.14	Methyl *tert*-butyl ether MTBE Methyl tertiary-butyl ether Methyl t-butyl ether tert-Butyl methyl ether tBME tert-BuOMe Methyl tert butyl ether	1634-04-4	PID	NA NA	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, skin, nose, throat; burning sensation in chest; headache, nausea, lassitude (weakness, exhaustion), restlessness, incoordination, confusion, drowsiness; vomiting, diarrhea; dermatitis; chemical pneumonitis (aspiration liquid)	Eye: Irrigate immediately Skin: Soap flush immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Methylene Chloride Dichloromethane Methylene dichloride	75-09-2	PID	25 ppm 2300 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin; lassitude (weakness, exhaustion), drowsiness, dizziness; numb, tingle limbs; nausea; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	m-Xylenes 1,3-Dimethylbenzene m-Xylol Metaxylene	108-38-3 179601-23-1	PID	100 ppm 900 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin, nose, throat; dizziness, excitement, drowsiness, incoordination, staggering gait; corneal vacuolization; nausea, vomiting, abdominal pain; dermatitis	Eye: Irrigate immediately Skin: Soap flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Naphthalene Naphthalin Tar camphor White tar	91-20-3	PID	50 mg/m^3 250 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes; headache, confusion, excitement, malaise (vague feeling of discomfort); nausea, vomiting, abdominal pain; irritation bladder; profuse sweating; hematuria (blood in the urine); dermatitis, optical neuritis	Eye: Irrigate immediately Skin: Molten flush immediately/solid-liquid soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	n-Butylbenzene Butylbenzene 1-phenylbutane	104-51-8	PID	NA NA	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, skin; dry nose, throat; headache; low blood pressure, tachycardia, abnormal cardiovascular system stress; central nervous system, hematopoietic depression; metallic taste; liver, kidney injury	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	n-Hexane Hexane, Hexyl hydride, normal-Hexane	110-54-3	PID	500 ppm 1100 ppm	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, nose; nausea, headache; peripheral neuropathy: numb extremities, muscle weak; dermatitis; dizziness; chemical pneumonitis (aspiration liquid)	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Nickel	7440-02-0	None	NA 10 mg/m^3	Groundwater Soil	ion, ingestion, skin, and/or eye contact	sensitization dermatitis, allergic asthma, pneumonitis; [potential occupational carcinogen]	Skin: Water flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Non-Flammable Gas Mixture CALGAS (Equipment Calibration Gas : Oxygen Methane Hydrogen Sulfide Carbon Monoxide Nitrogen	 7782-44-7 74-82-8 7783-08-4 830-08-0 7727-37-9	Multi-Gas PID	 NA/NA NA/NA 10/100 ppm 50/1200 ppm NA/NA	NA	inhalation	dizziness, headache, and nausea	Breathing: Respiratory support

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Non-Flammable Gas Mixture CALGAS (Equipment Calibration Gas : Oxygen Isobutylene Nitrogen	 7782-44-7 115-11-7 7727-37-9	PID	 NA/NA NA/NA NA/NA	NA	inhalation	dizziness, headache, and nausea	Breathing: Respiratory support
1.3.1 – 1.3.14	n-Propylbenzene Isocumene Propylbenzene 1-Phenylpropane 1-Propylbenzene Phenylpropane Propylbenzene-n	103-65-1	PID	NA NA	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, skin; dry nose, throat; headache; low blood pressure, tachycardia, abnormal cardiovascular system stress; central nervous system, hematopoietic depression; metallic taste; liver, kidney injury	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	o-Cresol ortho-Cresol 2-Cresol o-Cresylic acid 1-Hydroxy-2-methylbenzene 2-Hydroxytoluene 2-Methyl phenol 2-Methylphenol	95-48-7	PID	5 ppm 250 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin, mucous membrane; central nervous system effects: confusion, depression, resp failure; dyspnea (breathing difficulty), irregular rapid respiration, weak pulse; eye, skin, burns; dermatitis; lung, liver, kidney, pancreas damage	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	o-Xylenes 1,2-Dimethylbenzene ortho-Xylene o-Xylol	95-47-6 179601-23-1	PID	100 ppm 900 ppm	Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin, nose, throat; dizziness, excitement, drowsiness, incoordination, staggering gait; corneal vacuolization; nausea, vomiting, abdominal pain; dermatitis	Eye: Irrigate immediately Skin: Soap flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	p-Cresol para-Cresol 4-Cresol p-Cresylic acid 1-Hydroxy-4-methylbenzene 4-Hydroxytoluene 4-Methylphenol 4-Methylphenols	106-44-5	PID	5 ppm 250 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin, mucous membrane; central nervous system effects: confusion, depression, resp failure; dyspnea (breathing difficulty), irregular rapid respiration, weak pulse; eye, skin, burns; dermatitis; lung, liver, kidney, pancreas damage	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Pentachlorophenol PCP; Penta; 2,3,4,5,6-Pentachlorophenol	87-86-5	PID	0.5 mg/m^3 2.5 mg/m^3	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, nose, throat; sneezing, cough; lassitude (weakness, exhaustion), anorexia, weight loss; sweating; headache, dizziness; nausea, vomiting; dyspnea (breathing difficulty), chest pain; high fever; dermatitis	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Perfluorodecanesulfonic Acid PFDS	335-77-3	NA	NA NA	Groundwater	inhalation, skin, or eye contact, ingestion	irritation to eyes with eye damage, skin, causing rash, redness or burning, irritation to nose, throat, and lungs	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Perfluorooctanesulfonic Acid PFOS	1763-23-1	NA	None None	Groundwater	inhalation, skin, or eye contact, ingestion	irritation to eyes with eye damage, skin, causing rash, redness or burning, irritation to nose, throat, and lungs	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	p-Ethyltoluene 4-Ethyltoluene 1-ethyl-4-methyl-benzene 1-methyl-4-ethylbenzene	622-96-8	NA	NA NA	Soil	ingestion, skin, and/or eye contact	irritation to the eyes, skin, mucous membrane; headache; dermatitis; narcosis, coma	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Phenanthrene	85-01-8	PID	0.2 mg/m^3 80 mg/m^3 (Coal Pitch Tar)	Groundwater Soil	inhalation, skin, or eye contact, ingestion	irritation to eyes and skin, respiratory irritation (dizziness, weakness, fatigue, nausea, headache)	Eye: Irrigate immediately, refer to medical attention Skin: Soap wash immediately Breathing: move to fresh air Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Phenol Carbolic acid Hydroxybenzene, Monohydroxybenzene Phenyl alcohol Phenyl hydroxide	108-95-2	PID	5 ppm 250 ppm	Groundwater Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, nose, throat; anorexia, weight loss; lassitude (weakness, exhaustion), muscle ache, pain; dark urine, skin, burns; dermatitis; tremor, convulsions, twitching	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Potassium	7440-09-7	None	NA NA	Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact inhalation, ingestion, skin, and/or eye contact	eye: Causes eye burns. Skin: Causes skin, burns. Reacts with moisture in the skin, to form potassium hydroxide and hydrogen with heat. ingestion: Causes gastrointestinal tract burns. inhalation: May cause irritation of the respiratory tract with burning pain in the nose and throat, coughing, wheezing, shortness of breath and pulmonary edema. Causes chemical burns to the respiratory tract. inhalation may be fatal because of spasm, inflammation, edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema.	Eyes: Get medical aid immediately Skin: Get medical aid immediately. Immediately flush skin with water for at least 15 minutes while removing contaminated clothing and shoes. Ingestion: If victim is conscious and alert, give 2-4 full cups of milk or water. Get medical aid immediately. inhalation: Get medical aid immediately.

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	p-Xylenes 1,4-Dimethylbenzene para-Xylene p-Xylol	106-42-3	PID	100 ppm 900 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin, nose, throat; dizziness, excitement, drowsiness, incoordination, staggering gait; corneal vacuolization; nausea, vomiting, abdominal pain; dermatitis	Eye: Irrigate immediately Skin: Soap flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Pyrene benzo[def]phenanthrene	129-00-0	PID	0.2 mg/m^3 80 mg/m^3 (Coal Pitch Tar)	Groundwater Soil	inhalation, skin, or eye contact, ingestion	irritation to eyes and skin, respiratory irritation (dizziness, weakness, fatigue, nausea, headache)	Eye: Irrigate immediately, refer to medical attention Skin: Soap wash immediately Breathing: move to fresh air Swallow: Medical attention immediately
1.3.1 – 1.3.14	sec-Butylbenzene 2-phenylbutane	135-98-8	PID	10 ppm 100 ppm	Groundwater Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, nose, throat. inhalation: nausea or vomiting	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Selenium	7782-49-2	None	1 mg/m^3 0.2 mg/m^3	Soil	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, skin, nose, throat; visual disturbance; headache; chills, fever; dyspnea (breathing difficulty), bronchitis; metallic taste, garlic breath, gastrointestinal disturbance; dermatitis; eye, skin, burns; in animals: anemia; liver necrosis, cirrhosis; kidney, spleen damage	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Silver	7440-22-4	None	0.01mg/ m^3 10 mg/m^3	Soil	inhalation, ingestion, skin, and/or eye contact	blue-gray eyes, nasal septum, throat, skin; irritation, ulceration skin; gastrointestinal disturbance	Eye: Irrigate immediately Skin: Water flush Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Silvex 2-(2,4,5-Trichlorophenoxy)propionic acid Fenoprop 2,4,5-TP Acid 2,4,5-TP	93-72-1	PID	NA NA	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, nose, respiratory system; headache, lassitude (weakness, exhaustion), dizziness, confusion, malaise (vague feeling of discomfort), drowsiness, unsteady gait; narcosis; defatting dermatitis; liver injury; reproductive effects	Eye: Irrigate immediately Skin: Water flush Breathing: Respiratory support Swallow: Medical attention

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Sodium	7440-23-5	None	NA NA	Groundwater Soil	ion, ingestion, skin, and/or eye contact	sensitization dermatitis, allergic asthma, pneumonitis; [potential occupational carcinogen]	Skin: Water flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Styrene Ethenyl benzene Phenylethylene Styrene monomer Styrol Vinyl benzene	100-42-5	PID	100 ppm 700 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, nose, respiratory system; headache, lassitude (weakness, exhaustion), dizziness, confusion, malaise (vague feeling of discomfort), drowsiness, unsteady gait; narcosis; defatting dermatitis; liver injury; reproductive effects	Eye: Irrigate immediately Skin: Water flush Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Tert-Butyl Alcohol Tertiary Butyl Alcohol Tert-Butanol Butyl alcohol 2-Methyl-2-propanol Trimethyl carbinol Tert-Butyl Alcohol TBA	75-65-0	PID	100 ppm 1600 ppm	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	irritation to the eyes, skin, nose, throat; drowsiness, narcosis	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	tert-Butylbenzene *t*-Butylbenzene 2-Methyl-2-phenylpropane Pseudobutylbenzene	98-06-6	PID	10 ppm NA	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	eye, skin, irritation; dry nose, throat; headaches; low blood pressure, tachycardia; abnormal cardiovascular system; central nervous system depression; hematopoietic depression	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Tetrachloroethylene Perchlorethylene Perchloroethylene PCE Perk Tetrachlorethylene Tetrachloroethene	127-18-4	PID	100 ppm 150 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin, nose, throat, respiratory system; nausea; flush face, neck; dizziness, incoordination; headache, drowsiness; skin, erythema (skin, redness); liver damage; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Tetrahydrofuran Diethylene oxide 1,4-Epoxybutane Tetramethylene oxide THF	109-99-9	PID	200 ppm 2000 ppm	Groundwater Soil Vapor	inhalation, skin, and/or eye contact, ingestion	irritation to the eyes, upper respiratory system; nausea, dizziness, headache, central nervous system depression	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Thallium	7440-28-0	None	0.1 mg/m3 15 mg/m3	Groundwater Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	nausea, diarrhea, abdominal pain, vomiting; ptosis, strabismus; peri neuritis, tremor; retrosternal (occurring behind the sternum) tightness, chest pain, pulmonary edema; convulsions, chorea, psychosis; liver, kidney damage; alopecia; paresthesia legs	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Toluene Methyl benzene Methyl benzol Phenyl methane Toluol	108-88-3	PID	200 ppm 500 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, nose; lassitude (weakness, exhaustion), confusion, euphoria, dizziness, headache; dilated pupils, lacrimation (discharge of tears); anxiety, muscle fatigue, paresthesia; dermatitis	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Total PCBs Chlorodiphenyl (42% chlorine) Aroclor® 1242 PCB Polychlorinated biphenyl	53469-21-9	None	0.5 mg/m^3 5 mg/m^3	Groundwater Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, chloracne	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Total Xylenes Dimethylbenzene Xylol	1330-20-7	PID	100 ppm 900 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin, nose, throat; dizziness, excitement, drowsiness, incoordination, staggering gait; corneal vacuolization; nausea, vomiting, abdominal pain; dermatitis	Eye: Irrigate immediately Skin: Soap flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Trans-1,2-Dichloroethene trans-1,2-Dichloroethylene tDEC trans-Acetylene dichloride	156-60-5	PID	200 ppm 4000 ppm	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	Irritant to eyes, skin, mucous membranes, and respiratory system. May be harmful by ingestion, skin absorption and inhalation	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Trans-Chlordane	5103-74-2	None	0.5 mg/m3 100 mg/m3	Groundwater Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	Blurred vision; confusion; ataxia, delirium; cough; abdominal pain, nausea, vomiting, diarrhea; irritability, tremor, convulsions; anuria	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Trichloroethylene Trichloroetheneylenes Ethylene trichloride TCE Trichloroethene Trilene	79-01-6	PID	100 ppm 1000 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin; headache, visual disturbance, lassitude (weakness, exhaustion), dizziness, tremor, drowsiness, nausea, vomiting; dermatitis; cardiac arrhythmias, paresthesia; liver injury; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Trichlorofluoromethane Fluorotrichloromethane Freon® 11 Monofluorotrichloromethane Refrigerant 11 Trichloromonofluoromethane Freon 11	75-69-4	PID	1000 ppm 2000 ppm	Groundwater Soil Vapor	inhalation, ingestion, skin, and/or eye contact	incoordination, tremor; dermatitis; cardiac arrhythmias, cardiac arrest; asphyxia; liquid: frostbite	Eye: Irrigate immediately Skin: Water flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Trivalent Chromium Chromium III Chromium, Trivalent	NA	None	1.0 mg/m^3 250 mg/m^3	Groundwater Soil	inhalation absorption ingestion	irritation to eye, skin, and respiratory	Eye: Irrigate immediately Skin: Soap wash Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Vanadium	7440-62-2	None	0.1 mg/m3 15 mg/m3	Groundwater Soil	inhalation, skin absorption, ingestion, skin, and/or eye contact	nausea, diarrhea, abdominal pain, vomiting; ptosis, strabismus; peri neuritis, tremor; retrosternal (occurring behind the sternum) tightness, chest pain, pulmonary edema; convulsions, chorea, psychosis; liver, kidney damage; alopecia; paresthesia legs	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.14	Vinyl Chloride Chloroethene Chloroethylen Ethylene monochloride Monochloroethene Monochloroethylene VC Vinyl chloride monomer (VCM)	75-01-4	PID	1 ppm NA	Groundwater Soil Vapor	inhalation, skin, and/or eye contact (liquid)	lassitude (weakness, exhaustion); abdominal pain, gastrointestinal bleeding; enlarged liver; pallor or cyanosis of extremities; liquid: frostbite; [potential occupational carcinogen]	Eye: Frostbite Skin: Frostbite Breathing: Respiratory support
1.3.1 – 1.3.14	Vinylidene chloride 1,1-DCE 1,1-Dichloroethene 1,1-Dichloroethylene VDC Vinylidene chloride monomer Vinylidene dichloride	75-35-4	PID	NA NA	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin, and/or eye contact	irritation to the eyes, skin, throat; dizziness, headache, nausea, dyspnea (breathing difficulty); liver, kidney disturbance; pneumonitis; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap flush immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.14	Zinc	7440-62-2	None	15 mg/m^3 500 mg/m^3	Groundwater Soil	inhalation	chills, muscle ache, nausea, fever, dry throat, cough; lassitude (weakness, exhaustion); metallic taste; headache; blurred vision; low back pain; vomiting; malaise (vague feeling of discomfort); chest tightness; dyspnea (breathing difficulty), rales, decreased pulmonary function	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately

EXPLANATION OF ABBREVIATIONS

PID = Photoionization Detector
PEL = Permissible Exposure Limit (8-hour Time Weighted Average)
IDLH = Immediately Dangerous to Life and Health
ppm = part per million
mg/m^3 = milligrams per cubic meter
500 mg/m^3

TABLE 3
SUMMARY OF MONITORING EQUIPMENT

Instrument	Operation Parameters
Photoionization Detector (PID)	**Hazard Monitored:** Many organic and some inorganic gases and vapors. **Application:** Detects total concentration of many organic and some inorganic gases and vapors. Some identification of compounds is possible if more than one probe is measured. **Detection Method:** Ionizes molecules using UV radiation; produces a current that is proportional to the number of ions. **General Care/Maintenance:** Recharge or replace battery. Regularly clean lamp window. Regularly clean and maintain the instrument and accessories. **Typical Operating Time:** 10 hours. 5 hours with strip chart recorder.
Oxygen Meter	**Hazard Monitored:** Oxygen (O_2). **Application:** Measures the percentage of O_2 in the air. **Detection Method:** Uses an electrochemical sensor to measure the partial pressure of O_2 in the air and converts the reading to O_2 concentration. **General Care/Maintenance:** Replace detector cell according to manufacturer's recommendations. Recharge or replace batteries prior to explanation of the specified interval. If the ambient air is less than 0.5% C O_2, replace the detector cell frequently. **Typical Operating Time:** 8 – 12 hours.
Additional equipment (if needed, based on site conditions)	
Combustible Gas Indicator (CGI)	**Hazard Monitored:** Combustible gases and vapors. **Application:** Measures the concentration of combustible gas or vapor. **Detection Method:** A filament, usually made of platinum, is heated by burning the combustible gas or vapor. The increase in heat is measured. Gases and vapors are ionized in a flame. A current is produced in proportion to the number of carbon atoms present. **General Care/Maintenance:** Recharge or replace battery. Calibrate immediately before use. **Typical Operating Time:** Can be used for as long as the battery lasts, or for the recommended interval between calibrations, whichever is less.
Flame Ionization Detector (FID) with Gas Chromatography Option *(i.e., Foxboro Organic Vapor Analyzer (OVA))*	**Hazard Monitored:** Many organic gases and vapors (approved areas only). **Application:** In survey mode, detects the concentration of many organic gases and vapors. In gas chromatography (GC) mode, identifies and measures specific compounds. In survey mode, all the organic compounds are ionized and detected at the same time. In GC mode, volatile species are separated. **General Care/Maintenance:** Recharge or replace battery. Monitor fuel and/or combustion air supply gauges. Perform routine maintenance as described in the manual. Check for leaks. **Typical Operating Time:** 8 hours; 3 hours with strip chart recorder.
Potable Infrared (IR) Spectrophotometer	**Hazard Monitored:** Many gases and vapors. **Application:** Measures concentration of many gases and vapors in air. Designed to quantify one or two component mixtures. **Detection Method:** Passes different frequencies of IR through the sample. The frequencies absorbed are specific for each compound. **General Care/Maintenance:** As specified by the manufacturer.

Instrument	Operation Parameters
Direct Reading Colorimetric Indicator Tube	**Hazard Monitored:** Specific gas and vapors. **Application:** Measures concentration of specific gases and vapors. **Detection Method:** The compound reacts with the indicator chemical in the tube, producing a stain whose length or color change is proportional to the compound's concentration. **General Care/Maintenance:** Do not use a previously opened tube even if the indicator chemical is not stained. Check pump for leaks before and after use. Refrigerate before use to maintain a shelf life of about 2 years. Check expiration dates of tubes. Calibrate pump volume at least quarterly. Avoid rough handling which may cause channeling.
Aerosol Monitor	**Hazard Monitored:** Airborne particulate (dust, mist, fume) concentrations. **Application:** Measures total concentration of semi-volatile organic compounds, PCBs, and metals. **Detection Method:** Based on light-scattering properties of particulate matter. Using an internal pump, air sample is drawn into the sensing volume where near infrared light scattering is used to detect particles. **General Care/Maintenance:** As specified by the mfr. Also, the instrument must be calibrated with particulates of a size and refractive index similar to those to be measured in the ambient air.
Monitox	**Hazard Monitored:** Gases and vapors. **Application:** Measures specific gases and vapors. **Detection Method:** Electrochemical sensor specific for the chemical species in question. **General Care/Maintenance:** Moisten sponge before use; check the function switch; change the battery when needed.
Gamma Radiation Survey Instrument	**Hazard Monitored:** Gamma Radiation. **Application:** Environmental radiation monitor. **Detection Method:** Scintillation detector. **General Care/Maintenance:** Must be calibrated annually at a specialized facility. **Typical Operating Time:** Can be used for as long as the battery lasts, or for the recommended interval between calibrations, whichever is less.

TABLE 4
INSTRUMENTATION ACTION LEVELS

Photoionization Detector Action Levels	**Action Required**
Background to 5 parts per million (ppm)[1]	No respirator needed; no further action
>5ppm but </= 15 ppm at the perimeter of the work area	• Work temporarily halted and monitoring continues. • If instantaneous readings decrease below 5 ppm above background, work activities will resume with continued monitoring
>5ppm but </= 25 ppm at the downwind perimeter of the hot zone	• Work activities will be halted. • Source of vapors identified. • Corrective actions taken to abate emissions. • Continued monitoring. • Workers will don appropriate respirators and work can resume if vapor levels 200 feet downwind or the hot zone or half the distance to the nearest potential receptor or residential or commercial structure, whichever is less – but in no case less than 20 feet – is below 5 ppm above background for the 15-minute average
>25ppm at the parameter of the hot zone	Activities will shut down

Particulate Monitoring Action Levels	**Action Required**
Background to 100 micrograms per cubic meter (µg/m³)[2], no dust observed	No further action
Background to 100 µg/m³, dust observed leaving the work area	Dust suppression must be employed.
100 to 150 µg/m³ at the downwind parameter of the hot zone	• Work activities will be halted. • Source of dust identified. • Dust suppression activities initiated. • Corrective actions taken to abate emissions. • Continued monitoring. • Workers will don appropriate respirators. • Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM10 concentration to within 150 µg/m³ of the upwind level and in preventing visible dust migration.
>150 µg/m³ at the parameter of the hot zone	Activities will shut down

[1] VOC concentrations are 15-minute averages above site background (upwind parameter)
[2] Particulate concentrations are 15-minute averages above site background (upwind parameter)

TABLE 5
EMERGENCY NOTIFICATION LIST

ORGANIZATION	CONTACT	TELEPHONE
Local Police Department		911
Local Fire Department		911
Ambulance/Rescue Squad		911
Hospital	St. Barnabas Hospital	911 or 718-9609000
Langan Incident Hotline		800-952-6426 extension 4699
Medical Treatment Hotline	WorkCare™	911 or 888-449-7757
Langan Environmental Project Manager	Kimberly Nagotko	919-819-3459 (cell)
Langan Health and Safety Manager (HSM)	Tony Moffa	215-756-2523 (cell)
Langan Health & Safety Officer (HSO)	William Bohrer	410-984-3068 (cell)
Langan Field Team Leader (FTL)	To Be Determined	
Client's Representative	Susan Albrecht	917-734-2312
National Response Center (NRC)		800-424-8802
Chemical Transportation Emergency Center (Chemtrec)		800-424-9300
Center for Disease Control (CDC)		404-639-3534
EPA (RCRA Superfund Hotline)		800-424-9346
TSCA Hotline		202-554-1404
Poison Control Center		800-222-1222

Immediately following an injury, unless immediate emergency medical treatment is required, the injured employee must contact WorkCare - Incident Intervention® at 888-449-7787.

For all other incidents or near misses, unless emergency response is required, either the employee or a coworker must contact the Langan Incident Hotline at 973-560-4699.

TABLE 6
SUGGESTED FREQUENCY OF PHYSIOLOGICAL MONITORINGFOR FIT AND ACCLIMATED WORKERS[A]

Adjusted Temperature[b]	Normal Work Ensemble[c]	Impermeable Ensemble
90°F or above (32.2°C) or above	After each 45 min. of work	After each 15 min. of work
87.5°F (30.8°-32.2°C)	After each 60 min. of work	After each 30 min. of work
82.5°-87.5°F (28.1°-30.8°C)	After each 90 min. of work	After each 60 min. of work
77.5°-82.5°F (25.3°-28.1°C)	After each 120 min. of work	After each 90 min. of work
72.5°-77.5°F (22.5°-25.3°C)	After each 150 min. of work	After each 120 min. of work

a For work levels of 250 kilocalories/hour.

b Calculate the adjusted air temperature (ta adj) by using this equation: ta adj ^{o}F = ta ^{o}F + (13 x % sunshine). Measure air temperature (ta) with a standard mercury-in-glass thermometer, with the bulb shielded from radiant heat. Estimate percent sunshine by judging what percent time the sun is not covered by clouds that are thick enough to produce a shadow. (100 percent sunshine = no cloud cover and a sharp, distinct shadow; 0 percent sunshine = no shadows.)

c A normal work ensemble consists of cotton coveralls or other cotton clothing with long sleeves and pants.

TABLE 7

HEAT INDEX

ENVIRONMENTAL TEMPERATURE (Fahrenheit)

RELATIVE HUMIDITY	70	75	80	85	90	95	100	105	110	115	120
	APPARENT TEMPERATURE*										
0%	64	69	73	78	83	87	91	95	99	103	107
10%	65	70	75	80	85	90	95	100	105	111	116
20%	66	72	77	82	87	93	99	105	112	120	**130**
30%	67	73	78	84	90	96	104	113	123	**135**	**148**
40%	68	74	79	86	93	101	110	123	**137**	**151**	
50%	69	75	81	88	96	107	120	**135**	**150**		
60%	70	76	82	90	100	114	**132**	**149**			
70%	70	77	85	93	106	124	**144**				
80%	71	78	86	97	113	**136**					
90%	71	79	88	102	122						
100%	72	80	91	108							

*Combined Index of Heat and Humidity...what it "feels like" to the body
Source: National Oceanic and Atmospheric Administration

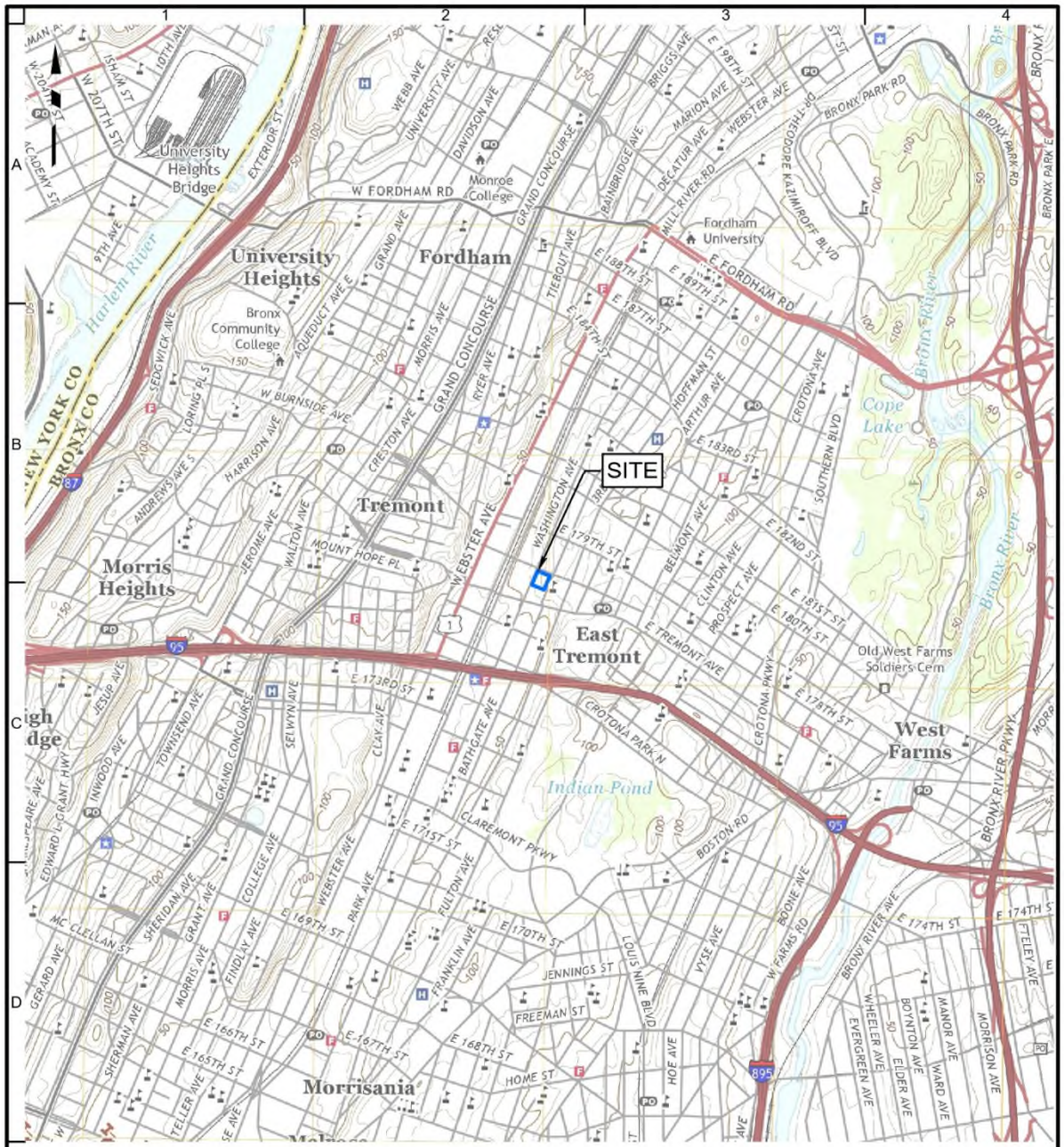
How to use Heat Index:
1. Across top locate Environmental Temperature
2. Down left side locate Relative Humidity
3. Follow across and down to find Apparent Temperature
4. Determine Heat Stress Risk on chart at right

Note: Exposure to full sunshine can increase Heat Index values by up to 15 degrees F.

Apparent Temperature	Heat Stress Risk with Physical Activity and/or Prolonged Exposure
90-105	Heat Cramps or Heat Exhaustion Possible
105-130	Heat Cramps or Heat Exhaustion Likely, Heat Stroke Possible
>130	Heatstroke Highly Likely

FIGURES

FIGURE 1
SITE LOCATION MAP



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Langan Engineering & Environmental Services, Inc.
Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.
Langan International LLC

Collectively known as Langan

Project	ST. JOSEPH APARTMENTS BLOCK No. 3043, LOT No. 10 BRONX NEW YORK
Figure Title	SITE LOCATION MAP
Project No.	170852601
Date	10/1/2024
Scale	1"=2,000'
Drawn By	MG
Submission Date	
Figure No.	A-1

© 2024 Langan

Path: \\langan.com\data\NYC\data6\170852601\Project Data\ArcGIS\APRX\170852601\170852601.aprx Date: 10/1/2024 User: mgeorgalas Time: 1:27 PM

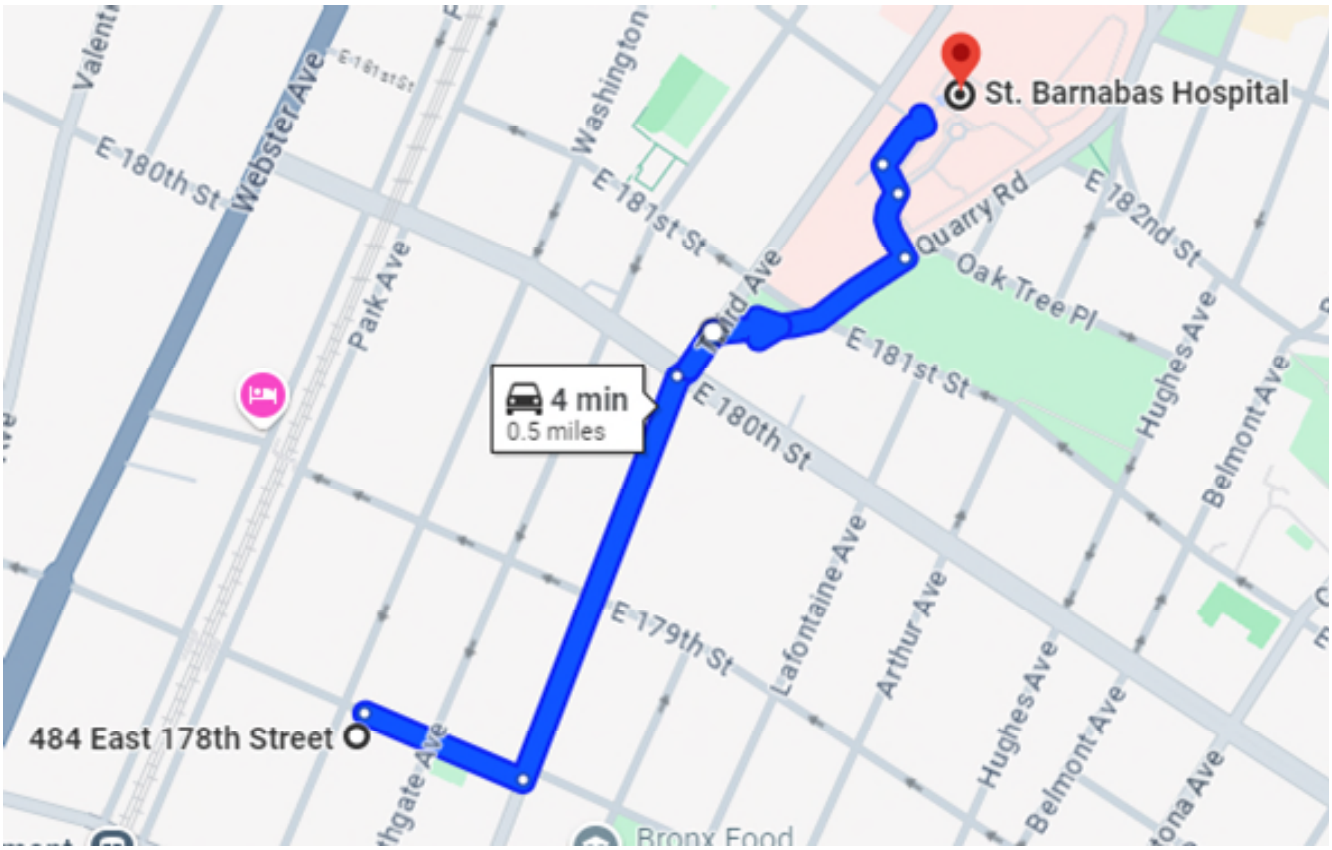
FIGURE 2
HOSPITAL ROUTE PLAN

Hospital Location: **St Barnabas Hospital**
4422 Third Ave
Bronx, New York
718-960-9000

START: 484 East 178th Street, Bronx, NY

1. Head southeast on E. 178th St toward Bathgate Ave
2. Turn left onto Thirst Ave
3. After East 180th St, veer right onto Quarry Rd
4. Turn left into hospital complex, destination will be on your right.

END: St Barnabas Hospital, 4422 Third Ave, Bronx, NY



ATTACHMENTS

ATTACHMENT A

STANDING ORDERS

STANDING ORDERS

GENERAL

- No smoking, eating, or drinking in this work zone.
- Upon leaving the work zone, personnel will thoroughly wash their hands and face.
- Minimize contact with contaminated materials through proper planning of work areas and decontamination areas, and by following proper procedures. Do not place equipment on the ground. Do not sit on contaminated materials.
- No open flames in the work zone.
- Only properly trained and equipped personnel are permitted to work in potentially contaminated areas.
- Always use the appropriate level of personal protective equipment (PPE).
- Maintain close contact with your buddy in the work zone.
- Contaminated material will be contained in the Exclusion Zone (EZ).
- Report any unusual conditions.
- Work areas will be kept clear and uncluttered. Debris and other slip, trip, and fall hazards will be removed as frequently as possible.
- The number of personnel and equipment in the work zone will be kept to an essential minimum.
- Be alert to the symptoms of fatigue and heat/cold stress, and their effects on the normal caution and judgment of personnel.
- Conflicting situations which may arise concerning safety requirements and working conditions must be addressed and resolved quickly by the site HSO.

TOOLS AND HEAVY EQUIPMENT

- Do not, under any circumstances, enter or ride in or on any backhoe bucket, materials hoist, or any other device not specifically designed to carry passengers.
- Loose-fitting clothing or loose long hair is prohibited around moving machinery.
- Ensure that heavy equipment operators and all other personnel in the work zone are using the same hand signals to communicate.
- Drilling/excavating within 10 feet in any direction of overhead power lines is prohibited.
- The locations of all underground utilities must be identified and marked out prior to initiating any subsurface activities.
- Check to ensure that the equipment operator has lowered all blades and buckets to the ground before shutting off the vehicle.
- If the equipment has an emergency stop device, have the operator show all personnel its location and how to activate it.
- Help the operator ensure adequate clearances when the equipment must negotiate in tight quarters; serve as a signal operator to direct backing, as necessary.
- Ensure that all heavy equipment that is used in the Exclusion Zone is kept in that zone until the job is done and that such equipment is completely decontaminated before moving it into the clean area of the work zone.
- Samplers must not reach into or get near rotating equipment such as the drill rig. If personnel must work near any tools that could rotate, the equipment operator must completely shut down the rig prior to initiating such work. It may be necessary to use a remote sampling device.

ATTACHMENT B

DECONTAMINATION PROCEDURES

PERSONNEL DECONTAMINATION

LEVEL C DECONTAMINATION

Station 1:	Equipment Drop	1. Deposit equipment used on-site (tools, sampling devices and containers, monitoring instruments, radios, clipboards, etc.) on plastic drop cloths. Segregation at the drop reduces the probability of cross-contamination. During hot weather operations, cool down stations may be set up within this area.
Station 2:	Outer Garment, Boots, and Gloves Wash and Rinse	2. Scrub outer boots, outer gloves, and chemical-resistant splash suit with decon solution or detergent and water. Rinse off using copious amounts of water.
Station 3:	Outer Boot and Glove Removal	3. Remove outer boots and gloves. Deposit in container with plastic liner.
Station 4:	Canister or Mask Change	4. If worker leaves Exclusion Zone to change canister (or mask), this is the last step in the decontamination procedure. Worker's canister is exchanged, new outer gloves and boot covers donned, joints taped, and worker returns to duty.
Station 5:	Boot, Gloves and Outer Garment Removal	5. Boots, chemical-resistant splash suit, inner gloves removed and deposited in separate containers lined with plastic.
Station 6:	Face piece Removal	6. Face piece is removed (avoid touching face with fingers). Face piece deposited on plastic sheets.
Station 7:	Field Wash	7. Hands and face are thoroughly washed. Shower as soon as possible.

LEVEL D DECONTAMINATION

Station 1:	Equipment Drop	1. Deposit equipment used on-site (tools, sampling devices and containers, monitoring instruments, radios, clipboards, etc.) on plastic drop cloths. Segregation at the drop reduces the probability of cross contamination. During hot weather operations, cool down stations may be set up within this area.
Station 2:	Outer Garment, Boots, and Gloves Wash and Rinse	2. Scrub outer boots, outer gloves and chemical-resistant splash suit with decon solution or detergent and water. Rinse off using copious amounts of water.
Station 3:	Outer Boot and Glove Removal	3. Remove outer boots and gloves. Deposit in container with plastic liner.
Station 4:	Boot, Gloves and Outer Garment Removal	4. Boots, chemical-resistant splash suit, inner gloves removed and deposited in separate containers lined with plastic.
Station 5:	Field Wash	5. Hands and face are thoroughly washed. Shower as soon as possible.

EQUIPMENT DECONTAMINATION

GENERAL:

Equipment to be decontaminated during the project may include tools, monitoring equipment, respirators, sampling containers, laboratory equipment, and drilling equipment.

All decontamination will be done by personnel in protective gear, appropriate for the level of decontamination, as determined by the site HSO. The decontamination work tasks will be split or rotated among support and work crews.

Depending on site conditions, backhoes and pumps may be decontaminated over a portable decontamination pad to contain wash water; or wash water may be allowed to run off into a storm sewer system. Equipment needed may include a steam generator with high-pressure water, empty drums, screens, screen support structures, and shovels. Drums will be used to hold contaminated wash water pumped from the lined pit. These drums will be labeled as such.

Miscellaneous tools and equipment will be dropped into a plastic bucket, tub, or other containers. They will be brushed off and rinsed with a detergent solution, and finally rinsed with clean water.

MONITORING EQUIPMENT:

Monitoring equipment will be protected as much as possible from contamination by draping, masking, or otherwise covering as many of the instruments as possible with plastic without hindering the operation of the unit. The PID, HNu, or OVA meter, for example, can be placed in a clear plastic bag, which allows reading of the scale and operation of knobs. The probes can be partially wrapped keeping the sensor tip and discharge port clear.

The contaminated equipment will be taken from the drop area and the protective coverings removed and disposed of in the appropriate containers. Any dirt or obvious contamination will be brushed or wiped with a disposable paper wipe.

RESPIRATORS:

Respirators will be cleaned and disinfected after every use. Taken from the drop area, the masks (with the cartridges removed and disposed of with other used disposable gear) will be immersed in a cleaning solution and scrubbed gently with a soft brush, followed by a rinse in plain warm water, and then allowed to air dry. In the morning, new cartridges will be installed. Personnel will inspect their own masks for serviceability prior to donning them. And, once the mask is on, the wearer will check the respirator for leakage using the negative and positive pressure fit check techniques.

ATTACHMENT C

EMPLOYEE EXPOSURE/INJURY INCIDENT REPORT

EMPLOYEE INCIDENT/INJURY REPORT
LANGAN ENGINEERING & ENVIRONMENTAL SERVICES

(Complete and return to Tony Moffa in the Doylestown Office)

Affected Employee Name: _____ Date: _____

Incident type: ☐ Injury ☐ Report Only/No Injury
☐ Near Miss ☐ Other: _____

EMPLOYEE INFORMATION (Person completing Form)

Employee Name: _____ Employee No: _____

Title: _____ Office Location: _____

Length of time employed or date of hire: _____

Mailing address: _____

_____

Sex: M ☐ F ☐ Birth date: _____

Business phone & extension: _____ Residence/cell phone: _____

ACCIDENT INFORMATION

Project: _____ Project #: _____

Date & time of incident: _____ Time work started & ended: _____

Site location: _____

Incident Type: Possible Exposure ☐ Exposure ☐ Physical Injury ☐

Names of person(s) who witnessed the incident:_____

_____

_____

Exact location incident occurred:

_____

_____

Describe work being done:_____

_____

_____

_____

Describe what affected employee was doing prior to the incident occurring:

_____

_____

_____

Describe in detail how the incident occurred:

_____

_____

_____

_____

Nature of the incident (List the parts of the body affected):

_____

_____

_____

_____

Person(s) to whom the incident was reported (Time and Date):

_____

_____

List the names of other persons affected during this incident:

_____

_____

Possible causes of the incident (equipment, unsafe work practices, lack of PPE, etc.):

Weather conditions during incident:

MEDICAL CARE INFORMATION

Did affected employee receive medical care? Yes ☐ No ☐

If Yes, when, and where was medical care received:

Provide name of facility (hospital, clinic, etc.):

Length of stay at the facility.

Did the employee miss any work time? Yes ☐ No ☐ Undetermined ☐

Date employee last worked: Date employee returned to work:

Has the employee returned to work? Yes ☐ No ☐

Does the employee have any work limitations or restrictions from the injury? : Yes ☐ No ☐

If Yes, please describe:

Did the exposure/injury result in permanent disability? Yes ☐ No ☐ Unknown ☐

If Yes, please describe:

HEALTH & SAFETY INFORMATION

Was the operation being conducted under an established site-specific Health and Safety Plan?
Yes ☐ No ☐ Not Applicable: ☐

Describe protective equipment and clothing used by the employee:

_____

_____

_____

Did any limitations in safety equipment or protective clothing contribute to or affect exposure/injury? If so, explain:

_____

_____

_____

_____

Employee Signature Date

_____

Langan Representative Date

ATTACHMENT D

CALIBRATION LOG

DATE:_____ **PROJECT:**_____

CALIBRATION LOG

Date & Time	Inst Type	Inst #	Media	Initial Reading	Span #	Calibrate Reading	Performed By:

ATTACHMENT E

MATERIAL SAFETY DATA SHEETS
SAFETY DATA SHEETS

All Langan Field Personnel Completing This Work Plan Are To Have Real-Time Accessibility To Material Safety Data Sheets (MSDS) or Safety Data Sheets (SDSs) Through Their Smart Phone.

The link is http://www.msds.com/
The login name is "drapehead"
The password is "2angan987"

If You Are Unable To Use the Smart Phone App, You Are To Bring Printed Copies of the MSDS/SDSs to the Site

SAFETY DATA SHEET

Version 5.3
Revision Date 12/29/2015
Print Date 04/11/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : 1,1-Dichloroethane

Product Number : 48512
Brand : Supelco
Index-No. : 602-011-00-1

CAS-No. : 75-34-3

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 2), H225
Acute toxicity, Oral (Category 4), H302
Eye irritation (Category 2A), H319
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Acute aquatic toxicity (Category 3), H402
Chronic aquatic toxicity (Category 3), H412

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H225 Highly flammable liquid and vapour.
H302 Harmful if swallowed.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	Ethylidene chloride
Formula	:	$C_2H_4Cl_2$
Molecular weight	:	98.96 g/mol
CAS-No.	:	75-34-3
EC-No.	:	200-863-5
Index-No.	:	602-011-00-1

Hazardous components

Component	Classification	Concentration
1,1-Dichloroethane		
	Flam. Liq. 2; Acute Tox. 4; Eye Irrit. 2A; STOT SE 3; Aquatic Acute 3; Aquatic Chronic 3; H225, H302, H319, H335, H412	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen chloride gas

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Use explosion-proof equipment.Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): Flammable liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
1,1-Dichloroethane	75-34-3	TWA	100.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Upper Respiratory Tract irritation Eye irritation Liver damage Kidney damage Not classifiable as a human carcinogen		
		TWA	100.000000 ppm 400.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		See Appendix C		
		TWA	100.000000 ppm 400.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: butyl-rubber
Minimum layer thickness: 0.3 mm
Break through time: 60 min
Material tested:Butoject® (KCL 897 / Aldrich Z677647, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering

controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	-97.99 °C (-144.38 °F)
f)	Initial boiling point and boiling range	55.0 - 58.0 °C (131.0 - 136.4 °F)
g)	Flash point	-9.99 °C (14.02 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	1.17 g/cm3
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 725.0 mg/kg

LC50 Inhalation - Rat - 4 h - 13000 ppm

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
Chronic exposure may cause dermatitis.

Germ cell mutagenicity
No data available

Carcinogenicity

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
May cause respiratory irritation.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: KI0175000

Liver injury may occur., Kidney injury may occur., narcosis, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Central nervous system -

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2362 Class: 3 Packing group: II
Proper shipping name: 1,1-Dichloroethane
Reportable Quantity (RQ): 1000 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 2362 Class: 3 Packing group: II EMS-No: F-E, S-D
Proper shipping name: 1,1-DICHLOROETHANE

IATA
UN number: 2362 Class: 3 Packing group: II
Proper shipping name: 1,1-Dichloroethane

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
1,1-Dichloroethane	75-34-3	2007-07-01

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
1,1-Dichloroethane	75-34-3	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
1,1-Dichloroethane	75-34-3	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
1,1-Dichloroethane	75-34-3	2007-07-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
1,1-Dichloroethane	75-34-3	2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H302	Harmful if swallowed.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.3 Revision Date: 12/29/2015 Print Date: 04/11/2016

M A T E R I A L S A F E T Y D A T A S H E E T

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

Company: AccuStandard, Inc.
125 Market Street
New Haven, CT 06513

Date MSDS Printed: 4/21/2006
Preparation Date: 4/21/2006
Information Phone Number: 203-786-5290
Emergency Phone Number: 203-786-5290
Hours: Mon. to Fri. 8am-5pm EDT

MSDS Number: V-029
Product Name: 1,2,4-Trimethylbenzene
Synonyms: 1,2,4-Trimethylbenzene; Pseudocumene; psi-Cumene; Assymetrical trimethylbenzene
Formula: C_9H_{12} Molecular Weight: 120.19

SECTION 2 - COMPOSITION / INFORMATION ON INGREDIENTS

Component(s) (1)	CAS #	Appr. %	ACGIH-TLV (mg/m3) TWA	ACGIH-TLV (mg/m3) STEL skin	OSHA-PEL (mg/m3) TWA	OSHA-PEL (mg/m3) STEL skin
1,2,4-Trimethylbenzene	95-63-6	100	123			

SECTION 3 - HAZARDS IDENTIFICATION

Symptoms of Exposure:

Irritating to eyes, skin, mucous membranes and upper respiratory system.

Narcotic in high concentrations.

May cause headache, dizziness, nausea, and narcosis.

May cause stomach cramps and gastro-intestinal disturbances.

To the best of our knowledge the chemical, physical and toxicological properties of the component ingredients have not been thoroughly investigated.

Potential Health Effects:

Harmful if inhaled.

May be harmful if absorbed through skin or swallowed

May cause central nervous system damage.

Routes of Entry:

Inhalation, ingestion or skin contact.

Carcinogenicity:

This product is or contains a component that is not listed (ACGIH, IARC, NTP, OSHA) as a cancer causing agent.

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SECTION 4 - FIRST AID MEASURES

Emergency First Aid:

Get medical assistance for all cases of overexposure.

Skin contact: Immediately wash skin with soap and plenty of water. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

Eye contact: Immediately flush with plenty of water. After initial flushing, remove and contact lenses and continue flushing for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers.

Inhalation: Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention.

Ingestion: Call a physician or poison control center immediately. ONLY induce vomiting at the instructions of a physician. Never give anything by mouth to an unconscious person.

SECTION 5 - FIRE FIGHTING MEASURES

Flammable Properties:

Flash Point: 118.4 °F (48 °C) (cc)

Flammable Limits LEL (%): 0.9

Flammable Limits UEL (%): 6.4

Autoignition Temperature: 515 °C

Flammable liquid and vapor.

Vapors can travel to a source of ignition and flash back.

Containers can build up pressure if exposed to heat.

During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Extinguishing Media:

Use alcohol foam, carbon dioxide, dry chemical, or water spray when fighting fires involving this material.

Fire Fighting Procedures:

As in any fire, wear self-contained breathing apparatus pressure demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Spill Response:

Wear a self-contained breathing apparatus and appropriate Personal protection. Stop leak if you can do so without risk. Ventilate area. Neutralize spill with soda ash or lime. Take up and containerize for proper disposal. Flush spill area with water. Keep combustibles away from spilled material. Comply with Federal, State, and local regulations.

SECTION 7 - HANDLING AND STORAGE

Store in a tighly closed container.

Store in a cool area away from ignition sources and oxidizers.

Do not breathe vapor.

Do not get in eyes, on skin or clothing.

Avoid prolonged or repeated exposure.

This product should only by used by persons trained in the safe handling of hazardous chemicals.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls and Personal Protection Equipment (PPE):

Respiratory Protection: If workplace exposure limit(s) of product or any component is exceeded (see TLV/PEL), a NIOSH/MSHA approved air supplied respirator is advised in absence of proper environmental control. OSHA regulations also permit other

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NIOSH/MSHA respirators (negative pressure type) under specified conditions (see your safety equipment supplier). Engineering and/or administrative controls should be implemented to reduce exposure.

Material should be handled or transferred in an approved fume hood or with adequate ventilation.

Compatible chemical-resistant protective gloves must be worn to prevent skin contact.

Safety glasses with side shields must be worn at all times.

General Hygiene Considerations:

Wash thoroughly after handling. Do not take internally. Eye wash and safety equipment should be readily available.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Clear, colorless liquid
Odor: Aromatic
pH: N/A
Vapor Pressure: 7 mmHg (44.4 °C)
Vapor Density (Air = 1): 4.2 g/l
Boiling Point: 168 - 169 °C
Melting Point: -43.7 °C
Solubility in Water (%): Insoluble
Specific Gravity (H_2O = 1): 0.876 g/cm3
Flash Point: 118.4 °F (48 °C) (cc)
Explosion Limits (%): 0.9 to 6.4
Autoignition Temperature: 515 °C
Percent Volatile: N/A
Evaporation Rate (BuAc = 1): N/A
Molecular Weight: 120.19
Molecular Formula: C_9H_{12}

SECTION 10 - STABILITY AND REACTIVITY

Stability: Stable
Conditions To Avoid: Heat; Contact with ignition sources
Materials To Avoid: Oxidizers

Hazardous Decomposition: Carbon oxides
Hazardous Polymerization: Will not occur

SECTION 11 - TOXICOLOGICAL INFORMATION

See section 3 for specific toxicological information for the ingredients of this product.

SECTION 12 - ECOLOGICAL INFORMATION

By complying with sections 6 and 7 there will be no release to the environment.

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SECTION 13 - DISPOSAL CONSIDERATIONS

Recycle or incinerate at any EPA approved facility or dispose in compliance with Federal, State and local regulations. Empty containers must be triple-rinsed prior to disposal.

SECTION 14 - TRANSPORT INFORMATION

DOT UN Number: UN3295 Shipping Class: 3 Packing Group: III FLAMMABLE

SECTION 15 - REGULATORY INFORMATION

In addition to Federal and state regulations, local regulations may apply. Check with your local regulatory authorities.

SECTION 16 - OTHER INFORMATION

This document has been designed to meet the requirements of OSHA, ANSI and CHIPs regulations.

The statements contained herein are offered for informational purposes only and are based on technical data that we believe to be accurate. It is intended for use only by persons having the necessary technical skill and at their own discretion and risk. Since conditions and manner of use are outside our control, we make
NO WARRANTY, EXPRESSED OR IMPLIED, OF MERCHANTABILITY, FITNESS OR OTHERWISE.

Legend : N/A = Not Available ND = Not Determined NR = Not Regulated

* * * End of Document * * *

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SAFETY DATA SHEET

Version 4.7
Revision Date 11/26/2015
Print Date 02/11/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : 1,2-Dichlorobenzene

Product Number : 240664
Brand : Sigma-Aldrich
Index-No. : 602-034-00-7

CAS-No. : 95-50-1

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 4), H227
Acute toxicity, Oral (Category 4), H302
Acute toxicity, Inhalation (Category 4), H332
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Skin sensitisation (Category 1), H317
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Warning

Hazard statement(s)
H227 Combustible liquid.
H302 + H332 Harmful if swallowed or if inhaled
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.

H335	May cause respiratory irritation.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves/ eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333 + P313	If skin irritation or rash occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	$C_6H_4Cl_2$
Molecular weight	:	147.00 g/mol
CAS-No.	:	95-50-1
EC-No.	:	202-425-9
Index-No.	:	602-034-00-7

Hazardous components

Component	Classification	Concentration
1,2-Dichlorobenzene		
	Flam. Liq. 4; Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2A; Skin Sens. 1; STOT SE 3; Aquatic Acute 1; Aquatic Chronic 1; H227, H302 + H332, H315, H317, H319, H335, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen chloride gas

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Light sensitive.
Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
1,2-Dichlorobenzene	95-50-1	TWA	25.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Upper Respiratory Tract irritation Eye irritation Liver damage Not classifiable as a human carcinogen		
		TWA	25 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Eye irritation Liver damage Not classifiable as a human carcinogen		
		STEL	50.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Eye irritation Liver damage Not classifiable as a human carcinogen		
		STEL	50 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Eye irritation Liver damage Not classifiable as a human carcinogen		
		C	50.000000 ppm 300.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate. Ceiling limit is to be determined from breathing-zone air samples.		
		C	50.000000 ppm 300.000000 mg/m3	USA. NIOSH Recommended Exposure Limits

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 38 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid, clear Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -18 - -17 °C (0 - 1 °F) - lit.
f)	Initial boiling point and boiling range	178 - 180 °C (352 - 356 °F) - lit.
g)	Flash point	66.0 °C (150.8 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 9.2 %(V) Lower explosion limit: 2.2 %(V)
k)	Vapour pressure	2.1 hPa (1.6 mmHg) at 35.0 °C (95.0 °F) 1.6 hPa (1.2 mmHg) at 20.0 °C (68.0 °F)
l)	Vapour density	No data available
m)	Relative density	1.306 g/cm3 at 25 °C (77 °F)
n)	Water solubility	ca.0.1558 g/l at 25 °C (77 °F) - partly soluble
o)	Partition coefficient: n-octanol/water	log Pow: ca.3.433 at 25 °C (77 °F)
p)	Auto-ignition temperature	648.0 °C (1,198.4 °F)
q)	Decomposition	No data available

temperature

r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

Surface tension	ca.36.61 mN/m

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 500.0 mg/kg

Inhalation: No data available

LD50 Dermal - Rabbit - > 10,000 mg/kg

No data available

Skin corrosion/irritation
Skin - Rabbit
(OECD Test Guideline 404)

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
in vivo assay - Mouse
May cause sensitisation by skin contact.
(OECD Test Guideline 429)

Germ cell mutagenicity
No data available

Ames test
Salmonella typhimurium
Result: negative

OECD Test Guideline 474
Mouse - male - Bone marrow
Result: negative

Carcinogenicity

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (1,2-Dichlorobenzene)

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure

Aspiration hazard
No data available

Additional Information

Repeated dose toxicity	Rat - male and female - Oral - 24 h - NOAEL : 60 mg/kg - LOAEL : 125 mg/kg - OECD Test Guideline 408

RTECS: CZ4500000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	flow-through test LC50 - Oncorhynchus mykiss (rainbow trout) - 1.58 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Ceriodaphnia dubia (water flea) - 0.66 mg/l - 48 h
Toxicity to algae	Growth inhibition EC50 - Pseudokirchneriella subcapitata - 2.2 mg/l - 96 h

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 28 d Result: 0 % - Not readily biodegradable. (OECD Test Guideline 301C)

12.3 Bioaccumulative potential

Bioaccumulation	Cyprinus carpio (Carp) - 56 d - 0.01 mg/l Bioconcentration factor (BCF): 90 - 260 (OECD Test Guideline 305C)

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1591 Class: 6.1 Packing group: III
Proper shipping name: o-Dichlorobenzene
Reportable Quantity (RQ): 100 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 1591 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: ortho-DICHLOROBENZENE
Marine pollutant:yes

IATA
UN number: 1591 Class: 6.1 Packing group: III
Proper shipping name: o-Dichlorobenzene

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
1,2-Dichlorobenzene	95-50-1	2007-07-01

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
1,2-Dichlorobenzene	95-50-1	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
1,2-Dichlorobenzene	95-50-1	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
1,2-Dichlorobenzene	95-50-1	2007-07-01

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox. Acute toxicity

Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
H227	Combustible liquid.
H302	Harmful if swallowed.
H302 + H332	Harmful if swallowed or if inhaled
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	2
Physical Hazard	1

NFPA Rating

Health hazard:	2
Fire Hazard:	2
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.7 Revision Date: 11/26/2015 Print Date: 02/11/2016

SAFETY DATA SHEET

Creation Date 04-Feb-2010 **Revision Date** 18-Jan-2018 **Revision Number** 6

1. Identification

Product Name **1,2-Dichloroethane**

Cat No. : **E175-4; E175-20; E175-500; E175RS-19; E175RS-50; E190-4**

CAS-No 107-06-2
Synonyms Ethylene dichloride; Ethylene chloride (Certified ACS/Spectranalyzed)

Recommended Use Laboratory chemicals.
Uses advised against Not for food, drug, pesticide or biocidal product use

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number
CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 2
Acute oral toxicity	Category 4
Acute Inhalation Toxicity - Vapors	Category 3
Skin Corrosion/irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Carcinogenicity	Category 1B
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system, Central nervous system (CNS).	
Specific target organ toxicity - (repeated exposure)	Category 2
Target Organs - Kidney, Liver, Heart, Blood.	

Label Elements

Signal Word
Danger

Hazard Statements
Highly flammable liquid and vapor
Harmful if swallowed
Causes skin irritation
Causes serious eye irritation

Toxic if inhaled
May cause respiratory irritation
May cause drowsiness or dizziness
May cause cancer
May cause damage to organs through prolonged or repeated exposure

Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
Wear eye/face protection
Do not breathe dust/fume/gas/mist/vapors/spray
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Keep cool
Response
IF exposed or concerned: Get medical attention/advice
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician
Skin
If skin irritation occurs: Get medical advice/attention
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
Ingestion
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth
Fire
In case of fire: Use CO2, dry chemical, or foam for extinction
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)

WARNING. Cancer - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Ethylene dichloride	107-06-2	>95

4. First-aid measures

General Advice Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

Inhalation Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.

Ingestion Do not induce vomiting. Call a physician or Poison Control Center immediately.

Most important symptoms and effects Breathing difficulties. May cause cardiac arrhythmia. May cause central nervous system depression: Symptoms may include tightness in the chest, flushing, headache, nausea, vomiting, respiratory depression, weakness, irregular heartbeat, abdominal pain, convulsions, and shock

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Cool closed containers exposed to fire with water spray.

Unsuitable Extinguishing Media Water may be ineffective

Flash Point 13 °C / 55.4 °F

Method - No information available

Autoignition Temperature 440 °C / 824 °F

Explosion Limits

Upper 15.9 vol %
Lower 6.2 vol %
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Keep product and empty container away from heat and sources of ignition. Thermal decomposition can lead to release of irritating gases and vapors.

Hazardous Combustion Products
Carbon monoxide (CO) Carbon dioxide (CO_2) Hydrogen chloride gas Phosgene
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health	Flammability	Instability	Physical hazards
3	3	0	N/A

6. Accidental release measures

Personal Precautions Use personal protective equipment. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.

Environmental Precautions Should not be released into the environment. See Section 12 for additional ecological information.

Methods for Containment and Clean Up Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

7. Handling and storage

Handling Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Do not ingest. Use only under a chemical fume hood. Do not breathe vapors or spray mist. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Take precautionary measures against static discharges.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Ethylene dichloride	TWA: 10 ppm	(Vacated) TWA: 1 ppm (Vacated) TWA: 4 mg/m³ Ceiling: 100 ppm (Vacated) STEL: 2 ppm (Vacated) STEL: 8 mg/m³ TWA: 50 ppm	IDLH: 50 ppm TWA: 1 ppm TWA: 4 mg/m³ STEL: 2 ppm STEL: 8 mg/m³	TWA: 10 ppm TWA: 40 mg/m³

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures Use only under a chemical fume hood. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166. Tightly fitting safety goggles. Face-shield.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	sweet
Odor Threshold	400 ppm
pH	No information available
Melting Point/Range	-35 °C / -31 °F
Boiling Point/Range	81 - 85 °C / 177.8 - 185 °F
Flash Point	13 °C / 55.4 °F
Evaporation Rate	6.5 (Butyl Acetate = 1.0)
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	15.9 vol %
Lower	6.2 vol %
Vapor Pressure	65 mmHg @ 29 °C
Vapor Density	3.4
Specific Gravity	1.250
Solubility	Insoluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	440 °C / 824 °F
Decomposition Temperature	No information available
Viscosity	0.8 mPa s at 20 °C
Molecular Formula	C2 H4 Cl2
Molecular Weight	98.96

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products. Excess heat. Keep away from open flames, hot surfaces and sources of ignition.

Incompatible Materials Strong oxidizing agents, Bases, Alkali metals

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2), Hydrogen chloride gas, Phosgene

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Ethylene dichloride	625 mg/kg (Rat) 413 mg/kg (Mouse)	2800 mg/kg (Rabbit)	28.79 mg/L (Rat) 1h 7.8 mg/l (Rat) 4h

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Irritating to eyes, respiratory system and skin

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Ethylene dichloride	107-06-2	Group 2B	Reasonably Anticipated	Not listed	X	Not listed

IARC: (International Agency for Research on Cancer)

NTP: (National Toxicity Program)

IARC: (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2A - Probably Carcinogenic to Humans
Group 2B - Possibly Carcinogenic to Humans
NTP: (National Toxicity Program)
Known - Known Carcinogen
Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Respiratory system Central nervous system (CNS)
STOT - repeated exposure Kidney Liver Heart Blood

Aspiration hazard No information available

Symptoms / effects,both acute and delayed May cause central nervous system depression: Symptoms may include tightness in the chest, flushing, headache, nausea, vomiting, respiratory depression, weakness, irregular heartbeat, abdominal pain, convulsions, and shock

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity
Do not empty into drains.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Ethylene dichloride	EC50: = 166 mg/L, 96h static (Desmodesmus subspicatus) EC50: > 433 mg/L, 96h (Pseudokirchneriella subcapitata)	LC50: 110 - 123 mg/L, 96h flow-through (Pimephales promelas) LC50: 230 - 710 mg/L, 96h flow-through (Lepomis macrochirus) LC50: = 225 mg/L, 96h static (Oncorhynchus mykiss)	Not listed	EC50: 140 - 190 mg/L, 48h Static (Daphnia magna)

Persistence and Degradability Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its volatility.

Component	log Pow
Ethylene dichloride	1.45

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Ethylene dichloride - 107-06-2	U077	-

14. Transport information

DOT

UN-No	UN1184
Proper Shipping Name	ETHYLENE DICHLORIDE
Hazard Class	3
Subsidiary Hazard Class	6.1
Packing Group	II

TDG

UN-No	UN1184
Proper Shipping Name	ETHYLENE DICHLORIDE
Hazard Class	3
Subsidiary Hazard Class	6.1
Packing Group	II

IATA

UN-No	UN1184
Proper Shipping Name	ETHYLENE DICHLORIDE
Hazard Class	3
Subsidiary Hazard Class	6.1
Packing Group	II

IMDG/IMO

UN-No	UN1184
Proper Shipping Name	ETHYLENE DICHLORIDE
Hazard Class	3
Subsidiary Hazard Class	6.1
Packing Group	II

15. Regulatory information

All of the components in the product are on the following Inventory lists: X = listed

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Ethylene dichloride	X	X	-	203-458-1	-		X	X	X	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b)

Component	TSCA 12(b)
Ethylene dichloride	Section 4

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Ethylene dichloride	107-06-2	>95	0.1

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Ethylene dichloride	X	100 lb	X	X

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Ethylene dichloride	X		-

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Ethylene dichloride	100 lb 1 lb	-

California Proposition 65 This product contains the following proposition 65 chemicals

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Ethylene dichloride	107-06-2	Carcinogen	10 µg/day	Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Ethylene dichloride	X	X	X	X	-

U.S. Department of Transportation

Reportable Quantity (RQ): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade Serious risk, Grade 3

16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 04-Feb-2010
Revision Date 18-Jan-2018
Print Date 18-Jan-2018
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

Material Safety Data Sheet

Version 3.1
Revision Date 04/08/2011
Print Date 12/27/2011

1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	1,3,5-Trimethylbenzene
Product Number	:	442236
Brand	:	Supelco
Supplier	:	Sigma-Aldrich 3050 Spruce Street SAINT LOUIS MO 63103 USA
Telephone	:	+1 800-325-5832
Fax	:	+1 800-325-5052
Emergency Phone # (For both supplier and manufacturer)	:	(314) 776-6555
Preparation Information	:	Sigma-Aldrich Corporation Product Safety - Americas Region 1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Combustible Liquid, Target Organ Effect, Irritant

Target Organs

Peripheral nervous system., Central nervous system, Blood

GHS Classification
Flammable liquids (Category 3)
Acute toxicity, Inhalation (Category 5)
Skin irritation (Category 2)
Eye irritation (Category 2B)
Specific target organ toxicity - single exposure (Category 3)
Acute aquatic toxicity (Category 2)
Chronic aquatic toxicity (Category 2)

GHS Label elements, including precautionary statements

Pictogram

Signal word Warning

Hazard statement(s)

H226	Flammable liquid and vapour.
H315 + H320	Causes skin and eye irritation.
H333	May be harmful if inhaled.
H335	May cause respiratory irritation.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P273	Avoid release to the environment.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

HMIS Classification

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	2
Physical hazards:	0

NFPA Rating

Health hazard:	2
Fire:	2
Reactivity Hazard:	0

Potential Health Effects

Inhalation	May be harmful if inhaled. Causes respiratory tract irritation.
Skin	May be harmful if absorbed through skin. Causes skin irritation.
Eyes	Causes eye irritation.
Ingestion	May be harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : Mesitylene
1,3,5-Trimethylbenzene

Formula : C_9H_{12}

Molecular Weight : 120.19 g/mol

CAS-No.	EC-No.	Index-No.	Concentration
Mesitylene			
108-67-8	203-604-4	601-025-00-5	-

4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

Special protective equipment for fire-fighters
Wear self contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products
Hazardous decomposition products formed under fire conditions. - Carbon oxides

Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Conditions for safe storage
Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Basis
Mesitylene	108-67-8	TWA	25 ppm 125 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		TWA	25 ppm 123 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		TWA	25 ppm 125 mg/m3	USA. NIOSH Recommended Exposure Limits

Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection
impervious clothing, Flame retardant antistatic protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	liquid, clear

Colour	colourless

Safety data

pH	no data available
Melting point/freezing point	Melting point/range: -45 °C (-49 °F) - lit.
Boiling point	163 - 166 °C (325 - 331 °F) - lit.
Flash point	53.0 °C (127.4 °F) - closed cup
Ignition temperature	550 °C (1,022 °F)
Autoignition temperature	550.0 °C (1,022.0 °F)
Lower explosion limit	0.88 %(V)
Vapour pressure	18.7 hPa (14.0 mmHg) at 55.0 °C (131.0 °F) 3.3 hPa (2.5 mmHg) at 25.0 °C (77.0 °F)
Density	0.864 g/cm3 at 25 °C (77 °F)
Water solubility	no data available
Partition coefficient: n-octanol/water	no data available
Relative vapour density	no data available
Odour	no data available
Odour Threshold	no data available
Evaporation rate	no data available

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
no data available

Conditions to avoid
Heat, flames and sparks.

Materials to avoid
Strong oxidizing agents

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50
Inhalation LC50
LC50 Inhalation - rat - 4 h - 24,000 mg/m3

Dermal LD50
no data available

Other information on acute toxicity
no data available

Skin corrosion/irritation
Skin - rabbit - Skin irritation - 24 h

Serious eye damage/eye irritation
Eyes - rabbit - Mild eye irritation - 24 h

Respiratory or skin sensitization
no data available

Germ cell mutagenicity
no data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

no data available

Teratogenicity

no data available

Specific target organ toxicity - single exposure (Globally Harmonized System)
May cause respiratory irritation.

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
no data available

Aspiration hazard
no data available

Potential health effects

Inhalation	May be harmful if inhaled. Causes respiratory tract irritation.
Ingestion	May be harmful if swallowed.
Skin	May be harmful if absorbed through skin. Causes skin irritation.
Eyes	Causes eye irritation.

Signs and Symptoms of Exposure
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Synergistic effects
no data available

Additional Information
RTECS: OX6825000

12. ECOLOGICAL INFORMATION

Toxicity

Toxicity to fish	LC50 - Carassius auratus (goldfish) - 12.52 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates.	Immobilization EC50 - Daphnia magna (Water flea) - 6 mg/l - 48 h

Persistence and degradability
no data available

Bioaccumulative potential
no data available

Mobility in soil
no data available

PBT and vPvB assessment
no data available

Other adverse effects

Toxic to aquatic life with long lasting effects.

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

13. DISPOSAL CONSIDERATIONS

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2325 Class: 3 Packing group: III
Proper shipping name: 1,3,5-Trimethylbenzene
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN number: 2325 Class: 3 Packing group: III EMS-No: F-E, S-D
Proper shipping name: 1,3,5-TRIMETHYLBENZENE
Marine pollutant: No

IATA
UN number: 2325 Class: 3 Packing group: III
Proper shipping name: 1,3,5-Trimethylbenzene

15. REGULATORY INFORMATION

OSHA Hazards
Combustible Liquid, Target Organ Effect, Irritant

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Mesitylene	108-67-8	1994-04-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Mesitylene	108-67-8	1994-04-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Mesitylene	108-67-8	1994-04-01

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Further information
Copyright 2011 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Co., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.

SAFETY DATA SHEET

Version 4.7
Revision Date 06/18/2015
Print Date 02/09/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : 1,3-Dichlorobenzene

Product Number : 113808
Brand : Aldrich
Index-No. : 602-067-00-7

CAS-No. : 541-73-1

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 4), H227
Acute toxicity, Oral (Category 4), H302
Acute aquatic toxicity (Category 2), H401
Chronic aquatic toxicity (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Warning

Hazard statement(s)
H227 Combustible liquid.
H302 Harmful if swallowed.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.
P280 Wear protective gloves/ eye protection/ face protection.
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you

	feel unwell. Rinse mouth.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P391	Collect spillage.
P403 + P235	Store in a well-ventilated place. Keep cool.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	$C_6H_4Cl_2$
Molecular weight	:	147.00 g/mol
CAS-No.	:	541-73-1
EC-No.	:	208-792-1
Index-No.	:	602-067-00-7

Hazardous components

Component	Classification	Concentration
1,3-Dichlorobenzene		
	Flam. Liq. 4; Acute Tox. 4; Aquatic Acute 2; Aquatic Chronic 2; H227, H302, H411	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen chloride gas

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): Combustible liquids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm

Break through time: 37 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid, clear Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -25 - -22 °C (-13 - -8 °F) - lit.
f)	Initial boiling point and boiling range	172 - 173 °C (342 - 343 °F) - lit.
g)	Flash point	67.0 °C (152.6 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	1.288 g/cm3 at 25 °C (77 °F)
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	log Pow: 5
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available

t) Oxidizing properties No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

Inhalation: No data available

Dermal: No data available

LD50 Intraperitoneal - Mouse - 1,062 mg/kg

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (1,3-Dichlorobenzene)

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: CZ4499000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 7.8 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	LC50 - Daphnia magna (Water flea) - 1.7 mg/l - 48 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
Bioaccumulation: Pimephales promelas (fathead minnow) - 32 d - 0.3 mg/l

Bioconcentration factor (BCF): 97

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3082 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, liquid, n.o.s. (1,3-Dichlorobenzene)
Reportable Quantity (RQ): 100 lbs
Marine pollutant:yes
Poison Inhalation Hazard: No

IMDG
UN number: 3082 Class: 9 Packing group: III EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (1,3-Dichlorobenzene)
Marine pollutant:yes

IATA
UN number: 3082 Class: 9 Packing group: III

Proper shipping name: Environmentally hazardous substance, liquid, n.o.s. (1,3-Dichlorobenzene)

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
1,3-Dichlorobenzene	541-73-1	2007-07-01

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
1,3-Dichlorobenzene	541-73-1	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
1,3-Dichlorobenzene	541-73-1	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
1,3-Dichlorobenzene	541-73-1	2007-07-01

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Flam. Liq.	Flammable liquids
H227	Combustible liquid.
H302	Harmful if swallowed.
H401	Toxic to aquatic life.

HMIS Rating

Health hazard:	1
Chronic Health Hazard:	
Flammability:	2
Physical Hazard	0

NFPA Rating

Health hazard:	1
Fire Hazard:	2
Reactivity Hazard:	0

Further information
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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.7 Revision Date: 06/18/2015 Print Date: 02/09/2016

SAFETY DATA SHEET

Version 4.4
Revision Date 04/24/2015
Print Date 04/01/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : 1,4-Dichlorobenzene

Product Number : D56829
Brand : Aldrich
Index-No. : 602-035-00-2

CAS-No. : 106-46-7

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Eye irritation (Category 2A), H319
Carcinogenicity (Category 2), H351
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Warning

Hazard statement(s)
H319 Causes serious eye irritation.
H351 Suspected of causing cancer.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P264 Wash skin thoroughly after handling.
P273 Avoid release to the environment.
P280 Wear protective gloves/ eye protection/ face protection.

P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	$C_6H_4Cl_2$
Molecular weight	:	147.00 g/mol
CAS-No.	:	106-46-7
EC-No.	:	203-400-5
Index-No.	:	602-035-00-2

Hazardous components

Component	Classification	Concentration
1,4-Dichlorobenzene		
	Eye Irrit. 2A; Carc. 2; Aquatic Acute 1; Aquatic Chronic 1; H319, H351, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen chloride gas

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
1,4-Dichlorobenzene	106-46-7	TWA	10.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Eye irritation Kidney damage Confirmed animal carcinogen with unknown relevance to humans		
		Potential Occupational Carcinogen See Appendix A		
		TWA	75.000000 ppm 450.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: sheets Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 52 - 54 °C (126 - 129 °F) - lit.
f)	Initial boiling point and boiling range	173 °C (343 °F) - lit.
g)	Flash point	66.0 °C (150.8 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	8.8 hPa (6.6 mmHg) at 50.0 °C (122.0 °F) 0.5 hPa (0.4 mmHg) at 25.0 °C (77.0 °F)
l)	Vapour density	No data available
m)	Relative density	1.241 g/mL at 25 °C (77 °F)
n)	Water solubility	No data available

o)	Partition coefficient: n-octanol/water	log Pow: 3.40
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

Bulk density	650 kg/m3

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD0 Oral - Rat - male and female - > 2,000 mg/kg
(OECD Test Guideline 401)

LC50 Inhalation - Rat - male and female - 4 h - > 5.07 mg/l

LD0 Dermal - Rat - > 2,000 mg/kg
(OECD Test Guideline 402)

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation
(OECD Test Guideline 404)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: No eye irritation
(OECD Test Guideline 405)

Respiratory or skin sensitisation
Maximisation Test (GPMT) - Guinea pig
Did not cause sensitisation on laboratory animals.
(OECD Test Guideline 406)

Germ cell mutagenicity
No data available

Carcinogenicity

This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

Limited evidence of carcinogenicity in animal studies

IARC:	2B - Group 2B: Possibly carcinogenic to humans (1,4-Dichlorobenzene)
NTP:	Reasonably anticipated to be a human carcinogen (1,4-Dichlorobenzene)
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: CZ4550000

Produces:, methemoglobin, Nausea, Vomiting, Increased pulse rate, Headache, Impairment of vision

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	flow-through test LC50 - Salmo gairdneri - 1.12 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - 0.7 mg/l - 48 h
Toxicity to algae	Growth inhibition EC50 - Scenedesmus capricornutum (fresh water algae) - 1.6 mg/l - 96 h

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 28 d Result: 30 % - Not rapidly biodegradable (OECD Test Guideline 301C)

12.3 Bioaccumulative potential

Bioaccumulation	Jordanella floridae - 5 d - 2.68 µg/l Bioconcentration factor (BCF): 296

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substances, solid, n.o.s. (1,4-Dichlorobenzene)
Reportable Quantity (RQ): 100 lbs
Marine pollutant:yes
Poison Inhalation Hazard: No

IMDG
UN number: 3077 Class: 9 Packing group: III EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (1,4-Dichlorobenzene)
Marine pollutant:yes

IATA
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (1,4-Dichlorobenzene)

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
1,4-Dichlorobenzene	106-46-7	2007-07-01

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
1,4-Dichlorobenzene	106-46-7	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
1,4-Dichlorobenzene	106-46-7	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
1,4-Dichlorobenzene	106-46-7	2007-07-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
1,4-Dichlorobenzene	106-46-7	2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
Eye Irrit.	Eye irritation
H319	Causes serious eye irritation.
H351	Suspected of causing cancer.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	0
Fire Hazard:	2
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.4 Revision Date: 04/24/2015 Print Date: 04/01/2016

SAFETY DATA SHEET

Version 5.4
Revision Date 03/03/2015
Print Date 04/11/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : 1,4-Dioxane

Product Number : 296309
Brand : Sigma-Aldrich
Index-No. : 603-024-00-5

CAS-No. : 123-91-1

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 2), H225
Eye irritation (Category 2A), H319
Carcinogenicity (Category 2), H351
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H225 Highly flammable liquid and vapour.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H351 Suspected of causing cancer.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233 Keep container tightly closed.

P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/ eye protection/ face protection.
P281	Use personal protective equipment as required.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P312	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

May form explosive peroxides., Repeated exposure may cause skin dryness or cracking.
May form explosive peroxides.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	Dioxane Diethylene oxide
Formula	:	$C_4H_8O_2$
Molecular weight	:	88.11 g/mol
CAS-No.	:	123-91-1
EC-No.	:	204-661-8
Index-No.	:	603-024-00-5
Registration number	:	01-2119462837-26-XXXX

Hazardous components

Component	Classification	Concentration
1,4-Dioxane		
	Flam. Liq. 2; Eye Irrit. 2A; Carc. 2; STOT SE 3; H225, H319, H335, H351	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Use explosion-proof equipment.Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): Flammable liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
1,4-Dioxane	123-91-1	TWA	20.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Liver damage Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption		
		TWA	20 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Liver damage Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption		
		TWA	25 ppm 90 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		Skin notation		
		TWA	100.000000 ppm 360.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Skin designation The value in mg/m3 is approximate.		
		TWA	100 ppm 360 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Skin designation The value in mg/m3 is approximate.		
		C	1.000000 ppm 3.600000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen See Appendix A 30 minute ceiling value		

Derived No Effect Level (DNEL)

Application Area	Exposure routes	Health effect	Value
Workers	Inhalation	Long-term local effects	144 mg/m3
Workers	Inhalation	Long-term systemic effects	73 mg/m3
Workers	Skin contact	Long-term systemic effects	21 mg/m3

Predicted No Effect Concentration (PNEC)

Compartment	Value
Soil	0.153 mg/kg
Marine water	0.67 mg/l
Fresh water	10 mg/l
Fresh water sediment	37 mg/kg
Sewage treatment plant	2700 mg/l
Aquatic intermittent release	10 mg/l

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: butyl-rubber
Minimum layer thickness: 0.3 mm
Break through time: 480 min
Material tested:Butoject® (KCL 897 / Aldrich Z677647, Size M)

Splash contact
Material: Chloroprene
Minimum layer thickness: 0.6 mm
Break through time: 35 min
Material tested:Camapren® (KCL 722 / Aldrich Z677493, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	6.0 - 8 at 500 g/l at 20 °C (68 °F)
e)	Melting point/freezing point	Melting point/range: 10 - 12 °C (50 - 54 °F) - lit.
f)	Initial boiling point and boiling range	100 - 102 °C (212 - 216 °F) - lit.
g)	Flash point	12 °C (54 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 22 %(V) Lower explosion limit: 2 %(V)
k)	Vapour pressure	36 hPa (27 mmHg) at 20 °C (68 °F) 53 hPa (40 mmHg) at 25.20 °C (77.36 °F)
l)	Vapour density	3.04 - (Air = 1.0)

m)	Relative density	1.034 g/cm3 at 25 °C (77 °F)
n)	Water solubility	completely miscible
o)	Partition coefficient: n-octanol/water	log Pow: -0.27
p)	Auto-ignition temperature	300 °C (572 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

Surface tension	36.9 mN/m at 25 °C (77 °F)
Relative vapour density	3.04 - (Air = 1.0)

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.
Test for peroxide formation before distillation or evaporation. Test for peroxide formation or discard after 1 year.
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Oxygen, Oxidizing agents, Halogens, Reducing agents, Perchlorates., Trimethylaluminum

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 4,200 mg/kg

LC50 Inhalation - Rat - 2 h - 46,000 mg/m3
Remarks: Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Eye:Other.

LD50 Dermal - Rabbit - 7,858 mg/kg

No data available

Skin corrosion/irritation
Skin - Human
Remarks: Chronic exposure causes drying effect on the skin and eczema.

Skin - Rabbit
Result: No skin irritation

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Eye irritation - 24 h

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
Laboratory experiments have shown mutagenic effects.

Carcinogenicity

This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

Limited evidence of carcinogenicity in animal studies

IARC:	2B - Group 2B: Possibly carcinogenic to humans (1,4-Dioxane)
NTP:	Reasonably anticipated to be a human carcinogen (1,4-Dioxane)
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
May cause respiratory irritation.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: JG8225000

Nausea, Vomiting, Weakness, Dizziness, Vertigo, Headache, Sweating, loss of appetite, Kidney injury may occur., Liver injury may occur.
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Liver - Irregularities - Based on Human Evidence
Liver - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 985 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 8,450 mg/l - 24 h
Toxicity to algae	EC50 - Desmodesmus subspicatus (green algae) - > 500 mg/l - 72 h

12.2 Persistence and degradability

Biodegradability	Result: < 5 % - Not readily biodegradable.

12.3 Bioaccumulative potential
Does not bioaccumulate.

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1165 Class: 3 Packing group: II
Proper shipping name: Dioxane
Reportable Quantity (RQ): 100 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 1165 Class: 3 Packing group: II EMS-No: F-E, S-D
Proper shipping name: DIOXANE

IATA
UN number: 1165 Class: 3 Packing group: II
Proper shipping name: Dioxane

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
1,4-Dioxane	123-91-1	2007-07-01

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
1,4-Dioxane	123-91-1	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
1,4-Dioxane	123-91-1	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
1,4-Dioxane	123-91-1	2007-07-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
1,4-Dioxane	123-91-1	2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Carc.	Carcinogenicity
Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H351	Suspected of causing cancer.
STOT SE	Specific target organ toxicity - single exposure

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.4 Revision Date: 03/03/2015 Print Date: 04/11/2016

SAFETY DATA SHEET

Creation Date 13-Apr-2009 **Revision Date** 24-Dec-2021 **Revision Number** 7

1. Identification

Product Name **2-Butanone**

Cat No. : **AC149670000; AC149670010; AC149670025; AC149670051; AC149670250; AC149670251**

CAS No 78-93-3
Synonyms Methyl ethyl ketone; MEK; Ethyl methyl ketone

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company
Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Central nervous system (CNS).	
Specific target organ toxicity - (repeated exposure)	Category 2
Target Organs - Kidney, Liver.	

Label Elements

Signal Word
Danger

Hazard Statements

Highly flammable liquid and vapor
Causes serious eye irritation
May cause drowsiness or dizziness
May cause damage to organs through prolonged or repeated exposure

Precautionary Statements
Prevention
Wash face, hands and any exposed skin thoroughly after handling
Do not breathe dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Wear protective gloves/protective clothing/eye protection/face protection
Keep cool
Response
Get medical attention/advice if you feel unwell
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell
Skin
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
Fire
In case of fire: Use CO2, dry chemical, or foam for extinction
Storage
Store in a well-ventilated place. Keep container tightly closed
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Repeated exposure may cause skin dryness or cracking
Other hazards
Contains a known or suspected endocrine disruptor.

3. Composition/Information on Ingredients

Component	CAS No	Weight %
Methyl ethyl ketone	78-93-3	>95

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get

	medical attention.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. Get medical attention if symptoms occur.
Inhalation	Remove to fresh air. Get medical attention if symptoms occur. If not breathing, give artificial respiration.
Ingestion	Do NOT induce vomiting. Get medical attention.
Most important symptoms and effects	Difficulty in breathing. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting
Notes to Physician	Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media	CO_2, dry chemical, dry sand, alcohol-resistant foam. Water mist may be used to cool closed containers.
Unsuitable Extinguishing Media	Water may be ineffective
Flash Point	-7 °C / 19.4 °F
Method -	CC (closed cup)
Autoignition Temperature	404 °C / 759.2 °F
Explosion Limits	
Upper	11.4 vol %
Lower	1.4 vol %
Oxidizing Properties	Not oxidising
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical
Flammable. Risk of ignition. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated. Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
Carbon monoxide (CO). Carbon dioxide (CO_2).
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	3	1	N/A

6. Accidental release measures

Personal Precautions	Use personal protective equipment as required. Remove all sources of ignition. Take precautionary measures against static discharges. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation.
Environmental Precautions	Avoid release to the environment. See Section 12 for additional Ecological Information.
Methods for Containment and Clean Up	Remove all sources of ignition. Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Use spark-proof tools and explosion-proof equipment.

7. Handling and storage

Handling

Wear personal protective equipment/face protection. Ensure adequate ventilation. Use spark-proof tools and explosion-proof equipment. Avoid contact with skin, eyes or clothing. Avoid ingestion and inhalation. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges. Use only non-sparking tools. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded.

Storage.

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks and flame. Flammables area. Incompatible Materials. Strong oxidizing agents. Strong acids. Strong bases. Strong reducing agents. Ammonia. copper. Amines.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Methyl ethyl ketone	TWA: 200 ppm STEL: 300 ppm	(Vacated) TWA: 200 ppm (Vacated) TWA: 590 mg/m³ (Vacated) STEL: 300 ppm (Vacated) STEL: 885 mg/m³ TWA: 200 ppm TWA: 590 mg/m³	IDLH: 3000 ppm TWA: 200 ppm TWA: 590 mg/m³ STEL: 300 ppm STEL: 885 mg/m³	TWA: 200 ppm STEL: 300 ppm

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures

Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting equipment. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	Characteristic - sweet
Odor Threshold	No information available
pH	No information available
Melting Point/Range	-87 °C / -124.6 °F
Boiling Point/Range	80 °C / 176 °F
Flash Point	-7 °C / 19.4 °F
Method -	CC (closed cup)

Evaporation Rate	3.7
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	11.4 vol %
Lower	1.4 vol %
Vapor Pressure	105 mbar @ 20 °C
Vapor Density	2.41
Specific Gravity	0.806
Solubility	Soluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	404 °C / 759.2 °F
Decomposition Temperature	No information available
Viscosity	0.42 mPa.s @ 15°C
Molecular Formula	C4 H8 O
Molecular Weight	72.11

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Hygroscopic.

Conditions to Avoid Incompatible products. Excess heat. Keep away from open flames, hot surfaces and sources of ignition. Exposure to moist air or water.

Incompatible Materials Strong oxidizing agents, Strong acids, Strong bases, Strong reducing agents, Ammonia, copper, Amines

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Methyl ethyl ketone	LD50 = 2483 mg/kg (Rat)	LD50 = 5000 mg/kg (Rabbit)	LC50 = 11700 ppm (Rat) 4 h

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Irritating to eyes

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Methyl ethyl ketone	78-93-3	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects Not mutagenic in AMES Test

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Central nervous system (CNS)
STOT - repeated exposure Kidney Liver

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

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Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Methyl ethyl ketone	Not listed	Lepomis macrochirus: LC50=3,22 g/L 96 h	EC50 = 3403 mg/L 30 min EC50 = 3426 mg/L 5 min	EC50: = 5091 mg/L, 48h (Daphnia magna) EC50: 4025 - 6440 mg/L, 48h Static (Daphnia magna) EC50: > 520 mg/L, 48h (Daphnia magna)

Persistence and Degradability Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its volatility.

Component	log Pow
Methyl ethyl ketone	0.29

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Methyl ethyl ketone - 78-93-3	U159	-

14. Transport information

DOT

UN-No UN1193
Proper Shipping Name Ethyl methyl ketone
Hazard Class 3
Packing Group II

TDG

UN-No UN1193
Proper Shipping Name ETHYL METHYL KETONE
Hazard Class 3
Packing Group II

IATA

UN-No UN1193
Proper Shipping Name Methyl ethyl ketone
Hazard Class 3

Packing Group II

IMDG/IMO

UN-No UN1193
Proper Shipping Name Ethyl methyl ketone (Methyl ethyl ketone)
Hazard Class 3
Packing Group II

15. Regulatory information

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
Methyl ethyl ketone	78-93-3	X	ACTIVE	-

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Methyl ethyl ketone	78-93-3	X	-	201-159-0	X	X	X	X	X	KE-24094

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313 Not applicable

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act) Not applicable

Clean Air Act Not applicable

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Methyl ethyl ketone	5000 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Methyl ethyl ketone	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ):	Y
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade Serious risk, Grade 3

Authorisation/Restrictions according to EU REACH

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Methyl ethyl ketone	-	Use restricted. See item 75. (see link for restriction details)	-

https://echa.europa.eu/substances-restricted-under-reach

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Methyl ethyl ketone	78-93-3	Listed	Not applicable	Not applicable	Not applicable

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Methyl ethyl ketone	78-93-3	Not applicable	Not applicable	Not applicable	Annex I - Y42

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 13-Apr-2009
Revision Date 24-Dec-2021
Print Date 24-Dec-2021
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Version 5.1
Revision Date 06/26/2014
Print Date 05/11/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : 4,4′-DDD

Product Number : 35486
Brand : Sigma-Aldrich

CAS-No. : 72-54-8

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Dermal (Category 4), H312
Carcinogenicity (Category 2), H351
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H301 Toxic if swallowed.
H312 Harmful in contact with skin.
H351 Suspected of causing cancer.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.

P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P322	Specific measures (see supplemental first aid instructions on this label).
P330	Rinse mouth.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	1,1-Dichloro-2,2-bis(4-chlorophenyl)ethane TDE
Formula	:	$C_{14}H_{10}Cl_4$
Molecular Weight	:	320.04 g/mol
CAS-No.	:	72-54-8
EC-No.	:	200-783-0

Hazardous components

Component	Classification	Concentration
2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane		
	Acute Tox. 3; Acute Tox. 4; Carc. 2; Aquatic Acute 1; Aquatic Chronic 1; H301, H312, H351, H410	-

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
no data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Carbon oxides, Hydrogen chloride gas
Nature of decomposition products not known.

5.3 Advice for firefighters

Wear self contained breathing apparatus for fire fighting if necessary.

5.4 Further information

no data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.Normal measures for preventive fire protection.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odour	no data available
c)	Odour Threshold	no data available
d)	pH	no data available
e)	Melting point/freezing point	94.0 - 96.0 °C (201.2 - 204.8 °F)
f)	Initial boiling point and boiling range	193.0 °C (379.4 °F) at 1.3 hPa (1.0 mmHg)
g)	Flash point	no data available
h)	Evapouration rate	no data available
i)	Flammability (solid, gas)	no data available
j)	Upper/lower flammability or explosive limits	no data available
k)	Vapour pressure	< 0.00001 hPa (< 0.00001 mmHg) at 25.0 °C (77.0 °F)
l)	Vapour density	no data available
m)	Relative density	1.38 g/cm3
n)	Water solubility	no data available
o)	Partition coefficient: n-octanol/water	log Pow: 6.02
p)	Auto-ignition temperature	no data available
q)	Decomposition temperature	no data available
r)	Viscosity	no data available
s)	Explosive properties	no data available
t)	Oxidizing properties	no data available

9.2 Other safety information
no data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
no data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
no data available

10.4 Conditions to avoid
no data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - no data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Hamster - > 5,000 mg/kg

TDLo Oral - Human - 428.5 mg/kg
Remarks: Endocrine:Adrenal cortex hypoplasia.

TDLo Oral - rat - 6,000 mg/kg
Remarks: Cardiac:Other changes. Gastrointestinal:Other changes. Kidney, Ureter, Bladder:Changes in both tubules and glomeruli.

TDLo Oral - rat - 14 mg/kg
Remarks: Liver:Changes in liver weight. Endocrine:Estrogenic. Musculoskeletal:Other changes.

TDLo Oral - rat - 2,100 mg/kg
Remarks: Behavioral:Altered sleep time (including change in righting reflex).

Inhalation: no data available

LD50 Dermal - rabbit - 1,200 mg/kg
Remarks: Behavioral:Excitement. Behavioral:Convulsions or effect on seizure threshold. Skin irritation

no data available

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
no data available

Respiratory or skin sensitisation
no data available

Germ cell mutagenicity
no data available

Carcinogenicity

This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

Limited evidence of carcinogenicity in animal studies

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as

probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
no data available

no data available

Specific target organ toxicity - single exposure
no data available

Specific target organ toxicity - repeated exposure
no data available

Aspiration hazard
no data available

Additional Information
RTECS: KI0700000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - other fish - 1.18 - 9 mg/l - 96.0 h
	LC50 - Lepomis macrochirus (Bluegill) - 0.04 - 0.05 mg/l - 96.0 h
	LC50 - Oncorhynchus mykiss (rainbow trout) - 0.06 - 0.09 mg/l - 96.0 h
	LC50 - Pimephales promelas (fathead minnow) - 3.47 - 5.58 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia pulex (Water flea) - 0.01 mg/l - 48 h

12.2 Persistence and degradability
no data available

12.3 Bioaccumulative potential
Indication of bioaccumulation.

12.4 Mobility in soil
no data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solids, organic, n.o.s. (2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane)
Reportable Quantity (RQ): 1 lbs
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN number: 2811 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane)
Marine pollutant: No

IATA
UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solid, organic, n.o.s. (2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane)

15. REGULATORY INFORMATION

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane	72-54-8	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane	72-54-8	1993-04-24

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane	72-54-8	2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
H301	Toxic if swallowed.
H312	Harmful in contact with skin.
H351	Suspected of causing cancer.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	0
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.1 Revision Date: 06/26/2014 Print Date: 05/11/2016

SAFETY DATA SHEET

Version 5.4
Revision Date 01/02/2015
Print Date 12/11/2015

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Acenaphthene

Product Number : 215376
Brand : Aldrich

CAS-No. : 83-32-9

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Carcinogenicity (Category 1B), H350
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H350 May cause cancer.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.

P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear eye protection/ face protection.
P280	Wear protective gloves.
P281	Use personal protective equipment as required.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P312	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms : 1,8-Ethylenenaphthalene

Formula : $C_{12}H_{10}$
Molecular weight : 154.21 g/mol
CAS-No. : 83-32-9
EC-No. : 201-469-6

Hazardous components

Component	Classification	Concentration
Acenaphthene		
	Skin Irrit. 2; Eye Irrit. 2A; Carc. 1B; STOT SE 3; Aquatic Acute 1; Aquatic Chronic 1; H315, H319, H335, H350, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Storage class (TRGS 510): Non Combustible Solids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator.For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 90 - 94 °C (194 - 201 °F) - lit.
f)	Initial boiling point and boiling range	279 °C (534 °F) - lit.
g)	Flash point	125.0 °C (257.0 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available

k)	Vapour pressure	13.3 hPa (10.0 mmHg) at 131.0 °C (267.8 °F)
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	log Pow: 3.39 - 4.19
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

Inhalation: No data available

Dermal: No data available

LD50 Intraperitoneal - Rat - 600 mg/kg

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Acenaphthene)

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: Reasonably anticipated to be a human carcinogen (Acenaphthene)

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
Inhalation - May cause respiratory irritation.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: AB1000000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Oncorhynchus mykiss (rainbow trout) - 0.67 mg/l - 96.0 h
	LC50 - Pimephales promelas (fathead minnow) - 0.6 - 1.73 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 1.27 - 3.45 mg/l - 48 h
Toxicity to algae	EC50 - Pseudokirchneriella subcapitata (green algae) - 0.52 - 0.53 mg/l - 96 h

12.2 Persistence and degradability

12.3 Bioaccumulative potential

Bioaccumulation	Lepomis macrochirus (Bluegill) - 28 d - 0.00894 mg/l
	Bioconcentration factor (BCF): 387

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substances, solid, n.o.s. (Acenaphthene)
Reportable Quantity (RQ): 100 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 3077 Class: 9 Packing group: III EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Acenaphthene)
Marine pollutant:yes

IATA
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Acenaphthene)

Further information
EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Acenaphthene	83-32-9	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Acenaphthene	83-32-9	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Acenaphthene	83-32-9	1993-04-24

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
Acenaphthene	83-32-9	2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
Eye Irrit.	Eye irritation
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

H350	May cause cancer.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	0
Chronic Health Hazard:	*
Flammability:	1
Physical Hazard	0

NFPA Rating

Health hazard:	0
Fire Hazard:	1
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.4 Revision Date: 01/02/2015 Print Date: 12/11/2015

SAFETY DATA SHEET

Revision Date 10-Feb-2015 **Revision Number** 1

1. Identification

Product Name **Poly(acenaphthylene)**

Cat No. : **AC178020000; AC178020050; AC178020100**

Synonyms None.

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Entity / Business Name
Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
Classification under 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Based on available data, the classification criteria are not met

Label Elements
None required

Hazards not otherwise classified (HNOC)
None identified

Unknown Acute Toxicity
.? % of the mixture consists of ingredients of unknown toxicity.

3. Composition / information on ingredients

Component	CAS-No	Weight %
Poly(acenaphthylene)	25036-01-5	100

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Skin Contact Wash off immediately with soap and plenty of water while removing all contaminated

clothes and shoes.

Inhalation Remove from exposure, lie down. Move to fresh air.

Ingestion Do not induce vomiting. Never give anything by mouth to an unconscious person. Drink plenty of water. If possible drink milk afterwards.

Most important symptoms/effects No information available.
Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray. Carbon dioxide (CO_2). Dry chemical. alcohol-resistant foam.

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature No information available
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
Thermal decomposition can lead to release of irritating gases and vapors Carbon monoxide (CO) Carbon dioxide (CO_2)
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health	Flammability	Instability	Physical hazards
0	0	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment.
Environmental Precautions See Section 12 for additional ecological information.

Methods for Containment and Clean Up Sweep up or vacuum up spillage and collect in suitable container for disposal.

7. Handling and storage

Handling Avoid contact with skin and eyes. Avoid contact with clothing. Remove and wash contaminated clothing before re-use. Avoid breathing vapors or mists. Do not ingest. Wash thoroughly after handling.

Storage Keep in a dry, cool and well-ventilated place. Keep container tightly closed.

8. Exposure controls / personal protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures Ensure adequate ventilation, especially in confined areas. Ventilation systems.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Wear a NIOSH/MSHA or European Standard EN 149 approved full-facepiece airline respirator in the positive pressure mode with emergency escape provisions.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Powder Solid
Appearance	Yellow
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	No data available
Boiling Point/Range	No information available
Flash Point	No information available
Evaporation Rate	No information available
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	No information available
Relative Density	No information available
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products.

Incompatible Materials Oxidizing agents

Hazardous Decomposition Products Thermal decomposition can lead to release of irritating gases and vapors, Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization No information available.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information No acute toxicity information is available for this product

Oral LD50 Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.
Dermal LD50 Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.
Mist LC50 Based on ATE data, the classification criteria are not met. ATE > 5 mg/l.
Component Information
Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Poly(acenaphthylene)	25036-01-5	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available
Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity
Do not empty into drains.

Persistence and Degradability No information available
Bioaccumulation/ Accumulation No information available.

Mobility No information available.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT Not regulated
TDG Not regulated
IATA Not regulated
IMDG/IMO Not regulated

15. Regulatory information

International Inventories

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313 Not applicable

SARA 311/312 Hazardous Categorization

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act Not applicable

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
Not applicable

California Proposition 65 This product does not contain any Proposition 65 chemicals

State Right-to-Know Not applicable

U.S. Department of Transportation

Reportable Quantity (RQ):	N
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class Non-controlled

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Revision Date 10-Feb-2015
Print Date 10-Feb-2015
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS

SAFETY DATA SHEET

Version 6.11
Revision Date 09/06/2024
Print Date 09/07/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Acetone

Product Number : 179124
Brand : SIGALD
Index-No. : 606-001-00-8
CAS-No. : 67-64-1

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 2), H225
Eye irritation (Category 2A), H319
Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal Word: Danger

Hazard Statements

H225	Highly flammable liquid and vapor.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.

Precautionary Statements

P210	Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing mist or vapors.
P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/ eye protection/ face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Repeated exposure may cause skin dryness or cracking.

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula	:	C_3H_6O
Molecular weight	:	58.08 g/mol
CAS-No.	:	67-64-1
EC-No.	:	200-662-2
Index-No.	:	606-001-00-8

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Component	Classification	Concentration
acetone		
	Flam. Liq. 2; Eye Irrit. 2A; STOT SE 3; H225, H319, H336 Concentration limits: >= 20 %: STOT SE 3, H336;	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

In case of eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Carbon dioxide (CO2) Foam Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

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5.2 Special hazards arising from the substance or mixture

Carbon oxides
Combustible.
Pay attention to flashback.
Vapors are heavier than air and may spread along floors.
Development of hazardous combustion gases or vapours possible in the event of fire.
Forms explosive mixtures with air at ambient temperatures.

5.3 Advice for firefighters

In the event of fire, wear self-contained breathing apparatus.

5.4 Further information

Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition.
Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb®).
Dispose of properly. Clean up affected area.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge.

Hygiene measures
Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

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Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.

Storage class
Storage class (TRGS 510): 3: Flammable liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
acetone	67-64-1	TWA	250 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Not classifiable as a human carcinogen		
		STEL	500 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Not classifiable as a human carcinogen		
		TWA	250 ppm 590 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	1,000 ppm 2,400 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		C	3,000 ppm	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		PEL	500 ppm 1,200 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		STEL	750 ppm 1,780 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
acetone	67-64-1	Acetone	25 mg/l	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift (As soon as possible after exposure ceases)			

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Derived No Effect Level (DNEL)

Application Area	Routes of exposure	Health effect	Value
Workers	Skin contact	Long-term systemic effects	186mg/kg BW/d
Consumers	Ingestion	Long-term systemic effects	62mg/kg BW/d
Consumers	Skin contact	Long-term systemic effects	62mg/kg BW/d
Workers	Inhalation	Acute systemic effects	2420 mg/m3
Workers	Inhalation	Long-term systemic effects	1210 mg/m3
Consumers	Inhalation	Long-term systemic effects	200 mg/m3

Predicted No Effect Concentration (PNEC)

Compartment	Value
Soil	33.3 mg/kg
Sea water	1.06 mg/l
Fresh water	10.6 mg/l
Sea sediment	3.04 mg/kg
Fresh water sediment	30.4 mg/kg
Onsite sewage treatment plant	100 mg/l

8.2 Exposure controls

Appropriate engineering controls
Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Full contact
Material: butyl-rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Butoject® (KCL 898)

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Splash contact
Material: Latex gloves
Minimum layer thickness: 0.6 mm
Break through time: 10 min
Material tested:Lapren® (KCL 706 / Aldrich Z677558, Size M)

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Body Protection
Flame retardant antistatic protective clothing.

Respiratory protection
Recommended Filter type: Filter type AX
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when vapours/aerosols are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains. Risk of explosion.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: clear, liquid Color: colorless
b)	Odor	pungent, weakly aromatic
c)	Odor Threshold	0.1 ppm
d)	pH	5 - 6 at 395 g/l at 20 °C (68 °F)
e)	Melting point/freezing point	Melting point/ range: -94 °C (-137 °F) - lit.
f)	Initial boiling point and boiling range	56 °C 133 °F at 1,013 hPa - lit.
g)	Flash point	-17.0 °C (1.4 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 13 %(V) Lower explosion limit: 2 %(V)
k)	Vapor pressure	245.3 hPa at 20.0 °C (68.0 °F)
l)	Vapor density	No data available
m)	Density	0.791 g/cm3 at 25 °C (77 °F) - lit.
	Relative density	No data available
n)	Water solubility	soluble, in all proportions
o)	Partition coefficient: n-octanol/water	No data available
p)	Autoignition	465.0 °C (869.0 °F)

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	temperature	
q)	Decomposition temperature	Distillable in an undecomposed state at normal pressure.
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	none

9.2 Other safety information

Conductivity	0.01 µS/cm at 20 °C (68 °F)
Surface tension	23.2 mN/m at 20.0 °C (68.0 °F)

SECTION 10: Stability and reactivity

10.1 Reactivity

Vapors may form explosive mixture with air.

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions

Risk of ignition or formation of inflammable gases or vapours with:
chromosulfuric acid
chromyl chloride
ethanolamine
Fluorine
Strong oxidizing agents
strong reducing agents
Nitric acid
chromium(VI) oxide
Risk of explosion with:
nonmetallic oxyhalides
halogen-halogen compounds
Chloroform
nitrating acid
nitrosyl compounds
hydrogen peroxide
halogen oxides
organic nitro compounds
peroxi compounds
Exothermic reaction with:
Bromine
Alkali metals
alkali hydroxides
Halogenated hydrocarbon
Sulfur dichloride
phosphorous oxichloride

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10.4 Conditions to avoid
Warming.

10.5 Incompatible materials
No data available

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - female - 5,800 mg/kg
Remarks: (ECHA)
Symptoms: Stomach/intestinal disorders, Risk of aspiration upon vomiting., Pulmonary failure possible after aspiration of vomit.
LC50 Inhalation - Rat - 4 h - 76 mg/l - vapor

Remarks: Unconsciousness
Drowsiness
Dizziness
(External MSDS)
LD50 Dermal - Rabbit - 20,000 mg/kg
Remarks: (IUCLID)

Skin corrosion/irritation
Skin - Rabbit
Result: Mild skin irritation - 24 h
(Draize Test)
Remarks: (RTECS)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Eye irritation - 24 h
(Draize Test)
Remarks: (RTECS)

Respiratory or skin sensitization
Maximization Test - Guinea pig
Result: negative
Remarks: (ECHA)
Chronic exposure may cause dermatitis.

Germ cell mutagenicity
Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative
Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation

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Method: OECD Test Guideline 471
Result: negative
Test Type: In vitro mammalian cell gene mutation test
Test system: Mouse lymphoma test
Metabolic activation: without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Carcinogenicity

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
Inhalation - May cause drowsiness or dizziness. - Narcotic effects
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

RTECS: AL3150000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

After absorption:

Headache
Salivation
Nausea
Vomiting
Dizziness
narcosis
Coma

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

Kidney - Irregularities - Based on Human Evidence

Skin - Dermatitis - Based on Human Evidence

Kidney - Irregularities - Based on Human Evidence

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Skin - Dermatitis - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	flow-through test LC50 - Pimephales promelas (fathead minnow) - 6,210 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	static test LC50 - Daphnia pulex (Water flea) - 8,800 mg/l - 48 h Remarks: (ECHA)
Toxicity to algae	static test NOEC - M.aeruginosa - 530 mg/l - 8 d (DIN 38412) Remarks: (maximum permissible toxic concentration) (IUCLID)
Toxicity to bacteria	static test EC50 - activated sludge - 61.15 mg/l - 30 min (OECD Test Guideline 209)
Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity)	flow-through test NOEC - Daphnia magna (Water flea) - 2,212 mg/l - 28 d Remarks: (ECHA)

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 28 d Result: 91 % - Readily biodegradable. (OECD Test Guideline 301B)
Biochemical Oxygen Demand (BOD)	1,850 mg/g Remarks: (IUCLID)
Chemical Oxygen Demand (COD)	2,070 mg/g Remarks: (IUCLID)
Theoretical oxygen demand	2,200 mg/g Remarks: (Lit.)

12.3 Bioaccumulative potential

Does not bioaccumulate.

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available

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12.7 Other adverse effects

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)
UN number: 1090 Class: 3 Packing group: II
Proper shipping name: Acetone
Reportable Quantity (RQ): 5000 lbs
Poison Inhalation Hazard: No

IMDG
UN number: 1090 Class: 3 Packing group: II EMS-No: F-E, S-D
Proper shipping name: ACETONE

IATA
UN number: 1090 Class: 3 Packing group: II
Proper shipping name: Acetone

SECTION 15: Regulatory information

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
acetone	67-64-1	5000	5000

SARA 304 Extremely Hazardous Substances Reportable Quantity
This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity
This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Fire Hazard
Acute Health Hazard
Chronic Health Hazard

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SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

US State Regulations

Massachusetts Right To Know

acetone	67-64-1

Pennsylvania Right To Know

acetone	67-64-1

Maine Chemicals of High Concern

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

The ingredients of this product are reported in the following inventories:

TSCA : All substances listed as active on the TSCA inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16: Other information

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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Version: 6.11 Revision Date: 09/06/2024 Print Date: 09/07/2024

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Safety Data Sheet

Revision Date: 10/21/14
www.restek.com

1. IDENTIFICATION

Catalog Number / Product Name:	**32205, 32205-5XX, & 32305 / Aldrin Standard**
Company:	Restek Corporation
Address:	110 Benner Circle Bellefonte, Pa. 16823
Phone#:	814-353-1300
Fax#:	814-353-1309
Emergency#:	800-424-9300 (CHEMTREC) 703-527-3887 (Outside the US)
Email:	sds@restek.com
Revision Number:	5
Intended use:	For Laboratory use only

2. HAZARD(S)IDENTIFICATION

Emergency Overview:

GHS Hazard Symbols:

GHS Classification:

Specific Target Organ Systemic Toxicity (STOT) - Single Exposure Category 1
Flammable Liquid Category 2
Acute Toxicity - Inhalation Dust / Mist Category 3
Acute Toxicity - Inhalation Vapour Category 3
Acute Toxicity - Inhalation Gas Category 3
Acute Toxicity - Dermal Category 3
Acute Toxicity - Oral Category 3

GHS Signal Word:

Danger

GHS Hazard:

Highly flammable liquid and vapour.
Toxic if swallowed, in contact with skin or if inhaled.
Toxic if inhaled.
Causes damage to organs.

GHS Precautions:

Safety Precautions:

Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilation and lighting equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Do not breathe dust/fume/gas/mist/vapours/spray.
Wash hands and skin thoroughly after handling.
Do no eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.

First Aid Measures:

IF SWALLOWED: Immediately call a POISON CENTER/doctor/....
IF ON SKIN: Wash with plenty of soap and water.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
IF exposed: Call a POISON CENTER or doctor/physician.
Call a POISON CENTER or doctor/physician if you feel unwell.
Specific treatment see section 4.

	Specific measures see section 4. Rinse mouth. Remove/Take off immediately all contaminated clothing. Wash contaminated clothing before reuse. In case of fire: Use extinguishing media in section 5 for extinction.
Storage:	Store in a well-ventilated place. Keep container tightly closed. Store in a well-ventilated place. Keep cool. Store locked up.
Disposal:	Dispose of contents/container according to section 13 of the SDS.
Single Exposure Target Organs:	No data available.
Repeated Exposure Target Organs:	No data available.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS #	EINEC #	% Composition
methanol	67-56-1	200-659-6	99.900000
aldrin	309-00-2	206-215-8	0.100000

4. FIRST-AID MEASURES

Inhalation:	Remove to fresh air. If breathing is difficult, have a trained individual administer oxygen. If not breathing, give artificial respiration and have a trained individual administer oxygen. Get medical attention immediately
Eyes:	Flush eyes with plenty of water for at least 20 minutes retracting eyelids often. Tilt the head to prevent chemical from transferring to the uncontaminated eye. Get immediate medical attention.
Skin Contact:	Wash with soap and water. Remove contaminated clothing and launder. Get medical attention if irritation develops or persists.
Ingestion:	Do not induce vomiting and seek medical attention immediately. Drink two glasses of water or milk to dilute. Provide medical care provider with this SDS.

5. FIRE- FIGHTING MEASURES

Extinguishing Media:	Use alcohol resistant foam, carbon dioxide, or dry chemical extinguishing agents. Water may be ineffective but water spray can be used extinguish a fire if swept across the base of the flames. Water can absorb heat and keep exposed material from being damaged by fire.
Fire and/or Explosion Hazards:	Vapors may be ignited by sparks, flames or other sources of ignition if material is above the flash point giving rise to a fire (Class B). Vapors are heavier than air and may travel to a source of ignition and flash back.
Fire Fighting Methods and Protection:	Do not enter fire area without proper protection including self-contained breathing apparatus and full protective equipment. Fight fire from a safe distance and a protected location due to the potential of hazardous vapors and decomposition products. Flammable component(s) of this material may be lighter than water and burn while floating on the surface.
Hazardous Combustion Products:	Carbon dioxide, Carbon monoxide

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions and Equipment:	Exposure to the spilled material may be severely irritating or toxic. Follow personal protective equipment recommendations found in Section 8 of this SDS. Personal protective equipment needs must be evaluated based on information provided on this sheet and the special circumstances created by the spill including; the material spilled, the quantity of the spill, the area in which the spill occurred, and the expertise of employees in the area responding to the spill. Never exceed any occupational exposure limits.
Methods for Clean-up:	Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal

protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay. Gather and store in a sealed container pending a waste disposal evaluation.

7. HANDLING AND STORAGE

Handling Technical Measures and Precautions: Toxic or severely irritating material. Avoid contacting and avoid breathing the material. Use only in a well ventilated area. Use spark-proof tools and explosion-proof equipment

Storage Technical Measures and Conditions: Store in a cool dry ventilated location. Isolate from incompatible materials and conditions. Keep container(s) closed. Keep away from sources of ignition

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

United States:

Chemical Name	CAS No.	IDLH	ACGIH STEL	ACGIH TLV-TWA	OSHA Exposure Limit
methanol	67-56-1	6000 ppm IDLH	250 ppm STEL	200 ppm TWA	200 ppm TWA; 260 mg/m3 TWA
aldrin	309-00-2	ND		0.05 mg/m3 TWA (inhalable fraction and vapor)	0.25 mg/m3 TWA

Personal Protection:

Engineering Measures: Local exhaust ventilation is recommended when generating excessive levels of vapors from handling or thermal processing.

Respiratory Protection: Respiratory protection may be required to avoid overexposure when handling this product. General or local exhaust ventilation is the preferred means of protection. Use a respirator if general room ventilation is not available or sufficient to eliminate symptoms.If an exposure limit is exceeded or if an operator is experiencing symptoms of inhalation overexposure as explained in Section 3, provide respiratory protection.

Eye Protection: Wear chemically resistant safety glasses with side shields when handling this product. Do not wear contact lenses.

Skin Protection: Wear protective gloves. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance, color:	No data available.
Odor:	Mild
Physical State:	No data available.
pH:	No data available
Vapor Density:	1.1 (air = 1)
Melting Point:	-98 °C
Flash Point:	52
Flammability:	Highly Flammable
Upper Flammable/Explosive Limit, % in air:	36.0
Lower Flammable/Explosive Limit, % in air:	6.0
Autoignition Temperature:	464 deg C
Decomposition Temperature:	No data available.
Specific Gravity:	0.791 - 0.792 g/cm3 at 20 °C
Evaporation Rate:	No data available.
Odor Threshold:	No data available.
Solubility:	Moderate; 50-99%
Partition Coefficient: n-octanol in water:	No data available.
VOC % by weight:	99.90
Molecular Weight:	32.04

10. STABILITY AND REACTIVITY

Stability:	Stable under normal conditions.
Conditions to Avoid:	No data available.
Materials to Avoid / Chemical Incompatiability:	Strong oxidizing agents
Hazardous Decomposition Products:	Carbon dioxide Carbon monoxide

11. TOXICOLOGICAL INFORMATION

Routes of Entry: Inhalation, Skin Contact, Eye Contact, Ingestion

Target Organs Potentially Affected By Exposure: Eyes, Central nervous system stimulation, Skin, GI Tract, Respiratory Tract

Chemical Interactions That Change Toxicity: None Known

Immediate (Acute) Health Effects by Route of Exposure:

Inhalation Irritation: Can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.

Inhalation Toxicity: Harmful! Can cause systemic damage (see "Target Organs)Methanol can cause central nervous system depression and overexposure can cause damage to the optic nerve resulting in visual impairment or blindness.

Skin Contact: Can cause moderate skin irritation, defatting, and dermatitis. Not likely to cause permanent damage.

Eye Contact: Can cause moderate irritation, tearing and reddening, but not likely to permanently injure eye tissue.

Ingestion Irritation: Irritating to mouth, throat, and stomach. Can cause abdominal discomfort, nausea, vomiting and diarrhea.Highly toxic and may be fatal if swallowed.

Ingestion Toxicity: Toxic if swallowed. May cause target organ failure and/or death.May be fatal if swallowed.

Long-Term (Chronic) Health Effects:

Carcinogenicity: Contains a probable or known human carcinogen.

Reproductive and Developmental Toxicity: Contains a known human reproductive and/or developmental hazard.

Inhalation: Upon prolonged and/or repeated exposure, can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.Harmful! Can cause systemic damage upon prolonged and/or repeated exposure (see "Target Organs)

Skin Contact: Upon prolonged or repeated contact, can cause moderate skin irritation, defatting, and dermatitis. Not likely to cause permanent damage.

Ingestion: Toxic if swallowed. May cause target organ failure and/or death.

Component Toxicological Data:

NIOSH:

Chemical Name	CAS No.	LD50/LC50
Methanol	67-56-1	Oral LD50 Rat 5628 mg/kg (Source: NLM_CIP); Inhalation LC50 Rat 83.2 mg/L 4 h (Source: IUCLID)

Component Carcinogenic Data:

OSHA:

Chemical Name	CAS No.
No data available.	

ACGIH:

Chemical Name	CAS No.
No data available.	

NIOSH:

Chemical Name	CAS No.
No data available.	

NTP:

Chemical Name	CAS No.
No data available.	

IARC:

Chemical Name	CAS No.	Group No.
No data.		Group 1
No data.		Group 2A
No data.		Group 2B

12. ECOLOGICAL INFORMATION

Overview: Moderate ecological hazard. This product may be dangerous

to plants and/or wildlife.

Mobility: No data
Persistence: No data
Bioaccumulation: No data
Degradability: Biodegrades slowly.
Ecological Toxicity Data: No data available.

13. DISPOSAL CONSIDERATIONS

Waste Description of Spent Product: Spent or discarded material is a hazardous waste.
Disposal Methods: Dispose of by incineration following Federal, State, Local, or Provincial regulations.
Waste Disposal of Packaging: Comply with all Local, State, Federal, and Provincial Environmental Regulations.

14. TRANSPORTATION INFORMATION

United States:
DOT Proper Shipping Name: Methanol
UN Number: UN1230
Hazard Class: 3
Packing Group: II

International:
IATA Proper Shipping Name: Methanol
UN Number: UN1230
Hazard Class: 3 (6.1)
Packing Group: II

Marine Pollutant: No

15. REGULATORY INFORMATION

United States:

Chemical Name	CAS#	CERCLA	SARA 313	SARA EHS 313	TSCA
methanol	67-56-1	X	X	-	X
aldrin	309-00-2	X	X	X	-

The following chemicals are listed on CA Prop 65:

Chemical Name	CAS #	Regulation
Aldrin	309-00-2	Prop 65 Cancer
Methanol	67-56-1	Prop 65 Devolop Tox

State Right To Know Listing:

Chemical Name	CAS#	New Jersey	Massachusetts	Pennsylvania	California
methanol	67-56-1	X	X	X	X
aldrin	309-00-2	X	X	X	X

16. OTHER INFORMATION

Prior Version Date: 03/23/11
Disclaimer: Restek Corporation provides the descriptions, data and information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. It is provided for your guidance only. Because many factors may affect processing or application/use, Restek Corporation recommends you perform an assessment to determine the suitability of a product for your particular purpose prior to use. No warranties of any kind, either expressed or implied, including fitness for a particular purpose, are made regarding prodcuts described, data or information set forth. In no case shall the descriptions, information, or data provided be considered a part of our terms and conditions of sale. Further, the descriptions, data and information furnished hereunder are given gratis. No obligation or liability for the description, data and information given are assumed. All such being given and accepted at your risk.

SAFETY DATA SHEET

Version 5.8
Revision Date 06/02/2016
Print Date 08/02/2019

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : α-BHC

Product Number : 48493
Brand : Supelco
Index-No. : 602-042-00-0

CAS-No. : 319-84-6

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Dermal (Category 4), H312
Carcinogenicity (Category 2), H351
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H301 Toxic if swallowed.
H312 Harmful in contact with skin.
H351 Suspected of causing cancer.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.

P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing.
P281	Use personal protective equipment as required.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER/doctor. Rinse mouth.
P302 + P352 + P312	IF ON SKIN: Wash with plenty of soap and water. Call a POISON CENTER or doctor/ physician if you feel unwell.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	α-1,2,3,4,5,6-Hexachlorocyclohexane
Formula	:	C6H6Cl6
Molecular weight	:	290.83 g/mol
CAS-No.	:	319-84-6
EC-No.	:	206-270-8
Index-No.	:	602-042-00-0

Hazardous components

Component	Classification	Concentration
(1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane		
	Acute Tox. 3; Acute Tox. 4; Carc. 2; Aquatic Acute 1; Aquatic Chronic 1; H301, H312, H351, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	156.0 - 161.0 °C (312.8 - 321.8 °F)
f)	Initial boiling point and boiling range	No data available
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	log Pow: 3.80
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 177.0 mg/kg

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

Limited evidence of carcinogenicity in animal studies

IARC:	2B - Group 2B: Possibly carcinogenic to humans ((1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)
IARC:	2B - Group 2B: Possibly carcinogenic to humans ((1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)
ACGIH:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP:	Reasonably anticipated to be a human carcinogen ((1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)
NTP:	Reasonably anticipated to be a human carcinogen ((1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: GV3500000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Carassius auratus (goldfish) - 0.12 mg/l - 48.0 h
	LC50 - Cyprinus carpio (Carp) - 0.2 mg/l - 48.0 h
	LC50 - other fish - 1.49 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 0.20 - 1.70 mg/l - 48 h
Toxicity to algae	EC50 - No information available. - > 100.00 mg/l - 48 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
Bioaccumulation: other fish - 96 h
- 0.8 mg/l

Bioconcentration factor (BCF): 250

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solids, organic, n.o.s. ((1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)
Reportable Quantity (RQ): 10 lbs
Marine pollutant:yes
Poison Inhalation Hazard: No

IMDG
UN number: 2811 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. ((1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)

IATA
UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solid, organic, n.o.s. ((1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
(1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane	319-84-6	2007-07-01

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
(1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane	319-84-6	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
(1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane	319-84-6	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
(1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane	319-84-6	2007-07-01

California Prop. 65 Components

	CAS-No.	Revision Date
WARNING! This product contains a chemical known to the State of California to cause cancer. (1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane	319-84-6	2009-02-01
WARNING! This product contains a chemical known to the State of California to cause cancer. (1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane	319-84-6	2009-02-01

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity

Carc.	Carcinogenicity
H301	Toxic if swallowed.
H312	Harmful in contact with skin.
H351	Suspected of causing cancer.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	0
Reactivity Hazard:	0
Health hazard:	1
Fire Hazard:	0
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.8 Revision Date: 06/02/2016 Print Date: 08/02/2019

SAFETY DATA SHEET

Version 4.8
Revision Date 05/03/2017
Print Date 07/13/2017

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : α-Chlordane

Product Number : 442449
Brand : Supelco

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 4), H302
Acute toxicity, Inhalation (Category 4), H332
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Carcinogenicity (Category 2), H351
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Warning

Hazard statement(s)

H302 + H332	Harmful if swallowed or if inhaled
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H351	Suspected of causing cancer.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P201	Obtain special instructions before use.

P202	Do not handle until all safety precautions have been read and understood.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Molecular weight : 409.8 g/mol
EC-No. : 225-825-5

Hazardous components

Component	Classification	Concentration
Chlordane		
	Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2A; Carc. 2; STOT SE 3; Aquatic Acute 1; Aquatic Chronic 1; H302 + H332, H315, H319, H335, H351, H410	90 - 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.
Hazardous components without workplace control parameters

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator.For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: crystalline Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	93.0 - 94.0 °C (199.4 - 201.2 °F)
f)	Initial boiling point and boiling range	No data available
g)	Flash point	No data available
h)	Evaporation rate	No data available

i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 500 mg/kg

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: 2B - Group 2B: Possibly carcinogenic to humans (Chlordane)

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Lepomis macrochirus (Bluegill) - 0.0074 mg/l - 96 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential

Bioaccumulation	Lepomis macrochirus (Bluegill) - 24 h - 0.005 mg/l
	Bioconcentration factor (BCF): 322

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substances, solid, n.o.s. (Chlordane)
Reportable Quantity (RQ): Marine pollutant:yes
Poison Inhalation Hazard: No

IMDG
UN number: 3077 Class: 9 Packing group: III EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Chlordane)
Marine pollutant:yes

IATA
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Chlordane)

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Chlordane	5103-71-9	

	CAS-No.	Revision Date
Chlordane	5103-71-9	

New Jersey Right To Know Components

	CAS-No.	Revision Date
Chlordane	5103-71-9	

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
Eye Irrit.	Eye irritation
H302	Harmful if swallowed.
H302 + H332	Harmful if swallowed or if inhaled
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	0
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.8 Revision Date: 05/03/2017 Print Date: 07/13/2017

SAFETY DATA SHEET

Version 4.9
Revision Date 04/20/2015
Print Date 12/11/2015

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Anthracene

Product Number : A89200
Brand : Aldrich

CAS-No. : 120-12-7

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Warning

Hazard statement(s)
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.
P280 Wear eye protection/ face protection.

P280	Wear protective gloves.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Photosensitizer., Lachrymator.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	$C_{14}H_{10}$
Molecular weight	:	178.23 g/mol
CAS-No.	:	120-12-7
EC-No.	:	204-371-1

Hazardous components

Component	Classification	Concentration
Anthracene Included in the Candidate List of Substances of Very High Concern (SVHC) according to Regulation (EC) No. 1907/2006 (REACH)		
	Skin Irrit. 2; Eye Irrit. 2A; STOT SE 3; Aquatic Acute 1; Aquatic Chronic 1; H315, H319, H335, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Anthracene	120-12-7	TWA	0.200000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	Remarks	1910.1002 As used in §1910.1000 (Table Z-1), coal tar pitch volatiles include the fused polycyclic hydrocarbons which volatilize from the distillation residues of coal, petroleum (excluding asphalt), wood, and other organic matter. Asphalt (CAS 8052-42-4, and CAS 64742-93-4) is not covered under the 'coal tar pitch volatiles' standard OSHA specifically regulated carcinogen		

		TWA	0.100000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen NIOSH considers coal tar, coal tar pitch, and creosote to be coal tar products. cyclohexane-extractable fraction See Appendix C See Appendix A		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Anthracene	120-12-7	1-Hydroxypyrene (1-HP)		Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift at end of workweek			

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Chloroprene
Minimum layer thickness: 0.6 mm
Break through time: 480 min
Material tested:Camapren® (KCL 722 / Aldrich Z677493, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 30 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator.For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: crystalline Colour: beige
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 210 - 215 °C (410 - 419 °F) - lit.
f)	Initial boiling point and boiling range	340 °C (644 °F) - lit.
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Lower explosion limit: 0.6 %(V)
k)	Vapour pressure	1.3 hPa (1.0 mmHg) at 145.0 °C (293.0 °F)
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	log Pow: 4.45
p)	Auto-ignition temperature	540.0 °C (1,004.0 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

Strong oxidizing agents, Hypochlorites

10.6 Hazardous decomposition products

Other decomposition products - No data available

In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
Inhalation: No data available

Dermal: No data available

LD50 Intraperitoneal - Mouse - 430 mg/kg

Skin corrosion/irritation
Skin - Mouse
Result: Mild skin irritation

Serious eye damage/eye irritation
Irritating to eyes. The preceding data, or interpretation of data, was determined using Quantitative Structure Activity Relationship (QSAR) modeling.

Respiratory or skin sensitisation
Causes photosensitivity. Exposure to light can result in allergic reactions resulting in dermatologic lesions, which can vary from sunburnlike responses to edematous, vesiculated lesions, or bullae

Germ cell mutagenicity
No data available

Carcinogenicity

IARC:	3 - Group 3: Not classifiable as to its carcinogenicity to humans (Anthracene)
ACGIH:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	OSHA specifically regulated carcinogen (Anthracene)

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure
Inhalation - May cause respiratory irritation.
The preceding data, or interpretation of data, was determined using Quantitative Structure Activity Relationship (QSAR) modeling.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: CA9350000

Possible tumor promoter., Headache, Nausea, Weakness

Blood -

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Lepomis macrochirus (Bluegill) - 0.001 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 0.10 mg/l - 48 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
Indication of bioaccumulation.
Bioaccumulation Pimephales promelas (fathead minnow) - 42 d
- 0.01191 mg/l

Bioconcentration factor (BCF): 649

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substances, solid, n.o.s. (Anthracene)
Reportable Quantity (RQ): 5000 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 3077 Class: 9 Packing group: III EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Anthracene)
Marine pollutant:yes

IATA
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Anthracene)

Further information
EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Anthracene	120-12-7	2007-07-01

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Anthracene	120-12-7	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Anthracene	120-12-7	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Anthracene	120-12-7	2007-07-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
Anthracene	120-12-7	2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Eye Irrit.	Eye irritation
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	0
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.9 Revision Date: 04/20/2015 Print Date: 12/11/2015

SAFETY DATA SHEET

Version 6.10
Revision Date 09/06/2024
Print Date 09/07/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Arsenic

Product Number : 202657
Brand : Aldrich
Index-No. : 033-001-00-X
CAS-No. : 7440-38-2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 3), H301
Acute toxicity, Inhalation (Category 3), H331
Skin irritation (Category 2), H315

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operates as MilliporeSigma in the US and Canada

Serious eye damage (Category 1), H318
Carcinogenicity (Category 1A), H350
Short-term (acute) aquatic hazard (Category 1), H400
Long-term (chronic) aquatic hazard (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal Word	Danger
Hazard Statements	
H301 + H331	Toxic if swallowed or if inhaled.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H350	May cause cancer.
H410	Very toxic to aquatic life with long lasting effects.
Precautionary Statements	
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P261	Avoid breathing dust.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P311	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

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operates as MilliporeSigma in the US and Canada

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula	:	As
Molecular weight	:	74.92 g/mol
CAS-No.	:	7440-38-2
EC-No.	:	231-148-6
Index-No.	:	033-001-00-X

Component	Classification	Concentration
arsenic		
	Acute Tox. 3; Skin Irrit. 2; Eye Dam. 1; Carc. 1A; Aquatic Acute 1; Aquatic Chronic 1; H301, H331, H315, H318, H350, H400, H410 M-Factor - Aquatic Acute: 10 M-Factor - Aquatic Chronic: 1	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

In case of eye contact
After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

If swallowed
If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible.

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4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Nature of decomposition products not known.
Not combustible.
Ambient fire may liberate hazardous vapours.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Avoid generation and inhalation of dusts in all circumstances. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections
For disposal see section 13.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Dry. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Storage class
Storage class (TRGS 510): 6.1A: Combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
arsenic	7440-38-2	TWA	0.01 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Lung cancer Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Confirmed human carcinogen		
		C	0.0020 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen See Appendix A 15 minute ceiling value		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
arsenic	7440-38-2	inorganic arsenic plus methylated metabolites	15µg/g creatinine	Urine	ACGIH - Biological Exposure Indices (BEI)

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	Remarks	End of shift			
		inorganic arsenic plus methylated metabolites	15µg/g creatinine	Urine	ACGIH - Biological Exposure Indices (BEI)
		End of the workweek (After four or five consecutive working days with exposure)			

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

Skin protection
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

Body Protection
protective clothing

Respiratory protection
Recommended Filter type: Filter type P3
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when dusts are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

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Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: powder Color: gray
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/ range: 817 °C (1503 °F) - lit.
f)	Initial boiling point and boiling range	613 °C 1135 °F - lit.
g)	Flash point	()Not applicable
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Density	5.727 g/mL at 25 °C (77 °F) - lit.
	Relative density	5.622.4 °C - OECD Test Guideline 109
n)	Water solubility	ca.0.0106 g/l at 20 °C (68 °F) - OECD Test Guideline 105 - slightly soluble
o)	Partition coefficient: n-octanol/water	Not applicable for inorganic substances
p)	Autoignition temperature	> 430 °C (> 806 °F)does not ignite
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	none

9.2 Other safety information

No data available

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SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
Exothermic reaction with:
Aluminum
Bromine
bromates
chlorates
iodates
Nitric acid
Risk of ignition or formation of inflammable gases or vapours with:
nitrates
Alkali metals
Zinc
Reducing agents
Strong oxidizing agents
Risk of explosion with:
potassium permanganate
azides
halogen-halogen compounds
Peroxides
nitrogen trichloride

10.4 Conditions to avoid
Heat. Exposure to air may affect product quality.
no information available

10.5 Incompatible materials
No data available

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Mouse - 145 mg/kg
Remarks: Behavioral:Ataxia.
Diarrhea
(RTECS)
Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

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Inhalation: No data available
Dermal: No data available
No data available

Skin corrosion/irritation
Skin - In vitro study
Result: Irritating to skin. - 15 min
Remarks: (ECHA)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Causes serious eye damage. - 24 h
(OECD Test Guideline 405)

Respiratory or skin sensitization
Maximization Test - Guinea pig
Result: negative
(OECD Test Guideline 406)

Germ cell mutagenicity
Test Type: Ames test
Test system: Escherichia coli
Result: negative
Remarks: (ECHA)

Carcinogenicity
May cause cancer. Positive evidence from human epidemiological studies.

IARC:	1 - Group 1: Carcinogenic to humans (arsenic)
NTP:	Known - Known to be human carcinogen (arsenic)
OSHA:	OSHA specifically regulated carcinogen (arsenic)

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

RTECS: CG0525000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

The following applies to arsenic and its compounds in general: they take effect as capillary and enzyme toxins. Symptoms of arsenic poisoning: acute: after inhalation, mucosal irritations with coughing, dyspnoea, pain in the thorax. Perforations within the respiratory tract are possible. After oral uptake, gastrointestinal disorders with vomiting, diarrhoea, and spasms, CNS disorders with headache, confusion, shaking fits and disturbed consciousness, cardiovascular disorders all the way to circulatory collapse. Chronic: exanthema, dermal lesions in the form of hyperkeratosis and hypermelanosis, loss of hair,

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conjunctivitis and polyneuropathy, impaired hepatic function, and renal damage. After accumulation in the liver, kidneys, and skin, arsenic is eliminated from the organism only slowly. Experience has shown arsenic compounds to be carcinogenic in man.

Other dangerous properties can not be excluded.

This substance should be handled with particular care.

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	static test LC50 - Oreochromis mossambicus (Mozambique tilapia) - 28.68 mg/l - 96 h Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Bosmina longirostris (water flea) - 0.85 mg/l - 48 h Remarks: (ECHA)
Toxicity to algae	static test NOEC - Macrocystis pyrifera (brown algae) - 0.04 mg/l - 42 h Remarks: (ECHA)
Toxicity to bacteria	static test EC50 - activated sludge - 10.6 mg/l - 10 Days Remarks: (ECHA)
Toxicity to fish(Chronic toxicity)	flow-through test NOEC - Pimephales promelas (fathead minnow) - 2.13 mg/l - 35 d Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity)	flow-through test NOEC - Shrimp - 0.631 mg/l - 51 d Remarks: (ECHA)

12.2 Persistence and degradability

The methods for determining biodegradability are not applicable to inorganic substances.

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

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12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)

UN number: 1558 Class: 6.1 Packing group: II
Proper shipping name: Arsenic
Reportable Quantity (RQ): 1 lbs
Reportable Quantity (RQ): 1 lbs
Poison Inhalation Hazard: No

IMDG

UN number: 1558 Class: 6.1 Packing group: II EMS-No: F-A, S-A
Proper shipping name: ARSENIC
Marine pollutant : yes

IATA

UN number: 1558 Class: 6.1 Packing group: II
Proper shipping name: Arsenic

SECTION 15: Regulatory information

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
arsenic	7440-38-2	1	1
arsenic	7440-38-2	1	1 (D004)

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SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards	:	Acute Health Hazard Chronic Health Hazard
SARA 313	:	The following components are subject to reporting levels established by SARA Title III, Section 313:

arsenic	7440-38-2	>= 90 - <= 100 %

US State Regulations

Massachusetts Right To Know

arsenic	7440-38-2

Pennsylvania Right To Know

arsenic	7440-38-2

Maine Chemicals of High Concern

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

arsenic	7440-38-2

Washington Chemicals of High Concern

arsenic	7440-38-2

California Prop. 65

WARNING: This product can expose you to chemicals including arsenic, which is/are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

The ingredients of this product are reported in the following inventories:

TSCA	:	All substances listed as active on the TSCA inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16: Other information

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact

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Version: 6.10 Revision Date: 09/06/2024 Print Date: 09/07/2024

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SAFETY DATA SHEET

Version 4.5
Revision Date 03/02/2015
Print Date 05/24/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Barium

Product Number : 237094
Brand : Aldrich

CAS-No. : 7440-39-3

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Substances and mixtures, which in contact with water, emit flammable gases (Category 2), H261
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H261 In contact with water releases flammable gases.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.

Precautionary statement(s)
P223 Keep away from any possible contact with water, because of violent reaction and possible flash fire.
P231 + P232 Handle under inert gas. Protect from moisture.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.

P280	Wear protective gloves/ eye protection/ face protection.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P312	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P335 + P334	Brush off loose particles from skin. Immerse in cool water/ wrap in wet bandages.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P402 + P404	Store in a dry place. Store in a closed container.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	Ba
Molecular weight	:	137.33 g/mol
CAS-No.	:	7440-39-3
EC-No.	:	231-149-1

Hazardous components

Component	Classification	Concentration
Barium		
	Water-react. 2; Skin Irrit. 2; Eye Irrit. 2A; STOT SE 3; H261, H315, H319, H335	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Dry powder

5.2 Special hazards arising from the substance or mixture
Barium oxide

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Do not flush with water. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.Keep away from sources of ignition - No smoking.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Never allow product to get in contact with water during storage.

Store under inert gas.
Storage class (TRGS 510): Hazardous materials, which set free flammable gases upon contact with water

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Barium	7440-39-3	TWA	0.500000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Eye, skin, & Gastrointestinal irritation Muscular stimulation Not classifiable as a human carcinogen		

		TWA	0.500000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	0.500000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Eye irritation Muscular stimulation Skin irritation Gastrointestinal irritation Not classifiable as a human carcinogen		
		TWA	0.500000 mg/m3	USA. NIOSH Recommended Exposure Limits

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
impervious clothing, Flame retardant protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance Form: Rods

		Colour: grey
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 725 °C (1,337 °F) - lit.
f)	Initial boiling point and boiling range	1,640 °C (2,984 °F) - lit.
g)	Flash point	Not applicable
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	3.6 g/mL at 25 °C (77 °F)
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Reacts violently with water.

10.4 Conditions to avoid
Exposure to moisture

10.5 Incompatible materials
Oxidizing agents, Water, acids, Oxygen, Chlorinated solvents, Carbon dioxide (CO2), Halogens, Halogenated hydrocarbon, Alcohols, Sulphur compounds, Hydrogen sulfide gas

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
Inhalation - May cause respiratory irritation.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: CQ8370000

Stomach/intestinal disorders, Nausea, Vomiting, Drowsiness, Dizziness, Gastrointestinal disturbance, Weakness, Tremors, Seizures.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	mortality NOEC - Cyprinodon variegatus (sheepshead minnow) - 500 mg/l - 96 h
	LC50 - Cyprinodon variegatus (sheepshead minnow) - > 500 mg/l - 96 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1400 Class: 4.3 Packing group: II
Proper shipping name: Barium
Reportable Quantity (RQ): 1000 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 1400 Class: 4.3 Packing group: II EMS-No: F-G, S-O
Proper shipping name: BARIUM

IATA
UN number: 1400 Class: 4.3 Packing group: II
Proper shipping name: Barium

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Barium	7440-39-3	2007-07-01

SARA 311/312 Hazards
Reactivity Hazard, Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Barium	7440-39-3	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Barium	7440-39-3	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date

Barium	7440-39-3	2007-07-01

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Eye Irrit.	Eye irritation
H261	In contact with water releases flammable gases.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
Skin Irrit.	Skin irritation
STOT SE	Specific target organ toxicity - single exposure
Water-react.	Substances and mixtures, which in contact with water, emit flammable gases

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	
Flammability:	3
Physical Hazard	1

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	1
Special hazard.I:	W

Further information
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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.5 Revision Date: 03/02/2015 Print Date: 05/24/2016

SAFETY DATA SHEET

Benzene

Section 1. Identification

GHS product identifier : Benzene

Chemical name : benzene

Other means of identification : benzene, purebenzol; cyclohexatriene; phenyl hydride; phene; coal naphtha; pyrobenzol

Product use : Synthetic/Analytical chemistry.

Synonym : benzene, purebenzol; cyclohexatriene; phenyl hydride; phene; coal naphtha; pyrobenzol

SDS # : 001062

Supplier's details : Airgas USA, LLC and its affiliates
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283
1-610-687-5253

Emergency telephone number (with hours of operation) : 1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : FLAMMABLE LIQUIDS - Category 2
SKIN CORROSION/IRRITATION - Category 2
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2
GERM CELL MUTAGENICITY - Category 1B
CARCINOGENICITY - Category 1
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (bone marrow) - Category 1

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : Highly flammable liquid and vapor.
May form explosive mixtures with air.
Causes serious eye irritation.
Causes skin irritation.
May cause genetic defects.
May cause cancer.
Causes damage to organs through prolonged or repeated exposure. (bone marrow)

Precautionary statements

General : Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand.

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Section 2. Hazards identification

Prevention : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Wear protective gloves. Wear eye or face protection. Keep away from heat, sparks, open flames and hot surfaces. - No smoking. Use explosion-proof electrical, ventilating, lighting and all material-handling equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep container tightly closed. Do not breathe vapor. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.

Response : Get medical attention if you feel unwell. IF exposed or concerned: Get medical attention. IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell. Rinse mouth. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing. If skin irritation occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

Storage : Store locked up. Store in a well-ventilated place. Keep cool.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazards not otherwise classified : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Substance

Chemical name : benzene

Other means of identification : benzene, purebenzol; cyclohexatriene; phenyl hydride; phene; coal naphtha; pyrobenzol

CAS number/other identifiers

CAS number : 71-43-2

Product code : 001062

Ingredient name	%	CAS number
benzene	100	71-43-2

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

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Section 4. First aid measures

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : No known significant effects or critical hazards.

Skin contact : Causes skin irritation.

Frostbite : Try to warm up the frozen tissues and seek medical attention.

Ingestion : Harmful if swallowed. Irritating to mouth, throat and stomach.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:
irritation
redness

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

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Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use dry chemical, CO_2, water spray (fog) or foam.

Unsuitable extinguishing media : Do not use water jet.

Specific hazards arising from the chemical : Highly flammable liquid and vapor. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

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Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
benzene	**ACGIH TLV (United States, 3/2012).** **Absorbed through skin.** STEL: 8 mg/m³ 15 minutes. STEL: 2.5 ppm 15 minutes. TWA: 1.6 mg/m³ 8 hours. TWA: 0.5 ppm 8 hours. **NIOSH REL (United States, 1/2013).** STEL: 1 ppm 15 minutes. TWA: 0.1 ppm 10 hours. **OSHA PEL (United States, 6/2010).** STEL: 5 ppm 15 minutes. TWA: 1 ppm 8 hours. **OSHA PEL 1989 (United States, 3/1989).** STEL: 5 ppm 15 minutes. TWA: 1 ppm 8 hours. **OSHA PEL Z2 (United States, 11/2006).** AMP: 50 ppm 10 minutes. CEIL: 25 ppm TWA: 10 ppm 8 hours.

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Section 8. Exposure controls/personal protection

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state : Liquid. [Watery liquid.]

Color : Colorless. Yellowish.

Molecular weight : 78.12 g/mole

Molecular formula : C6-H6

Boiling/condensation point : 80.09°C (176.2°F)

Melting/freezing point : 5.49°C (41.9°F)

Critical temperature : 288.95°C (552.1°F)

Odor : Characteristic.

Odor threshold : Not available.

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Section 9. Physical and chemical properties

pH	:	Not available.
Flash point	:	Closed cup: -11°C (12.2°F)
Burning time	:	Not applicable.
Burning rate	:	Not applicable.
Evaporation rate	:	3.5 (butyl acetate = 1)
Flammability (solid, gas)	:	Not available.
Lower and upper explosive (flammable) limits	:	Lower: 1.2% Upper: 7.8%
Vapor pressure	:	10 kPa (75.006094245 mm Hg) [room temperature]
Vapor density	:	2.7 (Air = 1)
Specific Volume (ft^3/lb)	:	1.1403
Gas Density (lb/ft^3)	:	0.877 (20°C / 68 to °F)
Relative density	:	0.88
Solubility	:	Not available.
Solubility in water	:	1.88 g/l
Partition coefficient: n-octanol/water	:	2.13
Auto-ignition temperature	:	498°C (928.4°F)
Decomposition temperature	:	Not available.
SADT	:	Not available.
Viscosity	:	Dynamic (room temperature): 0.604 mPa·s (0.604 cP)

Section 10. Stability and reactivity

Reactivity	:	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	:	The product is stable.
Possibility of hazardous reactions	:	Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	:	Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.
Incompatibility with various substances	:	Highly reactive or incompatible with the following materials: oxidizing materials.
Hazardous decomposition products	:	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Hazardous polymerization	:	Under normal conditions of storage and use, hazardous polymerization will not occur.

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Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
benzene	LC50 Inhalation Gas. LD50 Oral	Rat Rat	10000 ppm 930 mg/kg	7 hours -

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
benzene	Eyes - Moderate irritant Eyes - Severe irritant Skin - Mild irritant Skin - Mild irritant Skin - Moderate irritant	Rabbit Rabbit Rat Rabbit Rabbit	- - - - -	88 milligrams 24 hours 2 milligrams 8 hours 60 microliters 24 hours 15 milligrams 24 hours 20 milligrams	- - - - -

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Classification

Product/ingredient name	OSHA	IARC	NTP
benzene	+	1	Known to be a human carcinogen.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
benzene	Category 1	Not determined	bone marrow

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : No known significant effects or critical hazards.

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Section 11. Toxicological information

Skin contact : Causes skin irritation.

Ingestion : Harmful if swallowed. Irritating to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:
irritation
redness

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : Causes damage to organs through prolonged or repeated exposure.

Carcinogenicity : May cause cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity : May cause genetic defects.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

Bioaccumulative potential

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Section 12. Ecological information

Product/ingredient name	$LogP_{ow}$	BCF	Potential
benzene	2.13	11	low

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

United States - RCRA Toxic hazardous waste "U" List

Ingredient	CAS #	Status	Reference number
Benzene (I,T)	71-43-2	Listed	U019

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1114	UN1114	UN114	UN1114	UN1114
UN proper shipping name	BENZENE	BENZENE	BENZENE	BENZENE	BENZENE
Transport hazard class(es)	3	3	3	3	3
Packing group	II	II	II	II	II
Environment	No.	No.	No.	No.	No.
Additional information	**Reportable quantity** 10 lbs / 4.54 kg [1.3675 gal / 5.1767 L] Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.	**Explosive Limit and Limited Quantity Index** 1 **Passenger Carrying Road or Rail Index** 5	-	-	**Passenger and Cargo Aircraft**Quantity limitation: 5 L **Cargo Aircraft Only** Quantity limitation: 60 L **Limited Quantities - Passenger Aircraft** Quantity limitation: 1 L

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Section 14. Transport information

	Limited quantity Yes. **Packaging instruction** **Passenger aircraft** Quantity limitation: 5 L **Cargo aircraft** Quantity limitation: 60 L **Special provisions** IB2, T4, TP1				

"Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product."

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined

United States inventory (TSCA 8b): This material is listed or exempted.

Clean Water Act (CWA) 307: benzene

Clean Water Act (CWA) 311: benzene

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Fire hazard
Immediate (acute) health hazard
Delayed (chronic) health hazard

Composition/information on ingredients

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Section 15. Regulatory information

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
benzene	100	Yes.	No.	No.	Yes.	Yes.

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	benzene	71-43-2	100
Supplier notification	benzene	71-43-2	100

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Massachusetts : This material is listed.

New York : This material is listed.

New Jersey : This material is listed.

Pennsylvania : This material is listed.

California Prop. 65

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
benzene	Yes.	Yes.	6.4 µg/day (ingestion) 13 µg/day (inhalation)	24 µg/day (ingestion) 49 µg/day (inhalation)

Canada inventory : This material is listed or exempted.

International regulations

International lists : **Australia inventory (AICS)**: This material is listed or exempted.
China inventory (IECSC): This material is listed or exempted.
Japan inventory: This material is listed or exempted.
Korea inventory: This material is listed or exempted.
Malaysia Inventory (EHS Register): Not determined.
New Zealand Inventory of Chemicals (NZIoC): This material is listed or exempted.
Philippines inventory (PICCS): This material is listed or exempted.
Taiwan inventory (CSNN): Not determined.

Chemical Weapons Convention List Schedule I Chemicals : Not listed

Chemical Weapons Convention List Schedule II Chemicals : Not listed

Chemical Weapons Convention List Schedule III Chemicals : Not listed

Canada

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Section 15. Regulatory information

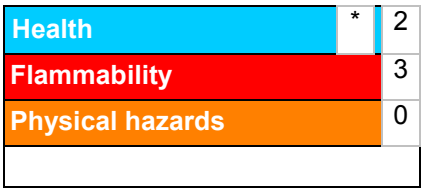
WHMIS (Canada) : Class B-2: Flammable liquid
Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).

CEPA Toxic substances: This material is listed.
Canadian ARET: This material is not listed.
Canadian NPRI: This material is listed.
Alberta Designated Substances: This material is not listed.
Ontario Designated Substances: This material is not listed.
Quebec Designated Substances: This material is not listed.

Section 16. Other information

Canada Label requirements : Class B-2: Flammable liquid
Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).

Hazardous Material Information System (U.S.A.)



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)

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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

History

Date of printing : 4/26/2015.

Date of issue/Date of revision : 4/26/2015.

Date of previous issue : 10/16/2014.

Version : 0.03

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Section 16. Other information

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United NationsACGIH – American Conference of Governmental Industrial Hygienists
AIHA – American Industrial Hygiene Association
CAS – Chemical Abstract Services
CEPA – Canadian Environmental Protection Act
CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act (EPA)
CFR – United States Code of Federal Regulations
CPR – Controlled Products Regulations
DSL – Domestic Substances List
GWP – Global Warming Potential
IARC – International Agency for Research on Cancer
ICAO – International Civil Aviation Organisation
Inh – Inhalation
LC – Lethal concentration
LD – Lethal dosage
NDSL – Non-Domestic Substances List
NIOSH – National Institute for Occupational Safety and Health
TDG – Canadian Transportation of Dangerous Goods Act and Regulations
TLV – Threshold Limit Value
TSCA – Toxic Substances Control Act
WEEL – Workplace Environmental Exposure Level
WHMIS – Canadian Workplace Hazardous Material Information System

References : Not available.

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

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SAFETY DATA SHEET

Based on Directive 2001/58/EC et seq. of the Commission of the European Communities

BENZ[a]ANTHRACENE

1. Identification of the substance/preparation and of the company/undertaking

1.1 Identification of the substance or preparation:

Synonyms: benzo(a)anthracene

CAS No.	: 56-55-3	**BCR number**	: BCR-271
EC index No.	: 601-033-00-9	**NFPA code**	: N.D.
EINECS No.	: 200-280-6	**Molecular weight**	: 228.30
RTECS No.	: CV9275000	**Formula**	: C18H12

1.2 Use of the substance or the preparation:
Certified reference material for laboratory use only

1.3 Company/undertaking identification:
Institute for Reference Materials and Measurements
Retieseweg
B-2440 Geel
Tel. : +32 14 57 12 11
Fax : +32 14 58 42 73

1.4 Telephone number for emergency:
+32 70 245 245
Antigifcentrum
p/a Militair Hospitaal Koningin Astrid, Bruynstraat, B-1120 Brussel

2. Composition/information on ingredients

Hazardous ingredients	CAS No. EINECS No.	Conc. in %	Hazard symbol	Risks (R-phrases)
Benzo[a]anthracene	56-55-3 200-280-6	100	T;N	45-50/53 (1)

(1) For R-phrases in full: see heading 16

3. Hazards identification

- May cause cancer
- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

4. First aid measures

4.1 Eye contact:
- Consult a doctor/medical service if irritation persists
- Rinse immediately with water

4.2 Skin contact:
- Consult a doctor/medical service if irritation persists
- Wash with water and soap
- Remove clothing before washing

4.3 After inhalation:
- Consult a doctor/medical service if breathing problems develop
- Remove the victim into fresh air
- Unconscious: maintain adequate airway and respiration

4.4 After ingestion:
- Consult a doctor/medical service if you feel unwell
- Immediately give lots of water to drink
- Never give water to an unconscious person

5. Fire-fighting measures

5.1 Suitable extinguishing media:
- Water spray
- Alcohol foam
- Polymer foam
- ABC powder
- Carbon dioxide

5.2 Unsuitable extinguishing media:
- Solid water jet ineffective as extinguishing medium

5.3 Special exposure hazards:
- Not easily combustible
- Upon combustion CO and CO2 are formed

5.4 Instructions:
- Take account of toxic firefighting water
- Use firefighting water moderately and contain it

5.5 Special protective equipment for firefighters:
- Heat/fire exposure: compressed air/oxygen apparatus
- Dust cloud production: compressed air/oxygen apparatus

6. Accidental release measures

6.1 Personal protection/precautions: see heading 8.1/8.3/10.3

6.2 Environmental precautions:
- Prevent soil and water pollution
- Substance must not be discharged into the sewer
- Dam up the solid spill

6.3 Methods for cleaning up:
- Stop dust cloud by covering with sand/earth
- Carefully collect the spill/leftovers
- Scoop solid spill into closing containers
- Take collected spill to manufacturer/competent authority
- Clean contaminated surfaces with an excess of water
- Wash clothing and equipment after handling

7. Handling and storage

7.1 Handling:
- Observe strict hygiene
- Avoid prolonged and repeated contact with skin
- Avoid raising dust
- Do not discharge the waste into the drain
- Remove contaminated clothing immediately

7.2 Storage:
- Keep container tightly closed. Store in a cool area. Store in a dry area.
- Store in a dark area.
- Keep away from: heat sources, ignition sources, oxidizing agents, acids

Storage temperature : N.D. **°C**
Quantity limits : N.D. **kg**
Storage life : N.D.
Materials for packaging :
- suitable : no data available

- to avoid : no data available

7.3 Specific uses:
See information supplied by the manufacturer

8. Exposure controls/Personal protection

8.1 Exposure limit values:

TLV-TWA	:	**mg/m³**	-	**ppm**
TLV-STEL	:	**mg/m³**	-	**ppm**
TLV-Ceiling	:	**mg/m³**		**ppm**
OES-LTEL	:	**mg/m³**		**ppm**
OES-STEL	:	**mg/m³**		**ppm**
MAK	:	**mg/m³**		**ppm**
TRK	:	**mg/m³**		**ppm**
MAC-TGG 8 h	:	**mg/m³**		
MAC-TGG 15 min.	:	**mg/m³**		
MAC-Ceiling	:	**mg/m³**		
VME-8 h	:	**mg/m³**		**ppm**
VLE-15 min.	:	**mg/m³**		**ppm**
GWBB-8 h	:	**mg/m³**		**ppm**
GWK-15 min.	:	**mg/m³**		**ppm**
Momentary value	:	**mg/m³**		**ppm**
EC	:	**mg/m³**		**ppm**
EC-STEL	:	**mg/m³**		**ppm**

Sampling methods:

-	Benz(a)Anthracene (Polynuclear aromatic hydrocarbons)	NIOSH 5506
-	Benz(a)Anthracene (Polynuclear aromatic hydrocarbons)	NIOSH 5515
-	Benz(a)Anthracene	OSHA CSI

8.2 Exposure controls:

8.2.1 Occupational exposure controls:
- Measure the concentration in the air regularly
- Work under local exhaust/ventilation

8.2.2 Environmental exposure controls: see heading 13

8.3 Personal protection:

8.3.1 respiratory protection:
- Dust production: dust mask with filter type P3
- High dust production: compressed air/oxygen apparatus

8.3.2 hand protection:
- Gloves
  Suitable materials: No data available

- Breakthrough time: N.D.

8.3.3 eye protection:
- Safety glasses
- In case of dust production: protective goggles

8.3.4 skin protection:
- Protective clothing
- In case of dust production: head/neck protection
  Suitable materials: No data available

9. Physical and chemical properties

9.1 General information:

Appearance (at 20°C)	:	Crystalline solid / Scales
Odour	:	Odourless
Colour	:	Colourless to fluorescent yellow-green

9.2 Important health, safety and environmental information:

pH value	:	N.D.	
Boiling point/boiling range	:	N.A.	**°C**
Flashpoint	:	N.D.	**°C**
Explosion limits	:	N.D.	**vol%** (**°C**)
Vapour pressure (at 20°C)	:	0.00007	**hPa**
Vapour pressure (at 50°C)	:	N.D.	**hPa**
Relative density (at 20°C)	:	1.3	
Water solubility	:	0.00001	**g/100 ml**
Soluble in	:	Ether, acetone, oils/fats	
Relative vapour density	:	N.D.	
Viscosity	:	N.D.	**Pa.s**
Partition coëfficient n-octanol/water	:	5.61/5.79	
Evaporation rate			
ratio to butyl acetate	:	N.D.	
ratio to ether	:	N.D.	

9.3 Other information:

Melting point/melting range	:	160	**°C**
Auto-ignition point	:	N.D.	**°C**
Saturation concentration	:	N.D.	**g/m^3**

10. Stability and reactivity

10.1 Conditions to avoid/reactivity:
- Stable under normal conditions

10.2 Materials to avoid:
- Keep away from: heat sources, ignition sources, oxidizing agents, acids

10.3 Hazardous decomposition products:
- Upon combustion CO and CO2 are formed
- Reacts violently with (strong) oxidizers
- Decomposes on exposure to (strong) acids

11. Toxicological information

11.1 Acute toxicity:

LD50 oral rat	:	N.D.	**mg/kg**
LD50 dermal rat	:	N.D.	**mg/kg**
LD50 dermal rabbit	:	N.D.	**mg/kg**
LC50 inhalation rat	:	N.D.	**mg/l/4 h**
LC50 inhalation rat	:	N.D.	**ppm/4 h**

11.2 Chronic toxicity:

EC carc. cat.	:	2
EC muta. cat.	:	not listed
EC repr. cat.	:	not listed
Carcinogenicity (TLV)	:	A2
Carcinogenicity (MAC)	:	K
Carcinogenicity (VME)	:	not listed
Carcinogenicity (GWBB)	:	not listed
Carcinogenicity (MAK)	:	2
Mutagenicity (MAK)	:	not listed
Teratogenicity (MAK)	:	-
IARC classification	:	2A

11.3 Routes of exposure: ingestion, inhalation, eyes and skin
Caution! Substance is absorbed through the skin

11.4 Acute effects/symptoms:

AFTER SKIN CONTACT
- Slight irritation

11.5 Chronic effects:

- Probably human carcinogenic
- Mutagenicity: AMES test positive
- Probably human mutagenic

ON CONTINUOUS/REPEATED EXPOSURE/CONTACT:
- No specific information available

SIMILAR PRODUCTS CAUSE FOLLOWING SYMPTOMS:
- Feeling of weakness
- Photoallergy
- Skin rash/inflammation
- Cracking of the skin
- Skin cancer
- Lung tissue affection/degeneration
- Enlargement/affection of the liver
- Affection of the renal tissue

12. Ecological information

12.1 Ecotoxicity:

- LC50 (65 h) : 0.0018 mg/l (PIMEPHALES PROMELAS)
- EC50 (96 h) : 0.01 mg/l (DAPHNIA PULEX)

12.2 Mobility:

- **Volatile organic compounds (VOC):** 0%

- Photolysis in water
- Ozonation in water
- Insoluble in water

For other physicochemical properties see heading 9.

12.3 Persistence and degradability:

- **biodegradation BOD_5** : N.D. **% ThOD**
- **water** : - Not readily biodegradable in water
- **soil** : **T ½:** > 100 **days**

12.4 Bioaccumulative potential:
- **log P_{ow}** : 5.61/5.79
- **BCF** : 72 h : 350 (LEUCISCUS IDUS)
- Highly bioaccumulative

12.5 Other adverse effects:

- **WGK** : 3 (Classification based on the R-phrases in compliance with Verwaltungsvorschrift wassergefährdender Stoffe (VwVwS) of 17 May 1999)
- **Effect on the ozone layer** : Not dangerous for the ozone layer (Council Regulation (EC) 3093/94)
- **Greenhouse effect** : no data available
- **Effect on waste water purification** : no data available

13. Disposal considerations

13.1 Provisions relating to waste:

- Waste material code (91/689/EEC, Council Decision 2001/118/EC, O.J. L47 of 16/2/2001): 16 05 06 (laboratory chemicals, consisting of or containing dangerous substances, including mixtures of laboratory chemicals)
- Waste material code (Flanders): 001, 045, 691
- Waste code (Germany): 59302
- Hazardous waste (91/689/EEC)

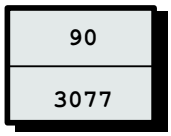
13.2 Disposal methods:

- Dissolve or mix with a combustible solvent
- Remove to an authorized incinerator equipped with an afterburner and a flue gas scrubber
- Do not discharge into surface water (2000/60/EEC, Council Decision 2455/2001/EC)

13.3 Packaging/Container:

- Waste material code packaging (91/689/EEC, Council Decision 2001/118/EC, O.J. L47 of 16/2/2001): 15 01 10 (packaging containing residues of or contaminated by dangerous substances)

14. Transport information



14.1 Classification of the substance in compliance with UN Recommendations

UN number	: 3077
CLASS	: 9
SUB RISKS	: -
PACKING	: III
PROPER SHIPPING NAME	: UN 3077, Environmentally hazardous substance, solid, n.o.s. (benzo[a]anthracene)

14.2 ADR (transport by road)

CLASS	: 9
PACKING	: III
DANGER LABEL TANKS	: 9
DANGER LABEL PACKAGES	: 9

14.3 RID (transport by rail)

CLASS	: 9
PACKING	: III
DANGER LABEL TANKS	: 9
DANGER LABEL PACKAGES	: 9

14.4 ADNR (transport by inland waterways)

CLASS	: 9
PACKING	: III
DANGER LABEL TANKS	: 9
DANGER LABEL PACKAGES	: 9

14.5 IMDG (maritime transport)

CLASS	: 9
SUB RISKS	: -
PACKING	: III
MFAG	: -
EMS	: -
MARINE POLLUTANT	: P

14.6 ICAO (air transport)

CLASS	: 9
SUB RISKS	: -
PACKING	: III
PACKING INSTRUCTIONS PASSENGER AIRCRAFT	:
PACKING INSTRUCTIONS CARGO AIRCRAFT	:

14.7 Special precautions in connection with transport : none

14.8 Limited quantities (LQ) :

When substances and their packaging meet the conditions established by ADR/RID/ADNR in chapter 3.4, **only** the following prescriptions shall be complied with:
each package shall display a diamond-shaped figure with the following inscription:
- 'UN 3077'
or, in the case of different goods with different identification numbers within a single package:
- the letters 'LQ'

15. Regulatory information

Enumerated in substance list Annex I of directive 67/548/EEC et sequens

Toxic

Dangerous for the environment

R45 : May cause cancer
R50/53 : Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

S53 : Avoid exposure - obtain special instructions before use
S45 : In case of accident or if you feel unwell, seek medical advice (show the label where possible)
S60 : This material and/or its container must be disposed of as hazardous waste
S61 : Avoid release to the environment. Refer to special instructions/safety data sheets.

16. Other information

The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

N.A. = NOT APPLICABLE
N.D. = NOT DETERMINED
***** = INTERNAL CLASSIFICATION

Full text of any R-phrases referred to under heading 2:

R45 : May cause cancer
R50/53 : Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Exposure limits:
TLV : Threshold Limit Value - ACGIH USA 2000
OES : Occupational Exposure Standards - United Kingdom 1999
MEL : Maximum Exposure Limits - United Kingdom 1999
MAK : Maximale Arbeitsplatzkonzentrationen - Germany 2001
TRK : Technische Richtkonzentrationen - Germany 2001
MAC : Maximale aanvaarde concentratie - The Netherlands 2002
VME : Valeurs limites de Moyenne d'Exposition - France 1999
VLE : Valeurs limites d'Exposition à court terme - France 1999
GWBB : Grenswaarde beroepsmatige blootstelling - Belgium 1998
GWK : Grenswaarde kortstondige blootstelling - Belgium 1998
EC : Indicative occupational exposure limit values - directive 2000/39/EC

Chronic toxicity:
K : List of the carcinogenic substances and processes - The Netherlands 2002

Safety Data Sheet

Revision Date: 03/23/15
www.restek.com

1. IDENTIFICATION

Catalog Number / Product Name:	**31272, 31272-5XX, & 31372 / Benzo (b) Fluoranthene Standard**
Company:	Restek Corporation
Address:	110 Benner Circle Bellefonte, Pa. 16823
Phone#:	814-353-1300
Fax#:	814-353-1309
Emergency#:	1-800-424-9300 (CHEMTREC) +1 703-741-5970 (Outside the US)
Email:	sds@restek.com
Revision Number:	8
Intended use:	For Laboratory use only

2. HAZARD(S)IDENTIFICATION

Emergency Overview:

GHS Hazard Symbols:

GHS Classification:
Flammable Liquid Category 2
Specific Target Organ Systemic Toxicity (STOT) - Single Exposure Category 3

GHS Signal Word:
Danger

GHS Hazard:
Highly flammable liquid and vapour.
May cause drowsiness or dizziness.

GHS Precautions:

Safety Precautions:
Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilation and lighting equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Avoid breathing dust/fume/gas/mist/vapours/spray.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.

First Aid Measures:
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Call a POISON CENTER or doctor/physician if you feel unwell.
In case of fire: Use extinguishing media in section 5 for extinction.

Storage:
Store in a well-ventilated place. Keep container tightly closed.
Store in a well-ventilated place. Keep cool.
Store locked up.

Disposal:
Dispose of contents/container according to section 13 of the SDS.

Single Exposure Target Organs:
No data available.

Repeated Exposure Target Organs:
No data available.

3. COMPOSITION / INFORMATION ON INGREDIENT

Chemical Name	CAS #	EINEC #	% Composition
Acetone	67-64-1	200-662-2	99.900000
benzo (b) fluoranthene	205-99-2	205-911-9	0.100000

4. FIRST-AID MEASURES

Inhalation: Remove to fresh air. If breathing is difficult, have a trained individual administer oxygen. If not breathing, give artificial respiration and have a trained individual administer oxygen. Get medical attention immediately

Eyes: Flush eyes with plenty of water for at least 20 minutes retracting eyelids often. Tilt the head to prevent chemical from transferring to the uncontaminated eye. Get immediate medical attention.

Skin Contact: Wash with soap and water. Remove contaminated clothing and launder. Get medical attention if irritation develops or persists.

Ingestion: Do not induce vomiting and seek medical attention immediately. Drink two glasses of water or milk to dilute. Provide medical care provider with this SDS.

5. FIRE- FIGHTING MEASURES

Extinguishing Media: Use alcohol resistant foam, carbon dioxide, or dry chemical extinguishing agents. Water spray or fog may also be effective for extinguishing if swept across the base of the fire. Water can also be used to absorb heat and keep exposed material from being damaged by fire. Flammable component(s) of this material may be lighter than water and burn while floating on the surface.

Fire and/or Explosion Hazards: Vapors may be ignited by heat, sparks, flames or other sources of ignition at or above the low flash point giving rise to a Class B fire. Vapors are heavier than air and may travel to a source of ignition and flash back

Fire Fighting Methods and Protection: Do not enter fire area without proper protection including self-contained toxic breathing apparatus and full protective equipment. Fight fire from a safe distance and a protected location due to the potential of hazardous vapors and decomposition products. Flammable component(s) of this material may be lighter than water and burn while floating on the surface. Use water spray/fog for cooling.

Hazardous Combustion Products: Carbon dioxide, Carbon monoxide

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions and Equipment: Exposure to the spilled material may be irritating or harmful. Follow personal protective equipment recommendations found in Section 8 of this SDS. Additional precautions may be necessary based on special circumstances created by the spill including; the material spilled, the quantity of the spill, the area in which the spill occurred. Also consider the expertise of employees in the area responding to the spill.

Methods for Clean-up: Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay. Gather and store in a sealed container pending a waste disposal evaluation.

7. HANDLING AND STORAGE

Handling Technical Measures and Precautions: Harmful or irritating material. Avoid contacting and avoid breathing the material. Use only in a well ventilated area. Use spark-proof tools and explosion-proof equipment

Storage Technical Measures and Conditions: Store in a cool dry ventilated location. Isolate from incompatible materials and conditions. Keep container(s) closed. Keep away from sources of ignition

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

United States:

Chemical Name	CAS No.	IDLH	ACGIH STEL	ACGIH TLV-TWA	OSHA Exposure Limit
Acetone	67-64-1	2500 ppm IDLH (10% LEL)	750 ppm STEL 750 ppm STEL;	500 ppm TWA 500 ppm TWA; 1188 mg/m3	1000 ppm TWA; 2400 mg/m3 TWA

benzo (b) fluoranthene	205-99-2	ND	1782 mg/m3 STEL TWA No TLV		No data available.

Personal Protection:

Engineering Measures:	Local exhaust ventilation is recommended when generating excessive levels of vapors from handling or thermal processing.
Respiratory Protection:	No respiratory protection required under normal conditions of use. Provide general room exhaust ventilation if symptoms of overexposure occur as explained Section 3. A respirator is not normally required.
Eye Protection:	Wear chemically resistant safety glasses with side shields when handling this product. Do not wear contact lenses.
Skin Protection:	Wear protective gloves. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work
Medical Conditions Aggravated By Exposure:	Respiratory disease including asthma and bronchitis

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance, color:	Depends upon product selection
Odor:	Strong
Physical State:	No data available.
pH:	No data available
Vapor Density:	2.0 (air = 1)
Melting Point:	-95.4 °C Melting Point
Flash Point:	39
Flammability:	Highly Flammable
Upper Flammable/Explosive Limit, % in air:	No data available.
Lower Flammable/Explosive Limit, % in air:	No data available.
Autoignition Temperature:	465 deg C
Decomposition Temperature:	No data available.
Specific Gravity:	0.7845 g/cm3 at 25 °C
Evaporation Rate:	No data available.
Odor Threshold:	ND
Solubility:	Complete; 100%
Partition Coefficient: n-octanol in water:	No data available.
VOC % by weight:	0.00
Molecular Weight:	58.08

10. STABILITY AND REACTIVITY

Stability:	Stable under normal conditions.
Conditions to Avoid:	No data available.
Materials to Avoid / Chemical Incompatiability:	Strong oxidizing agents Strong acids
Hazardous Decomposition Products:	Carbon dioxide Carbon monoxide

11. TOXICOLOGICAL INFORMATION

Routes of Entry:	Inhalation, Skin Contact, Eye Contact, Ingestion
Target Organs Potentially Affected By Exposure:	Eyes, Central nervous system stimulation, Respiratory Tract, Skin
Chemical Interactions That Change Toxicity:	None Known

Immediate (Acute) Health Effects by Route of Exposure:

Inhalation Irritation:	Can cause minor respiratory irritation, dizziness, weakness, fatigue, nausea, and headache.
Skin Contact:	Can cause minor skin irritation, defatting, and dermatitis.
Eye Contact:	Can cause minor irritation, tearing and reddening.
Ingestion Irritation:	May be harmful if swallowed.
Ingestion Toxicity:	Harmful if swallowed. May cause systemic poisoning.

Long-Term (Chronic) Health Effects:

Carcinogenicity:	Contains a probable or known human carcinogen.
Reproductive and Developmental Toxicity:	No data available to indicate product or any components present at greater than 0.1% may cause birth defects.
Inhalation:	Upon prolonged and/or repeated exposure, can cause minor respiratory irritation, dizziness, weakness, fatigue, nausea, and headache.
Skin Contact:	Upon prolonged or repeated contact, can cause minor

skin irritation, defatting, and dermatitis.

Component Toxicological Data:

NIOSH:

Chemical Name	CAS No.	LD50/LC50
Acetone	67-64-1	Inhalation LC50 Rat 50100 mg/m3 8 h

Component Carcinogenic Data:

OSHA:

Chemical Name	CAS No.	
Benzo(b)fluoranthene	205-99-2	Present

ACGIH:

Chemical Name	CAS No.	
Acetone	67-64-1	A4 - Not Classifiable as a Human Carcinogen
Benzo[b]fluoranthene	205-99-2	A2 - Suspected Human Carcinogen

NIOSH:

Chemical Name	CAS No.
No data available.	

NTP:

Chemical Name	CAS No.
No data available.	

IARC:

Chemical Name	CAS No.	Group No.
No data.		Group 1
No data.		Group 2A
Benzo(b)fluoranthene	205-99-2	Group 2B

12. ECOLOGICAL INFORMATION

Overview: This material is not expected to be harmful to the ecology.
Mobility: No data
Persistence: No data
Bioaccumulation: No data
Degradability: No data
Ecological Toxicity Data: No data available.

13. DISPOSAL CONSIDERATIONS

Waste Description of Spent Product: Spent or discarded material is a hazardous waste.
Disposal Methods: Dispose of by incineration following Federal, State, Local, or Provincial regulations.
Waste Disposal of Packaging: Comply with all Local, State, Federal, and Provincial Environmental Regulations.

14. TRANSPORTATION INFORMATION

United States:
DOT Proper Shipping Name: Acetone
UN Number: UN1090
Hazard Class: 3
Packing Group: II

International:
IATA Proper Shipping Name: Acetone
UN Number: UN1090
Hazard Class: 3
Packing Group: II

Marine Pollutant: No

Chemical Name	CAS#	Marine Pollutant	Severe Marine Pollutant
No data available.			

15. REGULATORY INFORMATION

United States:

Chemical Name	CAS#	CERCLA	SARA 313	SARA EHS 313	TSCA
Acetone	67-64-1	X	-	-	X
benzo (b) fluoranthene	205-99-2	X	X	-	-

The following chemicals are listed on CA Prop 65:

Chemical Name	CAS #	Regulation
Benzo[b]fluoranthene	205-99-2	Prop 65 Cancer

State Right To Know Listing:

Chemical Name	CAS#	New Jersey	Massachusetts	Pennsylvania	California
Acetone	67-64-1	X	X	X	X
benzo (b) fluoranthene	205-99-2	X	X	X	X

16. OTHER INFORMATION

Prior Version Date: 05/16/14

Disclaimer: Restek Corporation provides the descriptions, data and information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. It is provided for your guidance only. Because many factors may affect processing or application/use, Restek Corporation recommends you perform an assessment to determine the suitability of a product for your particular purpose prior to use. No warranties of any kind, either expressed or implied, including fitness for a particular purpose, are made regarding prodcuts described, data or information set forth. In no case shall the descriptions, information, or data provided be considered a part of our terms and conditions of sale. Further, the descriptions, data and information furnished hereunder are given gratis. No obligation or liability for the description, data and information given are assumed. All such being given and accepted at your risk.

SAFETY DATA SHEET

Revision Date 10-Feb-2015 **Revision Number** 1

1. Identification

Product Name **Benzo[ghi]perylene**

Cat No. : **AC105550000; AC105550050; AC105550250; AC105551000**

Synonyms 1,12-Benzoperylene

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Entity / Business Name
Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
Classification under 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Label Elements
None required

Hazards not otherwise classified (HNOC)
Very toxic to aquatic life with long lasting effects

3. Composition / information on ingredients

Component	CAS-No	Weight %
Benzo(ghi)perylene	191-24-2	> 98

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

Skin Contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Obtain medical attention.

Inhalation Remove from exposure, lie down. Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Obtain medical attention.

Ingestion Clean mouth with water. Get medical attention.

Most important symptoms/effects No information available.
Notes to Physician Treat symptomatically

5. Fire-fighting measures

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature No information available
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
Carbon monoxide (CO) Carbon dioxide (CO_2)
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
0	0	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment.
Environmental Precautions See Section 12 for additional ecological information. Avoid release to the environment. Collect spillage.

Methods for Containment and Clean Up Avoid dust formation. Sweep up or vacuum up spillage and collect in suitable container for disposal. Do not let this chemical enter the environment.

7. Handling and storage

Handling Avoid contact with skin and eyes. Do not breathe dust. Do not breathe vapors or spray mist.

Storage Keep in a dry, cool and well-ventilated place. Keep container tightly closed.

8. Exposure controls / personal protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection	Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin and body protection	Wear appropriate protective gloves and clothing to prevent skin exposure.
Respiratory Protection	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Solid
Appearance	Yellow
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	276 - 280 °C / 528.8 - 536 °F
Boiling Point/Range	No information available > @ 760 mmHg
Flash Point	No information available
Evaporation Rate	No information available
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	No information available
Relative Density	No information available
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C22 H12
Molecular Weight	276.33

10. Stability and reactivity

Reactive Hazard	None known, based on information available
Stability	Stable.
Conditions to Avoid	Excess heat. Exposure to light. Incompatible products.
Incompatible Materials	Strong oxidizing agents
Hazardous Decomposition Products	Carbon monoxide (CO), Carbon dioxide (CO_2)
Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information	No acute toxicity information is available for this product
Component Information	
Toxicologically Synergistic	No information available

Products

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Benzo(ghi)perylene	191-24-2	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information.

12. Ecological information

Ecotoxicity

Do not empty into drains.

Persistence and Degradability No information available
Bioaccumulation/ Accumulation No information available.

Mobility .

Component	log Pow
Benzo(ghi)perylene	7.23

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT Not regulated
TDG Not regulated
IATA Not regulated
IMDG/IMO Not regulated

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL

Benzo(ghi)perylene	-	-	-	205-883-8	-		-	-	-	-	-

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Benzo(ghi)perylene	191-24-2	> 98	1.0

SARA 311/312 Hazardous Categorization

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Benzo(ghi)perylene	-	-	X	X

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Benzo(ghi)perylene	5000 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Benzo(ghi)perylene	X	X	X	X	-

U.S. Department of Transportation

Reportable Quantity (RQ):	N
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security

This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class Non-controlled

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Revision Date 10-Feb-2015
Print Date 10-Feb-2015
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer
The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS

Institute for Reference Materials and Measurements

SAFETY DATA SHEET

Based on Regulation (EC) No. 1907/2006 (REACH) Article 31 and Annex II

BCR-048R: benzo[k]fluoranthene

1. Identification of the substance/preparation and of the company/undertaking

1.1 Identification of the substance or preparation:

Product name: BCR-048R: benzo[k]fluoranthene

CAS number	207-08-9
EC index number	601-036-00-5
EINECS number	205-916-6
RTECS number	DF6350000
Molecular mass	252.32 g/mol
Formula	C20H12

1.2 Use of the substance/preparation:

Certified reference material for laboratory use only

1.3 Company/undertaking identification:

Institute for Reference Materials and Measurements
Retieseweg
B-2440 Geel
Tel: +32 14 57 12 11
Fax: +32 14 59 04 06
JRC-IRMM-RM-Sales@ec.europa.eu

1.4 Emergency telephone:

Poison Centre: +32 70 245 245

2. Hazards identification

NFPA: 1-1-2(*)

DSD/DPD

May cause cancer

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Other hazards

Its dust is explosive with air

Dust cloud can be ignited by a spark

Slightly irritant to skin

Slightly irritant to eyes

Caution! Substance is absorbed through the skin

No certainty about human mutagenic properties

Highly bioaccumulative

Not readily biodegradable in water

CLP

Carc. 1B	May cause cancer. (H350)
Aquatic Acute 1	Very toxic to aquatic life. (H400)
Aquatic Chronic 1	Very toxic to aquatic life with long lasting effects. (H410)

Other hazards

Its dust is explosive with air

Dust cloud can be ignited by a spark

Slightly irritant to skin

Slightly irritant to eyes

Caution! Substance is absorbed through the skin

No certainty about human mutagenic properties

Highly bioaccumulative

Not readily biodegradable in water

3. Composition/information on ingredients

Name	CAS No EINECS/ELINCS	Conc.	Classification according to DSD/DPD	Classification according to CLP	Note
benzo[k]fluoranthene	207-08-9 205-916-6		Carc. Cat. 2; R45 N; R50-53	Carc. 1B; H350 Aquatic Acute 1; H400 Aquatic Chronic 1; H410	

4. First aid measures

4.1 After inhalation:

Remove the victim into fresh air

Respiratory problems: consult a doctor/medical service

4.2 Skin contact:

Rinse with water

Do not apply (chemical) neutralizing agents

Take victim to a doctor if irritation persists

4.3 Eye contact:

Rinse with water

Do not apply neutralizing agents

Take victim to an ophthalmologist if irritation persists

4.4 After ingestion:

Rinse mouth with water

Immediately after ingestion: give lots of water to drink

Do not induce vomiting

Consult a doctor/medical service if you feel unwell

5. Fire-fighting measures

5.1 Suitable extinguishing media:

Water spray

Polyvalent foam

ABC powder

Carbon dioxide

5.2 Unsuitable extinguishing media:

No unsuitable extinguishing media known

5.3 Special exposure hazards:

Heating increases the fire hazard

Dust cloud can be ignited by a spark

Upon combustion CO and CO2 are formed

5.4 Instructions:

Take account of toxic fire-fighting water

Use water moderately and if possible collect or contain it

5.5 Special protective equipment for fire-fighters:

Gloves

Protective clothing

Heat/fire exposure: compressed air/oxygen apparatus

6. Accidental release measures

6.1 Personal precautions:

See heading 8.2

6.2 Environmental precautions:

Dam up the solid spill

Prevent soil and water pollution

Prevent spreading in sewers

See heading 13

6.3 Methods for cleaning up:

Scoop solid spill into closing containers
Carefully collect the spill/leftovers
Clean contaminated surfaces with an excess of water
Take collected spill to manufacturer/competent authority
Wash clothing and equipment after handling

7. Handling and storage

7.1 Handling:

Avoid raising dust
Warning! Avoid exposure
Keep away from naked flames/heat
Obtain special instructions before use
Observe strict hygiene
Keep container tightly closed
Do not discharge the waste into the drain

7.2 Storage:

Safe storage requirements:

Store in a cool area
Store in a dry area
Keep container in a well-ventilated place
Keep locked up
Unauthorized persons are not admitted
Meet the legal requirements

Keep away from:

oxidizing agents
(strong) acids

7.3 Specific use(s):

See information supplied by the manufacturer for the identified use(s)

8. Exposure controls/Personal protection

8.1 Exposure limit values:

8.1.1 Occupational exposure:

If limit values are applicable and available these will be listed below.

8.1.2 Sampling methods:

Product name	Test	Number	Sampling method	Remarks
Benz(a)Anthracene	OSHA	CSI		
Benz(a)Anthracene (Polynuclear aromatic hydrocarbons)	NIOSH	5506	adsorption tubes	
Benz(a)Anthracene (Polynuclear aromatic hydrocarbons)	NIOSH	5515	adsorption tubes	

8.2 Exposure controls:

8.2.1 Occupational exposure controls:

Measure the concentration in the air regularly
Carry operations in the open/under local exhaust/ventilation or with respiratory protection
Personal protective equipment:

a) Respiratory protection:

Dust production: dust mask with filter type P3

b) Hand protection:

Gloves

c) Eye protection:

Safety glasses
In case of dust production: protective goggles

d) Skin protection:

Protective clothing

8.2.2 Environmental exposure controls:

See headings 6.2, 6.3 and 13

9. Physical and chemical properties

9.1 General information:

Physical form	Crystalline solid
	Needles
Colour	Light yellow

9.2 Important health, safety and environmental information:

Boiling point	480 °C
Vapour pressure (20°C)	< 0.00001 hPa
Solubility in water	< 0.00001 g/100 ml
Solubility in solvents	Soluble in ethanol
	Soluble in acetic acid
	Soluble in oils/fats
Log Pow	6.84

9.3 Other information:

Melting point	217 °C

10. Stability and reactivity

10.1 Conditions to avoid:

Possible fire hazard

heat sources

ignition sources

Stability

No data available

Reactions

Reacts violently with (strong) oxidizers

10.2 Materials to avoid:

oxidizing agents

(strong) acids

10.3 Hazardous decomposition products:

Upon combustion CO and CO2 are formed

11. Toxicological information

11.1 Acute toxicity:

No (test)data available.

11.2 Chronic toxicity:

Probably human carcinogenic

No certainty about human mutagenic properties

Not classified as toxic to reproduction (EC)

BCR-048R: benzo[k]fluoranthene

EC carc cat	2
Listed in SZW - List of carcinogenic substances	yes
IARC - classification	2B
MAK - Krebserzeugend Kategorie	2
MAK - Keimzellmutagen Kategorie	3B
MAK - Schwangerschaft Gruppe	-
CLP carc cat	category 1B

11.3 Acute effects/symptoms:

Inhalation:

No data available

Skin contact:

Slight irritation

Eye contact:

Slight irritation

Ingestion:

No data available

11.4 Chronic effects:

ON CONTINUOUS/REPEATED EXPOSURE/CONTACT:
No specific information available
SIMILAR PRODUCTS CAUSE FOLLOWING SYMPTOMS:
Feeling of weakness
Cracking of the skin
Skin rash/inflammation
Photoallergy
Skin cancer
Lung tissue affection/degeneration
Enlargement/affection of the liver
Affection of the renal tissue

12. Ecological information

12.1 Ecotoxicity:

No (test)data available.

12.2 Mobility:

Volatile organic compounds (VOC)	0 %
Solubility in/reaction with water	Insoluble in water
Water physicochemical processes	Forming sediments in water
Soil physicochemical processes	Adsorbs into the soil

12.3 Persistence and degradability:

Water abiotic degradation processes	Ozonation in water
Half-life soil	65 - 1400 days

Not readily biodegradable in water

12.4 Bioaccumulative potential:

Log Pow	6.84

Highly bioaccumulative

12.5 Results of PBT assessment:

Not applicable, based on available data

12.6 Other adverse effects:

Not dangerous for the ozone layer (Council Regulation (EC) no 1005/2009)

13. Disposal considerations

13.1 Provisions relating to waste:

Waste material code (Directive 2008/98/EC, decision 2001/118/EC)
16 05 06* : laboratory chemicals, consisting of or containing dangerous substances, including mixtures of laboratory chemicals
Depending on branch of industry and production process, also other EURAL codes may be applicable
Hazardous waste according to Directive 2008/98/EC

13.2 Disposal methods:

Dissolve or mix with a combustible solvent
Remove to an authorized incinerator equipped with an afterburner and a flue gas scrubber with energy recovery
Remove waste in accordance with local and/or national regulations
Do not discharge into surface water (2000/60/EC, Council decision 2455/2001/EC, O.J. L331 of 15/12/2001)

13.3 Packaging/Container:

Waste material code packaging (Directive 2008/98/EC)
15 01 10* : packaging containing residues of or contaminated by dangerous substances

{13.4 Entsorgung verschmutzter Gebinde:}

14. Transport information

ADR

Proper shipping name	Environmentally hazardous substance, solid, n.o.s.
Techn./chem. name ADR	benzo[k]fluoranthene
UN number	3077
Class	9
Packing group	III
Hazard identification number	90
Classification code	M7
Labels	9
Environmentally hazardous substance mark	yes

RID

Proper shipping name	Environmentally hazardous substance, solid, n.o.s.
Techn./chem. name RID	benzo[k]fluoranthene
UN number	3077
Class	9
Packing group	III
Classification code	M7
Labels	9
Environmentally hazardous substance mark	yes

ADNR

Proper shipping name	Environmentally hazardous substance, solid, n.o.s.
Techn./chem. name ADNR	benzo[k]fluoranthene
UN number	3077
Class	9
Packing group	III
Classification code	M7
Labels	9
Environmentally hazardous substance mark	yes

IMO

Proper shipping name	Environmentally hazardous substance, solid, n.o.s.
Techn./chem. name IMO	benzo[k]fluoranthene
UN number	3077
Class	9
Packing group	III
Labels	9
Marine pollutant	P
Environmentally hazardous substance mark	yes

ICAO

Proper shipping name	Environmentally hazardous substance, solid, n.o.s.
Techn./chem. name ICAO	benzo[k]fluoranthene
UN number	3077
Class	9
Packing group	III
Labels	9
Environmentally hazardous substance mark	yes

15. Regulatory information

15.1 EU Legislation:

DSD/DPD

Enumerated in substance list Annex I of directive 67/548/EEC et sequens

Dangerous for the environment

R-phrases

45	May cause cancer
50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

S-phrases

53	Avoid exposure - obtain special instructions before use
45	In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible)
60	This material and its container must be disposed of as hazardous waste
61	Avoid release to the environment. Refer to special instructions/safety data sheets.

Additional recommendations

	Restricted to professional users.

CLP

Classification and labelling according to Regulation (EC) No 1272/2008 – Annex VI and after evaluation of available test data

Signal word

Dgr	Danger

H-statements

H350	May cause cancer.
H410	Very toxic to aquatic life with long lasting effects.

P-statements

P202	Do not handle until all safety precautions have been read and understood.
P281	Use personal protective equipment as required.
P273	Avoid release to the environment.
P308 + P313	IF exposed or concerned: Get medical advice/attention.
P391	Collect spillage.
P405	Store locked up.

Supplemental information

	Restricted to professional users.

15.2 National provisions:

15.3 Specific community rules:

Enumerated in Annex XVII of Regulation (EC) No. 1907/2006: Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles.

Legislation	Reference legislation
EG/552/2009	See column 1: 28.
EG/552/2009	See column 1: 50. g)

16. Other information

The information in this safety data sheet is based on data and samples provided to BIG. The sheet was written to the best of our ability and according to the state of knowledge at that time. The safety data sheet only constitutes a guideline for the safe handling, use, consumption, storage, transport and disposal of the substances/preparations/mixtures mentioned under point 1. New safety data sheets are written from time to time. Only the most recent versions may be used. Old versions must be destroyed. Unless indicated otherwise word for word on the safety data sheet, the information does not apply to substances/preparations/mixtures in purer form, mixed with other substances or in processes. The safety data sheet offers no quality specification for the substances/preparations/mixtures in question.

Compliance with the instructions in this safety data sheet does not release the user from the obligation to take all measures dictated by common sense, regulations and recommendations or which are necessary and/or useful based on the real applicable circumstances. BIG does not guarantee the accuracy or exhaustiveness of the information provided. Use of this safety data sheet is subject to the licence and liability limiting conditions as stated in your BIG licence agreement. All intellectual property rights to this sheet are the property of BIG and its distribution and reproduction are limited. Consult your BIG licence agreement for details.

(*) = INTERNAL CLASSIFICATION (NFPA)

PBT-substances = persistent, bioaccumulative and toxic substances

DSD Dangerous Substance Directive
DPD Dangerous Preparation Directive
CLP (EU-GHS) Classification, labelling and packaging (Globally Harmonised System in Europe)

Full text of any R-phrases referred to under headings 2 and 3:

R45	May cause cancer
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Full text of any H-statements referred to under headings 2 and 3:

H350	May cause cancer.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Full text of any classes referred to under headings 2 and 3:

Aquatic Acute	Hazardous to the aquatic environment - acute
Aquatic Chronic	Hazardous to the aquatic environment - chronic
Carc.	Carcinogenicity

SAFETY DATA SHEET

Revision Date 25-Mar-2024 **Revision Number** 4

1. Identification

Product Name **Benzo[a]pyrene**

Cat No. : **15856**

CAS No 50-32-8
Synonyms Benzo[def]chrysene.; 3,4-Benzopyrene; 3,4-Benzpyrene

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company
Thermo Fisher Scientific Chemicals, Inc.
30 Bond Street
Ward Hill, MA 01835-8099
Tel: 800-343-0660
Fax: 800-322-4757

Emergency Telephone Number
For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No. **US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin Sensitization	Category 1
Germ Cell Mutagenicity	Category 1B
Carcinogenicity	Category 1A
Reproductive Toxicity	Category 1B

Label Elements

Signal Word
Danger

Hazard Statements
May cause an allergic skin reaction
May cause genetic defects

May cause cancer
May damage fertility. May damage the unborn child

Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Avoid breathing dust/fume/gas/mist/vapors/spray
Contaminated work clothing should not be allowed out of the workplace
Wear protective gloves
Response
IF exposed or concerned: Get medical attention/advice
Skin
IF ON SKIN: Wash with plenty of soap and water
If skin irritation or rash occurs: Get medical advice/attention
Wash contaminated clothing before reuse
Storage
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Very toxic to aquatic life with long lasting effects
WARNING. Cancer - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS No	Weight %
Benzo[a]pyrene	50-32-8	> 96

4. First-aid measures

General Advice If symptoms persist, call a physician.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.

Inhalation Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

Ingestion Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.

Most important symptoms and effects None reasonably foreseeable. . May cause allergic skin reaction. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature Not applicable
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Do not allow run-off from fire-fighting to enter drains or water courses.

Hazardous Combustion Products
Carbon monoxide (CO). Carbon dioxide (CO_2).
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	1	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation.

Environmental Precautions Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

Methods for Containment and Clean Up Sweep up and shovel into suitable containers for disposal. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling Wear personal protective equipment/face protection. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Avoid dust formation.

Storage. Keep containers tightly closed in a dry, cool and well-ventilated place. Incompatible Materials. Oxidizing agent.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH	Mexico OEL (TWA)
Benzo[a]pyrene		TWA: 0.2 mg/m³		

Legend

OSHA - Occupational Safety and Health Administration

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection	Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin and body protection	Wear appropriate protective gloves and clothing to prevent skin exposure.
Respiratory Protection	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Recommended Filter type:	Particulates filter conforming to EN 143.
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Powder Solid
Appearance	Dark yellow
Odor	aromatic
Odor Threshold	No information available
pH	Not applicable
Melting Point/Range	175 - 179 °C / 347 - 354.2 °F
Boiling Point/Range	495 °C / 923 °F @ 760 mmHg
Flash Point	No information available
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	Not applicable
Specific Gravity	No information available
Solubility	Insoluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	Not applicable
Decomposition Temperature	No information available
Viscosity	Not applicable
Molecular Formula	C20H12
Molecular Weight	252.31

10. Stability and reactivity

Reactive Hazard	None known, based on information available
Stability	Stable under normal conditions.
Conditions to Avoid	Incompatible products.
Incompatible Materials	Oxidizing agent
Hazardous Decomposition Products	Carbon monoxide (CO), Carbon dioxide (CO_2)
Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information
Component Information
Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization May cause sensitization by skin contact

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Benzo[a]pyrene	50-32-8	Group 1	Reasonably Anticipated	A2	X	A2

IARC (International Agency for Research on Cancer)

IARC (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2A - Probably Carcinogenic to Humans
Group 2B - Possibly Carcinogenic to Humans

NTP: (National Toxicity Program)

NTP: (National Toxicity Program)
Known - Known Carcinogen
Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

ACGIH: (American Conference of Governmental Industrial Hygienists)

ACGIH: (American Conference of Governmental Industrial Hygienists)
A1 - Known Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Animal Carcinogen

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

Endocrine Disruptor Information

Component	EU - Endocrine Disrupters Candidate List	EU - Endocrine Disruptors - Evaluated Substances	Japan - Endocrine Disruptor Information
Benzo[a]pyrene	Group III Chemical	Not applicable	Not applicable

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity
Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Persistence and Degradability May persist

Bioaccumulation/ Accumulation No information available.

Mobility Is not likely mobile in the environment due its low water solubility.

Component	log Pow
Benzo[a]pyrene	6.06

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Benzo[a]pyrene - 50-32-8	U022	-

14. Transport information

DOT

UN-No UN3077
Proper Shipping Name Environmentally hazardous substances, solid, n.o.s.
Technical Name Benzo[a]pyrene
Hazard Class 9
Packing Group III

TDG

UN-No UN3077
Proper Shipping Name Environmentally hazardous substances, solid, n.o.s.
Hazard Class 9
Packing Group III

IATA

UN-No UN3077
Proper Shipping Name Environmentally hazardous substances, solid, n.o.s.
Hazard Class 9
Packing Group III

IMDG/IMO

UN-No UN3077
Proper Shipping Name Environmentally hazardous substances, solid, n.o.s.
Hazard Class 9
Packing Group III

15. Regulatory information

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
Benzo[a]pyrene	50-32-8	X	ACTIVE	-

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA - Per 40 CFR 751, Regulation of Certain Chemical Substances & Mixtures, Under TSCA Section 6(h) (PBT) Not applicable

TSCA 12(b) - Notices of Export Not applicable

International Inventories

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Benzo[a]pyrene	50-32-8	X	-	200-028-5	X	-		-	X	KE-05-0184

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372. Note that PBT chemicals are not eligible for the de minimis exemption. For these chemicals, supplier notification limits are provided.
> 0 % = no low concentration cut-off set, supplier notification limit applies.

Component	CAS No	Weight %	SARA 313 - Threshold Values %	SARA 313 - Reporting threasholds
Benzo[a]pyrene	50-32-8	> 96	> 0 %	RT = 100 lb

SARA 311/312 Hazard Categories
Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Benzo[a]pyrene	-	-	X	X

Clean Air Act Not applicable

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355).

Component	Hazardous Substances RQs	CERCLA Extremely Hazardous Substances RQs	SARA Reportable Quantity (RQ)
Benzo[a]pyrene	1 lb	-	1 lb 0.454 kg

California Proposition 65 This product contains the following Proposition 65 chemicals.

Component	CAS No	California Prop. 65	Prop 65 NSRL	Category
Benzo[a]pyrene	50-32-8	Carcinogen	0.06 µg/day	Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Benzo[a]pyrene	X	X	X	X	X

U.S. Department of Transportation
Reportable Quantity (RQ): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Authorisation/Restrictions according to EU REACH

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Benzo[a]pyrene	50-32-8	-	Use restricted. See item 72. (see link for restriction details) Use restricted. See item 30. (see link for restriction details) Use restricted. See item 28. (see link for restriction details) Use restricted. See item 50[a]. (see link for restriction details) Use restricted. See item 29. (see link for restriction details) Use restricted. See item 75. (see link for restriction details)	SVHC Candidate list - 200-028-5 - Carcinogenic (article 57a); Mutagenic (Article 57b); Toxic for reproduction (Article 57c); PBT (Article 57d); vPvB (Article 57e)

After the sunset date the use of this substance requires either an authorization or can only be used for exempted uses, e.g. use in scientific research and development which includes routine analytics or use as intermediate.

REACH links
https://echa.europa.eu/authorisation-list
https://echa.europa.eu/substances-restricted-under-reach
https://echa.europa.eu/candidate-list-table

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Benzo[a]pyrene	50-32-8	Not applicable	Annex III - Substance subject to release reduction	Not applicable	Not applicable

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?
See table for values

PFAS Legend
Listed = Meets the PFAS definition of the named authority

Other International Regulations

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities	Seveso III Directive (2012/18/EC) - Qualifying Quantities	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)

		for Major Accident Notification	for Safety Report Requirements		
Benzo[a]pyrene	50-32-8	Not applicable	Not applicable	Not applicable	Not applicable

16. Other information

Prepared By
Health, Safety and Environmental Department
Email: chem.techinfo@thermofisher.com
www.thermofisher.com

Revision Date 25-Mar-2024
Print Date 25-Mar-2024
Revision Summary New emergency telephone response service provider.

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Version 4.6
Revision Date 12/29/2015
Print Date 01/29/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Beryllium

Product Number : 378135
Brand : Aldrich

CAS-No. : 7440-41-7

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Inhalation (Category 2), H330
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Skin sensitisation (Category 1), H317
Carcinogenicity (Category 1B), H350
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Specific target organ toxicity - repeated exposure (Category 1), H372

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H301 Toxic if swallowed.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H330 Fatal if inhaled.
H335 May cause respiratory irritation.
H350 May cause cancer.

H372	Causes damage to organs through prolonged or repeated exposure.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing should not be allowed out of the workplace.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P284	Wear respiratory protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Rinse mouth.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P333 + P313	If skin irritation or rash occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	Be
Molecular weight	:	9.01 g/mol
CAS-No.	:	7440-41-7
EC-No.	:	231-150-7

Hazardous components

Component	Classification	Concentration
Berylium foil		
	Acute Tox. 3; Acute Tox. 2; Skin Irrit. 2; Eye Irrit. 2A; Skin Sens. 1; Carc. 1B; STOT SE 3; STOT RE 1; H301, H315, H317, H319, H330, H335, H350, H372	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Beryllium oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

Keep in a dry place.
Storage class (TRGS 510): Non-combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Berylium foil	7440-41-7	TWA	2.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		CEIL	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Peak	25.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		TWA	2.000000microg ram per cubic meter	USA. Occupational Exposure Limits (OSHA) - Table Z-2
	Remarks	Z27.29-1970		
		CEIL	5.000000microg ram per cubic meter	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z27.29-1970		
		Peak	25.000000micro gram per cubic meter	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z27.29-1970		
		TWA	0.000050 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Beryllium sensitization Chronic beryllium disease (berylliosis) Confirmed human carcinogen Danger of cutaneous absorption Sensitizer		
		C	0.000500 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen See Appendix A		
		See Table Z-2		
		TWA	2.000000microg ram per cubic meter	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z27.29-1970		
		TWA	2.000000microg ram per cubic meter	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z27.29-1970		
		CEIL	5.000000microg ram per cubic meter	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z27.29-1970		
		CEIL	5.000000microg ram per cubic meter	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z27.29-1970		
		Peak	25.000000micro gram per cubic meter	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z27.29-1970		
		Peak	25.000000micro gram per cubic meter	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z27.29-1970		
		TWA	0.000050 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Beryllium sensitization		

		Chronic beryllium disease (berylliosis) Adopted values or notations enclosed are those for which changes are proposed in the NIC See Notice of Intended Changes (NIC) Confirmed human carcinogen Danger of cutaneous absorption Sensitizer		
		C	0.000500 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen See Appendix A		
		See Table Z-2		
		TWA	2microgram per cubic meter	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z27.29-1970		
		CEIL	5microgram per cubic meter	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z27.29-1970		
		Peak	25microgram per cubic meter	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z27.29-1970		
		C	0.0005 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen See Appendix A		

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: powder Colour: grey
b)	Odour	odourless
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 1,278 °C (2,332 °F) - lit.
f)	Initial boiling point and boiling range	2,970 °C (5,378 °F) - lit.
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	1.85 g/cm3 at 25 °C (77 °F)
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Alkali metals

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

Inhalation: No data available

Dermal: No data available

LD50 Intravenous - Rat - 0.496 mg/kg
Remarks: Liver:Hepatitis (hepatocellular necrosis), zonal.

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
Hamster
Lungs
Result: negative

Carcinogenicity

Carcinogenicity - Rat - Intratracheal
Tumorigenic:Neoplastic by RTECS criteria. Lungs, Thorax, or Respiration:Tumors. Lungs, Thorax, or Respiration:Bronchiogenic carcinoma.

Carcinogenicity - Rabbit - Intravenous
Tumorigenic:Equivocal tumorigenic agent by RTECS criteria. Musculoskeletal:Tumors.

Possible human carcinogen

IARC:	1 - Group 1: Carcinogenic to humans (Berylium foil)
NTP:	Known to be human carcinogen (Berylium foil)
	Known to be human carcinogenThe reference note has been added by TD based on the background information of the NTP. (Berylium foil)
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: DS1750000

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1567 Class: 6.1 (4.1) Packing group: II
Proper shipping name: Beryllium, powder
Reportable Quantity (RQ): 10 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 1567 Class: 6.1 (4.1) Packing group: II EMS-No: F-G, S-G
Proper shipping name: BERYLLIUM POWDER

IATA
UN number: 1567 Class: 6.1 (4.1) Packing group: II
Proper shipping name: Beryllium powder

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Berylium foil	7440-41-7	1993-04-24

SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Berylium foil	7440-41-7	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Berylium foil	7440-41-7	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Berylium foil	7440-41-7	1993-04-24

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
Berylium foil	7440-41-7	2008-10-10

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Carc.	Carcinogenicity
Eye Irrit.	Eye irritation
H301	Toxic if swallowed.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H335	May cause respiratory irritation.
H350	May cause cancer.
H372	Causes damage to organs through prolonged or repeated exposure.
Skin Irrit.	Skin irritation
Skin Sens.	Skin sensitisation

HMIS Rating

Health hazard:	4
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	4
Fire Hazard:	3
Reactivity Hazard:	3

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

SAFETY DATA SHEET

Version 5.6
Revision Date 05/23/2016
Print Date 06/22/2017

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : β-HCH

Product Number : 33376
Brand : Sigma-Aldrich
Index-No. : 602-042-00-0

CAS-No. : 319-85-7

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Dermal (Category 4), H312
Carcinogenicity (Category 2), H351
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H301 Toxic if swallowed.
H312 Harmful in contact with skin.
H351 Suspected of causing cancer.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.

P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P322	Specific measures (see supplemental first aid instructions on this label).
P330	Rinse mouth.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	$C_6H_6Cl_6$
Molecular weight	:	290.83 g/mol
CAS-No.	:	319-85-7
EC-No.	:	206-271-3
Index-No.	:	602-042-00-0

Hazardous components

Component	Classification	Concentration
(1α,2β,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane		
	Acute Tox. 3; Acute Tox. 4; Carc. 2; Aquatic Acute 1; Aquatic Chronic 1; H301, H312, H351, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	> 300.0 °C (> 572.0 °F)
f)	Initial boiling point and boiling range	No data available
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	insoluble
o)	Partition coefficient: n-	log Pow: 3.78

	octanol/water	
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 6,000 mg/kg

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

Limited evidence of carcinogenicity in animal studies

IARC: 2B - Group 2B: Possibly carcinogenic to humans ((1α,2β,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: Reasonably anticipated to be a human carcinogen ((1α,2β,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: GV4375000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Blood -

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Poecilia reticulata (guppy) - 1.6 mg/l - 96.0 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential

Bioaccumulation	Cyprinus carpio (Carp) - 35 d - 0.05 mg/l
	Bioconcentration factor (BCF): 500

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solids, organic, n.o.s. ((1α,2β,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)
Reportable Quantity (RQ): 1 lbs
Marine pollutant:yes
Poison Inhalation Hazard: No

IMDG

UN number: 2811 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. ((1α,2β,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)

IATA

UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solid, organic, n.o.s. ((1α,2β,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)

15. REGULATORY INFORMATION

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer. (1α,2β,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane	CAS-No. 319-85-7	Revision Date 2009-02-01

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
H301	Toxic if swallowed.
H312	Harmful in contact with skin.
H351	Suspected of causing cancer.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	1
Fire Hazard:	0
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.6 Revision Date: 05/23/2016 Print Date: 06/22/2017

SAFETY DATA SHEET

Revision Date 24-Dec-2021 **Revision Number** 4

1. Identification

Product Name **Cadmium**

Cat No. : **C3-500**

CAS No 7440-43-9
Synonyms No information available

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company
Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable solids	Category 2
Acute oral toxicity	Category 4
Acute dermal toxicity	Category 4
Acute Inhalation Toxicity - Dusts and Mists	Category 2
Germ Cell Mutagenicity	Category 2
Carcinogenicity	Category 1A
Reproductive Toxicity	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system.	
Specific target organ toxicity - (repeated exposure)	Category 1
Target Organs - Kidney, Blood.	
Combustible dust	Yes

Label Elements

Signal Word

Danger

Hazard Statements
Flammable solid
May form combustible dust concentrations in air
Fatal if inhaled
Harmful if swallowed
Harmful in contact with skin
May cause respiratory irritation
Suspected of causing genetic defects
May cause cancer
Suspected of damaging fertility. Suspected of damaging the unborn child
Causes damage to organs through prolonged or repeated exposure

Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Do not breathe dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting equipment
Response
IF exposed or concerned: Get medical attention/advice
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Immediately call a POISON CENTER or doctor/physician
Skin
IF ON SKIN: Wash with plenty of soap and water
Wash contaminated clothing before reuse
Call a POISON CENTER or doctor/physician if you feel unwell
Ingestion
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth
Fire
Fight fire with normal precautions from a reasonable distance
Evacuate area
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Very toxic to aquatic life with long lasting effects
WARNING. Cancer and Reproductive Harm - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS No	Weight %
Cadmium	7440-43-9	100

4. First-aid measures

General Advice Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

Inhalation Remove to fresh air. If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.

Ingestion Do NOT induce vomiting. Call a physician or poison control center immediately.

Most important symptoms and effects None reasonably foreseeable. . Kidney disorders: May cause harm to the unborn child: Blood disorders

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature No information available

Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Thermal decomposition can lead to release of irritating gases and vapors. Fine dust dispersed in air may ignite. Dust can form an explosive mixture with air. Pyrophoric properties of solids and liquids. Do not allow run-off from fire-fighting to enter drains or water courses.

Hazardous Combustion Products
Toxic fumes.
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health	Flammability	Instability	Physical hazards
4	1	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust

formation. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas.

Environmental Precautions Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

Methods for Containment and Clean Up Sweep up and shovel into suitable containers for disposal. Avoid dust formation.

7. Handling and storage

Handling Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Avoid dust formation. Use only under a chemical fume hood. Do not breathe (dust, vapor, mist, gas). Do not ingest. If swallowed then seek immediate medical assistance.

Storage. Keep containers tightly closed in a dry, cool and well-ventilated place. Store under an inert atmosphere. Incompatible Materials. Strong oxidizing agents. Strong acids. Sulfur oxides.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Cadmium	TWA: 0.01 mg/m³ TWA: 0.002 mg/m³	Ceiling: 0.3 mg/m³ Ceiling: 0.6 mg/m³ (Vacated) STEL: 0.3 ppm TWA: 0.1 mg/m³ TWA: 0.2 mg/m³ TWA: 5 µg/m³	IDLH: 9 mg/m³	TWA: 0.01 mg/m³ TWA: 0.002 mg/m³

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures When using do not eat, drink or smoke. Provide regular cleaning of equipment, work area and clothing. Avoid contact with skin, eyes or clothing. Wash hands before breaks and immediately after handling the product. Keep away from food, drink and animal feeding stuffs.

9. Physical and chemical properties

Physical State Solid

Appearance	Silver
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	321 °C / 609.8 °F
Boiling Point/Range	765 °C / 1409 °F @ 760 mmHg
Flash Point	No information available
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	Not applicable
Specific Gravity	8.64 @ 25°C
Solubility	Insoluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	Not applicable
Molecular Formula	Cd
Molecular Weight	112.40

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under recommended storage conditions. Moisture sensitive. Air sensitive.

Conditions to Avoid Incompatible products. Excess heat. Avoid dust formation. Exposure to air or moisture over prolonged periods.

Incompatible Materials Strong oxidizing agents, Strong acids, Sulfur oxides

Hazardous Decomposition Products Toxic fumes

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Cadmium	LD50 = 2330 mg/kg (Rat)	Not listed	LC50 = 25 mg/m³ (Rat) 30 min

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Cadmium	7440-43-9	Group 1	Known	A2	X	A2

IARC (International Agency for Research on Cancer)	*IARC (International Agency for Research on Cancer)* *Group 1 - Carcinogenic to Humans* *Group 2A - Probably Carcinogenic to Humans* *Group 2B - Possibly Carcinogenic to Humans*
NTP: (National Toxicity Program)	*NTP: (National Toxicity Program)* *Known - Known Carcinogen* *Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen*
ACGIH: (American Conference of Governmental Industrial Hygienists)	*A1 - Known Human Carcinogen* *A2 - Suspected Human Carcinogen* *A3 - Animal Carcinogen* *ACGIH: (American Conference of Governmental Industrial Hygienists)*

Mutagenic Effects Possible risk of irreversible effects

Reproductive Effects Possible risk of impaired fertility. May cause harm to the unborn child.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Respiratory system
STOT - repeated exposure Kidney Blood

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Kidney disorders: May cause harm to the unborn child: Blood disorders

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

The product contains following substances which are hazardous for the environment. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Cadmium	Not listed	LC50: 0.0004 - 0.003 mg/L, 96h (Pimephales promelas) LC50: = 0.016 mg/L, 96h (Oryzias latipes) LC50: = 21.1 mg/L, 96h flow-through (Lepomis macrochirus) LC50: = 0.24 mg/L, 96h static (Cyprinus carpio) LC50: = 4.26 mg/L, 96h semi-static (Cyprinus carpio) LC50: = 0.002 mg/L, 96h	Not listed	EC50: = 0.0244 mg/L, 48h Static (Daphnia magna)

		(Cyprinus carpio) LC50: = 0.006 mg/L, 96h static (Oncorhynchus mykiss) LC50: = 0.003 mg/L, 96h flow-through (Oncorhynchus mykiss)		

Persistence and Degradability No information available

Bioaccumulation/ Accumulation No information available.

Mobility No information available.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No	UN2930
Proper Shipping Name	Toxic solid, flammable, organic, n.o.s.
Technical Name	Cadmium
Hazard Class	6.1
Subsidiary Hazard Class	4.1
Packing Group	I

TDG

UN-No	UN2930
Proper Shipping Name	Toxic solid, flammable, organic, n.o.s.
Hazard Class	6.1
Subsidiary Hazard Class	4.1
Packing Group	I

IATA

UN-No	UN2930
Proper Shipping Name	Toxic solid, flammable, organic, n.o.s.
Hazard Class	6.1
Subsidiary Hazard Class	4.1
Packing Group	I

IMDG/IMO

UN-No	UN2930
Proper Shipping Name	Toxic solid, flammable, organic, n.o.s.
Hazard Class	6.1
Subsidiary Hazard Class	4.1
Packing Group	I

15. Regulatory information

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
Cadmium	7440-43-9	X	ACTIVE	-

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Cadmium	7440-43-9	X	-	231-152-8	X	X		X	X	KE-04397

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313

Component	CAS No	Weight %	SARA 313 - Threshold Values %
Cadmium	7440-43-9	100	0.1

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Cadmium	-	-	X	X

Clean Air Act

OSHA - Occupational Safety and Health Administration Not applicable

Component	Specifically Regulated Chemicals	Highly Hazardous Chemicals
Cadmium	5 µg/m³ TWA 2.5 µg/m³ Action Level	-

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Cadmium	10 lb	-

California Proposition 65 This product contains the following Proposition 65 chemicals.

Component	CAS No	California Prop. 65	Prop 65 NSRL	Category
Cadmium	7440-43-9	Carcinogen Developmental Male Reproductive	0.05 µg/day	Developmental Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Cadmium	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Authorisation/Restrictions according to EU REACH

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Cadmium	-	Use restricted. See item 72. (see link for restriction details) Use restricted. See item 23. (see link for restriction details) Use restricted. See item 28. (see link for restriction details) Use restricted. See item 75. (see link for restriction details)	SVHC Candidate list - 231-152-8 - Carcinogenic, Article 57a;Specific target organ toxicity after repeated exposure, Article 57(f) - human health

After the sunset date the use of this substance requires either an authorization or can only be used for exempted uses, e.g. use in scientific research and development which includes routine analytics or use as intermediate.

https://echa.europa.eu/authorisation-list
https://echa.europa.eu/substances-restricted-under-reach
https://echa.europa.eu/candidate-list-table

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Cadmium	7440-43-9	Listed	Not applicable	Not applicable	0.01% (Max. Conc.)

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Cadmium	7440-43-9	Not applicable	Not applicable	Not applicable	Annex I - Y26

16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Revision Date 24-Dec-2021
Print Date 24-Dec-2021
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Version 5.10
Revision Date 01/06/2016
Print Date 03/03/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Carbon tetrachloride

Product Number : 319961
Brand : Sigma-Aldrich
Index-No. : 602-008-00-5

CAS-No. : 56-23-5

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Inhalation (Category 3), H331
Acute toxicity, Dermal (Category 3), H311
Skin sensitisation (Sub-category 1B), H317
Carcinogenicity (Category 2), H351
Specific target organ toxicity - repeated exposure, Inhalation (Category 1), Liver, Kidney, H372
Acute aquatic toxicity (Category 3), H402
Chronic aquatic toxicity (Category 3), H412
Hazardous to the ozone layer (Category 1), H420

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)

H301 + H311 + H331	Toxic if swallowed, in contact with skin or if inhaled
H317	May cause an allergic skin reaction.
H351	Suspected of causing cancer.
H372	Causes damage to organs (Liver, Kidney) through prolonged or repeated exposure if inhaled.

H412	Harmful to aquatic life with long lasting effects.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Rinse mouth.
P302 + P352 + P312	IF ON SKIN: Wash with plenty of soap and water. Call a POISON CENTER or doctor/ physician if you feel unwell.
P304 + P340 + P311	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P333 + P313	If skin irritation or rash occurs: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.
P502	Refer to manufacturer/ supplier for information on recovery/ recycling.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Rapidly absorbed through skin.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	Tetrachloromethane
Formula	:	CCl_4CCl_4
Molecular weight	:	153.82 g/mol
CAS-No.	:	56-23-5
EC-No.	:	200-262-8
Index-No.	:	602-008-00-5

Hazardous components

Component	Classification	Concentration
Tetrachloromethane		
	Acute Tox. 3; Skin Sens. 1B; Carc. 2; STOT RE 1; Aquatic Acute 3; Aquatic Chronic 3; Ozone 1; H301 + H311 + H331, H317, H351, H372, H412	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice

Move out of dangerous area.Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen chloride gas

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): Non-combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Tetrachloromethane	56-23-5	TWA	5.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Liver damage Suspected human carcinogen Danger of cutaneous absorption		
		STEL	10.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Liver damage Suspected human carcinogen Danger of cutaneous absorption		
		ST	2.000000 ppm 12.600000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen See Appendix A		
		TWA	10.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.17-1967		
		CEIL	25.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.17-1967		
		Peak	200.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.17-1967		
		See Table Z-2		
		TWA	5 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Liver damage Suspected human carcinogen Danger of cutaneous absorption		
		STEL	10 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Liver damage Suspected human carcinogen Danger of cutaneous absorption		
		ST	2 ppm 12.6 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen See Appendix A		
		See Table Z-2		
		TWA	10 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.17-1967		
		CEIL	25 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.17-1967		
		Peak	200 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.17-1967		
		TWA	2 ppm 12.6 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 240 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid Colour: colourless
b)	Odour	sweet
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -23 °C (-9 °F) - lit.
f)	Initial boiling point and boiling range	76 - 77 °C (169 - 171 °F) - lit.
g)	Flash point	does not flash
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower	No data available

	flammability or explosive limits	
k)	Vapour pressure	45 hPa (34 mmHg) at 0.3 °C (32.5 °F) 120 hPa (90 mmHg) at 19.8 °C (67.6 °F) 14,549 hPa (10,913 mmHg) at 24 °C (75 °F)
l)	Vapour density	No data available
m)	Relative density	1.594 g/cm3 at 25 °C (77 °F)
n)	Water solubility	0.8461 g/l at 20 °C (68 °F)
o)	Partition coefficient: n-octanol/water	log Pow: 2.83 at 25 °C (77 °F)
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

Surface tension	26.7 mN/m at 20 °C (68 °F) 19.5 mN/m at 80 °C (176 °F)

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 2,350 mg/kg

LC50 Inhalation - Rat - 4 h - 8000 ppm

LD50 Dermal - Rabbit - > 20,000 mg/kg

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Mild skin irritation - 24 h
(Draize Test)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Mild eye irritation - 24 h
(Draize Test)

Respiratory or skin sensitisation
- Mouse
Result: The product is a skin sensitiser, sub-category 1B.
(OECD Test Guideline 429)

Germ cell mutagenicity
No data available

Carcinogenicity

This product is or contains a component that has been reported to be probably carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification. Limited evidence of carcinogenicity in animal studies

IARC:	2B - Group 2B: Possibly carcinogenic to humans (Tetrachloromethane)
NTP:	Reasonably anticipated to be a human carcinogen (Tetrachloromethane)
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
Inhalation - Causes damage to organs through prolonged or repeated exposure. - Liver, Kidney

Aspiration hazard
No data available

Additional Information
RTECS: FG4900000

Vomiting, Diarrhoea, Abdominal pain, Nausea, Dizziness, Headache, Damage to the eyes., Liver injury may occur., Kidney injury may occur., Exposure to and/or consumption of alcohol may increase toxic effects., Contact with skin can cause:, Pain, Erythema, hyperemia

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	mortality LC50 - Danio rerio (zebra fish) - 24.3 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	Immobilization EC50 - Daphnia magna (Water flea) - 35 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	Growth inhibition EC50 - Algae - 20 mg/l - 72 h (OECD Test Guideline 201)

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential

Bioaccumulation	Lepomis macrochirus (Bluegill) - 21 d - 52.3 µg/l
	Bioconcentration factor (BCF): 30

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1846 Class: 6.1 Packing group: II
Proper shipping name: Carbon tetrachloride
Reportable Quantity (RQ): 10 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 1846 Class: 6.1 Packing group: II EMS-No: F-A, S-A
Proper shipping name: CARBON TETRACHLORIDE
Marine pollutant: yes

IATA
UN number: 1846 Class: 6.1 Packing group: II
Proper shipping name: Carbon tetrachloride

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Tetrachloromethane	56-23-5	2007-07-01

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Tetrachloromethane	56-23-5	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Tetrachloromethane	56-23-5	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Tetrachloromethane	56-23-5	2007-07-01

California Prop. 65 Components

	CAS-No.	Revision Date
WARNING! This product contains a chemical known to the State of California to cause cancer.	56-23-5	2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
H301	Toxic if swallowed.
H301 + H311 + H331	Toxic if swallowed, in contact with skin or if inhaled
H311	Toxic in contact with skin.
H317	May cause an allergic skin reaction.
H331	Toxic if inhaled.
H351	Suspected of causing cancer.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	0
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.10 Revision Date: 01/06/2016 Print Date: 03/03/2016

SAFETY DATA SHEET

Version 6.4
Revision Date 03/08/2024
Print Date 05/12/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Chlorobenzene-$^{13}C_6$

Product Number : 488534
Brand : Aldrich
Index-No. : 602-033-00-1
CAS-No. : 287389-52-0

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 3), H226
Acute toxicity, Inhalation (Category 4), H332
Short-term (acute) aquatic hazard (Category 2), H401
Long-term (chronic) aquatic hazard (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Pictogram

Signal Word Warning

Hazard Statements

H226	Flammable liquid and vapor.
H332	Harmful if inhaled.
H411	Toxic to aquatic life with long lasting effects.

Precautionary Statements

P210	Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing mist or vapors.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ eye protection/ face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P391	Collect spillage.
P403 + P235	Store in a well-ventilated place. Keep cool.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula	:	$^{13}C_6H_5Cl$
Molecular weight	:	118.45 g/mol
CAS-No.	:	287389-52-0
Index-No.	:	602-033-00-1

Component	Classification	Concentration
Chlorobenzene-13C6		
	Flam. Liq. 3; Acute Tox. 4; Aquatic Acute 2; Aquatic Chronic 2; H226, H332, H401, H411	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

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SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. If breathing stops: mouth-to-mouth breathing or artificial respiration. Oxygen if necessary. Immediately call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

In case of eye contact
After eye contact: rinse out with plenty of water. Remove contact lenses.

If swallowed
After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Hydrogen chloride gas
Combustible.
Vapors are heavier than air and may spread along floors.
Forms explosive mixtures with air at elevated temperatures.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

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operates as MilliporeSigma in the US and Canada

5.4 Further information

Remove container from danger zone and cool with water. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition.
Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.

Storage class
Storage class (TRGS 510): 3: Flammable liquids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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operates as MilliporeSigma in the US and Canada

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Chlorobenzene-13C6	287389-52-0	TWA	10 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Confirmed animal carcinogen with unknown relevance to humans		
		TWA	75 ppm 350 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		PEL	10 ppm 46 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Chlorobenzene-13C6	287389-52-0	4-Chlorocatechol	100mg/g creatinine	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift at end of workweek			
		p-Chlorophenol	20mg/g creatinine	Urine	ACGIH - Biological Exposure Indices (BEI)
		End of shift at end of workweek			

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
required

Body Protection
Flame retardant antistatic protective clothing.

Respiratory protection
Recommended Filter type: Filter type ABEK

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operates as MilliporeSigma in the US and Canada

The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when vapours/aerosols are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains. Risk of explosion.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -45 °C (-49 °F) - lit.
f)	Initial boiling point and boiling range	132 °C 270 °F - lit.
g)	Flash point	23.9 °C (75.0 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Density	1.164 g/mL at 25 °C (77 °F)1.164 g/cm3 at 25 °C (77 °F)
	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	log Pow: 5.0
p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available

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s) Explosive properties No data available

t) Oxidizing properties No data available

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
Vapor/air-mixtures are explosive at intense warming.

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
Heating.

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Oral: No data available
LC50 Inhalation - 4.0 h - 11.0 mg/l - vapor

Inhalation: No data available
Dermal: No data available

Skin corrosion/irritation
Remarks: No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

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NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

Incoordination., To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties
No data available

12.7 Other adverse effects
No data available

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SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

DOT (US)
UN number: 1134 Class: 3 Packing group: III
Proper shipping name: Chlorobenzene
Reportable Quantity (RQ): 100 lbs
Reportable Quantity (RQ): 100 lbs
Poison Inhalation Hazard: No

IMDG
UN number: 1134 Class: 3 Packing group: III EMS-No: F-E, S-D
Proper shipping name: CHLOROBENZENE
Marine pollutant : yes

IATA
UN number: 1134 Class: 3 Packing group: III
Proper shipping name: Chlorobenzene

SECTION 15: Regulatory information

SARA 302 Components
This material does not contain any components with a section 302 EHS TPQ.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Chlorobenzene-13C6	287389-52-0	2007-07-01

SARA 311/312 Hazards
Fire Hazard, Chronic Health Hazard

Reportable Quantity : D021 lbs

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Chlorobenzene-13C6	287389-52-0	2007-07-01

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SECTION 16: Other information

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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Version: 6.4 Revision Date: 03/08/2024 Print Date: 05/12/2024

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SAFETY DATA SHEET

Version 6.11
Revision Date 09/06/2024
Print Date 09/07/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Chloroform

Product Number : 288306
Brand : Sigma-Aldrich
Index-No. : 602-006-00-4
CAS-No. : 67-66-3

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 4), H302
Acute toxicity, Inhalation (Category 3), H331
Skin irritation (Category 2), H315

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Eye irritation (Category 2A), H319
Carcinogenicity (Category 2), H351
Reproductive toxicity (Category 2), H361
Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336
Specific target organ toxicity - repeated exposure, Oral (Category 1), Liver, Kidney, H372
Short-term (acute) aquatic hazard (Category 3), H402

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal Word: Danger

Hazard Statements

H302	Harmful if swallowed.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H336	May cause drowsiness or dizziness.
H351	Suspected of causing cancer.
H361	Suspected of damaging fertility or the unborn child.
H372	Causes damage to organs (Liver, Kidney) through prolonged or repeated exposure if swallowed.
H402	Harmful to aquatic life.

Precautionary Statements

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe mist or vapors.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P311	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal

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plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms : Trichloromethane
Methylidyne trichloride

Formula : $CHCl_3$
Molecular weight : 119.38 g/mol
CAS-No. : 67-66-3
EC-No. : 200-663-8
Index-No. : 602-006-00-4

Component	Classification	Concentration
Chloroform		
	Acute Tox. 4; Acute Tox. 3; Skin Irrit. 2; Eye Irrit. 2A; Carc. 2; Repr. 2; STOT SE 3; STOT RE 1; Aquatic Acute 3; H302, H331, H315, H319, H351, H361, H336, H372, H402 Concentration limits: 20 %: STOT SE 3, H336;	<= 100 %

ethanol		
	Flam. Liq. 2; Eye Irrit. 2A; H225, H319 Concentration limits: >= 50 %: Eye Irrit. 2A, H319;	>= 1 - < 5 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

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In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

In case of eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Hydrogen chloride gas
Combustible.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains.

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6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Tightly closed. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Storage class

Storage class (TRGS 510): 6.1D: Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Chloroform	67-66-3	TWA	10 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Confirmed animal carcinogen with unknown relevance to humans		
		ST	2 ppm 9.78 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen		

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		C	50 ppm 240 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		PEL	2 ppm 9.78 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
ethanol	64-17-5	TWA	1,000 ppm 1,900 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		STEL	1,000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Confirmed animal carcinogen with unknown relevance to humans		
		TWA	1,000 ppm 1,900 mg/m3	USA. NIOSH Recommended Exposure Limits
		PEL	1,000 ppm 1,900 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Full contact
Material: Viton®
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Splash contact
Material: butyl-rubber
Minimum layer thickness: 0.7 mm
Break through time: 10 min

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Material tested:Butoject® (KCL 898)

Body Protection
protective clothing

Respiratory protection
Recommended Filter type: Filter type AX
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when vapours/aerosols are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid, clear Color: colorless
b)	Odor	sweet
c)	Odor Threshold	205 ppm
d)	pH	No data available
e)	Melting point/freezing point	Melting point: -64 °C (-83 °F)
f)	Initial boiling point and boiling range	60.5 - 61.5 °C 140.9 - 142.7 °F at 1,013.25 hPa
g)	Flash point	() - Regulation (EC) No. 440/2008, Annex, A.9does not flash
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	210 hPa at 20 °C (68 °F)
l)	Vapor density	4.12 - (Air = 1.0)
m)	Density	1.49 g/cm3 at 25 °C (77 °F)
	Relative density	No data available
n)	Water solubility	8.7 g/l at 23 °C (73 °F) - OECD Test Guideline 105 - soluble
o)	Partition coefficient: n-octanol/water	No data available

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p)	Autoignition temperature	No data available
q)	Decomposition temperature	Distillable in an undecomposed state at normal pressure.
r)	Viscosity	No data available
s)	Explosive properties	Not classified as explosive.
t)	Oxidizing properties	none

9.2 Other safety information

Solubility in other solvents	organic solvent at 20 °C (68 °F) - miscible
Relative vapor density	4.12 - (Air = 1.0)

SECTION 10: Stability and reactivity

10.1 Reactivity

No data available

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .
Contains the following stabilizer(s):
ethanol (>=0.5 - <=1 %)

10.3 Possibility of hazardous reactions

Risk of explosion with:
Ammonia
Amines
nitrogen oxides
bases
Oxygen
alkali amides
organic nitro compounds
strong alkalis
Fluorine
peroxi compounds
Alkaline earth metals
Alkali metals
Powdered metals
Methanol
with
alcoholates
Methanol
with
strong alkalis
Iron
in powder form
various alloys

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sensitive to shock
Methanol
with
Sodium hydroxide
magnesium
in powder form
Oxygen
with
alkali compounds
Aluminum
in powder form
Acetone
with
alkali compounds
Potassium
sensitive to shock
sodium
sensitive to shock
Violent reactions possible with:
phosphines
bis(dimethylamino)dimethyl tin
nonmetallic hydrogen compounds
Powdered metals
Light metals
Ketones
mineral acids
Strong oxidizing agents
semimetallic hydrogen compounds

10.4 Conditions to avoid
no information available

10.5 Incompatible materials
No data available

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Acute toxicity estimate Oral - 912.56 mg/kg
(Calculation method)
LD50 Oral - Rat - male - 908 mg/kg
(OECD Test Guideline 401)
Acute toxicity estimate Inhalation - 4 h - 3.12 mg/l - vapor(Calculation method)

LC50 Inhalation - Rat - 6 h - 9.17 mg/l - vapor

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Acute toxicity estimate Inhalation - Expert judgment - 4 h - 3.1 mg/l - vapor

Dermal: No data available
No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Irritating to skin. - 24 h
Remarks: (ECHA)
Remarks: Drying-out effect resulting in rough and chapped skin.
Skin - Rabbit
Result: slight irritation
Remarks: (IUCLID)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Irritating to eyes.
Remarks: (ECHA)
Remarks: (Regulation (EC) No 1272/2008, Annex VI)

Respiratory or skin sensitization
Maximization Test - Guinea pig
Result: negative
(Regulation (EC) No. 440/2008, Annex, B.6)

Germ cell mutagenicity
Test Type: Ames test
Test system: Escherichia coli/Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Result: negative
Remarks: (ECHA)
Test Type: unscheduled DNA synthesis assay
Test system: Liver
Metabolic activation: without metabolic activation
Result: negative
Remarks: (ECHA)

Test Type: Micronucleus test
Species: Rat
Cell type: Red blood cells (erythrocytes)
Application Route: Oral
Method: OECD Test Guideline 474
Result: negative

Test Type: unscheduled DNA synthesis assay
Species: Rat
Cell type: Liver cells
Application Route: Oral
Method: OECD Test Guideline 486
Result: negative

Test Type: in vivo assay
Species: Mouse

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Application Route: Inhalation

Result: negative
Remarks: (ECHA)

Carcinogenicity
Suspected of causing cancer.

IARC: 2B - Group 2B: Possibly carcinogenic to humans (Chloroform)

NTP: RAHC - Reasonably anticipated to be a human carcinogen (Chloroform)

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
Suspected of damaging the unborn child.

Specific target organ toxicity - single exposure
May cause drowsiness or dizziness.

Specific target organ toxicity - repeated exposure
Oral - Causes damage to organs through prolonged or repeated exposure.
- Liver, Kidney

Aspiration hazard
No data available

11.2 Additional Information

Repeated dose toxicity - Rat - female - Oral - NOAEL (No observed adverse effect level) - 34 mg/kg

Vomiting, Cough, irritant effects, Shortness of breath, respiratory arrest, narcosis, Dizziness, Nausea, agitation, spasms, inebriation, Headache, Stomach/intestinal disorders, ataxia (impaired locomotor coordination), cardiovascular disorders
Drying-out effect resulting in rough and chapped skin.
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Crassostrea gigas - 152.5 mg/l - 48 h Remarks: (ECHA)
Toxicity to algae	static test ErC50 - Chlamydomonas reinhardtii (green algae) - 13.3 mg/l - 72 h Remarks: (ECHA)

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Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity)	semi-static test NOEC - Daphnia magna (Water flea) - 6.3 mg/l - 21 d Remarks: (ECHA)

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties
No data available

12.7 Other adverse effects
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)
UN number: 1888 Class: 6.1 Packing group: III
Proper shipping name: ChloroformSOLUTION

Reportable Quantity (RQ): 10 lbs
Reportable Quantity (RQ): 10 lbs
Poison Inhalation Hazard: No

IMDG
UN number: 1888 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: CHLOROFORMSOLUTION

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IATA
UN number: 1888 Class: 6.1 Packing group: III
Proper shipping name: ChloroformSOLUTION

SECTION 15: Regulatory information

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Chloroform	67-66-3	10	10
Chloroform	67-66-3	10	10 (D022)

SARA 304 Extremely Hazardous Substances Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Chloroform	67-66-3	10	10

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

Components	CAS-No.	Component TPQ (lbs)
Chloroform	67-66-3	10000

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

Chloroform 67-66-3 >= 90 - <= 100 %

US State Regulations

Massachusetts Right To Know

Chloroform 67-66-3
ethanol 64-17-5

Pennsylvania Right To Know

Chloroform 67-66-3
ethanol 64-17-5

Maine Chemicals of High Concern

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

California Prop. 65

WARNING: This product can expose you to chemicals including Chloroform, which is/are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

The ingredients of this product are reported in the following inventories:

TSCA : All substances listed as active on the TSCA inventory

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TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16: Other information

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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Version: 6.11 Revision Date: 09/06/2024 Print Date: 09/07/2024

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SAFETY DATA SHEET

Version 6.8
Revision Date 09/07/2024
Print Date 09/08/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Chromium

Product Number : 266299
Brand : Aldrich
CAS-No. : 7440-47-3

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Not a hazardous substance or mixture.

2.2 GHS Label elements, including precautionary statements

Not a hazardous substance or mixture.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

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SECTION 3: Composition/information on ingredients

3.1 Substances

Formula : Cr
Molecular weight : 52.00 g/mol
CAS-No. : 7440-47-3
EC-No. : 231-157-5

Component	Classification	Concentration
chromium		
		<= 100 %

SECTION 4: First aid measures

4.1 Description of first-aid measures

If inhaled
After inhalation: fresh air.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

In case of eye contact
After eye contact: rinse out with plenty of water. Remove contact lenses.

If swallowed
After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Chromium oxides

5.3 Advice for firefighters

In the event of fire, wear self-contained breathing apparatus.

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5.4 Further information
none

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Avoid inhalation of dusts. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions
No special precautionary measures necessary.

6.3 Methods and materials for containment and cleaning up
Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Dry.

Air sensitive.

Storage class
Storage class (TRGS 510): 11: Combustible Solids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

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Component	CAS-No.	Value	Control parameters	Basis
chromium	7440-47-3	TWA	0.5 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		PEL	0.5 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		TWA	1 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
chromium	7440-47-3	Total chromium	0.7 µg/l	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift at end of workweek			

8.2 Exposure controls

Appropriate engineering controls
Change contaminated clothing. Wash hands after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our

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customers. It should not be construed as offering an approval for any specific use scenario.

Respiratory protection
Recommended Filter type: Filter type P1
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when dusts are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
No special precautionary measures necessary.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: powder Color: light gray
b)	Odor	odorless
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/ range: 1,857 °C (3,375 °F) - lit.
f)	Initial boiling point and boiling range	2,672 °C 4,842 °F - lit.
g)	Flash point	()Not applicable
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Density	7.14 g/mL at 25 °C (77 °F) - lit.
	Relative density	No data available
n)	Water solubility	insoluble
o)	Partition coefficient: n-octanol/water	Not applicable for inorganic substances

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p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	none

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
no information available

10.5 Incompatible materials
Strong acids, Strong oxidizing agents

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Oral: No data available
Inhalation: No data available
Dermal: No data available
No data available

Skin corrosion/irritation
Remarks: No data available

Serious eye damage/eye irritation
Remarks: No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity

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No data available

Carcinogenicity

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

RTECS: GB4200000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	LC50 - Cyprinus carpio (Carp) - 14.3 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 0.07 mg/l - 48 h

12.2 Persistence and degradability

The methods for determining biodegradability are not applicable to inorganic substances.

12.3 Bioaccumulative potential

Bioaccumulation	Oncorhynchus mykiss (rainbow trout) - 30 d - 50 µg/l(chromium)
	Bioconcentration factor (BCF): 1.03 - 1.22

12.4 Mobility in soil

No data available

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12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)

UN number: 3077 Class: 9 Packing group: III

Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (chromium)

Reportable Quantity (RQ): 5000 lbs

Reportable Quantity (RQ): 10 lbs

Poison Inhalation Hazard: No

IMDG

Not dangerous goods

IATA

Not dangerous goods

Further information

Not classified as dangerous in the meaning of transport regulations.

SECTION 15: Regulatory information

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
chromium	7440-47-3	5000	5000

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SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Chronic Health Hazard

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

chromium	7440-47-3	>= 90 - <= 100 %

US State Regulations

Massachusetts Right To Know

chromium	7440-47-3

Pennsylvania Right To Know

chromium	7440-47-3

Maine Chemicals of High Concern

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

The ingredients of this product are reported in the following inventories:

TSCA : All substances listed as active on the TSCA inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16: Other information

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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SAFETY DATA SHEET

Based on Directive 2001/58/EC of the Commission of the European Communities

CHRYSENE

1. Identification of the substance/preparation and of the company/undertaking

1.1 Identification of the substance or preparation:

Synonyms: none
CAS No. : 218-01-9
EC index No. : 601-048-00-0
EINECS No. : 205-923-4
RTECS No. : GC0700000
BCR number : BCR-269
NFPA code : N.D.
Molecular weight : 228.30
Formula : C18H12

1.2 Use of the substance or the preparation:
Certified reference material for laboratory use only

1.3 Company/undertaking identification:
Institute for Reference Materials and Measurements
Retieseweg
B-2440 Geel
Tel. : +32 14 57 12 11
Fax : +32 14 58 42 73

1.4 Telephone number for emergency:
+32 70 245 245
Antigifcentrum
p/a Militair Hospitaal Koningin Astrid, Bruynstraat, B-1120 Brussel

2. Composition/information on ingredients

Hazardous ingredients	CAS No. EINECS No.	Conc. in %	Hazard symbol	Risks (R-phrases)
chrysene	218-01-9 205-923-4	100	T;N	45-50/53 (1)

(1) For R-phrases in full: see heading 16

3. Hazards identification

- May cause cancer
- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

4. First aid measures

4.1 Eye contact:
- Consult a doctor/medical service if irritation persists
- Rinse immediately with water

4.2 Skin contact:
- Consult a doctor/medical service if irritation persists
- Wash with water and soap
- Wipe off dry product from skin
- Remove clothing before washing

4.3 After inhalation:
- Consult a doctor/medical service if breathing problems develop
- Remove the victim into fresh air
- Unconscious: maintain adequate airway and respiration

4.4 After ingestion:
- Consult a doctor/medical service if you feel unwell
- Immediately give lots of water to drink
- Never give water to an unconscious person

- Do not induce vomiting

5. Fire-fighting measures

5.1 Suitable extinguishing media:
- Water spray
- Alcohol foam
- Polymer foam
- ABC powder
- Carbon dioxide

5.2 Unsuitable extinguishing media:
- Solid water jet ineffective as extinguishing medium

5.3 Special exposure hazards:
- Not easily combustible
- Upon combustion CO and CO2 are formed

5.4 Instructions:
- Take account of toxic firefighting water
- Use firefighting water moderately and contain it

5.5 Special protective equipment for firefighters:
- Heat/fire exposure: compressed air/oxygen apparatus
- Dust cloud production: compressed air/oxygen apparatus

6. Accidental release measures

6.1 Personal protection/precautions: see heading 8.1/8.3/10.3

6.2 Environmental precautions:
- Prevent soil and water pollution
- Substance must not be discharged into the sewer
- Dam up the solid spill

6.3 Methods for cleaning up:
- Stop dust cloud by covering with sand/earth
- Carefully collect the spill/leftovers
- Scoop solid spill into closing containers
- Spill must not return in its original container
- Take collected spill to manufacturer/competent authority
- Clean contaminated surfaces with an excess of water
- Wash clothing and equipment after handling

7. Handling and storage

7.1 Handling:
- Observe strict hygiene
- Avoid prolonged and repeated contact with skin
- Avoid raising dust
- Do not discharge the waste into the drain
- Remove contaminated clothing immediately

7.2 Storage:
- Keep container tightly closed. Store only in a limited quantity. Store in a dry area. Store in a dark area.
- Keep away from: heat sources, ignition sources, oxidizing agents, acids

Storage temperature	:	N.D.	**°C**
Quantity limits	:	N.D.	**kg**
Storage life	:	N.D.	
Materials for packaging	:		

- suitable : no data available
- to avoid : no data available

7.3 Specific uses:
- See information supplied by the manufacturer

8. Exposure controls/Personal protection

8.1 Exposure limit values:

TLV-TWA	:	not listed
TLV-STEL	:	not listed
TLV-Ceiling	:	not listed
OES-LTEL	:	not listed
OES-STEL	:	not listed
MEL-LTEL	:	not listed
MEL-STEL	:	not listed
MAK	:	not listed
TRK	:	not listed
MAC-TGG 8 h	:	not listed
MAC-TGG 15 min.	:	not listed
MAC-Ceiling	:	not listed
VME-8 h	:	not listed
VLE-15 min.	:	not listed
GWBB-8 h	:	not listed
GWK-15 min.	:	not listed
Momentary value	:	not listed
EC	:	not listed
EC-STEL	:	not listed

Sampling methods:

- Chrysene (Polynuclear aromatic Hydrocarbons)	NIOSH 5515
- Chrysene	OSHA 58
- Chrysene (Polynuclear aromatic Hydrocarbons)	NIOSH 5506

8.2 Exposure controls:

8.2.1 Occupational exposure controls:
- Measure the concentration in the air regularly
- Work under local exhaust/ventilation

8.2.2 Environmental exposure controls: see heading 13

8.3 Personal protection:

8.3.1 respiratory protection:
- Dust production: dust mask with filter type P3
- High dust production: compressed air/oxygen apparatus

8.3.2 hand protection:
- Gloves
  Suitable materials: No data available

- Breakthrough time: N.D.

8.3.3 eye protection:
- Safety glasses
- In case of dust production: protective goggles

8.3.4 skin protection:
- Protective clothing
- In case of dust production: head/neck protection
  Suitable materials: No data available

9. Physical and chemical properties

9.1 General information:

Appearance (at 20°C)	:	Crystalline solid / Flakes
Odour	:	Odourless
Colour	:	White

9.2 Important health, safety and environmental information:

pH value	:	N.D.	
Boiling point/boiling range	:	448	**°C**
Flashpoint	:	N.D.	**°C**
Explosion limits	:	N.D.	**vol%** (**°C**)
Vapour pressure (at 20°C)	:	N.D.	**hPa**
Vapour pressure (at 50°C)	:	N.D.	**hPa**
Relative density (at 20°C)	:	1.27	
Water solubility	:	< 0.001	**g/100 ml**
Soluble in	:	N.D.	
Relative vapour density	:	N.D.	
Viscosity	:	N.D.	**Pa.s**
Partition coëfficient n-octanol/water	:	5.61/5.73	
Evaporation rate			
ratio to butyl acetate	:	N.D.	
ratio to ether	:	N.D.	

9.3 Other information:

Melting point/melting range	:	256	**°C**
Auto-ignition point	:	N.D.	**°C**
Saturation concentration	:	N.D.	**g/m^3**

10. Stability and reactivity

10.1 Conditions to avoid/reactivity:
- Stable under normal conditions

10.2 Materials to avoid:
- Keep away from: heat sources, ignition sources, oxidizing agents, acids

10.3 Hazardous decomposition products:
- Upon combustion CO and CO2 are formed
- Reacts violently with (strong) oxidizers
- Decomposes on exposure to (strong) acids

11. Toxicological information

11.1 Acute toxicity:

LD50 oral rat	:	N.D.	**mg/kg**
LD50 dermal rat	:	N.D.	**mg/kg**
LD50 dermal rabbit	:	N.D.	**mg/kg**
LC50 inhalation rat	:	N.D.	**mg/1/4 h**
LC50 inhalation rat	:	N.D.	**ppm/4 h**

11.2 Chronic toxicity:

EC carc. cat.	:	2
EC muta. cat.	:	3
EC repr. cat.	:	not listed
Carcinogenicity (TLV)	:	A3
Carcinogenicity (MAC)	:	K
Carcinogenicity (VME)	:	not listed
Carcinogenicity (GWBB)	:	not listed
Carcinogenicity (MAK)	:	2
Mutagenicity (MAK)	:	not listed
Teratogenicity (MAK)	:	-
IARC classification	:	3

11.3 Routes of exposure: ingestion, inhalation, eyes and skin
Caution! Substance is absorbed through the skin

11.4 Acute effects/symptoms:

AFTER SKIN CONTACT
- Slight irritation

11.5 Chronic effects:

- Probably human carcinogenic
- No certainty about human mutagenic properties

ON CONTINUOUS/REPEATED EXPOSURE/CONTACT:
- No specific information available

SIMILAR PRODUCTS CAUSE FOLLOWING SYMPTOMS:
- Feeling of weakness
- Photoallergy
- Cracking of the skin
- Skin rash/inflammation
- Skin cancer
- Lung tissue affection/degeneration
- Enlargement/affection of the liver
- Affection of the renal tissue

12. Ecological information

12.1 Ecotoxicity:

- LC50 (24 h) : 0.0007 mg/l (DAPHNIA MAGNA)
- LC50 (24 h) : >6.7 mg/l (RANA SP.)

12.2 Mobility:

- **Volatile organic compounds (VOC):** N.D.%

- Forming sediments in water
- Adsorbs into the soil
- Insoluble in water

For other physicochemical properties see heading 9.

12.3 Persistence and degradability:

- **biodegradation BOD_5** : N.D. **% ThOD**
- **water** : - Not readily biodegradable in water
- **soil** : **T ½:** > 77 **days**

12.4 Bioaccumulative potential:
- **log P_{ow}** : 5.61/5.73
- **BCF** : 4440 (LAMELLIBRANCHIATA)
- Highly bioaccumulative

12.5 Other adverse effects:

- **WGK** : 3 (Classification based on the R-phrases in compliance with Verwaltungsvorschrift wassergefährdender Stoffe (VwVwS) of 17 May 1999)
- **Effect on the ozone layer** : Not dangerous for the ozone layer (Council Regulation (EC) 3093/94)
- **Greenhouse effect** : no data available
- **Effect on waste water purification** : no data available

13. Disposal considerations

13.1 Provisions relating to waste:

- Waste material code (91/689/EEC, Council Decision
- 2001/118/EC, O.J. L47 of 16/2/2001): 16 05 06 (laboratory chemicals, consisting of or containing dangerous substances, including mixtures of laboratory)
- Waste material code (Flanders): 001, 045, 691
- Waste code (Germany): 59302
- Hazardous waste (91/689/EEC)

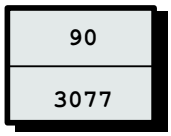
13.2 Disposal methods:

- Dissolve or mix with a combustible solvent
- Remove to an authorized incinerator equipped with an afterburner and a flue gas scrubber
- Do not discharge into surface water (2000/60/EEC, Council

13.3 Packaging/Container:

- Waste material code packaging (91/689/EEC, Council Decision
- 2001/118/EC, O.J. L47 of 16/2/2001): 15 01 10 (packaging containing residues of or contaminated by dangerous substances)

14. Transport information



14.1 Classification of the substance in compliance with UN Recommendations

UN number	: 3077
CLASS	: 9
SUB RISKS	: -
PACKING	: III
PROPER SHIPPING NAME	: UN 3077, Environmentally hazardous substance, solid, n.o.s. (chrysene)

14.2 ADR (transport by road)

CLASS	: 9
PACKING	: III
DANGER LABEL TANKS	: 9
DANGER LABEL PACKAGES	: 9

14.3 RID (transport by rail)

CLASS	: 9
PACKING	: III
DANGER LABEL TANKS	: 9
DANGER LABEL PACKAGES	: 9

14.4 ADNR (transport by inland waterways)

CLASS	: 9
PACKING	: III
DANGER LABEL TANKS	: 9
DANGER LABEL PACKAGES	: 9

14.5 IMDG (maritime transport)

CLASS	: 9
SUB RISKS	: -
PACKING	: III
MFAG	: -
EMS	: -
MARINE POLLUTANT	: P

14.6 ICAO (air transport)

CLASS	: 9
SUB RISKS	: -
PACKING	: III
PACKING INSTRUCTIONS PASSENGER AIRCRAFT	:
PACKING INSTRUCTIONS CARGO AIRCRAFT	:

14.7 Special precautions in connection with transport : none

14.8 Limited quantities (LQ) :

When substances and their packaging meet the conditions established by ADR/RID/ADNR in chapter 3.4, **only** the following prescriptions shall be complied with:
each package shall display a diamond-shaped figure with the following inscription:
- 'UN 3077'
or, in the case of different goods with different identification numbers within a single package:
- the letters 'LQ'

15. Regulatory information

Enumerated in substance list Annex I of directive 67/548/EEC et sequens

Toxic

Dangerous for the environment

R45 : May cause cancer
R50/53 : Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

S53 : Avoid exposure - obtain special instructions before use
S45 : In case of accident or if you feel unwell, seek medical advice (show the label where possible)
S60 : This material and/or its container must be disposed of as hazardous waste
S61 : Avoid release to the environment. Refer to special instructions/safety data sheets.

16. Other information

The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

N.A. = NOT APPLICABLE
N.D. = NOT DETERMINED
***** = INTERNAL CLASSIFICATION

Full text of any R-phrases referred to under heading 2:

R45 : May cause cancer
R50/53 : Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Exposure limits:
TLV : Threshold Limit Value - ACGIH USA 2000
OES : Occupational Exposure Standards - United Kingdom 1999
MEL : Maximum Exposure Limits - United Kingdom 1999
MAK : Maximale Arbeitsplatzkonzentrationen - Germany 2001
TRK : Technische Richtkonzentrationen - Germany 2001
MAC : Maximale aanvaarde concentratie - The Netherlands 2002
VME : Valeurs limites de Moyenne d'Exposition - France 1999
VLE : Valeurs limites d'Exposition à court terme - France 1999
GWBB : Grenswaarde beroepsmatige blootstelling - Belgium 1998
GWK : Grenswaarde kortstondige blootstelling - Belgium 1998
EC : Indicative occupational exposure limit values - directive 2000/39/EC

Chronic toxicity:
K : List of the carcinogenic substances and processes - The Netherlands 2002

SAFETY DATA SHEET

Version 5.4
Revision Date 12/01/2015
Print Date 03/03/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : *cis*-1,2-Dichloroethylene

Product Number : D62004
Brand : Aldrich
Index-No. : 602-026-00-3

CAS-No. : 156-59-2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 2), H225
Acute toxicity, Inhalation (Category 4), H332
Acute aquatic toxicity (Category 3), H402
Chronic aquatic toxicity (Category 3), H412

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H225 Highly flammable liquid and vapour.
H332 Harmful if inhaled.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 Use only non-sparking tools.

P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P312	Call a POISON CENTER or doctor/ physician if you feel unwell.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P403 + P235	Store in a well-ventilated place. Keep cool.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	cis-Acetylene dichloride
Formula	:	$C_2H_2Cl_2$
Molecular weight	:	96.94 g/mol
CAS-No.	:	156-59-2
EC-No.	:	205-859-7
Index-No.	:	602-026-00-3

Hazardous components

Component	Classification	Concentration
cis-Dichloroethylene		
	Flam. Liq. 2; Acute Tox. 4; Aquatic Acute 3; Aquatic Chronic 3; H225, H332, H412	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen chloride gas

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Use explosion-proof equipment.Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Handle and store under inert gas. Air and moisture sensitive. Light sensitive.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
cis-Dichloroethylene	156-59-2	TWA	200 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Central Nervous System impairment Eye irritation		

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid Colour: light yellow
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -80 °C (-112 °F) - lit.
f)	Initial boiling point and boiling range	60 °C (140 °F) - lit.
g)	Flash point	6.0 °C (42.8 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	1.284 g/cm3 at 25 °C (77 °F)
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available

p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Heat, flames and sparks. Extremes of temperature and direct sunlight.

10.5 Incompatible materials
Oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LC50 Inhalation - Rat - 13700 ppm
Remarks: Behavioral:Somnolence (general depressed activity). Liver:Fatty liver degeneration.

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: KV9420000

narcosis, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1150 Class: 3 Packing group: II
Proper shipping name: 1,2-Dichloroethylene

Poison Inhalation Hazard: No

IMDG
UN number: 1150 Class: 3 Packing group: II EMS-No: F-E, S-D
Proper shipping name: 1,2-DICHLOROETHYLENE

IATA
UN number: 1150 Class: 3 Packing group: II
Proper shipping name: 1,2-Dichloroethylene

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Fire Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
cis-Dichloroethylene	156-59-2	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
cis-Dichloroethylene	156-59-2	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
cis-Dichloroethylene	156-59-2	1993-04-24

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H332	Harmful if inhaled.
H402	Harmful to aquatic life.

HMIS Rating

Health hazard:	1
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	1

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information
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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.4 Revision Date: 12/01/2015 Print Date: 03/03/2016

SAFETY DATA SHEET

Version 6.9
Revision Date 09/07/2024
Print Date 09/08/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Copper

Product Number : 349178
Brand : Aldrich
Index-No. : 029-024-00-X
CAS-No. : 7440-50-8

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Not a hazardous substance or mixture.

2.2 GHS Label elements, including precautionary statements

No hazard pictogram, no signal word, no hazard statement(s), no precautionary statement(s) required.

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2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula	:	Cu
Molecular weight	:	63.55 g/mol
CAS-No.	:	7440-50-8
EC-No.	:	231-159-6
Index-No.	:	029-024-00-X

Component	Classification	Concentration
Copper(bulk)		
		<= 100 %

SECTION 4: First aid measures

4.1 Description of first-aid measures

If inhaled
After inhalation: fresh air.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

In case of eye contact
After eye contact: rinse out with plenty of water. Remove contact lenses.

If swallowed
After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

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5.2 Special hazards arising from the substance or mixture
Copper oxides
Not combustible.
Ambient fire may liberate hazardous vapours.

5.3 Advice for firefighters
In the event of fire, wear self-contained breathing apparatus.

5.4 Further information
Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Avoid inhalation of dusts. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Dry.

Store under inert gas. Air sensitive.

Storage class
Storage class (TRGS 510): 13: Non Combustible Solids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Copper(bulk)	7440-50-8	TWA	1 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		TWA	0.2 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		TWA	1 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	1 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	1 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	0.1 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		PEL	0.1 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

8.2 Exposure controls

Appropriate engineering controls
Change contaminated clothing. Wash hands after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
Handle with impervious gloves.

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm

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Break through time: 480 min
Material tested:KCL 741 Dermatril® L

Respiratory protection
Recommended Filter type: Filter type P2
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when dusts are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: Foil
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/ range: 1,083.4 °C (1,982.1 °F) - lit.
f)	Initial boiling point and boiling range	2,567 °C 4,653 °F - lit.
g)	Flash point	()Not applicable
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	The product is not flammable.
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Density	8.94 g/mL at 25 °C (77 °F) - lit.
	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	Not applicable for inorganic substances
p)	Autoignition	No data available

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	temperature	
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	none

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
Exothermic reaction with:
Ethylene oxide
Fluorine
hydrogen sulphide
halogen-halogen compounds
alkali oxides
nitrides
Salts of hydrazine
Sulfuric acid
Risk of ignition or formation of inflammable gases or vapours with:
Oxidizing agents
Chlorine
Risk of explosion with:
Acetylene
azides
ammonium compounds
iodates
bromopropine
perchlorates
bromates
picrates
chlorates
Peroxides

10.4 Conditions to avoid
no information available

10.5 Incompatible materials
No data available

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10.6 Hazardous decomposition products

In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Oral: No data available
Inhalation: No data available
Dermal: No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

RTECS: GL5325000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

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SECTION 12: Ecological information

12.1 Toxicity
No data available

12.2 Persistence and degradability
The methods for determining biodegradability are not applicable to inorganic substances.

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties
No data available

12.7 Other adverse effects
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)
Not dangerous goods

IMDG
Not dangerous goods

IATA
Not dangerous goods

Further information
Not classified as dangerous in the meaning of transport regulations.

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SECTION 15: Regulatory information

CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : No SARA Hazards

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

US State Regulations

Massachusetts Right To Know

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know

Copper(bulk) 7440-50-8

Maine Chemicals of High Concern

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

The ingredients of this product are reported in the following inventories:

TSCA : All substances listed as active on the TSCA inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16: Other information

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its

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Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.
Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.
Version: 6.9 Revision Date: 09/07/2024 Print Date: 09/08/2024

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

AccuStandard, Inc.
125 Market St., New Haven, CT 06513 USA
Tel: 203-786-5290 Fax: 203-786-5287

SAFETY DATA SHEET

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

1.1 - Product Identifiers

Catalog Name: WC-CN-1X-1

Description: Cyanide Standard

1.2 - Relevant Identified Uses of the Substance or Mixture

Laboratory Chemical Reference Material

1.3 - Supplier Details

Company: AccuStandard, Inc.
125 Market St.
New Haven, CT 06513 USA

Telephone Number: 203-786-5290

Fax: 203-786-5287

Email: edocs@accustandard.com

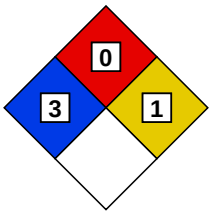
1.4 - Emergency Telephone Number

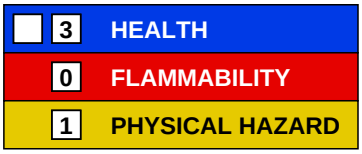
Emergency Phone #: AccuStandard, Inc.
1-203-502-7070 (USA)
+001-203-502-7070 (International)

24 hours / 7 days a week

SECTION 2 - HAZARDS IDENTIFICATION

2.1 - GHS Label Elements





Signal Word: Danger

Hazard Codes:

H302 - Harmful if swallowed. (Acute toxicity, oral, category 4)

H314 - Causes skin burns. (Skin corrosion/irritation, category 1)

H318 - Causes serious eye damage. (Eye damage/irritation, category 1)

H332 - Harmful if inhaled. (Acute toxicity, inhalation, category 4)

Precautionary Codes:

P202 - This product should only by used by persons trained in the safe handling of hazardous chemicals.

P233 - Store in a tightly closed container. (P404)

P262 - Do not get in eyes, on skin or clothing.

P264 - Wash thoroughly after handling. Do not take internally. Eye wash and safety equipment should be readily available.

P280 - Protective gloves must be worn to prevent skin contact.

SECTION 2 - HAZARDS IDENTIFICATION *- continued*

2.1 - GHS Label Elements *- continued*

P284 - Respiratory Protection: If workplace exposure limit(s) of product or any component is exceeded (see TLV/PEL), or a risk assessment shows air-purifying respirators are appropriate, use of a NIOSH/MSHA approved air supplied respirator is advised. Use a full-face respirator with multi-purpose combination (US) or type ABEK (EN14387) respirator cartridges in absence of proper environmental control. Always use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Engineering and/or administrative controls should be implemented to reduce exposure.

P331 - Ingestion: Do NOT induce vomiting. Call a physician or poison control center immediately. Give victim a glass of water a little at a time. Never give anything by mouth to an unconscious person. If vomiting occurs spontaneously, lower head below waist to prevent fluid from entering the lungs.

P338 - Eye contact: Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers.

P360 - Skin contact: Immediately flush skin with plenty amounts of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Thoroughly wash (or discard) clothing and shoes before reuse.

2.2 - Other Hazards

2.2.1 - Symptom of Exposure Health/Environment

Corrosive.

May cause stomach cramps and gastro-intestinal disturbances.

May cause burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea and vomiting.

2.2.2 - Potential Health Effects

Causes serious eye damage. (Eye damage/irritation, category 1)

Causes skin burns. (Skin corrosion/irritation, category 1)

May be harmful if absorbed through the skin. (Acute toxicity, dermal, category 5)

Extremely destructive to tissue of the mucous membranes and upper respiratory tract.

Harmful if inhaled. (Acute toxicity, inhalation, category 4)

Harmful if swallowed. (Acute toxicity, oral, category 4)

2.2.3 - Routes of Entry

Inhalation, ingestion or skin contact.

2.2.4 - Carcinogenicity

This product is or contains a component that is not listed (ACGIH, IARC, NTP, OSHA) as a cancer causing agent.

SECTION 3 - COMPOSITION / ANALYTES DATA

Description: Cyanide Standard

			ACGIH -TLV (mg/m³)			OSHA -PEL (mg/m³)		
Analyte	CAS #	% Concentration	TWA	STEL	Skin	TWA	STEL	Skin
Potassium cyanide	151-50-8	0.025			X	5		X
Sodium hydroxide	1310-73-2	2.000	(C)2 (C)2			2		
Water	7732-18-5	97.975						

SECTION 4 - FIRST AID MEASURES

4.2 - Eye Contact

Eye contact: Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. (P338)

4.3 - Skin Contact

Skin contact: Immediately flush skin with plenty amounts of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Thoroughly wash (or discard) clothing and shoes before reuse. (P360)

4.4 - Inhalation

Inhalation: Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention.

4.5 - Ingestion

Ingestion: Do NOT induce vomiting. Call a physician or poison control center immediately. Give victim a glass of water a little at a time. Never give anything by mouth to an unconscious person. If vomiting occurs spontaneously, lower head below waist to prevent fluid from entering the lungs. (P331)

SECTION 5 - FIRE FIGHTING MEASURES

5.1 - Flammable Properties

During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Reacts with most metals to form flammable hydrogen gas.

5.2 - Extinguishing Media

Do not use water.

Use dry chemical when fighting fires involving this material.

5.3 - Protection of Firefighters

As in any fire, wear self-contained breathing apparatus pressure demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

6.1 - Spill Response

Wear a self-contained breathing apparatus and appropriate Personal protection. Prevent contact with skin or eyes. Ventilate area. Stop leak if you can do so without risk. Absorb on sand or vermiculite, take up and containerize for proper disposal. Flush spill area with water. Comply with Federal, State, and local regulations.

SECTION 7 - HANDLING AND STORAGE

Store in a tightly closed container. (P404)

Keep refrigerated.

Avoid metal containers.

Material is hygroscopic.

Avoid inhalation.

Use with adequate ventilation.

Do not get in eyes, on skin or clothing. (P262)

Avoid prolonged or repeated exposure.

This product should only by used by persons trained in the safe handling of hazardous chemicals. (P202)

SECTION 8 - EXPOSURE CONTROLS

8.1 - Engineering Controls/PPE

Wash thoroughly after handling. Do not take internally. Eye wash and safety equipment should be readily available. (P264)

8.2 - General Hygene Considerations

Respiratory Protection: If workplace exposure limit(s) of product or any component is exceeded (see TLV/PEL), or a risk assessment shows air-purifying respirators are appropriate, use of a NIOSH/MSHA approved air supplied respirator is advised. Use a full-face respirator with multi-purpose combination (US) or type ABEK (EN14387) respirator cartridges in absence of proper environmental control. Always use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Engineering and/or administrative controls should be implemented to reduce exposure.

Material should be handled or transferred in an approved fume hood or with adequate ventilation.

Protective gloves must be worn to prevent skin contact. (P280)

(Chloroprene, natural rubber, nitrile, or equivalent)

Wear safety glasses with side shields (or googles) and a face shield.

Use eye protection tested and approved under the appropriate government standards such as NIOSH (US) or EN 166 (EU).

All recommendations are advisory only and must be evaluated by an industrial hygienist and/or safety officer familiar with the specific situation of anticipated use, such as concentration and amount of the substance in the workplace. Any recommendation should not be construed as offering an approval for any specific use of the product.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Clear liquid

Odor: Practically odorless

Odor Threshold: N/A

pH: 13-14

Melting Point: -4 °C (5% soln)

Boiling Point: 102 °C (5% soln)

Flash Point: N/A

Evaporation Rate (Butyl Acetate=1): N/A

Flammability Class: N/A

Lower Flammability Level: N/A

Upper Flammability Level: N/A

Vapor Pressure: N/A

Vapor Density (Air = 1): >1 g/l

Specific Gravity: 1.05 g/cm3 (5% soln)

Solubility in Water: Soluble

Partition Coefficient: N/A

Autoignition Temperature: N/A

Decomposition Temperature: N/A

Viscosity: N/A

VOC Content: N/A

Percent Volatile: N/A

SECTION 10 - STABILITY AND REACTIVITY

Stability: Stable

Materials to Avoid: Oxidizers
Acids

Hazardous Decomposition: Sodium oxides

Hazardous Polymerization: Will not occur

Condition to Avoid: Prolonged exposure to air

SECTION 11 - TOXICOLOGICAL INFORMATION

Human Health Toxicity

See section 2 for specific toxicological information for the ingredients of this product.

LD50 (Oral): N/A

LD50 (Dermal) : N/A

LC50 (Inhalation): N/A

No specific human health toxicity information is available for this product.

No other information related to the toxicological properties of this product is available at this time.

SECTION 12 - ECOLOGICAL INFORMATION

Environmental Toxicity

By complying with sections 6 and 7 there should be no release to the environment.

LC50 (Fish): N/A

EC50 (Aquatic Invertebrate): N/A

BCF: N/A

No specific environmental toxicity information is available for this product.

No other information related to the ecological properties of this product is available at this time.

SECTION 13 - DISPOSAL CONSIDERATIONS

Recycle or incinerate at any EPA approved facility or dispose in compliance with Federal, State and local regulations. Empty containers must be triple-rinsed prior to disposal.

SECTION 14 - TRANSPORT INFORMATION

Transportation Information (DOT/IATA)

UN Number: UN1824

Class: 8

Packing Group: III

Proper Shipping Name: Sodium hydroxide solution

Poison by Inhalation: No

Marine Pollutant: No

SECTION 15 - REGULATORY INFORMATION

This product does not contain compounds subject to EU Regulation (EC) No 1907/2006 (REACH) on Annex XIV, Annex XVII, and/or Article 59.

SECTION 15 - REGULATORY INFORMATION *- continued*

All components are listed on the TSCA Inventory.

For laboratory, research and development use only. Not for manufacturing or commercial purposes.

In addition to federal and state regulations, local regulations may apply. Check with your local regulatory authorities.

SECTION 16 - OTHER INFORMATION

This document has been designed to meet the requirements of OSHA, ANSI, GHS and CHIPs regulations. Chemicals are classified using the Globally Harmonized System for Classification and Labeling of Chemicals and CLP Regulation (EC) No. 1272/2008.

The statements contained herein are offered for informational purposes only and are based on technical data that we believe to be accurate. The manufacturer will not assume any liability for the accuracy and completeness of this information. Final determination of the suitability of the material is the responsibility of the user. Although certain hazards are described herein, the user should not presume that these are the only hazards that exist. Since conditions and manner of use are outside of the manufacturers control, we make

NO WARRANTY OF MERCHANTABILITY, EXPRESSED OR IMPLIED, AND ASSUME NO LIABILITY RESULTING FROM ITS USE.

Legend : N/A = Not Available ND = Not Determined NR = Not Regulated

Alteration of any information contained herein without written permission from the manufacturer is strictly prohibited.

HMIS/NFPA HAZARD INDEX

0 - Minimal
1 - Slight
2 - Moderate
3 - Serious
4 - Severe

* - Additional Hazard

GHS HAZARD INDEX

Category 1 - Most Severe
Category 5 - Least Severe

**** End of Document ****

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*

1 Identification

· **Product identifier**

· **Trade name: p,p'-DDE**
· **Synonym**
1,1'-(2,2-dichloroethenylidene)bis[4-chloro-benzene]
4,4'-DDE
4,4'-Dichlorodiphenyldichloroethylene
p,p'-Dichlorodiphenyldichloroethylene
NSC 1153

· **Article number:** 24241
· **CAS Number:**
72-55-9
· **EC number:**
200-784-6
· **Application of the substance / the mixture**
This product is for research use - Not for human or veterinary diagnostic or therapeutic use.

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Cayman Chemical Co.
1180 E. Ellsworth Rd.
Ann Arbor, MI 48108
USA

· **Information department:** Product safety department
· **Emergency telephone number:**
During normal opening times: +1 (734) 971-3335
US/CANADA: 800-424-9300
Outside US/CANADA: 703-741-5970

2 Hazard(s) identification

· **Classification of the substance or mixture**

GHS06 Skull and crossbones

Acute Toxicity - Oral 3 H301 Toxic if swallowed.

GHS08 Health hazard

Carcinogenicity 2 H351 Suspected of causing cancer.

Specific Target Organ Toxicity - Repeated Exposure 1 H372 Causes damage to organs through prolonged or repeated exposure.

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GHS09 Environment

Aquatic Acute 1 H400 Very toxic to aquatic life.
Aquatic Chronic 1 H410 Very toxic to aquatic life with long lasting effects.

· **Label elements**
· **GHS label elements**
The substance is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms**

GHS06 GHS08 GHS09

· **Signal word** Danger
· **Hazard statements**
H301 Toxic if swallowed.
H351 Suspected of causing cancer.
H372 Causes damage to organs through prolonged or repeated exposure.
H410 Very toxic to aquatic life with long lasting effects.
· **Precautionary statements**
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe dust/fume/gas/mist/vapors/spray.
P264 Wash thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301+P310 If swallowed: Immediately call a poison center/doctor.
P321 Specific treatment (see on this label).
P330 Rinse mouth.
P308+P313 IF exposed or concerned: Get medical advice/attention.
P314 Get medical advice/attention if you feel unwell.
P391 Collect spillage.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 1
Fire = 0
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

Health = 1
Fire = 0
Reactivity = 0

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· **Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Substances**
· **CAS No. Description**
72-55-9 p,p'-DDE
· **Identification number(s)**
· **EC number:** 200-784-6

4 First-aid measures

· **Description of first aid measures**
· **General information:**
Immediately remove any clothing soiled by the product.
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
In case of irregular breathing or respiratory arrest provide artificial respiration.
· **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
· **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
· **After swallowing:** Do not induce vomiting; immediately call for medical help.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed**
No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
Use fire fighting measures that suit the environment.
A solid water stream may be inefficient.
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** No special measures required.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures** Not required.
· **Environmental precautions:**
Inform respective authorities in case of seepage into water course or sewage system.
Do not allow to enter sewers/ surface or ground water.
· **Methods and material for containment and cleaning up:**
Dispose contaminated material as waste according to section 13.

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· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
· **Protective Action Criteria for Chemicals**
· **PAC-1:** 6.5 mg/m³
· **PAC-2:** 72 mg/m³
· **PAC-3:** 170 mg/m³

*
7 Handling and storage

· **Handling:**
· **Precautions for safe handling** Thorough dedusting.
· **Information about protection against explosions and fires:** No special measures required.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:** Store in accordance with information listed on the product insert.
· **Requirements to be met by storerooms and receptacles:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** None.
· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see section 7.

· **Control parameters**
· **Components with limit values that require monitoring at the workplace:** Not required.
· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
· **Breathing equipment:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

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· **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
· **Eye protection:**

Tightly sealed goggles

*
9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Solid
Color:	Not determined.
· **Odor:**	Characteristic
· **Structural Formula**	C14H8Cl4
· **Molecular Weight**	318 g/mol
· **Odor threshold:**	Not determined.
· **pH-value:**	Not applicable.
· **Change in condition**	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	Undetermined.
· **Flash point:**	Not applicable.
· **Flammability (solid, gaseous):**	Product is not flammable.
· **Decomposition temperature:**	Not determined.
· **Ignition temperature:**	Not determined.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapor pressure:**	Not applicable.
· **Density:**	Not determined.
· **Relative density**	Not determined.
· **Vapor density**	Not applicable.
· **Evaporation rate**	Not applicable.
· **Solubility in / Miscibility with**	
Water:	Not determined.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
SOLUBILITY	Chloroform: Slightly Soluble

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· **Other information** No further relevant information available.

10 Stability and reactivity

· **Reactivity** No further relevant information available.
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** strong bases, strong oxidizing agents
· **Hazardous decomposition products:** carbon oxides, hydrogen chloride

11 Toxicological information

· **RTECS Number** KV9450000
· **Information on toxicological effects**
· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**		
Oral	LD50	880 mg/kg (rat)
	Intraperitoneal LD50	500 µg/kg (mouse)
	Intraperitoneal LD50	159 mg/kg (rat)

· **Primary irritant effect:**
· **on the skin:** No irritant effect.
· **on the eye:** No irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**

· **Carcinogenic categories**
· **IARC (International Agency for Research on Cancer)** Substance is not listed.
· **NTP (National Toxicology Program)** Substance is not listed.
· **OSHA-Ca (Occupational Safety & Health Administration)** Substance is not listed.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Ecotoxical effects:**
· **Remark:** Very toxic for fish
· **Additional ecological information:**
· **General notes:**
Water hazard class 3 (Assessment by list): extremely hazardous for water
Do not allow product to reach ground water, water course or sewage system, even in small quantities.
Danger to drinking water if even extremely small quantities leak into the ground.
Also poisonous for fish and plankton in water bodies.

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Very toxic for aquatic organisms
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packagings:**
· **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· **UN-Number**	
· **DOT, IMDG, IATA**	UN2811
· **UN proper shipping name**	
· **DOT**	Toxic solids, organic, n.o.s. (p,p'-DDE)
· **IMDG**	TOXIC SOLID, ORGANIC, N.O.S. (p,p'-DDE)
· **IATA**	Toxic solid, organic, n.o.s. (p,p'-DDE)
· **Transport hazard class(es)**	
· **DOT**	
· **Class**	6.1 Toxic substances
· **Label**	6.1
· **IMDG, IATA**	
· **Class**	6.1 Toxic substances
· **Label**	6.1
· **Packing group**	
· **DOT, IMDG, IATA**	III
· **Environmental hazards:**	Environmentally hazardous substance, solid
· **Special precautions for user**	Warning: Toxic substances
· **Hazard identification number (Kemler code):**	60
· **EMS Number:**	F-A,S-A

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· **Stowage Category**	A
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **DOT**	
· **Quantity limitations**	On passenger aircraft/rail: 100 kg On cargo aircraft only: 200 kg
· **Hazardous substance:**	1 lbs, 0.454 kg
· **IMDG**	
· **Limited quantities (LQ)**	5 kg
· **Excepted quantities (EQ)**	Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g
· **IATA**	
· **Remarks:**	When sold in quantities of less than or equal to 1 mL, or 1 g, with an Excepted Quantity Code of E1, E2, E4, or E5, this item meets the De Minimis Quantities exemption, per IATA 2.6.10. Therefore packaging does not have to be labeled as Dangerous Goods/Excepted Quantity.
· **UN "Model Regulation":**	UN 2811 TOXIC SOLID, ORGANIC, N.O.S. (P,P'-DDE), 6.1, III, ENVIRONMENTALLY HAZARDOUS

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
No further relevant information available.
· **Sara**
· **Section 355 (extremely hazardous substances):** Substance is not listed.
· **Section 313 (Specific toxic chemical listings):** Substance is not listed.
· **TSCA (Toxic Substances Control Act):** Substance is not listed.
· **Hazardous Air Pollutants** Substance is not listed.
· **Proposition 65**
· **Chemicals known to cause cancer:** Substance is listed.
· **Chemicals known to cause reproductive toxicity for females:** Substance is not listed.
· **Chemicals known to cause reproductive toxicity for males:** Substance is listed.
· **Chemicals known to cause developmental toxicity:** Substance is listed.

· **Carcinogenic categories**
· **EPA (Environmental Protection Agency)** B2
· **TLV (Threshold Limit Value)** Substance is not listed.
· **NIOSH-Ca (National Institute for Occupational Safety and Health)** Substance is not listed.
· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

All chemicals may pose unknown hazards and should be used with caution. This SDS applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. Cayman Chemical Company assumes no responsibility for incidental or consequential damages, including lost profits, arising from the use of

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these data. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Cayman Chemical Company assumes no responsibility for the completeness or accuracy of the information contained herein.

· **Department issuing SDS:** Environment protection department.
· **Contact:** -
· **Date of preparation / last revision** 01/15/2024
· **Abbreviations and acronyms:**
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Acute Toxicity - Oral 3: Acute toxicity – Category 3
Carcinogenicity 2: Carcinogenicity – Category 2
Specific Target Organ Toxicity - Repeated Exposure 1: Specific target organ toxicity (repeated exposure) – Category 1
Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1
Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1
· *** Data compared to the previous version altered.**

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acc. to OSHA HCS

Printing date 03/26/2019 Version Number 2 Reviewed on 03/26/2019

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1 Identification

· **Product identifier**

· **Trade name: p,p'-DDT**

· **Part number:** FRSP-180J
· **CAS Number:**
50-29-3
· **EC number:**
200-024-3
· **Index number:**
602-045-00-7
· **Application of the substance / the mixture** Reagents and Standards for Analytical Chemical Laboratory Use

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Agilent Technologies, Inc.
5301 Stevens Creek Blvd.
Santa Clara, CA 95051 USA

· **Information department:**
Telephone: 800-227-9770
e-mail: pdl-msds_author@agilent.com
· **Emergency telephone number:** CHEMTREC®: 1-800-424-9300

2 Hazard(s) identification

· **Classification of the substance or mixture**

GHS06 Skull and crossbones

Acute Tox. 3 H301 Toxic if swallowed.
Acute Tox. 3 H311 Toxic in contact with skin.

GHS08 Health hazard

Carc. 2 H351 Suspected of causing cancer.
STOT RE 1 H372 Causes damage to organs through prolonged or repeated exposure.

· **Label elements**
· **GHS label elements** The substance is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms**

GHS06

GHS08

· **Signal word** Danger

· **Hazard-determining components of labeling:**
DDT (common name not adopted by ISO)
· **Hazard statements**
Toxic if swallowed or in contact with skin.

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(Contd. of page 1)

Suspected of causing cancer.
Causes damage to organs through prolonged or repeated exposure.

· **Precautionary statements**
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Do not breathe dust/fume/gas/mist/vapors/spray.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear protective gloves/protective clothing/eye protection/face protection.
If swallowed: Immediately call a poison center/doctor.
Specific treatment (see on this label).
Rinse mouth.
If on skin: Wash with plenty of water.
IF exposed or concerned: Get medical advice/attention.
Call a poison center/doctor if you feel unwell.
Get medical advice/attention if you feel unwell.
Take off immediately all contaminated clothing and wash it before reuse.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 2
Fire = 2
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

Health = 2
Fire = 2
Reactivity = 0

· **Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Substances**
· **CAS No. Description**
50-29-3 DDT (common name not adopted by ISO)
· **Identification number(s)**
· **EC number:** 200-024-3
· **Index number:** 602-045-00-7

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4 First-aid measures

· **Description of first aid measures**
· **General information:**
Immediately remove any clothing soiled by the product.
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
In case of irregular breathing or respiratory arrest provide artificial respiration.
· **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
· **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
· **After swallowing:** Do not induce vomiting; immediately call for medical help.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **Special hazards arising from the substance or mixture**
During heating or in case of fire poisonous gases are produced.
· **Advice for firefighters**
· **Protective equipment:** Mouth respiratory protective device.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures** Mount respiratory protective device.
· **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
· **Methods and material for containment and cleaning up:**
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
· **Protective Action Criteria for Chemicals**

· **PAC-1:**
3 mg/m³
· **PAC-2:**
34 mg/m³
· **PAC-3:**
210 mg/m³

(Contd. on page 4)

(Contd. of page 3)

7 Handling and storage

· **Handling:**
· **Precautions for safe handling**
Thorough dedusting.
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
· **Information about protection against explosions and fires:** Keep respiratory protective device available.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** Keep receptacle tightly sealed.
· **Specific end use(s)** No further relevant information available.

*

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
50-29-3 DDT (common name not adopted by ISO)	
PEL	Long-term value: 1 mg/m³ Skin
REL	Long-term value: 0.5 mg/m³ See Pocket Guide App. A
TLV	Long-term value: 1 mg/m³

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the eyes and skin.
· **Breathing equipment:**
When used as intended with Agilent instruments, the use of the product under normal laboratory conditions and with standard practices does not result in significant airborne exposures and therefore respiratory protection is not needed.
Under an emergency condition where a respirator is deemed necessary, use a NIOSH or equivalent approved device/equipment with appropriate organic or acid gas cartridge.
· **Protection of hands:**
Although not recommended for constant contact with the chemicals or for clean-up, nitrile gloves 11-13 mil thickness are recommended for normal use. The breakthrough time is 1 hr. For cleaning a spill where there is direct contact of the chemical, butyl rubber gloves are recommended 12-15 mil thickness with breakthrough times exceeding 4 hrs. Supplier recommendations should be followed.

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· **Material of gloves**
For normal use: nitrile rubber, 11-13 mil thickness
For direct contact with the chemical: butyl rubber, 12-15 mil thickness
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
· **Penetration time of glove material**
For normal use: nitrile rubber: 1 hour
For direct contact with the chemical: butyl rubber: >4 hours
· **Eye protection:**

Tightly sealed goggles

*
9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Solid
Color:	Not determined.
· **Odor:**	Characteristic
· **Odor threshold:**	Not determined.
· **pH-value:**	Not applicable.
· **Change in condition**	
Melting point/Melting range:	107-110 °C (224.6-230 °F)
Boiling point/Boiling range:	260 °C (500 °F)
· **Flash point:**	72-77 °C (161.6-170.6 °F)
· **Flammability (solid, gaseous):**	Product is not flammable.
· **Decomposition temperature:**	Not determined.
· **Auto igniting:**	Not determined.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapor pressure at 20 °C (68 °F):**	0.0000016 hPa (0 mm Hg)
· **Density at 20 °C (68 °F):**	0.99 g/cm³ (8.26155 lbs/gal)
· **Relative density**	Not determined.
· **Vapor density**	Not applicable.
· **Evaporation rate**	Not applicable.
· **Solubility in / Miscibility with**	
Water at 20 °C (68 °F):	0.0000012 g/l
· **Partition coefficient (n-octanol/water):**	Not determined.

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(Contd. of page 5)

· **Viscosity:**	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
VOC content:	0.00 % 0.0 g/l / 0.00 lb/gal
Solids content:	100.0 %
· **Other information**	No further relevant information available.

10 Stability and reactivity

· **Reactivity** No further relevant information available.
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

ATE (Acute Toxicity Estimate)		
Oral	LD50	87 mg/kg (rat)
Dermal	LD50	300 mg/kg (rabbit)

50-29-3 DDT (common name not adopted by ISO)		
Oral	LD50	87 mg/kg (rat)
Dermal	LD50	2,510 mg/kg (rat)
		300 mg/kg (rabbit)

· **Primary irritant effect:**
· **on the skin:** No irritant effect.
· **on the eye:** No irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**
2A

· **NTP (National Toxicology Program)**
R

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acc. to OSHA HCS

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· **OSHA-Ca (Occupational Safety & Health Administration)**

Substance is not listed.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Additional ecological information:**
· **General notes:**
Water hazard class 3 (Assessment by list): extremely hazardous for water
Do not allow product to reach ground water, water course or sewage system, even in small quantities.
Danger to drinking water if even extremely small quantities leak into the ground.
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packagings:**
· **Recommendation:** Disposal must be made according to official regulations.

*
14 Transport information

· **UN-Number**
· **DOT, IMDG, IATA** UN2811

· **UN proper shipping name**
· **DOT** Toxic solids, organic, n.o.s. (DDT (common name not adopted by ISO))
· **IMDG, IATA** TOXIC SOLID, ORGANIC, N.O.S. (DDT (common name not adopted by ISO))

· **Transport hazard class(es)**

· **DOT, IMDG, IATA**

· **Class** 6.1 Toxic substances

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Trade name: p,p'-DDT

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· **Label**	6.1
· **Packing group** · **DOT, IMDG, IATA**	III
· **Environmental hazards:**	Not applicable.
· **Special precautions for user** · **Danger code (Kemler):** · **EMS Number:** · **Stowage Category**	Warning: Toxic substances 60 F-A,S-A A
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **DOT**	
· **Quantity limitations**	On passenger aircraft/rail: 100 kg On cargo aircraft only: 200 kg
· **Hazardous substance:**	1 lbs, 0.454 kg
· **IMDG**	
· **Limited quantities (LQ)**	5 kg
· **Excepted quantities (EQ)**	Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g
· **UN "Model Regulation":**	UN 2811 TOXIC SOLID, ORGANIC, N.O.S. (DDT (COMMON NAME NOT ADOPTED BY ISO)), 6.1, III, ENVIRONMENTALLY HAZARDOUS

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **Sara**

· **Section 355 (extremely hazardous substances):**
Substance is not listed.

· **Section 313 (Specific toxic chemical listings):**
Substance is not listed.

· **TSCA (Toxic Substances Control Act):**
Substance is listed.

· **TSCA new (21st Century Act): (Substances not listed)**

50-29-3	DDT (common name not adopted by ISO)

· **Proposition 65**

· **Chemicals known to cause cancer:**
Substance is listed.

· **Chemicals known to cause reproductive toxicity for females:**
Substance is listed.

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· **Chemicals known to cause reproductive toxicity for males:**
Substance is listed.

· **Chemicals known to cause developmental toxicity:**
Substance is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**
B2

· **TLV (Threshold Limit Value established by ACGIH)**
A3

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**
Substance is listed.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

*
16 Other information

The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

· **Date of preparation / last revision** 03/26/2019 / 1

· **Abbreviations and acronyms:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Acute Tox. 3: Acute toxicity – Category 3
Carc. 2: Carcinogenicity – Category 2
STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1

· *** Data compared to the previous version altered.**

SAFETY DATA SHEET

Version 5.5
Revision Date 06/02/2016
Print Date 11/17/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : δ-BHC

Product Number : 48495
Brand : Supelco
Index-No. : 602-042-00-0

CAS-No. : 319-86-8

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Dermal (Category 4), H312
Carcinogenicity (Category 2), H351
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H301 Toxic if swallowed.
H312 Harmful in contact with skin.
H351 Suspected of causing cancer.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.

P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER/doctor. Rinse mouth.
P302 + P352 + P312	IF ON SKIN: Wash with plenty of water.Call a POISON CENTER/doctor if you feel unwell.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	δ-1,2,3,4,5,6-Hexachlorocyclohexane
Formula	:	C6H6Cl6
Molecular weight	:	290.8 g/mol
CAS-No.	:	319-86-8
EC-No.	:	206-272-9
Index-No.	:	602-042-00-0

Hazardous components

Component	Classification	Concentration
1α,2α,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane		
	Acute Tox. 3; Acute Tox. 4; Carc. 2; Aquatic Acute 1; Aquatic Chronic 1; H301, H312, H351, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.
Hazardous components without workplace control parameters

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	No data available
f)	Initial boiling point and boiling range	No data available
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	No data available

n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 1,000 mg/kg

Inhalation: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

Limited evidence of carcinogenicity in animal studies

IARC: 2B - Group 2B: Possibly carcinogenic to humans (1α,2α,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)

NTP: Reasonably anticipated to be a human carcinogen (1α,2α,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: GV4550000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Central nervous system -

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - other fish - 2.83 mg/l - 96.0 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
Bioaccumulation other fish - 33 d
- 0.955 mg/l

Bioconcentration factor (BCF): 326

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substances, solid, n.o.s. (1α,2α,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)
Reportable Quantity (RQ): 1 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 3077 Class: 9 Packing group: III EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (1α,2α,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)
Marine pollutant:yes

IATA
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (1α,2α,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)

Further information
EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
1α,2α,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane	319-86-8	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
1α,2α,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane	319-86-8	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
1α,2α,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane	319-86-8	1993-04-24

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
1α,2α,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane	319-86-8	2015-08-14

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity

Carc.	Carcinogenicity
H301	Toxic if swallowed.
H312	Harmful in contact with skin.
H351	Suspected of causing cancer.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	1
Fire Hazard:	0
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.5 Revision Date: 06/02/2016 Print Date: 11/17/2016

SAFETY DATA SHEET

Version 6.9
Revision Date 03/04/2024
Print Date 07/13/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Dibenz[*a*,*h*]anthracene

Product Number : 48574
Brand : Supelco
Index-No. : 601-041-00-2
CAS-No. : 53-70-3

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Carcinogenicity (Category 1B), H350
Short-term (acute) aquatic hazard (Category 1), H400
Long-term (chronic) aquatic hazard (Category 1), H410

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For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal Word Danger

Hazard Statements

H350	May cause cancer.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary Statements

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms : 1,2:5,6-Dibenzanthracene

Formula : $C_{22}H_{14}$
Molecular weight : 278.35 g/mol
CAS-No. : 53-70-3
EC-No. : 200-181-8
Index-No. : 601-041-00-2

Component	Classification	Concentration
Dibenz[a,h]anthracene		
	Carc. 1B; Aquatic Acute 1; Aquatic Chronic 1; H350, H400, H410 Concentration limits: >= 0.01 %: Carc. 1B, H350; M-Factor - Aquatic Acute: 1 - Aquatic Chronic: 100	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

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SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

In case of eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Combustible.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Prevent fire extinguishing water from contaminating surface water or the ground water system.

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SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid generation and inhalation of dusts in all circumstances. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Dry. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Storage class
Storage class (TRGS 510): 6.1C: Combustible, acute toxic Cat.3 / toxic compounds or compounds which causing chronic effects

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

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Component	CAS-No.	Value	Control parameters	Basis
Dibenz[a,h]anthracene	53-70-3	PEL	0.2 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Dibenz[a,h]anthracene	53-70-3	1-Hydroxypyrene	2.5 µg/l	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift at end of workweek			
		3-hydroxybenzo(a)pyrene		Urine	ACGIH - Biological Exposure Indices (BEI)
		End of shift at end of workweek			

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This

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recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
protective clothing

Respiratory protection
Recommended Filter type: Filter type P3
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when dusts are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 262 - 265 °C (504 - 509 °F) - lit.
f)	Initial boiling point and boiling range	524 °C 975 °F - lit.
g)	Flash point	()Not applicable
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Density	No data available
	Relative density	No data available
n)	Water solubility	No data available

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o)	Partition coefficient: n-octanol/water	No data available
p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	none

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
Violent reactions possible with:
strong oxidising agents

10.4 Conditions to avoid
no information available

10.5 Incompatible materials
No data available

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Oral: No data available
Inhalation: No data available
Dermal: No data available

Skin corrosion/irritation
No data available

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Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity
Presumed to have carcinogenic potential for humans

IARC: 2A - Group 2A: Probably carcinogenic to humans (Dibenz[a,h]anthracene)

NTP: RAHC - Reasonably anticipated to be a human carcinogen (Dibenz[a,h]anthracene)

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

RTECS: HN2625000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Lungs -

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 0.496 mg/l - 48 h Remarks: (ECOTOX Database)
Toxicity to algae	NOEC - Raphidocelis subcapitata (freshwater green alga) - 0.00033 mg/l - 72 h Remarks: (ECOTOX Database)

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

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12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties
No data available

12.7 Other adverse effects
Discharge into the environment must be avoided.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Dibenz[a,h]anthracene)
Reportable Quantity (RQ): 1 lbs
Poison Inhalation Hazard: No

IMDG
UN number: 3077 Class: 9 Packing group: III EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Dibenz[a,h]anthracene)
Marine pollutant : yes
Marine pollutant : no

IATA
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Dibenz[a,h]anthracene)

Further information
EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

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SECTION 15: Regulatory information

SARA 302 Components
This material does not contain any components with a section 302 EHS TPQ.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Dibenz[a,h]anthracene	53-70-3	1993-02-16

SARA 311/312 Hazards
Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Dibenz[a,h]anthracene	53-70-3	1993-02-16

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Dibenz[a,h]anthracene	53-70-3	1993-02-16

California Prop. 65 Components

	CAS-No.	Revision Date
, which is/are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.Dibenz[a,h]anthracene	53-70-3	2007-09-28

SECTION 16: Other information

Further information
The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.
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Version: 6.9 Revision Date: 03/04/2024 Print Date: 07/13/2024

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SAFETY DATA SHEET

Version 3.7
Revision Date 11/25/2014
Print Date 01/29/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Dibenzofuran

Product Number : 236373
Brand : Aldrich

CAS-No. : 132-64-9

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 4), H302
Acute aquatic toxicity (Category 2), H401
Chronic aquatic toxicity (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Warning

Hazard statement(s)
H302 Harmful if swallowed.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
P391 Collect spillage.
P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms : Diphenylene oxide

Formula : $C_{12}H_8O$
Molecular weight : 168.19 g/mol
CAS-No. : 132-64-9
EC-No. : 205-071-3

Hazardous components

Component	Classification	Concentration
Dibenzofuran		
	Acute Tox. 4; Aquatic Acute 2; Aquatic Chronic 2; H302, H411	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Carbon oxides

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Storage class (TRGS 510): Non Combustible Solids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an

industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator.For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: crystalline Colour: white, beige
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 80 - 82 °C (176 - 180 °F) - lit.
f)	Initial boiling point and boiling range	154 - 155 °C (309 - 311 °F) at 27 hPa (20 mmHg) - lit.
g)	Flash point	130.0 °C (266.0 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	log Pow: 3.77
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
The preceding data, or interpretation of data, was determined using Quantitative Structure Activity Relationship (QSAR) modeling.

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: HP4430000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	NOEC - Cyprinodon variegatus (sheepshead minnow) - 1 mg/l - 96.0 h
	LC50 - Pimephales promelas (fathead minnow) - 1.05 mg/l - 96.0 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Dibenzofuran)
Reportable Quantity (RQ): 100 lbs
Marine pollutant:yes
Poison Inhalation Hazard: No

IMDG
UN number: 3077 Class: 9 Packing group: III EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Dibenzofuran)
Marine pollutant:yes

IATA
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Dibenzofuran)

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date

Dibenzofuran	132-64-9	2007-07-01

SARA 311/312 Hazards
Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Dibenzofuran	132-64-9	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Dibenzofuran	132-64-9	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Dibenzofuran	132-64-9	2007-07-01

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
H302	Harmful if swallowed.
H401	Toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	1
Chronic Health Hazard:	
Flammability:	1
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	1
Reactivity Hazard:	0

Further information
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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 3.7 Revision Date: 11/25/2014 Print Date: 01/29/2016

SAFETY DATA SHEET

Version 5.5
Revision Date 02/28/2015
Print Date 02/09/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Dieldrin

Product Number : 291218
Brand : Aldrich
Index-No. : 602-049-00-9

CAS-No. : 60-57-1

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 2), H300
Acute toxicity, Dermal (Category 3), H311
Carcinogenicity (Category 2), H351
Specific target organ toxicity - repeated exposure, Oral (Category 1), H372
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H300 Fatal if swallowed.
H311 Toxic in contact with skin.
H351 Suspected of causing cancer.
H372 Causes damage to organs through prolonged or repeated exposure if swallowed.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P201 Obtain special instructions before use.

P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing.
P281	Use personal protective equipment as required.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Rinse mouth.
P302 + P352 + P312	IF ON SKIN: Wash with plenty of soap and water. Call a POISON CENTER or doctor/ physician if you feel unwell.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P361	Remove/Take off immediately all contaminated clothing.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms : 1,2,3,4,10,10-Hexachloro-1,4,4a,5,6,7,8,8a-octahydro-6,7-epoxy-1,4:5,8-dimethanonaphthalene

Formula : $C_{12}H_8Cl_6O$

Molecular weight : 380.91 g/mol

CAS-No. : 60-57-1

EC-No. : 200-484-5

Index-No. : 602-049-00-9

Hazardous components

Component	Classification	Concentration
Dieldrin		
	Acute Tox. 2; Acute Tox. 3; Carc. 2; STOT RE 1; Aquatic Acute 1; Aquatic Chronic 1; H300, H311, H351, H372, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen chloride gas

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Storage class (TRGS 510): Non-combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Dieldrin	60-57-1	TWA	0.100000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Central Nervous System impairment Liver damage Reproductive effects Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption		

		TWA	0.250000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen See Appendix A Potential for dermal absorption		
		TWA	0.250000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Skin designation		

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odour	No data available
c)	Odour Threshold	No data available

d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 143 - 144 °C (289 - 291 °F)
f)	Initial boiling point and boiling range	No data available
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Mouse - 38.0 mg/kg

LD50 Oral - Dog - 65.0 mg/kg

LD50 Oral - Monkey - 3.0 mg/kg

LD50 Oral - Rabbit - 45.0 mg/kg

LD50 Oral - Pig - 38.0 mg/kg

LD50 Oral - Guinea pig - 49.0 mg/kg

LD50 Oral - Hamster - 60.0 mg/kg

LD50 Oral - Pigeon - 23.7 mg/kg

LD50 Oral - Chicken - 20.0 mg/kg
Remarks: Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Eye:Miosis (pupilliary constriction). Behavioral:Excitement. Behavioral:Food intake (animal).

LD50 Oral - Quail - 10.8 mg/kg
Remarks: Behavioral:Altered sleep time (including change in righting reflex). Behavioral:Somnolence (general depressed activity). Behavioral:Irritability.

LD50 Oral - Duck - 381.0 mg/kg

LD50 Oral - Mammal - 94.0 mg/kg
Remarks: Peripheral Nerve and Sensation:Flaccid paralysis without anesthesia (usually neuromuscular blockage). Behavioral:Tremor. Behavioral:Convulsions or effect on seizure threshold.

LD50 Oral - Bird (wild) - 13.3 mg/kg

LDLO Oral - Rat - 30.0 mg/kg
Remarks: Liver:Other changes.

LDLO Oral - Human - male - 65.0 mg/kg

LDLO Oral - Cat - 500 mg/kg
Remarks: Lungs, Thorax, or Respiration:Chronic pulmonary edema. Liver:Fatty liver degeneration. Kidney, Ureter, Bladder:Other changes.

TDLo Oral - Rat - 140 mg/kg
Remarks: Liver:Other changes. Blood:Other changes. Biochemical:Enzyme inhibition, induction, or change in blood or tissue levels: Other esterases.

TDLo Oral - Rat - 109 mg/kg
Remarks: Liver:Changes in liver weight.

TDLo Oral - Rat - 88 mg/kg
Remarks: Behavioral:Food intake (animal). Nutritional and Gross Metabolic:Weight loss or decreased weight gain. Biochemical:Enzyme inhibition, induction, or change in blood or tissue levels: Phosphatases.

Inhalation: No data available

LD50 Dermal - Rabbit - 250.0 mg/kg

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

Limited evidence of carcinogenicity in animal studies

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Dieldrin)

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
Ingestion - Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard
No data available

Additional Information
RTECS: IO1750000

Discomfort, Headache, Nausea, Vomiting, Dizziness, Tremors, tonic convulsions, clonic spasms, Coma., respiratory failure, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Blood - Irregularities - Based on Human Evidence
Blood - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	mortality LC50 - Carassius auratus (goldfish) - 1.6 µg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	Immobilization EC50 - Daphnia magna (Water flea) - 79.5 µg/l - 48 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2811 Class: 6.1 Packing group: I
Proper shipping name: Toxic solids, organic, n.o.s. (Dieldrin)
Reportable Quantity (RQ): 1 lbs
Marine pollutant:yes
Poison Inhalation Hazard: No

IMDG
UN number: 2811 Class: 6.1 Packing group: I EMS-No: F-A, S-A
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (Dieldrin)
Marine pollutant:yes

IATA
UN number: 2811 Class: 6.1 Packing group: I
Proper shipping name: Toxic solid, organic, n.o.s. (Dieldrin)
IATA Passenger: Not permitted for transport

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Dieldrin	60-57-1	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Dieldrin	60-57-1	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Dieldrin	60-57-1	1993-04-24

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer. Dieldrin	CAS-No. 60-57-1	Revision Date 2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
H300	Fatal if swallowed.
H311	Toxic in contact with skin.
H351	Suspected of causing cancer.
H372	Causes damage to organs through prolonged or repeated exposure if swallowed.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	4
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	0
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.5 Revision Date: 02/28/2015 Print Date: 02/09/2016

SAFETY DATA SHEET

1. Identification

Product identifier **DIESEL FUELS**

Other means of identification

SDS number 102-GHS

Synonyms Diesel Fuels All Grades, Diesel Fuel No.2, Fuel Oil No.2, High Sulfur Diesel Fuel, Low Sulfur Diesel Fuel, Ultra Low Sulfur Diesel Fuel, CARB (California Air Resource Board) Diesel Fuel, Off-Road Diesel Fuel, Dyed Diesel Fuel, X Grade Diesel Fuel, X-1 Diesel Fuel, R5 ULSD, B5 ULS D See section 16 for complete information.

Recommended use Motor Fuel
Refinery feedstock.

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer/Supplier Valero Marketing & Supply Company and Affiliates
One Valero Way
San Antonio, TX 78269-6000

General Assistance 210-345-4593

E-Mail CorpHSE@valero.com

Contact Person Industrial Hygienist

Emergency Telephone 24 Hour Emergency 866-565-5220
1-800-424-9300 (CHEMTREC USA)

2. Hazard(s) identification

Physical hazards	Flammable liquids	Category 3
Health hazards	Acute toxicity, inhalation	Category 4
	Skin corrosion/irritation	Category 2
	Carcinogenicity	Category 2
	Reproductive toxicity	Category 2
	Specific target organ toxicity, repeated exposure	Category 2
	Aspiration hazard	Category 1
Environmental hazards	Hazardous to the aquatic environment, long-term hazard	Category 2

OSHA defined hazards Not classified.

Label elements

Signal word Danger

Hazard statement Flammable liquid and vapor. Harmful if inhaled. Causes skin irritation. Suspected of causing cancer. Suspected of damaging fertility or the unborn child. May cause damage to organs (blood, thymus, liver) through prolonged or repeated exposure. May be fatal if swallowed and enters airways.

Precautionary statement

Prevention Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharges. Do not breathe mist/vapors/spray. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection. Use only outdoors or in a well-ventilated area.

Response	If skin irritation occurs: Get medical advice/attention. If inhaled: Remove person to fresh air and keep comfortable for breathing. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If exposed or concerned: Get medical advice/attention. If swallowed: Immediately call a poison center/doctor. Take off contaminated clothing and wash before reuse. In case of fire: Use foam, carbon dioxide, dry powder or water fog for extinction.
Storage	Store locked up. Store in a well-ventilated place. Keep cool.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	None known.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Fuels, diesel, no. 2	68476-34-6	85 - 100
Biodiesel - Fatty acid methyl esters	67762-38-3	0 - 10
Fuels, diesel, C9-18-alkane branched and linear	1159170-26-9	0 - 5
n-Nonane	111-84-2	1 - 3
Octane (All isomers)	111-65-9	1 - 2
Hexane (Other isomers)	96-14-0	0 - 1
Naphthalene	91-20-3	0 - 1
n-Heptane	142-82-5	0 - 1
n-Hexane	110-54-3	0 - 1

4. First-aid measures

Inhalation	Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.
Skin contact	Remove contaminated clothing and shoes. Wash off immediately with soap and plenty of water. Get medical attention if irritation develops or persists. Wash clothing separately before reuse. Destroy or thoroughly clean contaminated shoes. If high pressure injection under the skin occurs, always seek medical attention.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention.
Ingestion	Rinse mouth thoroughly. Do not induce vomiting without advice from poison control center. Do not give mouth-to-mouth resuscitation. If vomiting occurs, keep head low so that stomach content does not get into the lungs. Never give anything by mouth to a victim who is unconscious or is having convulsions. Get medical attention immediately.
Most important symptoms/effects, acute and delayed	Irritation of nose and throat. Irritation of eyes and mucous membranes. Skin irritation. Unconsciousness. Corneal damage. Narcosis. Decrease in motor functions. Behavioral changes. Edema. Liver enlargement. Jaundice. Conjunctivitis. Proteinuria. Defatting of the skin. Rash. The toxicological properties of this product have not been thoroughly investigated. Use appropriate precautions. Hydrogen sulfide, a highly toxic gas, may be present. Signs and symptoms of overexposure to hydrogen sulfide include respiratory and eye irritation, dizziness, nausea, coughing, a sensation of dryness and pain in the nose, and loss of consciousness. Odor does not provide a reliable indicator of the presence of hazardous levels in the atmosphere.
Indication of immediate medical attention and special treatment needed	In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed. The toxicological properties of this material have not been fully investigated.
General information	If exposed or concerned: get medical attention/advice. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before re-use.

5. Fire-fighting measures

Suitable extinguishing media	Water spray. Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media	Do not use a solid water stream as it may scatter and spread fire.
Specific hazards arising from the chemical	The product is flammable, and heating may generate vapors which may form explosive vapor/air mixtures. Thermal decomposition or combustion may liberate toxic gases or fumes.
Special protective equipment and precautions for firefighters	Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.
Fire-fighting equipment/instructions	Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask. Withdraw immediately in case of rising sound from venting safety devices or any discoloration of tanks due to fire. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Move containers from fire area if you can do it without risk. In the event of fire, cool tanks with water spray. Cool containers exposed to flames with water until well after the fire is out. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn. Water runoff can cause environmental damage. Use compatible foam to minimize vapor generation as needed.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Local authorities should be advised if significant spills cannot be contained. Keep upwind. Keep out of low areas. Ventilate closed spaces before entering. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. See Section 8 of the SDS for Personal Protective Equipment.
Methods and materials for containment and cleaning up	Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Local authorities should be advised if significant spillages cannot be contained. Stop leak if you can do so without risk. This material is a water pollutant and should be prevented from contaminating soil or from entering sewage and drainage systems and bodies of water. Dike the spilled material, where this is possible. Prevent entry into waterways, sewers, basements or confined areas. Use non-sparking tools and explosion-proof equipment. Small Spills: Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination. This material and its container must be disposed of as hazardous waste. Large Spills: Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Prevent product from entering drains. Do not allow material to contaminate ground water system. Should not be released into the environment. Clean up in accordance with all applicable regulations.
Environmental precautions	If facility or operation has an "oil or hazardous substance contingency plan", activate its procedures. Stay upwind and away from spill. Wear appropriate protective equipment including respiratory protection as conditions warrant. Do not enter or stay in area unless monitoring indicates that it is safe to do so. Isolate hazard area and restrict entry to emergency crew. Flammable. Review Firefighting Measures, Section 5, before proceeding with clean up. Keep all sources of ignition (flames, smoking, flares, etc.) and hot surfaces away from release. Contain spill in smallest possible area. Recover as much product as possible (e.g. by vacuuming). Stop leak if it can be done without risk. Use water spray to disperse vapors. Use compatible foam to minimize vapor generation as needed. Spilled material may be absorbed by an appropriate absorbent, and then handled in accordance with environmental regulations. Prevent spilled material from entering sewers, storm drains, other unauthorized treatment or drainage systems and natural waterways. Contact fire authorities and appropriate federal, state and local agencies. If spill of any amount is made into or upon navigable waters, the contiguous zone, or adjoining shorelines, contact the National Response Center at 1-800-424-8802. For highway or railways spills, contact Chemtrec at 1-800-424-9300.

7. Handling and storage

Precautions for safe handling	Eliminate sources of ignition. Avoid spark promoters. Ground/bond container and equipment. These alone may be insufficient to remove static electricity. Wear personal protective equipment. Avoid breathing mist/vapors/spray. Avoid contact with eyes, skin, and clothing. Do not taste or swallow. Avoid prolonged exposure. Use only with adequate ventilation. Wash thoroughly after handling. The product is combustible, and heating may generate vapors which may form explosive vapor/air mixtures. DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. When using, do not eat, drink or smoke. Avoid release to the environment.

Conditions for safe storage, including any incompatibilities	Flammable liquid storage. Do not handle or store near an open flame, heat or other sources of ignition. This material can accumulate static charge which may cause spark and become an ignition source. The pressure in sealed containers can increase under the influence of heat. Keep container tightly closed in a cool, well-ventilated place. Keep away from food, drink and animal feedingstuffs. Keep out of the reach of children.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Naphthalene (CAS 91-20-3)	PEL	50 mg/m3
		10 ppm
n-Heptane (CAS 142-82-5)	PEL	2000 mg/m3
		500 ppm
n-Hexane (CAS 110-54-3)	PEL	1800 mg/m3
		500 ppm
Octane (All isomers) (CAS 111-65-9)	PEL	2350 mg/m3
		500 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Fuels, diesel, no. 2 (CAS 68476-34-6)	TWA	100 mg/m3	Inhalable fraction and vapor.
Hexane (Other isomers) (CAS 96-14-0)	STEL	1000 ppm	
	TWA	500 ppm	
Naphthalene (CAS 91-20-3)	STEL	15 ppm	
	TWA	10 ppm	
n-Heptane (CAS 142-82-5)	STEL	500 ppm	
	TWA	400 ppm	
n-Hexane (CAS 110-54-3)	TWA	50 ppm	
n-Nonane (CAS 111-84-2)	TWA	200 ppm	
Octane (All isomers) (CAS 111-65-9)	TWA	300 ppm	

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Hexane (Other isomers) (CAS 96-14-0)	Ceiling	1800 mg/m3
		510 ppm
	TWA	350 mg/m3
		100 ppm
Naphthalene (CAS 91-20-3)	STEL	75 mg/m3
		15 ppm
	TWA	50 mg/m3
		10 ppm
n-Heptane (CAS 142-82-5)	Ceiling	1800 mg/m3
		440 ppm
	TWA	350 mg/m3
		85 ppm
n-Hexane (CAS 110-54-3)	TWA	180 mg/m3
		50 ppm
n-Nonane (CAS 111-84-2)	TWA	1050 mg/m3
		200 ppm
Octane (All isomers) (CAS 111-65-9)	Ceiling	1800 mg/m3
		385 ppm
	TWA	350 mg/m3
		75 ppm

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
n-Hexane (CAS 110-54-3)	0.4 mg/l	2,5-Hexanedion, without hydrolysis	Urine	*
	0.4 mg/l	2,5-Hexanedi - on, without hydrolysis		*

* - For sampling details, please see the source document.

Exposure guidelines

US - California OELs: Skin designation

n-Hexane (CAS 110-54-3) Can be absorbed through the skin.

US ACGIH Threshold Limit Values: Skin designation

Fuels, diesel, no. 2 (CAS 68476-34-6) Can be absorbed through the skin.
Naphthalene (CAS 91-20-3) Can be absorbed through the skin.
n-Hexane (CAS 110-54-3) Can be absorbed through the skin.

Appropriate engineering controls Provide adequate general and local exhaust ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Use explosion-proof equipment.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses. If splash potential exists, wear full face shield or chemical goggles.

Skin protection

Hand protection Wear chemical-resistant, impervious gloves. Suitable gloves can be recommended by the glove supplier. Be aware that the liquid may penetrate the gloves. Frequent change is advisable.

Other Full body suit and boots are recommended when handling large volumes or in emergency situations. Flame retardant protective clothing is recommended.

Respiratory protection Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. If workplace exposure limits for product or components are exceeded, NIOSH approved equipment should be worn. Proper respirator selection should be determined by adequately trained personnel, based on the contaminants, the degree of potential exposure and published respiratory protection factors. This equipment should be available for nonroutine and emergency use.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations Consult supervisor for special handling instructions. Avoid contact with eyes. Avoid contact with skin. Keep away from food and drink. Wash hands before breaks and immediately after handling the product. Provide eyewash station and safety shower. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance Liquid (may be dyed red).

Physical state Liquid.

Form Liquid.

Color Clear. Straw.

Odor Kerosene (strong).

Odor threshold Not available.

pH Not available.

Melting point/freezing point -60.07 °F (-51.15 °C) Estimated

Initial boiling point and boiling range 325 - 700 °F (162.78 - 371.11 °C)

Flash point > 100.0 °F (> 37.8 °C) Closed Cup

Evaporation rate 0.02

Flammability (solid, gas) Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%)	0.4 %
Flammability limit - upper (%)	8 %
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	< 1 mm Hg (20°C)
Vapor density	3 (Air = 1)
Relative density	0.82 - 0.87
Relative density temperature	60 °F (15.56 °C)
Solubility(ies)	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	494.96 °F (257.2 °C)
Decomposition temperature	Not available.
Viscosity	2 - 4.5 mm²/s

10. Stability and reactivity

Reactivity	Stable at normal conditions.
Chemical stability	Stable under normal temperature conditions and recommended use.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Heat, flames and sparks. Ignition sources. Contact with incompatible materials. Do not pressurize, cut, weld, braze, solder, drill, grind or expose empty containers to heat, flame, sparks, static electricity, or other sources of ignition; they may explode and cause injury or death.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Ingestion	May be fatal if swallowed and enters airways.
Inhalation	Harmful if inhaled. In high concentrations, vapors and spray mists are narcotic and may cause headache, fatigue, dizziness and nausea.
Skin contact	Causes skin irritation.
Eye contact	May cause eye irritation.
Symptoms related to the physical, chemical and toxicological characteristics	Irritation of nose and throat. Irritation of eyes and mucous membranes. Skin irritation. Unconsciousness. Corneal damage. Narcosis. Decrease in motor functions. Behavioral changes. Edema. Liver enlargement. Jaundice. Conjunctivitis. Proteinuria. Defatting of the skin. Rash. The toxicological properties of this product have not been thoroughly investigated. Use appropriate precautions.

Information on toxicological effects

Acute toxicity	Harmful if inhaled. Harmful: may cause lung damage if swallowed. The toxicological properties of this material have not been fully investigated.

Components	**Species**	**Test Results**
Fuels, diesel, no. 2 (CAS 68476-34-6)		
Acute		
Inhalation		
LC50	Rat	4.1 mg/l, 4 hours

Components	Species	Test Results
Naphthalene (CAS 91-20-3)		
Acute		
Dermal		
LD50	Rabbit	> 2 g/kg
Oral		
LD50	Rat	490 mg/kg
n-Heptane (CAS 142-82-5)		
Acute		
Inhalation		
LC50	Rat	103 mg/l, 4 Hours
n-Hexane (CAS 110-54-3)		
Acute		
Oral		
LD50	Rat	28710 mg/kg
n-Nonane (CAS 111-84-2)		
Acute		
Inhalation		
LC50	Rat	3200 mg/l, 4 Hours
Octane (All isomers) (CAS 111-65-9)		
Acute		
Inhalation		
LC50	Rat	118 mg/l, 4 Hours

Skin corrosion/irritation Causes skin irritation.

Serious eye damage/eye irritation Based on available data, the classification criteria are not met.

Respiratory or skin sensitization

Respiratory sensitization Based on available data, the classification criteria are not met.

Skin sensitization Based on available data, the classification criteria are not met.

Germ cell mutagenicity Based on available data, the classification criteria are not met.

Carcinogenicity Suspected of causing cancer.
International Agency for Research on Cancer (IARC): Whole diesel engine exhaust – IARC Group 1. Exposure may cause lung cancer and also noted a positive association with an increased risk of bladder cancer.
Diesel exhaust has been reported to be an occupational hazard due to NIOSH-reported potential carcinogenic properties.

IARC Monographs. Overall Evaluation of Carcinogenicity

Fuels, diesel, no. 2 (CAS 68476-34-6)	3 Not classifiable as to carcinogenicity to humans.
Naphthalene (CAS 91-20-3)	2B Possibly carcinogenic to humans.

NTP Report on Carcinogens

Naphthalene (CAS 91-20-3)	Reasonably Anticipated to be a Human Carcinogen.

Reproductive toxicity Suspected of damaging fertility or the unborn child.
Napthalene interferes with embryo development in experimental animals at dose levels that cause maternal toxicity. In humans, excessive exposure to this agent may cause hemolytic anemia in the mother and fetus.

Specific target organ toxicity - single exposure Based on available data, the classification criteria are not met.

Specific target organ toxicity - repeated exposure May cause damage to the following organs through prolonged or repeated exposure: Blood. Liver. Thymus.

Aspiration hazard May be fatal if swallowed and enters airways.

Chronic effects Contains organic solvents which in case of overexposure may depress the central nervous system causing dizziness and intoxication. Repeated exposure to naphthalene may cause cataracts, allergic skin rashes, destruction of red blood cells, and anemia, jaundice, kidney and liver damage. Danger of serious damage to health by prolonged exposure. Prolonged or repeated overexposure may cause central nervous system, kidney, liver, and lung damage.

Further information Symptoms may be delayed. Hydrogen sulfide, a highly toxic gas, may be present. Signs and symptoms of overexposure to hydrogen sulfide include respiratory and eye irritation, dizziness, nausea, coughing, a sensation of dryness and pain in the nose, and loss of consciousness. Odor does not provide a reliable indicator of the presence of hazardous levels in the atmosphere. Toxicological properties of this material have not been fully investigated.

12. Ecological information

Ecotoxicity Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Components		Species	Test Results
Fuels, diesel, no. 2 (CAS 68476-34-6)			
Aquatic			
Acute			
Crustacea	EL50	Daphnia magna	68 mg/l, 48 hours
Fish	LL50	Oncorhynchus mykiss	65 mg/l, 96 hours
Naphthalene (CAS 91-20-3)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	1.09 - 3.4 mg/l, 48 hours
Fish	LC50	Pink salmon (Oncorhynchus gorbuscha)	0.95 - 1.62 mg/l, 96 hours
n-Heptane (CAS 142-82-5)			
Aquatic			
Fish	LC50	Western mosquitofish (Gambusia affinis)	4924 mg/l, 96 hours
n-Hexane (CAS 110-54-3)			
Aquatic			
Fish	LC50	Fathead minnow (Pimephales promelas)	2.101 - 2.981 mg/l, 96 hours

Persistence and degradability Not available.

Bioaccumulative potential Not available.

Partition coefficient n-octanol / water (log Kow)

Hexane (Other isomers) (CAS 96-14-0)	3.6
Octane (All isomers) (CAS 111-65-9)	5.18
n-Heptane (CAS 142-82-5)	4.66
n-Hexane (CAS 110-54-3)	3.9
n-Nonane (CAS 111-84-2)	5.46

Mobility in soil Not available.

Other adverse effects Not available.

13. Disposal considerations

Disposal instructions Dispose in accordance with all applicable regulations. This material and its container must be disposed of as hazardous waste. Dispose of this material and its container to hazardous or special waste collection point. Incinerate the material under controlled conditions in an approved incinerator. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container.

Hazardous waste code D001: Waste Flammable material with a flash point <140 °F

US RCRA Hazardous Waste U List: Reference

Naphthalene (CAS 91-20-3)	U165

Waste from residues / unused products Dispose of in accordance with local regulations.

Contaminated packaging Offer rinsed packaging material to local recycling facilities.

14. Transport information

DOT

UN number UN1202

UN proper shipping name Diesel fuel

Transport hazard class(es)

Class Combustible Liquid

Subsidiary risk -

Packing group III

Environmental hazards

Marine pollutant	Yes
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	144, B1, IB3, T2, TP1
Packaging exceptions	150
Packaging non bulk	203
Packaging bulk	242

IATA

UN number	UN1202
UN proper shipping name	Diesel fuel
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
Packing group	III
Environmental hazards	Yes
ERG Code	3L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN1202
UN proper shipping name	DIESEL FUEL
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
Packing group	III
Environmental hazards	
Marine pollutant	Yes
EmS	F-E, S-E
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable. However, this product is a liquid and if transported in bulk covered under MARPOL 73/78, Annex I.

15. Regulatory information

US federal regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

n-Nonane (CAS 111-84-2)	1.0 % One-Time Export Notification only.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)

Hexane (Other isomers) (CAS 96-14-0)	LISTED
Naphthalene (CAS 91-20-3)	LISTED
n-Heptane (CAS 142-82-5)	LISTED
n-Hexane (CAS 110-54-3)	LISTED
n-Nonane (CAS 111-84-2)	LISTED
Octane (All isomers) (CAS 111-65-9)	LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories	Immediate Hazard - No Delayed Hazard - No Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical	Yes

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Naphthalene	91-20-3	0 - 1

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Naphthalene (CAS 91-20-3)
n-Hexane (CAS 110-54-3)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

US. Massachusetts RTK - Substance List

Hexane (Other isomers) (CAS 96-14-0)
Naphthalene (CAS 91-20-3)
n-Heptane (CAS 142-82-5)
n-Hexane (CAS 110-54-3)
n-Nonane (CAS 111-84-2)
Octane (All isomers) (CAS 111-65-9)

US. New Jersey Worker and Community Right-to-Know Act

Fuels, diesel, no. 2 (CAS 68476-34-6)
Naphthalene (CAS 91-20-3)
n-Heptane (CAS 142-82-5)
n-Hexane (CAS 110-54-3)
n-Nonane (CAS 111-84-2)
Octane (All isomers) (CAS 111-65-9)

US. Pennsylvania Worker and Community Right-to-Know Law

Fuels, diesel, no. 2 (CAS 68476-34-6)
Hexane (Other isomers) (CAS 96-14-0)
Naphthalene (CAS 91-20-3)
n-Heptane (CAS 142-82-5)
n-Hexane (CAS 110-54-3)
n-Nonane (CAS 111-84-2)
Octane (All isomers) (CAS 111-65-9)

US. Rhode Island RTK

Naphthalene (CAS 91-20-3)
n-Hexane (CAS 110-54-3)

US. California Proposition 65

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

Benzene (CAS 71-43-2)
Toluene (CAS 108-88-3)

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	No
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	No
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	No
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No

Country(s) or region	Inventory name	On inventory (yes/no)*
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

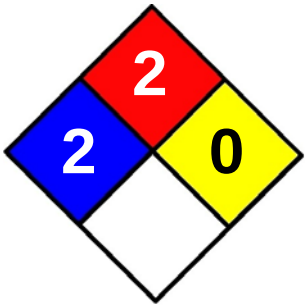
Issue date 13-May-2013

Revision date 23-May-2014

Version # 04

Further information HMIS® is a registered trade and service mark of the NPCA.

NFPA Ratings



Disclaimer This material Safety Data Sheet (SDS) was prepared in accordance with 29 CFR 1910.1200 by Valero Marketing & Supply Co., ("VALERO"). VALERO does not assume any liability arising out of product use by others. The information, recommendations, and suggestions presented in this SDS are based upon test results and data believed to be reliable. The end user of the product has the responsibility for evaluating the adequacy of the data under the conditions of use, determining the safety, toxicity and suitability of the product under these conditions, and obtaining additional or clarifying information where uncertainty exists. No guarantee expressed or implied is made as to the effects of such use , the results to be obtained, or the safety and toxicity of the product in any specific application. Furthermore, the information herein is not represented as absolutely complete, since it is not practicable to provide all the scientific and study information in the format of this document, plus additional information may be necessary under exceptional conditions of use, or because of applicable laws or government regulations.

SAFETY DATA SHEET

Version 4.8
Revision Date 06/09/2016
Print Date 11/14/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Endosulfan I (alpha)

Product Number : 48576
Brand : Supelco

CAS-No. : 959-98-8

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 2), H300
Acute toxicity, Inhalation (Category 2), H330
Acute toxicity, Dermal (Category 4), H312
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H300 + H330 Fatal if swallowed or if inhaled
H312 Harmful in contact with skin.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.

P280	Wear protective gloves/ protective clothing.
P284	Wear respiratory protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER/doctor. Rinse mouth.
P302 + P352 + P312	IF ON SKIN: Wash with plenty of water.Call a POISON CENTER/doctor if you feel unwell.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	C9H6Cl6O3S
Molecular weight	:	406.93 g/mol
CAS-No.	:	959-98-8

Hazardous components

Component	Classification	Concentration
Endosulfan (α isomer)		
	Acute Tox. 2; Acute Tox. 4; Aquatic Acute 1; Aquatic Chronic 1; H300 + H330, H312, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.
Hazardous components without workplace control parameters

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm

Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: crystalline Colour: white
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	108.0 - 110.0 °C (226.4 - 230.0 °F)
f)	Initial boiling point and boiling range	No data available
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	insoluble
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available

q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Sulphur oxides, Hydrogen chloride gas
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

12. ECOLOGICAL INFORMATION

12.1 Toxicity

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
Bioaccumulation other fish - 21 d
- 0.2 µg/l

Bioconcentration factor (BCF): 10,994

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solids, organic, n.o.s. (Endosulfan (α isomer))
Reportable Quantity (RQ): 1 lbs
Marine pollutant:yes
Poison Inhalation Hazard: No

IMDG
UN number: 2811 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (Endosulfan (α isomer))

IATA

UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solid, organic, n.o.s. (Endosulfan (α isomer))

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Endosulfan (α isomer)	959-98-8	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Endosulfan (α isomer)	959-98-8	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Endosulfan (α isomer)	959-98-8	1993-04-24

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
H300	Fatal if swallowed.
H300 + H330	Fatal if swallowed or if inhaled
H312	Harmful in contact with skin.
H330	Fatal if inhaled.

HMIS Rating

Health hazard:	4
Chronic Health Hazard:	
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	4
Fire Hazard:	0
Reactivity Hazard:	0

Further information
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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.8 Revision Date: 06/09/2016 Print Date: 11/14/2016

SAFETY DATA SHEET

Version 5.2
Revision Date 06/27/2014
Print Date 11/17/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Endosulfan II (beta)

Product Number : 48578
Brand : Supelco

CAS-No. : 33213-65-9

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 3), H301
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H301 Toxic if swallowed.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P321 Specific treatment (see supplemental first aid instructions on this label).
P330 Rinse mouth.
P391 Collect spillage.
P405 Store locked up.

P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms : β-Endosulfan

Formula : C9H6Cl6O3S
Molecular Weight : 406.93 g/mol
CAS-No. : 33213-65-9

Hazardous components

Component	Classification	Concentration
β-Endosulfan		
	Acute Tox. 3; Aquatic Acute 1; Aquatic Chronic 1; H301, H410	-

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
no data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Sulphur oxides, Hydrogen chloride gas

5.3 Advice for firefighters
Wear self contained breathing apparatus for fire fighting if necessary.

5.4 Further information
no data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.Normal measures for preventive fire protection.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N99 (US) or type P2 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odour	no data available
c)	Odour Threshold	no data available
d)	pH	no data available
e)	Melting point/freezing point	no data available
f)	Initial boiling point and boiling range	no data available
g)	Flash point	no data available
h)	Evapouration rate	no data available
i)	Flammability (solid, gas)	no data available
j)	Upper/lower flammability or explosive limits	no data available
k)	Vapour pressure	no data available
l)	Vapour density	no data available
m)	Relative density	no data available
n)	Water solubility	no data available
o)	Partition coefficient: n-octanol/water	no data available
p)	Auto-ignition temperature	no data available
q)	Decomposition temperature	no data available
r)	Viscosity	no data available
s)	Explosive properties	no data available
t)	Oxidizing properties	no data available

9.2 Other safety information
no data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
no data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
no data available

10.4 Conditions to avoid
no data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - no data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - rat - 240.0 mg/kg

Inhalation: no data available

Dermal: no data available

no data available

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
no data available

Respiratory or skin sensitisation
no data available

Germ cell mutagenicity
no data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
no data available

no data available

Specific target organ toxicity - single exposure
no data available

Specific target organ toxicity - repeated exposure
no data available

Aspiration hazard
no data available

Additional Information
RTECS: RB9875200

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Kidney -

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - other fish - 0.0066 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	LC50 - Daphnia magna (Water flea) - > 0.1 - < 1 mg/l - 48 h

12.2 Persistence and degradability
no data available

12.3 Bioaccumulative potential
Bioaccumulation other fish - 21 d
- 0.0001 mg/l

Bioconcentration factor (BCF): 9,908

12.4 Mobility in soil
no data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solids, organic, n.o.s. (β-Endosulfan)
Reportable Quantity (RQ): 1 lbs
Marine pollutant: Marine pollutant
Poison Inhalation Hazard: No

IMDG
UN number: 2811 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (β-Endosulfan)
Marine pollutant: No

IATA
UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solid, organic, n.o.s. (β-Endosulfan)

15. REGULATORY INFORMATION

SARA 302 Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
β-Endosulfan	33213-65-9	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
β-Endosulfan	33213-65-9	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
β-Endosulfan	33213-65-9	1993-04-24

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
H301	Toxic if swallowed.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	0
Reactivity Hazard:	0

Further information
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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.2 Revision Date: 06/27/2014 Print Date: 11/17/2016

SAFETY DATA SHEET

Version 5.1
Revision Date 06/27/2014
Print Date 04/20/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Endosulfan sulfate

Product Number : 36676
Brand : Sigma

CAS-No. : 1031-07-8

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 2), H300
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H300 Fatal if swallowed.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P321 Specific treatment (see supplemental first aid instructions on this label).
P330 Rinse mouth.
P391 Collect spillage.
P405 Store locked up.

P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula : $C_9H_6Cl_6O_4S$
Molecular Weight : 422.92 g/mol
CAS-No. : 1031-07-8

Hazardous components

Component	Classification	Concentration
Endosulfan sulfate		
	Acute Tox. 2; Aquatic Acute 1; Aquatic Chronic 1; H300, H410	-

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
no data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Sulphur oxides

5.3 Advice for firefighters
Wear self contained breathing apparatus for fire fighting if necessary.

5.4 Further information
no data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.Normal measures for preventive fire protection.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odour	no data available
c)	Odour Threshold	no data available
d)	pH	no data available
e)	Melting point/freezing point	179.0 - 182.0 °C (354.2 - 359.6 °F)
f)	Initial boiling point and boiling range	no data available
g)	Flash point	no data available
h)	Evapouration rate	no data available
i)	Flammability (solid, gas)	no data available
j)	Upper/lower flammability or explosive limits	no data available
k)	Vapour pressure	no data available
l)	Vapour density	no data available
m)	Relative density	no data available
n)	Water solubility	insoluble
o)	Partition coefficient: n-octanol/water	log Pow: 3.66
p)	Auto-ignition temperature	no data available
q)	Decomposition temperature	no data available
r)	Viscosity	no data available
s)	Explosive properties	no data available
t)	Oxidizing properties	no data available

9.2 Other safety information
no data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
no data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
no data available

10.4 Conditions to avoid
no data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - no data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - rat - 18.0 mg/kg

Inhalation: no data available

Dermal: no data available

no data available

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
no data available

Respiratory or skin sensitisation
no data available

Germ cell mutagenicity
no data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
no data available

no data available

Specific target organ toxicity - single exposure
no data available

Specific target organ toxicity - repeated exposure
no data available

Aspiration hazard
no data available

Additional Information
RTECS: RB9150000

Cholinesterase inhibitors can cause heavy salivation and secretion in the lungs, lachrymation, blurred vision, involuntary defecation, diarrhea, tremor, ataxia, sweating, hypothermia, lowered heart rate, and/or a fall in blood pressure as a result of their action at cholinergic nerve sites., Headache, Nausea, Vomiting, Dizziness, Drowsiness, Confusion., Weakness, Muscle cramps/spasms., Change in pupil size., Fever, Seizures., Incoordination., Convulsions, Coma.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Carassius auratus (goldfish) - > 0.01 - < 0.1 mg/l - 48.0 h
	LC50 - Leuciscus idus (Golden orfe) - > 0.01 - < 0.1 mg/l - 48.0 h
	LC50 - other fish - > 0.001 - < 0.01 mg/l - 48.0 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 0.76 mg/l - 48 h
	LC50 - Daphnia magna (Water flea) - > 0.1 - < 1 mg/l - 48 h

12.2 Persistence and degradability
no data available

12.3 Bioaccumulative potential
no data available

12.4 Mobility in soil
no data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2811 Class: 6.1 Packing group: II
Proper shipping name: Toxic solids, organic, n.o.s. (Endosulfan sulfate)
Reportable Quantity (RQ): 1 lbs
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN number: 2811 Class: 6.1 Packing group: II EMS-No: F-A, S-A
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (Endosulfan sulfate)
Marine pollutant: No

IATA
UN number: 2811 Class: 6.1 Packing group: II
Proper shipping name: Toxic solid, organic, n.o.s. (Endosulfan sulfate)

15. REGULATORY INFORMATION

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Endosulfan sulfate	1031-07-8	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Endosulfan sulfate	1031-07-8	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Endosulfan sulfate	1031-07-8	1993-04-24

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
H300	Fatal if swallowed.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	3
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	3
Fire Hazard:	0
Reactivity Hazard:	0

Further information
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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.1 Revision Date: 06/27/2014 Print Date: 04/20/2016

SAFETY DATA SHEET

Version 5.5
Revision Date 08/09/2016
Print Date 07/31/2019

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name	:	Endrin
Product Number	:	49032
Brand	:	Supelco
Index-No.	:	602-051-00-X
CAS-No.	:	72-20-8

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses	:	Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company	:	Sigma-Aldrich 3050 Spruce Street SAINT LOUIS MO 63103 USA
Telephone	:	+1 800-325-5832
Fax	:	+1 800-325-5052

1.4 Emergency telephone number

Emergency Phone #	:	+1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 1), H300
Acute toxicity, Dermal (Category 2), H310
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word: Danger

Hazard statement(s)

H300 + H310	Fatal if swallowed or in contact with skin
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P262	Do not get in eyes, on skin, or on clothing.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER/doctor. Rinse

	mouth.
P302 + P350 + P310	IF ON SKIN: Gently wash with plenty of soap and water. Immediately call a POISON CENTER or doctor/ physician.
P361	Remove/Take off immediately all contaminated clothing.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	$C_{12}H_8Cl_6O$
Molecular weight	:	380.91 g/mol
CAS-No.	:	72-20-8
EC-No.	:	200-775-7
Index-No.	:	602-051-00-X

Hazardous components

Component	Classification	Concentration
Endrin		
	Acute Tox. 1; Acute Tox. 2; Aquatic Acute 1; Aquatic Chronic 1; H300 + H310, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

Recommended storage temperature 2 - 8 °C

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Endrin	72-20-8	TWA	0.100000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Central Nervous System impairment Headache Liver damage Not classifiable as a human carcinogen Danger of cutaneous absorption		
		TWA	0.100000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential for dermal absorption		
		TWA	0.100000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Skin designation		

		PEL	0.1 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		Skin		

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	No data available

f)	Initial boiling point and boiling range	No data available
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	insoluble
o)	Partition coefficient: n-octanol/water	log Pow: 5.20
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	226.0 °C (438.8 °F) -
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 3.0 mg/kg

Inhalation: No data available

LD50 Dermal - Rabbit - 60.0 mg/kg

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Central nervous system -

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Oncorhynchus mykiss (rainbow trout) - < 0.001 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia pulex (Water flea) - 0.02 mg/l - 48 h
	Immobilization EC50 - Daphnia magna (Water flea) - 0.0042 mg/l - 48 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
Bioaccumulation: Pimephales promelas (fathead minnow) - 56 d - 0.63 mg/l

Bioconcentration factor (BCF): 13,000

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2811 Class: 6.1 Packing group: I
Proper shipping name: Toxic solids, organic, n.o.s. (Endrin)
Reportable Quantity (RQ): 1 lbs
Marine pollutant:yes
Poison Inhalation Hazard: No

IMDG
UN number: 2811 Class: 6.1 Packing group: I EMS-No: F-A, S-A
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (Endrin)
Marine pollutant:yes

IATA
UN number: 2811 Class: 6.1 Packing group: I
Proper shipping name: Toxic solid, organic, n.o.s. (Endrin)

15. REGULATORY INFORMATION

SARA 302 Components
The following components are subject to reporting levels established by SARA Title III, Section 302:

	CAS-No.	Revision Date
Endrin	72-20-8	2007-07-01

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Endrin	72-20-8	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Endrin	72-20-8	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Endrin	72-20-8	2007-07-01

California Prop. 65 Components
WARNING: This product contains a chemical known to the CAS-No. Revision Date

State of California to cause birth defects or other reproductive harm. Endrin	72-20-8	2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
H300	Fatal if swallowed.
H300 + H310	Fatal if swallowed or in contact with skin
H310	Fatal in contact with skin.

HMIS Rating

Health hazard:	4
Chronic Health Hazard:	
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	3
Fire Hazard:	0
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.5 Revision Date: 08/09/2016 Print Date: 07/31/2019

MATHESON
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Safety Data Sheet

Material Name: ETHYL BENZENE **SDS ID: MAT08780**

Section 1 - PRODUCT AND COMPANY IDENTIFICATION

Material Name
ETHYL BENZENE
Synonyms
MTG MSDS 185; EB; PHENYLETHANE; ETHYLBENZENE; ETHYLBENZOL; ALPHA-METHYLTOLUENE; UN 1175; C8H10
Chemical Family
Hydrocarbons, aromatic
Product Use
industrial.
Restrictions on Use
None known.
Details of the supplier of the safety data sheet
MATHESON TRI-GAS, INC.
150 Allen Road, Suite 302
Basking Ridge, NJ 07920
General Information: 1-800-416-2505
Emergency #: 1-800-424-9300 (CHEMTREC)
Outside the US: 703-527-3887 (Call collect)

Section 2 - HAZARDS IDENTIFICATION

Classification in accordance with paragraph (d) of 29 CFR 1910.1200.
Flammable Liquids - Category 2
Aspiration Hazard - Category 1
Acute Toxicity - Inhalation - Dust/Mist - Category 4
Acute Toxicity - Inhalation - Vapor - Category 4
Skin Corrosion/Irritation - Category 2
Serious Eye Damage/Eye Irritation - Category 2A
Carcinogenicity - Category 2
Reproductive Toxicity - Category 1B
Specific target organ toxicity - Single exposure - Category 2
Specific target organ toxicity - Single exposure - Category 3
Specific Target Organ Toxicity - Repeated Exposure - Category 2 (ears , Ears)
Hazardous to the Aquatic Environment - Acute - Category 2
Hazardous to the Aquatic Environment - Chronic - Category 2
GHS Label Elements
Symbol(s)

Signal Word
Danger
Hazard Statement(s)

Highly flammable liquid and vapor.
Harmful if inhaled.
Causes skin irritation.
Causes serious eye irritation.
Suspected of causing cancer.
May damage fertility or the unborn child.
May cause damage to organs. (central nervous system)
May cause respiratory irritation.
May be fatal if swallowed and enters airways.
Toxic to aquatic life.

Precautionary Statement(s)

Prevention

Keep away from heat, sparks, open flame, and hot surfaces - No smoking.
Keep container tightly closed.
Ground/Bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Use Personal Protective equipment as required.
Do not breathe vapor or mist.
Use only outdoors or in a well-ventilated area.
Wear protective gloves and eye/face protection.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Avoid release to the environment.

Response

In case of fire, use media appropriate for extinction.
IF exposed or concerned: Get medical advice/attention.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Call a POISON CENTER or doctor/physician if you feel unwell.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
If skin irritation occurs: Get medical advice/attention.
Wash contaminated clothing before reuse.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
Continue rinsing.
If eye irritation persists: Get medical advice/attention.
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
Do NOT induce vomiting.

Storage

Store in a well-ventilated place.
Keep cool.
Keep container tightly closed.
Store locked up.

Disposal

Dispose in accordance with all applicable regulations.

Statement(s) of Unknown Acute Toxicity

Inhalation 0% of the mixture consists of ingredient(s) of unknown acute toxicity.

Statement(s) of Unknown Aquatic Toxicity
0% of the mixture consists of ingredient(s) of unknown acute aquatic toxicity.
0% of the mixture consists of ingredient(s) of unknown chronic aquatic toxicity.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

CAS	Component Name	Percent
100-41-4	ETHYL BENZENE	100

Section 4 - FIRST AID MEASURES

Inhalation
If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.
Skin
Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.
Eyes
Flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Then get immediate medical attention.
Ingestion
aspiration hazard. Do NOT induce vomiting. When vomiting occurs, keep head lower than hips to help prevent aspiration. Get medical attention immediately. Give artificial respiration if not breathing.
Most Important Symptoms/Effects
Acute
respiratory tract irritation, skin irritation, eye irritation, central nervous system damage, lung damage (from aspiration)
Delayed
cancer, Reproductive Effects
Note to Physicians
For inhalation, consider oxygen.

Section 5 - FIRE FIGHTING MEASURES

Extinguishing Media
Suitable Extinguishing Media
regular dry chemical, carbon dioxide, water spray, regular foam, Large fires: Use water spray, fog or regular foam.
Unsuitable Extinguishing Media
Do not use high-pressure water streams.
Special Hazards Arising from the Chemical
Severe fire hazard. Vapor/air mixtures are explosive above flash point. The vapor is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back. Electrostatic discharges may be generated by flow or agitation resulting in ignition or explosion.
Hazardous Combustion Products
Oxides of carbon
Fire Fighting Measures
Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. If this is impossible then take the following precautions: Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For tank,

rail car or tank truck: Evacuation radius: 800 meters (1/2 mile). Do not attempt to extinguish fire unless flow of material can be stopped first. Flood with fine water spray. Do not scatter spilled material with high-pressure water streams. Cool containers with water spray until well after the fire is out. Apply water from a protected location or from a safe distance. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Water may be ineffective.

Special Protective Equipment and Precautions for Firefighters

Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

Section 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

Wear personal protective clothing and equipment, see Section 8.

Methods and Materials for Containment and Cleaning Up

Avoid heat, flames, sparks and other sources of ignition. Eliminate all ignition sources if safe to do so. All equipment used when handling the product must be grounded. Do not touch or walk through spilled material. Stop leak if possible without personal risk. Prevent entry into waterways, sewers, basements, or confined areas. Reduce vapors with water spray. Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. Dike for later disposal. Remove sources of ignition. Use water spray to reduce vapors or divert vapor cloud drift. Keep unnecessary people away, isolate hazard area and deny entry. Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).

Environmental Precautions

Avoid release to the environment.

Section 7 - HANDLING AND STORAGE

Precautions for Safe Handling

Keep away from heat, sparks, open flame, and hot surfaces - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharges. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use Personal Protective equipment as required. Do not breathe vapor or mist. Use only outdoors or in a well-ventilated area. Wear protective gloves/eye protection/face protection. Wash hands thoroughly after handling. Do not eat, drink, or smoke when using this product. Avoid release to the environment.

Conditions for Safe Storage, Including any Incompatibilities

Store in a well-ventilated place.
Keep cool.
Keep container tightly closed.
Store locked up.
Store and handle in accordance with all current regulations and standards. Store in a well-ventilated area. Keep cool. Keep container tightly closed. Keep locked up. Grounding and bonding required. Keep separated from incompatible substances. Protect from physical damage. Store outside or in a detached building. Store with flammable liquids. Subject to storage regulations: U.S. OSHA 29 CFR 1910.106.

Incompatible Materials

Acids, bases, oxidizing materials, combustible materials

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

ETHYL BENZENE	**100-41-4**

ACGIH:	20 ppm TWA
NIOSH:	100 ppm TWA ; 435 mg/m3 TWA
	125 ppm STEL ; 545 mg/m3 STEL
	800 ppm IDLH (10% LEL)
Europe:	100 ppm TWA ; 442 mg/m3 TWA
	Possibility of significant uptake through the skin
	200 ppm STEL ; 884 mg/m3 STEL
OSHA (US):	100 ppm TWA ; 435 mg/m3 TWA
Mexico:	100 ppm TWA VLE-PPT ; 435 mg/m3 TWA VLE-PPT
	125 ppm STEL [PPT-CT]; 545 mg/m3 STEL [PPT-CT]

ACGIH - Threshold Limit Values - Biological Exposure Indices (BEI)
ETHYL BENZENE (100-41-4)
0.15 g/g creatinine Medium: urine Time: end of shift Parameter: Sum of mandelic acid and phenylglyoxylic acid (nonspecific)

Engineering Controls
Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

Individual Protection Measures, such as Personal Protective Equipment

Eye/face protection
Wear splash resistant safety goggles with a faceshield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Skin Protection
Wear appropriate chemical resistant clothing.

Respiratory Protection
The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA. 800 ppm. Any air-purifying half-mask respirator equipped with organic vapor cartridge(s). Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted organic vapor canister. Any powered, air-purifying respirator with organic vapor cartridge(s). Any supplied-air respirator. Any self-contained breathing apparatus with a full facepiece. Emergency or planned entry into unknown concentrations or IDLH conditions -. Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode. Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode. Escape -. Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted organic vapor canister. Any appropriate escape-type, self-contained breathing apparatus. Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode. Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

Glove Recommendations
Wear appropriate chemical resistant gloves.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Clear, colorless liquid	**Physical State**	liquid
Odor	aromatic odor	**Color**	colorless
Odor Threshold	140 ppm	**pH**	Not available
Melting Point	-95 °C (-139 °F)	**Boiling Point**	136 °C (277 °F)
Boiling Point Range	Not available	**Freezing point**	Not available
Evaporation Rate	<1 (Butyl acetate = 1)	**Flammability (solid, gas)**	Not available
Autoignition Temperature	432 °C (810 °F)	**Flash Point**	15 °C Closed Cup (59 °F)
Lower Explosive Limit	0.8 %	**Decomposition temperature**	Not available
Upper Explosive Limit	6.7 %	**Vapor Pressure**	7.1 mmHg @ 20 °C
Vapor Density (air=1)	3.66	**Specific Gravity (water=1)**	0.867
Water Solubility	0.015 %	**Partition coefficient: n-octanol/water**	154170.05
Viscosity	0.64 cp	**Kinematic viscosity**	Not available
Solubility (Other)	Not available	**Bioconcentration Factor (BCF)**	36.39
Density	Not available	**Henry's Law Constant**	0.00788 atm-m3/mole
KOC	520 (Estimated)	**Physical Form**	liquid
Volatility	100 %	**Molecular Formula**	C-H3-C-H2-C6-H5
Molecular Weight	106.17	**OSHA Flammability Class**	IB

Solvent Solubility
Soluble
alcohol, ether, Benzene, sulfur dioxide, carbon tetrachloride
Insoluble
ammonia

Section 10 - STABILITY AND REACTIVITY

Reactivity
No reactivity hazard is expected.
Chemical Stability
Stable at normal temperatures and pressure.

Possibility of Hazardous Reactions
Will not polymerize.
Conditions to Avoid
Avoid heat, flames, sparks and other sources of ignition. Containers may rupture or explode if exposed to heat. Keep out of water supplies and sewers.
Incompatible Materials
Acids, bases, oxidizing materials, combustible materials
Hazardous decomposition products
Oxides of carbon

Section 11 - TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure
Inhalation
irritation (possibly severe), chest pain, difficulty breathing, emotional disturbances, headache, drowsiness, dizziness, loss of coordination, coma, cancer
Skin Contact
irritation
Eye Contact
irritation
Ingestion
nausea, vomiting, stomach pain, aspiration hazard
Acute and Chronic Toxicity
Component Analysis - LD50/LC50
The components of this material have been reviewed in various sources and the following selected endpoints are published:
ETHYL BENZENE (100-41-4)
Oral LD50 Rat 3500 mg/kg
Dermal LD50 Rabbit 15400 mg/kg
Inhalation LC50 Rat 17.4 mg/L 4 h
Product Toxicity Data
Acute Toxicity Estimate

Dermal	> 2000 mg/kg
Inhalation - Vapor	17.4 mg/L
Oral	> 2000 mg/kg

Immediate Effects
respiratory tract irritation, skin irritation, eye irritation, central nervous system damage, lung damage (from aspiration)
Delayed Effects
Reproductive Effects, cancer
Irritation/Corrosivity Data
respiratory tract irritation, skin irritation, eye irritation
Respiratory Sensitization
No data available.
Dermal Sensitization
No data available.
Component Carcinogenicity

ETHYL BENZENE	**100-41-4**
ACGIH:	A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans
IARC:	Monograph 77 [2000] (Group 2B (possibly carcinogenic to humans))
DFG:	Category 4 (no significant contribution to human cancer)
OSHA:	Present

Germ Cell Mutagenicity
No data available.
Tumorigenic Data
No data available
Reproductive Toxicity
Available data characterizes components of this product as reproductive hazards.
Specific Target Organ Toxicity - Single Exposure
central nervous system, Respiratory system
Specific Target Organ Toxicity - Repeated Exposure
No target organs identified.
Aspiration hazard
This material is an aspiration hazard.
Medical Conditions Aggravated by Exposure
kidney disorders, liver disorders, respiratory disorders, skin disorders and allergies
Additional Data
May cross the placenta.

Section 12 - ECOLOGICAL INFORMATION

Ecotoxicity
Toxic to aquatic life.
Component Analysis - Aquatic Toxicity

ETHYL BENZENE	**100-41-4**
Fish:	LC50 96 h Oncorhynchus mykiss 11 - 18 mg/L [static]; LC50 96 h Oncorhynchus mykiss 4.2 mg/L [semi-static]; LC50 96 h Pimephales promelas 7.55 - 11 mg/L [flow-through]; LC50 96 h Lepomis macrochirus 32 mg/L [static]; LC50 96 h Pimephales promelas 9.1 - 15.6 mg/L [static]; LC50 96 h Poecilia reticulata 9.6 mg/L [static]
Algae:	EC50 72 h Pseudokirchneriella subcapitata 4.6 mg/L IUCLID ; EC50 96 h Pseudokirchneriella subcapitata >438 mg/L IUCLID ; EC50 72 h Pseudokirchneriella subcapitata 2.6 - 11.3 mg/L [static] EPA ; EC50 96 h Pseudokirchneriella subcapitata 1.7 - 7.6 mg/L [static] EPA
Invertebrate:	EC50 48 h Daphnia magna 1.8 - 2.4 mg/L IUCLID

Persistence and Degradability
Not expected to undergo hydrolysis in the environment.
Bioaccumulative Potential
Bioconcentration potential in aquatic organisms is low based on a BCF value of 15.
Mobility

Expected to have moderate mobility in soil.

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Methods
Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262.
Hazardous Waste Number(s): D001.
Component Waste Numbers
The U.S. EPA has not published waste numbers for this product's components.

Section 14 - TRANSPORT INFORMATION

US DOT Information:
Shipping Name: ETHYLBENZENE
Hazard Class: 3
UN/NA #: UN1175
Packing Group: II
Required Label(s): 3
Marine pollutant

IMDG Information:
Shipping Name: ETHYLBENZENE
Hazard Class: 3
UN#: UN1175
Packing Group: II
Required Label(s): 3
Marine pollutant
International Bulk Chemical Code
This material contains one or more of the following chemicals required by the IBC Code to be identified as dangerous chemicals in bulk.

ETHYL BENZENE	**100-41-4**
IBC Code:	Category Y

Section 15 - REGULATORY INFORMATION

U.S. Federal Regulations
This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

ETHYL BENZENE	**100-41-4**
SARA 313:	0.1 % de minimis concentration
CERCLA:	1000 lb final RQ ; 454 kg final RQ

SARA Section 311/312 (40 CFR 370 Subparts B and C) reporting categories
Flammable; Carcinogenicity; Acute toxicity; Reproductive Toxicity; Skin Corrosion/Irritation; Serious Eye Damage/Eye Irritation; Specific Target Organ Toxicity; Aspiration Hazard
U.S. State Regulations
The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA
ETHYL BENZENE	**100-41-4**	Yes	Yes	Yes	Yes	Yes

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):
WARNING! This product contains a chemical known to the state of California to cause cancer

ETHYL BENZENE	**100-41-4**
Carc:	carcinogen , 6/11/2004

Canada Regulations
Canadian WHMIS Ingredient Disclosure List (IDL)
Components of this material have been checked against the Canadian WHMIS Ingredients Disclosure List. The List is composed of chemicals which must be identified on MSDSs if they are included in products which meet WHMIS criteria specified in the Controlled Products Regulations and are present above the threshold limits listed on the IDL

ETHYL BENZENE	**100-41-4**
	0.1 %

WHMIS Classification
B2
Component Analysis - Inventory
ETHYL BENZENE (100-41-4)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2	KR - REACH CCA	CN	NZ	MX	TW	VN - NCI (Draft)
Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes

Section 16 - OTHER INFORMATION

NFPA Ratings
Health: 2 Fire: 3 Reactivity: 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe
Summary of Changes
Updated: 05/01/2015
Key / Legend
ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CA/MA/MN/NJ/PA - California/Massachusetts/Minnesota/New Jersey/Pennsylvania*; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CFR - Code of Federal Regulations (US); CLP - Classification, Labelling, and Packaging; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSD - Dangerous Substance Directive; DSL - Domestic Substances List; EC – European Commission; EEC - European Economic Community; EIN - European Inventory of (Existing Commercial Chemical Substances); EINECS - European Inventory of Existing Commercial Chemical Substances; ENCS - Japan Existing and New Chemical Substance Inventory; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research

on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; ISHL - Japan Industrial Safety and Health Law; IUCLID - International Uniform Chemical Information Database; JP - Japan; Kow - Octanol/water partition coefficient; KR KECI Annex 1 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL); KR KECI Annex 2 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL) , KR - Korea; LD50/LC50 - Lethal Dose/ Lethal Concentration; LEL - Lower Explosive Limit; LLV - Level Limit Value; LOLI - List Of LIsts™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; MX – Mexico; NDSL – Non-Domestic Substance List (Canada); NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PEL- Permissible Exposure Limit; PH - Philippines; RCRA - Resource Conservation and Recovery Act; REACH- Registration, Evaluation, Authorisation, and restriction of Chemicals; RID - European Rail Transport; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TCCA – Korea Toxic Chemicals Control Act; TDG - Transportation of Dangerous Goods; TLV - Threshold Limit Value; TSCA - Toxic Substances Control Act; TW – Taiwan; TWA - Time Weighted Average; UEL - Upper Explosive Limit; UN/NA - United Nations /North American; US - United States; VLE - Exposure Limit Value (Mexico); VN NCI (Draft) - Vietnam National Chemicals Inventory (NCI) (Draft); WHMIS - Workplace Hazardous Materials Information System (Canada) .

Other Information

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SAFETY DATA SHEET

Helium

Section 1. Identification

GHS product identifier : Helium

Chemical name : Helium

Other means of identification : helium (dot); Helium-4; He; o-Helium; UN 1046

Product use : Synthetic/Analytical chemistry.

Synonym : helium (dot); Helium-4; He; o-Helium; UN 1046

SDS # : 001025

Supplier's details : Airgas USA, LLC and its affiliates
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283
1-610-687-5253

Emergency telephone number (with hours of operation) : 1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : GASES UNDER PRESSURE - Compressed gas

GHS label elements

Hazard pictograms :

Signal word : Warning

Hazard statements : Contains gas under pressure; may explode if heated.
May displace oxygen and cause rapid suffocation.

Precautionary statements

General : Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction.

Prevention : Use and store only outdoors or in a well ventilated place.

Response : Not applicable.

Storage : Protect from sunlight. Protect from sunlight when ambient temperature exceeds 52°C/125°F. Store in a well-ventilated place.

Disposal : Not applicable.

Hazards not otherwise classified : In addition to any other important health or physical hazards, this product may displace oxygen and cause rapid suffocation.

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Section 3. Composition/information on ingredients

Substance/mixture : Substance

Chemical name : Helium

Other means of identification : helium (dot); Helium-4; He; o-Helium; UN 1046

CAS number/other identifiers

CAS number : 7440-59-7

Product code : 001025

Ingredient name	%	CAS number
Helium	100	7440-59-7

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : As this product is a gas, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Contact with rapidly expanding gas may cause burns or frostbite.

Inhalation : No known significant effects or critical hazards.

Skin contact : Contact with rapidly expanding gas may cause burns or frostbite.

Frostbite : Try to warm up the frozen tissues and seek medical attention.

Ingestion : As this product is a gas, refer to the inhalation section.

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

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Section 4. First aid measures

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : Contains gas under pressure. In a fire or if heated, a pressure increase will occur and the container may burst or explode.

Hazardous thermal decomposition products : No specific data.

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Immediately contact emergency personnel. Stop leak if without risk.

Large spill : Immediately contact emergency personnel. Stop leak if without risk. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

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Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Avoid contact with eyes, skin and clothing. Avoid breathing gas. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Keep container tightly closed and sealed until ready for use. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F).

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Helium	Oxygen Depletion [Asphyxiant]

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

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Section 8. Exposure controls/personal protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state : Gas. [Compressed gas.]

Color : Colorless.

Molecular weight : 4 g/mole

Molecular formula : He

Boiling/condensation point : -268.9°C (-452°F)

Melting/freezing point : -272.2°C (-458°F)

Critical temperature : -267.9°C (-450.2°F)

Odor : Odorless.

Odor threshold : Not available.

pH : Not available.

Flash point : [Product does not sustain combustion.]

Burning time : Not applicable.

Burning rate : Not applicable.

Evaporation rate : Not available.

Flammability (solid, gas) : Not available.

Lower and upper explosive (flammable) limits : Not available.

Vapor pressure : Not available.

Vapor density : 0.14 (Air = 1) Liquid Density@BP: 7.8 lb/ft3 (125 kg/m3)

Specific Volume (ft ^{3}/lb) : 96.1538

Gas Density (lb/ft ^{3}) : 0.0104

Relative density : Not applicable.

Solubility : Not available.

Solubility in water : Not available.

Partition coefficient: n-octanol/water : 0.28

Auto-ignition temperature : Not available.

Decomposition temperature : Not available.

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Section 9. Physical and chemical properties

SADT : Not available.

Viscosity : Not applicable.

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

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Section 11. Toxicological information

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Contact with rapidly expanding gas may cause burns or frostbite.

Inhalation : No known significant effects or critical hazards.

Skin contact : Contact with rapidly expanding gas may cause burns or frostbite.

Ingestion : As this product is a gas, refer to the inhalation section.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

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Section 12. Ecological information

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
Helium	0.28	-	low

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty Airgas-owned pressure vessels should be returned to Airgas. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1046	UN1046	UN1046	UN1046	UN1046
UN proper shipping name	HELIUM, COMPRESSED	HELIUM, COMPRESSED	HELIUM, COMPRESSED	HELIUM, COMPRESSED	HELIUM, COMPRESSED
Transport hazard class(es)	2.2	2.2	2.2	2.2	2.2
Packing group	-	-	-	-	-
Environment	No.	No.	No.	No.	No.
Additional information	**Limited quantity** Yes. **Packaging instruction** **Passenger aircraft** Quantity limitation: 75 kg **Cargo aircraft** Quantity limitation: 150 kg	**Explosive Limit and Limited Quantity Index** 0.125 **Passenger Carrying Road or Rail Index** 75	-	-	**Passenger and Cargo Aircraft**Quantity limitation: 75 kg **Cargo Aircraft Only** Quantity limitation: 150 kg

"Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product."

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Section 14. Transport information

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined

United States inventory (TSCA 8b): This material is listed or exempted.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Sudden release of pressure

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Helium	100	No.	Yes.	No.	No.	No.

State regulations

Massachusetts : This material is listed.

New York : This material is not listed.

New Jersey : This material is listed.

Pennsylvania : This material is listed.

Canada inventory : This material is listed or exempted.

International regulations

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Section 15. Regulatory information

International lists : **Australia inventory (AICS)**: This material is listed or exempted.
China inventory (IECSC): This material is listed or exempted.
Japan inventory: Not determined.
Korea inventory: This material is listed or exempted.
Malaysia Inventory (EHS Register): Not determined.
New Zealand Inventory of Chemicals (NZIoC): This material is listed or exempted.
Philippines inventory (PICCS): This material is listed or exempted.
Taiwan inventory (CSNN): Not determined.

Chemical Weapons Convention List Schedule I Chemicals : Not listed

Chemical Weapons Convention List Schedule II Chemicals : Not listed

Chemical Weapons Convention List Schedule III Chemicals : Not listed

Canada

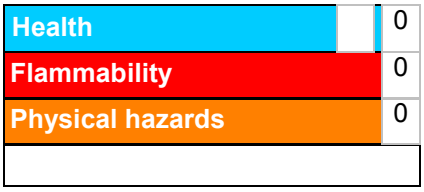
WHMIS (Canada) : Class A: Compressed gas.

CEPA Toxic substances: This material is not listed.
Canadian ARET: This material is not listed.
Canadian NPRI: This material is not listed.
Alberta Designated Substances: This material is not listed.
Ontario Designated Substances: This material is not listed.
Quebec Designated Substances: This material is not listed.

Section 16. Other information

Canada Label requirements : Class A: Compressed gas.

Hazardous Material Information System (U.S.A.)



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)

Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.

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Section 16. Other information

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

History

Date of printing : 10/15/2014.

Date of issue/Date of revision : 10/15/2014.

Date of previous issue : 10/2/2014.

Version : 0.02

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United NationsACGIH – American Conference of Governmental Industrial Hygienists
AIHA – American Industrial Hygiene Association
CAS – Chemical Abstract Services
CEPA – Canadian Environmental Protection Act
CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act (EPA)
CFR – United States Code of Federal Regulations
CPR – Controlled Products Regulations
DSL – Domestic Substances List
GWP – Global Warming Potential
IARC – International Agency for Research on Cancer
ICAO – International Civil Aviation Organisation
Inh – Inhalation
LC – Lethal concentration
LD – Lethal dosage
NDSL – Non-Domestic Substances List
NIOSH – National Institute for Occupational Safety and Health
TDG – Canadian Transportation of Dangerous Goods Act and Regulations
TLV – Threshold Limit Value
TSCA – Toxic Substances Control Act
WEEL – Workplace Environmental Exposure Level
WHMIS – Canadian Workplace Hazardous Material Information System

References : Not available.

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

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MATERIAL SAFETY DATA SHEET
HORIBA INSTRUMENTS, INC.
17671 Armstrong Avenue, Irvine, CA 92614
(949) 250-4811

REVISION DATE MAY 2003

SECTION I: MATERIAL IDENTIFICATION

IDENTITY: Potassium hydrogen phthalate
P/N 350623, 527033, 696138-1, 9003001600, 100-4

CHEMICAL FORMULA: $C_6H_4(COOK)(COOH)$ ~1% in water

GENERIC NAME: pH 4 Buffer Solution

CHEMICAL FAMILY: Salt solution

OTHER DESIGNATION: pH 4 Standard Solution, Autocal solution, 100-4

IN CASE OF EMERGENCY CONTACT YOUR REGIONAL PLANT MANAGER

SECTION II: HAZARDOUS INGREDIENTS

Irritant: Eyes, nose and throat, skin.

This product contains the following toxic chemical(s) subject to Section 313 Title III reporting requirements (40 CFR Part 372): NONE

SECTION III: PHYSICAL DATA

MELTING POINT (*): 295-300°C

SPECIFIC GRAVITY (H_2O = 1): 1.636

VAPOR PRESSURE: N/A

PERCENT, VOLATILE BY VOLUME (%): None

SOLUBILITY IN WATER v/v @°C: 1.2% (cool water) CAS #: 877-24-7

APPEARANCE AND ODOR: Colorless liquid

SECTION IV:PHYSICAL DATA

FLASH POINT AND METHOD: N/A

FLAMMABLE LIMITS: None

EXTINGUISHING MEDIA: Determine based on surrounding combustibles.

SPECIAL FIRE FIGHTING PROCEDURES: None

UNUSUAL FIRE AND EXPLOSION HAZARDS: N/A

SECTION V: REACTIVITY DATA

STABILITY: Stable at normal temperature

INCOMPATIBILITY (MATERIALS TO AVOID): None

HAZARDOUS DECOMPOSITION PRODUCTS: None

HAZARDOUS POLYMERIZATION: None

SECTION VI: HEALTH HAZARD DATA

EMERGENCY AND FIRST AID PROCEDURES:

Eyes:	Wash eyes with clean water flowing for 10-15 minutes. Call doctor immediately.
Skin:	Take off contaminated clothing and wash skin with water.
Inhaled:	Move the patient into clear air. Keep patient warm and stable. Loosen clothing and use artificial respiration if necessary. Call doctor immediately.
Swallowed:	Give patient plenty of warm water/milk. Induce vomiting. Call doctor immediately. If patient is unconscious, do not give water/milk, but call doctor immediately.

SECTION VII: SPILL OR LEAK PROCEDURES

Highway or railway spills call Chemtrec (800) 424-9300

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
Collect as much material as possible. The place of leakage should be washed with plenty of water.

WASTE DISPOSAL METHOD:
Dispose as chemical waste.

SECTION VIII: SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFY TYPE):	Not normally required.
VENTILATION:	Not normally required.
OTHER PROTECTIVE EQUIPMENT:	Optional - eye mask, gloves and long-sleeve working clothes.

SECTION IX:SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:
After working, wash hands thoroughly.

OTHER PRECAUTIONS: None.

Safety Data Sheet

20ppm Hydrogen Sulfide, 60ppm Carbon Monoxide, 58% LEL Pentane Simulant, 15% VOL Oxygen; balance Nitrogen

Ideal Calibrations, LLC
2750 Oakwood Blvd.
Melvindale, MI 48122
(734) 956-0539
http://www.idealcalibrations.com/

Section 1: Product and Company Identification

Ideal Calibrations, LLC
2750 Oakwood Blvd.
Melvindale, MI 48122
(734) 956-0539
http://www.idealcalibrations.com/

Product Code: 20ppm Hydrogen Sulfide, 60ppm Carbon Monoxide, 58% LEL Pentane Simulant, 15% VOL Oxygen; balance Nitrogen
Part Number: 0219

Synonyms:
Recommended Use: Calibration of gas detection devices
Usage Restrictions: Do not use if current date is past expiration date on cylinder

Section 2: Hazards Identification

Warning

Hazard Classification:
Gases Under Pressure

Hazard Statements:
Contains gas under pressure; may explode if heated
Toxic to aquatic life

Precautionary Statements

Storage:
Protect from sunlight.
Store in well-ventilated place.

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Section 3: Composition/Information on Ingredients

	CAS #	Concentration
Hydrogen Sulfide	7783-06-4	0.002
Carbon Monoxide	630-08-0	0.006
Methane	74-82-8	1.45
Oxygen	7782-44-7	15
Nitrogen	7727-37-9	83.542

	Chemical Substance	Chemical Family	Trade Names
Hydrogen Sulfide	HYDROGEN SULFIDE	Inorganic gases	HYDROGEN SULFIDE (H2S); DIHYDROGEN MONOSULFIDE; DIHYDROGEN SULFIDE; HYDROSULFURIC ACID; SULFUR DIHYDRIDE; SULFURETED HYDROGEN; SULFUR HYDRIDE; STINK DAMP; SEWER GAS; RCRA U135; UN 1053; H2S
Carbon Monoxide	CARBON MONOXIDE	Inorganic gases	CARBON OXIDE; CARBON OXIDE (CO); UN 1016; CO
Methane	METHANE, COMPRESSED GAS	Hydrocarbons, Aliphatic, Saturated	FIRE DAMP; MARSH GAS; METHYL HYDRIDE; NATURAL GAS; METHANE; UN 1971; R50; CH4
Oxygen	OXYGEN, COMPRESSED GAS	Inorganic gases	OXYGEN; DIOXYGEN; MOLECULAR OXYGEN; OXYGEN MOLECULE; PURE OXYGEN; UN 1072; O2
Nitrogen	NITROGEN, COMPRESSED GAS	Inorganic gases	DIATOMIC NITROGEN; DINITROGEN; NITROGEN; NITROGEN-14; NITROGEN GAS; UN 1066; N2

Section 4: First Aid Measures

	Skin Contact	Eye Contact	Ingestion	Inhalation	Note to Physicians
Hydrogen Sulfide	Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.	Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.	If a large amount is swallowed, get medical attention.	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.	For inhalation, consider oxygen.
Carbon Monoxide	Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.	Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.	If a large amount is swallowed, get medical attention.	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.	For inhalation, consider oxygen.
Methane	Wash exposed skin with soap and water.	Flush eyes with plenty of water.	If a large amount is swallowed, get medical attention.	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.	For inhalation, consider oxygen.
Oxygen	None expected	None expected	Not likely route of exposure	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention.	None

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	Skin Contact	Eye Contact	Ingestion	Inhalation	Note to Physicians
Nitrogen	Wash exposed skin with soap and water.	Flush eyes with plenty of water.	If a large amount is swallowed, get medical attention.	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.	For inhalation, consider oxygen.

Section 5: Fire Fighting Measures

	Suitable Extinguishing Media	Products of Combustion	Protection of Firefighters
Hydrogen Sulfide	Let burn unless leak can be stopped immediately. Large fires: Use regular foam or flood with fine water spray.	Sulfur oxides	▪ Any self-contained breathing apparatus with a full facepiece. ▪ Protective material types: butyl rubber, polyvinyl chloride (PVC), neoprene
Carbon Monoxide	Carbon dioxide, regular dry chemical Large fires: Use regular foam or flood with fine water spray.	Carbon dioxide	▪ Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. ▪ Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply.
Methane	Carbon dioxide, regular dry chemical Large fires: Use regular foam or flood with fine water spray.	Carbon monoxide, carbon dioxide, water	▪ Respiratory protection may be needed for frequent or heavy exposure. Any self-contained breathing apparatus with a full facepiece. ▪ Respiratory protection may be needed for frequent or heavy exposure. Any self-contained breathing apparatus with a full facepiece.
Oxygen	Non-flammable. Use extinguishing agent appropriate for the material which is burning. Use water in large quantities for fires involving oxygen.	Oxides of burning material	▪ Respiratory protection may be needed for frequent or heavy exposure. ▪ None
Nitrogen	Non-flammable. Use suitable extinguishing media for surrounding fire. Cylinders may rupture or explode if exposed to heat.	Non-flammable	▪ Respiratory protection may be needed for frequent or heavy exposure.

Section 6: Accidental Release Measures

	Personal Precautions	Environmental Precautions	Methods for Containment
Hydrogen Sulfide	Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas. Ventilate closed spaces before entering. Evacuation radius: 150 feet. For tank, rail car or tank truck: 800 meters (1/2 mile). Do not touch spilled material.	Avoid heat, flames, sparks and other sources of ignition.	Stop leak if possible without personal risk. Remove sources of ignition. Reduce vapors with water spray. Do not get water directly on material.
Carbon Monoxide	Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering.	Avoid heat, flames, sparks and other sources of ignition. Keep out of water supplies and sewers.	Stop leak if possible without personal risk. Reduce vapors with water spray. Remove sources of ignition.
Methane	Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering.	Avoid heat, flames, sparks and other sources of ignition.	Stop leak if possible without personal risk. Reduce vapors with water spray. Remove sources of ignition.
Oxygen	Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering.	Avoid contact with combustible materials.	Stop leak if possible without personal risk.
Nitrogen	Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas.	No significant effects from contamination expected.	Stop leak if possible without personal risk.

	Methods for Cleanup	Other Information

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	Methods for Cleanup	Other Information
Hydrogen Sulfide	Collect runoff for disposal as potential hazardous waste. Dike for later disposal. Absorb with sand or other non-combustible material. Add an alkaline material (lime, crushed limestone, sodium bicarbonate, or soda ash).	Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).
Carbon Monoxide	Stop leak, evacuate area. Wear protective equipment.	Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65).
Methane	Not available	Not available
Oxygen	Stop leak and ventilate	None
Nitrogen	N/A	N/A

Section 7: Handling and Storage

	Handling	Storage
Hydrogen Sulfide	Store and handle in accordance with all current regulations and standards. Protect from physical damage. Store outside or in a detached building. Store in a cool, dry place. Store in a well-ventilated area. Avoid contact with light. Grounding and bonding required. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Notify State Emergency Response Commission for storage or use at amounts greater than or equal to the TPQ (U.S. EPA SARA Section 302). SARA Section 303 requires facilities storing a material with a TPQ to participate in local emergency response planning (U.S. EPA 40 CFR 355.30). Keep separated from incompatible substances.	Subject to handling regulations: U.S. OSHA 29 CFR 1910.119.
Carbon Monoxide	Keep separated from incompatible substances.	Store and handle in accordance with all current regulations and standards. Grounding and bonding required. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101.
Methane	Store and handle in accordance with all current regulations and standards. Grounding and bonding required. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101.	Keep separated from incompatible substances.
Oxygen	Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101.	Keep separated from incompatible substances.
Nitrogen	Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101.	Keep separated from incompatible substances.

Section 8: Exposure Controls/Personal Protection

	Exposure Guidelines
Hydrogen Sulfide	HYDROGEN SULFIDE: 20 ppm OSHA ceiling 50 ppm OSHA peak 10 minute(s) (once if no other measurable exposure occurs) 10 ppm (14 mg/m3) OSHA TWA (vacated by 58 FR 35338, June 30, 1993) 15 ppm (21 mg/m3) OSHA STEL (vacated by 58 FR 35338, June 30, 1993) 10 ppm ACGIH TWA 15 ppm ACGIH STEL 10 ppm (15 mg/m3) NIOSH recommended ceiling 10 minute(s) TLV-TWA: 1ppm Upper respiratory irritation (ACGIH)
Carbon Monoxide	CARBON MONOXIDE: 50 ppm (55 mg/m3) OSHA TWA 35 ppm (40 mg/m3) OSHA TWA (vacated by 58 FR 35338, June 30, 1993) 200 ppm (229 mg/m3) OSHA ceiling (vacated by 58 FR 35338, June 30, 1993) 25 ppm ACGIH TWA 35 ppm (40 mg/m3) NIOSH recommended TWA 10 hour(s) 200 ppm (229 mg/m3) NIOSH recommended ceiling
Methane	METHANE, COMPRESSED GAS: ALIPHATIC HYDROCARBON GASES ALKANE (C1-C4): 1000 ppm ACGIH TWA METHANE: No occupational exposure limits established. ALIPHATIC HYDROCARBON GASES ALKANE (C1-C4): 1000 ppm ACGIH TWA
Oxygen	OXYGEN, COMPRESSED GAS: No occupational exposure limits established.
Nitrogen	NITROGEN, COMPRESSED GAS: NITROGEN: ACGIH (simple asphyxiant)

Engineering Controls

Handle only in fully enclosed systems.

	Eye Protection	Skin Protection	Respiratory Protection
Hydrogen Sulfide	Wear splash resistant safety goggles with a face shield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.	Wear appropriate chemical resistant clothing.	Any self-contained breathing apparatus with a full facepiece.
Carbon Monoxide	Eye protection not required, but recommended.	Protective clothing is not required.	Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply.

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	Eye Protection	Skin Protection	Respiratory Protection
Methane	Eye protection not required, but recommended.	Protective clothing is not required.	Respiratory protection may be needed for frequent or heavy exposure. Any self-contained breathing apparatus with a full facepiece.
Oxygen	Eye protection not required, but recommended.	Protective clothing is not required.	Respiratory protection may be needed for frequent or heavy exposure.
Nitrogen	Eye protection not required, but recommended.	Protective clothing is not required.	Respiratory protection may be needed for frequent or heavy exposure.

General Hygiene considerations

- Avoid breathing vapor or mist
- Avoid contact with eyes and skin
- Wash thoroughly after handling and before eating or drinking

Section 9: Physical and Chemical Properties

	Physical State	Appearance	Color	Change in Appearance	Physical Form	Odor	Taste
Hydrogen Sulfide	Gas	Colorless	Colorless	N/A	Gas	Rotten egg odor	N/A
Carbon Monoxide	Gas	Colorless	Colorless	N/A	Gas	Odorless	Tasteless
Methane	Gas	Colorless	Colorless	N/A	Gas	Odorless	Tasteless
Oxygen	Gas	Clear	Colorless	N/A	Gas	Odorless	Tasteless
Nitrogen	Gas	Clear	Colorless	N/A	Gas	Odorless	Tasteless

	Flash Point	Flammability	Partition Coefficient	Autoignition Temperature	Upper Explosive Limits	Lower Explosive Limits
Hydrogen Sulfide	Flammable	Not available	Not available	500 F (260 C)	45.5%	3.9%
Carbon Monoxide	Flammable	Not available	1479.11 (log = 3.17) (estimated from water solubility)	1128-1202 F (609-650 C)	0.74	12.0-12.5%
Methane	-369 F (-223 C)	Not available	724.44 (log = 2.87) (estimated from water solubility)	999 F (537 C)	15%	5%
Oxygen	Not flammable	Not available	Not available	Nonflammable	Nonflammable	Nonflammable
Nitrogen	Not flammable	Not available	Not available	Nonflammable	Nonflammable	Nonflammable

	Boiling Point	Freezing Point	Vapor Pressure	Vapor Density	Specific Gravity	Water Solubility	pH	Odor Threshold	Evaporation Rate	Viscosity
Hydrogen Sulfide	-78 to -77 F (-61 to -60.3 C)	-123 F (-86 C)	15200 mmHg @ 25 C	1.2 (Air=1)	1.192	2.58-2.9% @ 20 C	4.5-<7 (saturated solution)	0.13 ppm	Not applicable	0.0128 cP @ 25 C
Carbon Monoxide	-312.7 F (-191.5 C)	-326 F (-199 C)	760 mmHg @ -191 C gas; cannot be liquefied at room temperature	0.968 (Air=1)	Not applicable	2.3% @ 20 C	Not applicable	Not available	Not applicable	0.01657 cP @ 0 C
Methane	-260 F (-162 C)	-297 F (-183 C)	760 mmHg @ -161 C	0.555 (Air=1)	Not applicable	3.5% @ 17 C	Not applicable	Not available	Not applicable	0.01118 cP @ 27 C
Oxygen	-297 F (-183 C)	-360 F (-218 C)	760 mmHg @ -183 C	1.1 (Air=1)	Not applicable	3.2% @ 25 C	Not applicable	Not available	Not applicable	0.02075 cP @ 25 C
Nitrogen	-321 F (-196 C)	-346 F (-210 C)	760 mmHg @ -196 C	0.967 (Air=1)	Not applicable	1.6% @ 20 C	Not applicable	Not available	Not applicable	0.01787 cP @ 27 C

	Molecular Weight	Molecular Formula	Density	Weight per Gallon	Volatility by Volume	Volatility	Solvent Solubility

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	Molecular Weight	Molecular Formula	Density	Weight per Gallon	Volatility by Volume	Volatility	Solvent Solubility
Hydrogen Sulfide	34.08	H2-S	1.539 g/L @ 0 C	Not available	Not available	Not applicable	Soluble: Carbon disulfide, alcohol, ether, glycerol, gasolines, kerosene, crude oil, alkali solutions
Carbon Monoxide	28.01	C-O	1.250 g/L @ 0 C	Not available	100%	Not applicable	Soluble: Alcohol, benzene, acetic acid, ethyl acetate, chloroform, cuprous chloride solutions
Methane	16.04	C-H4	0.717 g/L @ 0 C	Not available	Not applicable	Not applicable	Soluble: Alcohol, ether, benzene, organic solvents
Oxygen	31.9988	O2	1.309 g/L @ 25 C	Not available	Not applicable	Not applicable	Soluble: Alcohol
Nitrogen	28.0134	N2	1.2506 g/L	Not available	100%	1	Soluble: Liquid ammonia

Section 10: Stability and Reactivity

	Stability	Conditions to Avoid	Incompatible Materials
Hydrogen Sulfide	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	Combustible materials, metals, oxidizing materials, halogens, metal oxides, metal salts, bases, rust, oxidants, oxygen, copper powder, acetaldehyde, silver fulminate
Carbon Monoxide	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	Oxidizing materials, halogens, metal oxides, metals, combustible materials, lithium
Methane	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	Halogens, oxidizing materials, combustible materials
Oxygen	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	Combustible materials, halo carbons, metals, bases, reducing agents, amines, metal salts, oxidizing materials, alkaline earth and alkali metals
Nitrogen	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	Metals, oxidizing materials

	Hazardous Decomposition Products	Possibility of Hazardous Reactions
Hydrogen Sulfide	Oxides of sulfur	Will not polymerize.
Carbon Monoxide	Oxides of carbon	Will not polymerize.
Methane	Oxides of carbon	Will not polymerize.
Oxygen	Miscellaneous decomposition products	Will not polymerize.
Nitrogen	Oxides of nitrogen	Will not polymerize.

Section 11: Toxicology Information

Acute Effects

	Oral LD50	Dermal LD50	Inhalation
Hydrogen Sulfide	444 ppm inhalation-rat LC50	Irritation 0.000125 ppm/5 hour(s) eyes-human	Irritation, lack of sense of smell, sensitivity to light, nausea, vomiting, difficulty breathing, headache, drowsiness, dizziness, disorientation, tremors, visual disturbances, suffocation, lung congestion, internal bleeding, heart damage, nerve damage, brain damage, coma, death
Carbon Monoxide	LC50 Inhalation Gas. Rat 1807 ppm 4 hours	Not available	Changes in body temperature, changes in blood pressure, nausea, vomiting, chest pain, difficulty breathing, irregular heartbeat, headache, drowsiness, dizziness, disorientation, hallucinations, pain in extremities, tremors, loss of coordination, hearing loss, visual disturbances, eye damage, suffocation, blood disorders, convulsions, coma
Methane	Not available	Not available	Nausea, vomiting, difficulty breathing, irregular heartbeat, headache, drowsiness, fatigue, dizziness, disorientation, mood swings, tingling sensation, loss of coordination, suffocation, convulsions, unconsciousness, coma
Oxygen	Not established	Not established	Irritation, changes in body temperature, nausea, difficulty breathing, irregular heartbeat, dizziness, disorientation, hallucinations, mood swings, pain in extremities, tremors, lung congestion, convulsions
Nitrogen	Not available	Not available	Nausea, vomiting, difficulty breathing, headache, drowsiness, dizziness, tingling sensation, loss of coordination, convulsions, coma

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	Eye Irritation	Skin Irritation	Sensitization
Hydrogen Sulfide	Irritation, sensitivity to light, visual disturbances	Irritation liquid: frostbite	Acute toxicity, Category 2, inhalation; H330: Fatal if inhaled. Specific Target Organ Toxicity (single exposure), Category 3; H335: May cause respiratory irritation. Hazardous to the aquatic environment, Acute Category 1; H400: Very toxic to aquatic life
Carbon Monoxide	No information on significant adverse effects	No information on significant adverse effects	Acute toxicity, Category 3, inhalation; H331: Toxic if inhaled. Reproductive toxicity, Category 1A; H360D: May damage the unborn child. Specific Target Organ Toxicity (repeated exposure), Category 1; H372: Causes damage to organs through prolonged or repeated exposure.
Methane	No information on significant adverse effects	No information on significant adverse effects	Difficulty breathing
Oxygen	No information on significant adverse effects	No information on significant adverse effects	No significant target effects reported.
Nitrogen	Contact with rapidly expanding gas may cause burns or frostbite	No information on significant adverse effects	Difficulty breathing

Chronic Effects

	Carcinogenicity	Mutagenicity	Reproductive Effects	Developmental Effects
Hydrogen Sulfide	Not available	Not available	Available.	No data
Carbon Monoxide	Not available	Available.	Available.	No data
Methane	Not available	Not available	Not available	No data
Oxygen	Not known.	Available.	Available.	No data
Nitrogen	Not hazardous	Not available	Not available	No data

Section 12: Ecological Information

Fate and Transport

	Eco toxicity	Persistence / Degradability	Bioaccumulation / Accumulation	Mobility in Environment
Hydrogen Sulfide	Fish toxicity: Acute LC50 7 ug/L Fresh water Fish - Fathead minnow - Pimephales promelas - FRY 96 hours; 14.9 ug/L 96 hour(s) LC50 (Mortality) Fathead minnow (Pimeph Invertibrate toxicity: 9730 ug/L 1.5 hour(s) (Mortality) Mediterranean mussel (Mytilus galloprovincialis) Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Highly toxic to aquatic life.	Not available	Not available
Carbon Monoxide	Fish toxicity: 75000 ug/L 1 day(s) LC100 (Mortality) Orangespotted sunfish (Lepomis humilis) Invertibrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Relatively non-persistent in the environment. Highly volatile from water.	Not available	Not expected to leach through the soil or the sediment.
Methane	Fish toxicity: Not available Invertibrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Relatively non-persistent in the environment. Moderately volatile from water.	Accumulates very little in the bodies of living organisms.	Not expected to leach through the soil or the sediment.
Oxygen	Fish toxicity: Not available Invertibrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Not available	Low bioaccumulation	Not available
Nitrogen	Fish toxicity: Not available Invertibrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Not available	Not available	Not available

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Section 13: Disposal Considerations

Hydrogen Sulfide	Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): U135.
Carbon Monoxide	Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001.
Methane	Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001.
Oxygen	Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001.
Nitrogen	Dispose in accordance with all applicable regulations.

Section 14: Transportation Information

U.S. DOT 49 CFR 172.101

DOT Information For This Mixture

Shipping Name	Compressed gas, n.o.s. (Nitrogen, Oxygen)
UN Number	UN1956
Hazard Class	2.2
Hazard Information	Non-Flammable Gas

Individual Component Information

	Proper Shipping Name	ID Number	Hazard Class or Division	Packing Group	Labeling Requirements	Passenger Aircraft or Railcar Quantity Limitations	Cargo Aircraft Only Quantity Limitations	Additional Shipping Description
Hydrogen Sulfide	Hydrogen sulfide	UN1053	2.3	Not applicable	2.3; 2.1	Forbidden	Forbidden	Toxic-Inhalation Hazard Zone B
Carbon Monoxide	Carbon monoxide, compressed	UN1016	2.3	Not applicable	2.3; 2.1	Forbidden	25 kg	Toxic-Inhalation Hazard Zone D
Methane	Methane, compressed	UN1971	2.1	Not applicable	2.1	Forbidden	150 kg	N/A
Oxygen	Oxygen, compressed	UN1072	2.2	Not available	2.2; 5.1	75 kg or L	150 kg	N/A
Nitrogen	Nitrogen, compressed	UN1066	2.2	Not applicable	2.2	75 kg or L	150 kg	N/A

Canadian Transportation of Dangerous Goods

	Shipping Name	UN Number	Class	Packing Group / Risk Group
Hydrogen Sulfide	HYDROGEN SULFIDE; or HYDROGEN SULPHIDE	UN1053	2.3; 2.1	Not applicable
Carbon Monoxide	Carbon monoxide, compressed	UN1016	2.3; 2.1	Not applicable
Methane	Methane, compressed	UN1971	2.1	Not applicable
Oxygen	Oxygen, compressed	UN1072	2.2; 5.1	Not applicable
Nitrogen	Nitrogen, compressed	UN1066	2.2	Not applicable

Section 15: Regulatory Information

U.S. Regulations

	CERCLA Sections	SARA 355.30	SARA 355.40
Hydrogen Sulfide	100 LBS RQ	500 LBS TPQ	100 LBS RQ
Carbon Monoxide	Not regulated.	Not regulated.	Not regulated.
Methane	Not regulated.	Not regulated.	Not regulated.
Oxygen	Not regulated.	Not regulated.	Not regulated.

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Nitrogen	Not regulated.	Not regulated.	Not regulated.

SARA 370.21

	Acute	Chronic	Fire	Reactive	Sudden Release
Hydrogen Sulfide	Yes	No	Yes	No	Yes
Carbon Monoxide	Yes	No	Yes	No	Yes
Methane	Yes	No	Yes	No	Yes
Oxygen	No	No	Yes	No	Yes
Nitrogen	Yes	No	No	No	Yes

SARA 372.65

Hydrogen Sulfide	HYDROGEN SULFIDE: Administrative stay issued Aug. 22, 1994
Carbon Monoxide	Not regulated.
Methane	Not regulated.
Oxygen	Not regulated.
Nitrogen	Not regulated.

OSHA Process Safety

Hydrogen Sulfide	1500 LBS TQ
Carbon Monoxide	Not regulated.
Methane	Not regulated.
Oxygen	Not regulated.
Nitrogen	Not regulated.

State Regulations

	CA Proposition 65
Hydrogen Sulfide	Not regulated.
Carbon Monoxide	WARNING: This product can expose you to chemicals including Carbon Monoxide, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.
Methane	Not regulated.
Oxygen	Not regulated.
Nitrogen	Not regulated.

Canadian Regulations

	WHMIS Classification
Hydrogen Sulfide	A, B1, D1A, D2B.
Carbon Monoxide	A, B1, D1A, D2A.
Methane	A, B1
Oxygen	A,C
Nitrogen	A

National Inventory Status

	US Inventory (TSCA)	TSCA 12b Export Notification	Canada Inventory (DSL/NDSL)
Hydrogen Sulfide	Listed on inventory.	Not listed.	Listed on inventory.
Carbon Monoxide	Listed on inventory.	Not listed.	Listed on inventory.
Methane	Listed on inventory.	Not listed.	Listed on inventory.
Oxygen	Listed on inventory.	Not listed.	Not determined.
Nitrogen	Listed on inventory.	Not listed.	Listed on inventory.

Section 16: Other Information

	NFPA Rating
Hydrogen Sulfide	HEALTH=4 FIRE=4 REACTIVITY=0
Carbon Monoxide	HEALTH=2 FIRE=4 REACTIVITY=0
Methane	HEALTH=0 FIRE=4 REACTIVITY=0
Oxygen	HEALTH=0 FIRE=0 REACTIVITY=0 SPECIAL=OX
Nitrogen	HEALTH=0 FIRE=0 REACTIVITY=0 SPECIAL=SA

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

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Safety Data Sheet

20ppm Hydrogen Sulfide, 60ppm Carbon Monoxide, 58% LEL Pentane Simulant, 15.0% VOL Oxygen, 2.5% VOL Carbon Dioxide; balance Nitrogen

Ideal Calibrations, LLC
2750 Oakwood Blvd.
Melvindale, MI 48122
(734) 956-0539
http://www.idealcalibrations.com/

Section 1: Product and Company Identification

Ideal Calibrations, LLC
2750 Oakwood Blvd.
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http://www.idealcalibrations.com/

Product Code: 20ppm Hydrogen Sulfide, 60ppm Carbon Monoxide, 58% LEL Pentane Simulant, 15.0% VOL Oxygen, 2.5% VOL Carbon Dioxide; balance Nitrogen
Part Number: 0522

Synonyms:
Recommended Use: Calibration of gas detection devices
Usage Restrictions: Do not use if current date is past expiration date on cylinder

Section 2: Hazards Identification

Warning

Hazard Classification:
Gases Under Pressure

Hazard Statements:
Contains gas under pressure; may explode if heated
Toxic to aquatic life

Precautionary Statements

Storage:
Protect from sunlight.
Store in well-ventilated place.

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Section 3: Composition/Information on Ingredients

	CAS #	Concentration
Hydrogen Sulfide	7783-06-4	0.002
Carbon Monoxide	630-08-0	0.006
Methane	74-82-8	1.45
Oxygen	7782-44-7	15
Carbon Dioxide	124-38-9	2.5
Nitrogen	7727-37-9	81.042

	Chemical Substance	Chemical Family	Trade Names
Hydrogen Sulfide	HYDROGEN SULFIDE	Inorganic gases	HYDROGEN SULFIDE (H2S); DIHYDROGEN MONOSULFIDE; DIHYDROGEN SULFIDE; HYDROSULFURIC ACID; SULFUR DIHYDRIDE; SULFURETED HYDROGEN; SULFUR HYDRIDE; STINK DAMP; SEWER GAS; RCRA U135; UN 1053; H2S
Carbon Monoxide	CARBON MONOXIDE	Inorganic gases	CARBON OXIDE; CARBON OXIDE (CO); UN 1016; CO
Methane	METHANE, COMPRESSED GAS	Hydrocarbons, Aliphatic, Saturated	FIRE DAMP; MARSH GAS; METHYL HYDRIDE; NATURAL GAS; METHANE; UN 1971; R50; CH4
Oxygen	OXYGEN, COMPRESSED GAS	Inorganic gases	OXYGEN; DIOXYGEN; MOLECULAR OXYGEN; OXYGEN MOLECULE; PURE OXYGEN; UN 1072; O2
Carbon Dioxide	CARBON DIOXIDE, GAS	Inorganic gases	CARBONIC ACID GAS; CARBONIC ANHYDRIDE; CARBON DIOXIDE; CARBON OXIDE; UN 1013; CO2
Nitrogen	NITROGEN, COMPRESSED GAS	Inorganic gases	DIATOMIC NITROGEN; DINITROGEN; NITROGEN; NITROGEN-14; NITROGEN GAS; UN 1066; N2

Section 4: First Aid Measures

	Skin Contact	Eye Contact	Ingestion	Inhalation	Note to Physicians
Hydrogen Sulfide	Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.	Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.	If a large amount is swallowed, get medical attention.	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.	For inhalation, consider oxygen.
Carbon Monoxide	Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.	Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.	If a large amount is swallowed, get medical attention.	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.	For inhalation, consider oxygen.
Methane	Wash exposed skin with soap and water.	Flush eyes with plenty of water.	If a large amount is swallowed, get medical attention.	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.	For inhalation, consider oxygen.

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	Skin Contact	Eye Contact	Ingestion	Inhalation	Note to Physicians
Oxygen	None expected	None expected	Not likely route of exposure	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention.	None
Carbon Dioxide	If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105-115 F; 41-46 C). DO NOT USE HOT WATER. If warm water is not available, gently wrap affected parts in blankets. Get immediate medical attention.	Contact with liquid: Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.	Do not induce vomiting.	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.	For inhalation, consider oxygen.
Nitrogen	Wash exposed skin with soap and water.	Flush eyes with plenty of water.	If a large amount is swallowed, get medical attention.	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.	For inhalation, consider oxygen.

Section 5: Fire Fighting Measures

	Suitable Extinguishing Media	Products of Combustion	Protection of Firefighters
Hydrogen Sulfide	Let burn unless leak can be stopped immediately. Large fires: Use regular foam or flood with fine water spray.	Sulfur oxides	▪ Any self-contained breathing apparatus with a full facepiece. ▪ Protective material types: butyl rubber, polyvinyl chloride (PVC), neoprene
Carbon Monoxide	Carbon dioxide, regular dry chemical Large fires: Use regular foam or flood with fine water spray.	Carbon dioxide	▪ Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. ▪ Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply.
Methane	Carbon dioxide, regular dry chemical Large fires: Use regular foam or flood with fine water spray.	Carbon monoxide, carbon dioxide, water	▪ Respiratory protection may be needed for frequent or heavy exposure. Any self-contained breathing apparatus with a full facepiece. ▪ Respiratory protection may be needed for frequent or heavy exposure. Any self-contained breathing apparatus with a full facepiece.
Oxygen	Non-flammable. Use extinguishing agent appropriate for the material which is burning. Use water in large quantities for fires involving oxygen.	Oxides of burning material	▪ Respiratory protection may be needed for frequent or heavy exposure. ▪ None
Carbon Dioxide	Non-flammable	Non-flammable	▪ Any appropriate escape-type, self-contained breathing apparatus. ▪ Non-flammable
Nitrogen	Non-flammable. Use suitable extinguishing media for surrounding fire. Cylinders may rupture or explode if exposed to heat.	Non-flammable	▪ Respiratory protection may be needed for frequent or heavy exposure.

Section 6: Accidental Release Measures

	Personal Precautions	Environmental Precautions	Methods for Containment

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	Personal Precautions	Environmental Precautions	Methods for Containment
Hydrogen Sulfide	Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas. Ventilate closed spaces before entering. Evacuation radius: 150 feet. For tank, rail car or tank truck: 800 meters (1/2 mile). Do not touch spilled material.	Avoid heat, flames, sparks and other sources of ignition.	Stop leak if possible without personal risk. Remove sources of ignition. Reduce vapors with water spray. Do not get water directly on material.
Carbon Monoxide	Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering.	Avoid heat, flames, sparks and other sources of ignition. Keep out of water supplies and sewers.	Stop leak if possible without personal risk. Reduce vapors with water spray. Remove sources of ignition.
Methane	Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering.	Avoid heat, flames, sparks and other sources of ignition.	Stop leak if possible without personal risk. Reduce vapors with water spray. Remove sources of ignition.
Oxygen	Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering.	Avoid contact with combustible materials.	Stop leak if possible without personal risk.
Carbon Dioxide	Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering. Do not touch spilled material.	Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). Keep out of water supplies and sewers.	Stop leak if possible without personal risk.
Nitrogen	Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas.	No significant effects from contamination expected.	Stop leak if possible without personal risk.

	Methods for Cleanup	Other Information
Hydrogen Sulfide	Collect runoff for disposal as potential hazardous waste. Dike for later disposal. Absorb with sand or other non-combustible material. Add an alkaline material (lime, crushed limestone, sodium bicarbonate, or soda ash).	Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).
Carbon Monoxide	Stop leak, evacuate area. Wear protective equipment.	Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65).
Methane	Not available	Not available
Oxygen	Stop leak and ventilate	None
Carbon Dioxide	Stop leak, evacuate, remove source of ignition.	None
Nitrogen	N/A	N/A

Section 7: Handling and Storage

	Handling	Storage
Hydrogen Sulfide	Store and handle in accordance with all current regulations and standards. Protect from physical damage. Store outside or in a detached building. Store in a cool, dry place. Store in a well-ventilated area. Avoid contact with light. Grounding and bonding required. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Notify State Emergency Response Commission for storage or use at amounts greater than or equal to the TPQ (U.S. EPA SARA Section 302). SARA Section 303 requires facilities storing a material with a TPQ to participate in local emergency response planning (U.S. EPA 40 CFR 355.30). Keep separated from incompatible substances.	Subject to handling regulations: U.S. OSHA 29 CFR 1910.119.
Carbon Monoxide	Keep separated from incompatible substances.	Store and handle in accordance with all current regulations and standards. Grounding and bonding required. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101.
Methane	Store and handle in accordance with all current regulations and standards. Grounding and bonding required. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101.	Keep separated from incompatible substances.
Oxygen	Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101.	Keep separated from incompatible substances.
Carbon Dioxide	Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Keep separated from incompatible substances.	Store and handle in accordance with all current regulations and standards
Nitrogen	Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101.	Keep separated from incompatible substances.

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Section 8: Exposure Controls/Personal Protection

	Exposure Guidelines
Hydrogen Sulfide	HYDROGEN SULFIDE: 20 ppm OSHA ceiling 50 ppm OSHA peak 10 minute(s) (once if no other measurable exposure occurs) 10 ppm (14 mg/m3) OSHA TWA (vacated by 58 FR 35338, June 30, 1993) 15 ppm (21 mg/m3) OSHA STEL (vacated by 58 FR 35338, June 30, 1993) 10 ppm ACGIH TWA 15 ppm ACGIH STEL 10 ppm (15 mg/m3) NIOSH recommended ceiling 10 minute(s) TLV-TWA: 1ppm Upper respiratory irritation (ACGIH)
Carbon Monoxide	CARBON MONOXIDE: 50 ppm (55 mg/m3) OSHA TWA 35 ppm (40 mg/m3) OSHA TWA (vacated by 58 FR 35338, June 30, 1993) 200 ppm (229 mg/m3) OSHA ceiling (vacated by 58 FR 35338, June 30, 1993) 25 ppm ACGIH TWA 35 ppm (40 mg/m3) NIOSH recommended TWA 10 hour(s) 200 ppm (229 mg/m3) NIOSH recommended ceiling
Methane	METHANE, COMPRESSED GAS: ALIPHATIC HYDROCARBON GASES ALKANE (C1-C4): 1000 ppm ACGIH TWA METHANE: No occupational exposure limits established. ALIPHATIC HYDROCARBON GASES ALKANE (C1-C4): 1000 ppm ACGIH TWA
Oxygen	OXYGEN, COMPRESSED GAS: No occupational exposure limits established.
Carbon Dioxide	CARBON DIOXIDE, GAS: CARBON DIOXIDE: 5000 ppm (9000 mg/m3) OSHA TWA 10000 ppm (18000 mg/m3) OSHA TWA (vacated by 58 FR 35338, June 30, 1993) 30000 ppm (54000 mg/m3) OSHA STEL (vacated by 58 FR 35338, June 30, 1993) 5000 ppm ACGIH TWA 30000 ppm ACGIH STEL 5000 ppm (9000 mg/m3) NIOSH recommended TWA 10 hour(s) 30000 ppm (54000 mg/m3) NIOSH recommended STEL
Nitrogen	NITROGEN, COMPRESSED GAS: NITROGEN: ACGIH (simple asphyxiant)

Engineering Controls

Handle only in fully enclosed systems.

	Eye Protection	Skin Protection	Respiratory Protection
Hydrogen Sulfide	Wear splash resistant safety goggles with a face shield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.	Wear appropriate chemical resistant clothing.	Any self-contained breathing apparatus with a full facepiece.
Carbon Monoxide	Eye protection not required, but recommended.	Protective clothing is not required.	Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply.
Methane	Eye protection not required, but recommended.	Protective clothing is not required.	Respiratory protection may be needed for frequent or heavy exposure. Any self-contained breathing apparatus with a full facepiece.
Oxygen	Eye protection not required, but recommended.	Protective clothing is not required.	Respiratory protection may be needed for frequent or heavy exposure.
Carbon Dioxide	For the gas: Eye protection not required, but recommended. For the liquid: Wear splash resistant safety goggles. Contact lenses should not be worn. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.	For the gas: Protective clothing is not required. For the liquid: Wear appropriate protective, cold insulating clothing.	Any appropriate escape-type, self-contained breathing apparatus.
Nitrogen	Eye protection not required, but recommended.	Protective clothing is not required.	Respiratory protection may be needed for frequent or heavy exposure.

General Hygiene considerations

- Avoid breathing vapor or mist
- Avoid contact with eyes and skin
- Wash thoroughly after handling and before eating or drinking

Section 9: Physical and Chemical Properties

	Physical State	Appearance	Color	Change in Appearance	Physical Form	Odor	Taste
Hydrogen Sulfide	Gas	Colorless	Colorless	N/A	Gas	Rotten egg odor	N/A
Carbon Monoxide	Gas	Colorless	Colorless	N/A	Gas	Odorless	Tasteless
Methane	Gas	Colorless	Colorless	N/A	Gas	Odorless	Tasteless
Oxygen	Gas	Clear	Colorless	N/A	Gas	Odorless	Tasteless
Carbon Dioxide	Gas	Colorless	Colorless	N/A	Gas	Odorless	Acid taste
Nitrogen	Gas	Clear	Colorless	N/A	Gas	Odorless	Tasteless

	Flash Point	Flammability	Partition Coefficient	Autoignition Temperature	Upper Explosive Limits	Lower Explosive Limits

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	Flash Point	Flammability	Partition Coefficient	Autoignition Temperature	Upper Explosive Limits	Lower Explosive Limits
Hydrogen Sulfide	Flammable	Not available	Not available	500 F (260 C)	45.5%	3.9%
Carbon Monoxide	Flammable	Not available	1479.11 (log = 3.17) (estimated from water solubility)	1128-1202 F (609-650 C)	0.74	12.0-12.5%
Methane	-369 F (-223 C)	Not available	724.44 (log = 2.87) (estimated from water solubility)	999 F (537 C)	15%	5%
Oxygen	Not flammable	Not available	Not available	Nonflammable	Nonflammable	Nonflammable
Carbon Dioxide	Not flammable	Not available	N/A	Nonflammable	Nonflammable	Nonflammable
Nitrogen	Not flammable	Not available	Not available	Nonflammable	Nonflammable	Nonflammable

	Boiling Point	Freezing Point	Vapor Pressure	Vapor Density	Specific Gravity	Water Solubility	pH	Odor Threshold	Evaporation Rate	Viscosity
Hydrogen Sulfide	-78 to -77 F (-61 to -60.3 C)	-123 F (-86 C)	15200 mmHg @ 25 C	1.2 (Air=1)	1.192	2.58-2.9% @ 20 C	4.5-<7 (saturated solution)	0.13 ppm	Not applicable	0.0128 cP @ 25 C
Carbon Monoxide	-312.7 F (-191.5 C)	-326 F (-199 C)	760 mmHg @ -191 C gas; cannot be liquefied at room temperature	0.968 (Air=1)	Not applicable	2.3% @ 20 C	Not applicable	Not available	Not applicable	0.01657 cP @ 0 C
Methane	-260 F (-162 C)	-297 F (-183 C)	760 mmHg @ -161 C	0.555 (Air=1)	Not applicable	3.5% @ 17 C	Not applicable	Not available	Not applicable	0.01118 cP @ 27 C
Oxygen	-297 F (-183 C)	-360 F (-218 C)	760 mmHg @ -183 C	1.1 (Air=1)	Not applicable	3.2% @ 25 C	Not applicable	Not available	Not applicable	0.02075 cP @ 25 C
Carbon Dioxide	Not available	-71 F (-57 C) @ 4000 mmHg	43700 mmHg @ 21 C	1.5 (Air=1)	1.522 @ 21 C	Soluble	3.7 (saturated aqueous solution) @ 101.3 kPa (carbonic acid)	Not available	Not applicable	0.01657 cP @ 0 C
Nitrogen	-321 F (-196 C)	-346 F (-210 C)	760 mmHg @ -196 C	0.967 (Air=1)	Not applicable	1.6% @ 20 C	Not applicable	Not available	Not applicable	0.01787 cP @ 27 C

	Molecular Weight	Molecular Formula	Density	Weight per Gallon	Volatility by Volume	Volatility	Solvent Solubility
Hydrogen Sulfide	34.08	H2-S	1.539 g/L @ 0 C	Not available	Not available	Not applicable	Soluble: Carbon disulfide, alcohol, ether, glycerol, gasolines, kerosene, crude oil, alkali solutions
Carbon Monoxide	28.01	C-O	1.250 g/L @ 0 C	Not available	100%	Not applicable	Soluble: Alcohol, benzene, acetic acid, ethyl acetate, chloroform, cuprous chloride solutions
Methane	16.04	C-H4	0.717 g/L @ 0 C	Not available	Not applicable	Not applicable	Soluble: Alcohol, ether, benzene, organic solvents
Oxygen	31.9988	O2	1.309 g/L @ 25 C	Not available	Not applicable	Not applicable	Soluble: Alcohol
Carbon Dioxide	44.01	C-O2	0.114	Not available	Not applicable	Not applicable	Soluble: Alcohol, acetone, hydrocarbons, organic solvents
Nitrogen	28.0134	N2	1.2506 g/L	Not available	100%	1	Soluble: Liquid ammonia

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Section 10: Stability and Reactivity

	Stability	Conditions to Avoid	Incompatible Materials
Hydrogen Sulfide	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	Combustible materials, metals, oxidizing materials, halogens, metal oxides, metal salts, bases, rust, oxidants, oxygen, copper powder, acetaldehyde, silver fulminate
Carbon Monoxide	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	Oxidizing materials, halogens, metal oxides, metals, combustible materials, lithium
Methane	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	Halogens, oxidizing materials, combustible materials
Oxygen	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	Combustible materials, halo carbons, metals, bases, reducing agents, amines, metal salts, oxidizing materials, alkaline earth and alkali metals
Carbon Dioxide	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	Combustible materials, oxidizing materials, metal salts, reducing agents, metal carbide, metals, bases
Nitrogen	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	Metals, oxidizing materials

	Hazardous Decomposition Products	Possibility of Hazardous Reactions
Hydrogen Sulfide	Oxides of sulfur	Will not polymerize.
Carbon Monoxide	Oxides of carbon	Will not polymerize.
Methane	Oxides of carbon	Will not polymerize.
Oxygen	Miscellaneous decomposition products	Will not polymerize.
Carbon Dioxide	Carbon monoxide	Will not polymerize.
Nitrogen	Oxides of nitrogen	Will not polymerize.

Section 11: Toxicology Information

Acute Effects

	Oral LD50	Dermal LD50	Inhalation
Hydrogen Sulfide	444 ppm inhalation-rat LC50	Irritation 0.000125 ppm/5 hour(s) eyes-human	Irritation, lack of sense of smell, sensitivity to light, nausea, vomiting, difficulty breathing, headache, drowsiness, dizziness, disorientation, tremors, visual disturbances, suffocation, lung congestion, internal bleeding, heart damage, nerve damage, brain damage, coma, death
Carbon Monoxide	LC50 Inhalation Gas. Rat 1807 ppm 4 hours	Not available	Changes in body temperature, changes in blood pressure, nausea, vomiting, chest pain, difficulty breathing, irregular heartbeat, headache, drowsiness, dizziness, disorientation, hallucinations, pain in extremities, tremors, loss of coordination, hearing loss, visual disturbances, eye damage, suffocation, blood disorders, convulsions, coma
Methane	Not available	Not available	Nausea, vomiting, difficulty breathing, irregular heartbeat, headache, drowsiness, fatigue, dizziness, disorientation, mood swings, tingling sensation, loss of coordination, suffocation, convulsions, unconsciousness, coma
Oxygen	Not established	Not established	Irritation, changes in body temperature, nausea, difficulty breathing, irregular heartbeat, dizziness, disorientation, hallucinations, mood swings, pain in extremities, tremors, lung congestion, convulsions
Carbon Dioxide	Not established	Not established	Ringing in the ears, nausea, irregular heartbeat, headache, drowsiness, dizziness, tingling sensation, visual disturbances, suffocation, convulsions, coma
Nitrogen	Not available	Not available	Nausea, vomiting, difficulty breathing, headache, drowsiness, dizziness, tingling sensation, loss of coordination, convulsions, coma

	Eye Irritation	Skin Irritation	Sensitization
Hydrogen Sulfide	Irritation, sensitivity to light, visual disturbances	Irritation liquid: frostbite	Acute toxicity, Category 2, inhalation; H330: Fatal if inhaled. Specific Target Organ Toxicity (single exposure), Category 3; H335: May cause respiratory irritation. Hazardous to the aquatic environment, Acute Category 1; H400: Very toxic to aquatic life
Carbon Monoxide	No information on significant adverse effects	No information on significant adverse effects	Acute toxicity, Category 3, inhalation; H331: Toxic if inhaled. Reproductive toxicity, Category 1A; H360D: May damage the unborn child. Specific Target Organ Toxicity (repeated exposure), Category 1; H372: Causes damage to organs through prolonged or repeated exposure.

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	Eye Irritation	Skin Irritation	Sensitization
Methane	No information on significant adverse effects	No information on significant adverse effects	Difficulty breathing
Oxygen	No information on significant adverse effects	No information on significant adverse effects	No significant target effects reported.
Carbon Dioxide	Irritation, frostbite, blurred vision	Liquid: blisters, frostbite	Difficulty breathing
Nitrogen	Contact with rapidly expanding gas may cause burns or frostbite	No information on significant adverse effects	Difficulty breathing

Chronic Effects

	Carcinogenicity	Mutagenicity	Reproductive Effects	Developmental Effects
Hydrogen Sulfide	Not available	Not available	Available.	No data
Carbon Monoxide	Not available	Available.	Available.	No data
Methane	Not available	Not available	Not available	No data
Oxygen	Not known.	Available.	Available.	No data
Carbon Dioxide	Not available	Not established	Available.	No data
Nitrogen	Not hazardous	Not available	Not available	No data

Section 12: Ecological Information

Fate and Transport

	Eco toxicity	Persistence / Degradability	Bioaccumulation / Accumulation	Mobility in Environment
Hydrogen Sulfide	Fish toxicity: Acute LC50 7 ug/L Fresh water Fish - Fathead minnow - Pimephales promelas - FRY 96 hours; 14.9 ug/L 96 hour(s) LC50 (Mortality) Fathead minnow (Pimeph Invertibrate toxicity: 9730 ug/L 1.5 hour(s) (Mortality) Mediterranean mussel (Mytilus galloprovincialis) Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Highly toxic to aquatic life.	Not available	Not available
Carbon Monoxide	Fish toxicity: 75000 ug/L 1 day(s) LC100 (Mortality) Orangespotted sunfish (Lepomis humilis) Invertibrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Relatively non-persistent in the environment. Highly volatile from water.	Not available	Not expected to leach through the soil or the sediment.
Methane	Fish toxicity: Not available Invertibrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Relatively non-persistent in the environment. Moderately volatile from water.	Accumulates very little in the bodies of living organisms.	Not expected to leach through the soil or the sediment.
Oxygen	Fish toxicity: Not available Invertibrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Not available	Low bioaccumulation	Not available
Carbon Dioxide	Fish toxicity: 150000 ug/L 48 day(s) (Mortality) Brown trout (Salmo trutta) Invertibrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Relatively non-persistent in the environment. Moderately volatile from water.	Accumulates very little in the bodies of living organisms.	Leaches through the soil
Nitrogen	Fish toxicity: Not available Invertibrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Not available	Not available	Not available

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Section 13: Disposal Considerations

Hydrogen Sulfide	Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): U135.
Carbon Monoxide	Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001.
Methane	Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001.
Oxygen	Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001.
Carbon Dioxide	Dispose in accordance with all applicable regulations.
Nitrogen	Dispose in accordance with all applicable regulations.

Section 14: Transportation Information

U.S. DOT 49 CFR 172.101

DOT Information For This Mixture

Shipping Name	Compressed gas, n.o.s. (Nitrogen, Oxygen)
UN Number	UN1956
Hazard Class	2.2
Hazard Information	Non-Flammable Gas

Individual Component Information

	Proper Shipping Name	ID Number	Hazard Class or Division	Packing Group	Labeling Requirements	Passenger Aircraft or Railcar Quantity Limitations	Cargo Aircraft Only Quantity Limitations	Additional Shipping Description
Hydrogen Sulfide	Hydrogen sulfide	UN1053	2.3	Not applicable	2.3; 2.1	Forbidden	Forbidden	Toxic-Inhalation Hazard Zone B
Carbon Monoxide	Carbon monoxide, compressed	UN1016	2.3	Not applicable	2.3; 2.1	Forbidden	25 kg	Toxic-Inhalation Hazard Zone D
Methane	Methane, compressed	UN1971	2.1	Not applicable	2.1	Forbidden	150 kg	N/A
Oxygen	Oxygen, compressed	UN1072	2.2	Not available	2.2; 5.1	75 kg or L	150 kg	N/A
Carbon Dioxide	Carbon dioxide	UN1013	2.2	Not applicable	2.2	75 kg or L	150kg	None
Nitrogen	Nitrogen, compressed	UN1066	2.2	Not applicable	2.2	75 kg or L	150 kg	N/A

Canadian Transportation of Dangerous Goods

	Shipping Name	UN Number	Class	Packing Group / Risk Group
Hydrogen Sulfide	HYDROGEN SULFIDE; or HYDROGEN SULPHIDE	UN1053	2.3; 2.1	Not applicable
Carbon Monoxide	Carbon monoxide, compressed	UN1016	2.3; 2.1	Not applicable
Methane	Methane, compressed	UN1971	2.1	Not applicable
Oxygen	Oxygen, compressed	UN1072	2.2; 5.1	Not applicable
Carbon Dioxide	Carbon dioxide	UN1013	2.2	Not applicable
Nitrogen	Nitrogen, compressed	UN1066	2.2	Not applicable

Section 15: Regulatory Information

U.S. Regulations

	CERCLA Sections	SARA 355.30	SARA 355.40

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Hydrogen Sulfide	100 LBS RQ	500 LBS TPQ	100 LBS RQ
Carbon Monoxide	Not regulated.	Not regulated.	Not regulated.
Methane	Not regulated.	Not regulated.	Not regulated.
Oxygen	Not regulated.	Not regulated.	Not regulated.
Carbon Dioxide	Not regulated.	Not regulated.	Not regulated.
Nitrogen	Not regulated.	Not regulated.	Not regulated.

SARA 370.21

	Acute	Chronic	Fire	Reactive	Sudden Release
Hydrogen Sulfide	Yes	No	Yes	No	Yes
Carbon Monoxide	Yes	No	Yes	No	Yes
Methane	Yes	No	Yes	No	Yes
Oxygen	No	No	Yes	No	Yes
Carbon Dioxide	Yes	No	No	No	Yes
Nitrogen	Yes	No	No	No	Yes

SARA 372.65

Hydrogen Sulfide	HYDROGEN SULFIDE: Administrative stay issued Aug. 22, 1994
Carbon Monoxide	Not regulated.
Methane	Not regulated.
Oxygen	Not regulated.
Carbon Dioxide	Not regulated.
Nitrogen	Not regulated.

OSHA Process Safety

Hydrogen Sulfide	1500 LBS TQ
Carbon Monoxide	Not regulated.
Methane	Not regulated.
Oxygen	Not regulated.
Carbon Dioxide	Not regulated.
Nitrogen	Not regulated.

State Regulations

	CA Proposition 65
Hydrogen Sulfide	Not regulated.
Carbon Monoxide	WARNING: This product can expose you to chemicals including Carbon Monoxide, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.
Methane	Not regulated.
Oxygen	Not regulated.
Carbon Dioxide	Not regulated.
Nitrogen	Not regulated.

Canadian Regulations

	WHMIS Classification
Hydrogen Sulfide	A, B1, D1A, D2B.
Carbon Monoxide	A, B1, D1A, D2A.
Methane	A, B1
Oxygen	A,C
Carbon Dioxide	A
Nitrogen	A

National Inventory Status

	US Inventory (TSCA)	TSCA 12b Export Notification	Canada Inventory (DSL/NDSL)
Hydrogen Sulfide	Listed on inventory.	Not listed.	Listed on inventory.
Carbon Monoxide	Listed on inventory.	Not listed.	Listed on inventory.
Methane	Listed on inventory.	Not listed.	Listed on inventory.
Oxygen	Listed on inventory.	Not listed.	Not determined.
Carbon Dioxide	Listed on inventory.	Not listed.	Listed on inventory.
Nitrogen	Listed on inventory.	Not listed.	Listed on inventory.

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Section 16: Other Information

	NFPA Rating
Hydrogen Sulfide	HEALTH=4 FIRE=4 REACTIVITY=0
Carbon Monoxide	HEALTH=2 FIRE=4 REACTIVITY=0
Methane	HEALTH=0 FIRE=4 REACTIVITY=0
Oxygen	HEALTH=0 FIRE=0 REACTIVITY=0 SPECIAL=OX
Carbon Dioxide	HEALTH=3 FIRE=0 REACTIVITY=0 SPECIAL=SA
Nitrogen	HEALTH=0 FIRE=0 REACTIVITY=0 SPECIAL=SA

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

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SAFETY DATA SHEET

Creation Date 30-Oct-2009 **Revision Date** 24-Dec-2021 **Revision Number** 4

1. Identification

Product Name **Potassium hydrogen phthalate**

Cat No. : **AC177120000; AC177120025; AC177120050; AC177121000; AC177125000**

CAS No 877-24-7
Synonyms Potassium acid phthalate; Potassium biphthalate

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company
Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
Classification under 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Label Elements
None required

Hazards not otherwise classified (HNOC)
None identified

3. Composition/Information on Ingredients

Component	CAS No	Weight %
1,2-Benzenedicarboxylic acid, monopotassium salt	877-24-7	>95

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention if irritation persists.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Get medical attention immediately if symptoms occur.

Inhalation Remove to fresh air. Get medical attention immediately if symptoms occur. If not breathing, give artificial respiration.

Ingestion Do NOT induce vomiting. Get medical attention.

Most important symptoms and effects No information available.

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray, carbon dioxide (CO2), dry chemical, alcohol-resistant foam.

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature No information available
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Keep product and empty container away from heat and sources of ignition. Thermal decomposition can lead to release of irritating gases and vapors.

Hazardous Combustion Products
Carbon monoxide (CO). Carbon dioxide (CO_2).
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
1	1	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation.

Environmental Precautions Should not be released into the environment. See Section 12 for additional Ecological Information.

Methods for Containment and Clean Up Sweep up and shovel into suitable containers for disposal. Avoid dust formation.

7. Handling and storage

Handling Wear personal protective equipment/face protection. Ensure adequate ventilation. Avoid contact with skin, eyes or clothing. Avoid ingestion and inhalation. Avoid dust formation.

Storage. Keep containers tightly closed in a dry, cool and well-ventilated place. Incompatible Materials. Strong oxidizing agents.

8. Exposure controls / personal protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limitsestablished by the region specific regulatory bodies.

Engineering Measures None under normal use conditions.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection No protective equipment is needed under normal use conditions.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Solid
Appearance	White
Odor	Odorless
Odor Threshold	No information available
pH	3.8-4.0 5% aq.sol
Melting Point/Range	295 - 300 °C / 563 - 572 °F
Boiling Point/Range	No information available
Flash Point	No information available
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	Not applicable
Specific Gravity	No information available
Solubility	Slightly soluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	Not applicable
Molecular Formula	C8 H5 K O4
Molecular Weight	204.22

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products. Excess heat. Avoid dust formation.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
1,2-Benzenedicarboxylic acid, monopotassium salt	LD50 > 3200 mg/kg (Rat)	>1000 mg/kg	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
1,2-Benzenedicarboxylic acid, monopotassium salt	877-24-7	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known

STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

Do not empty into drains.

Persistence and Degradability Soluble in water Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its water solubility.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT Not regulated
TDG Not regulated
IATA Not regulated
IMDG/IMO Not regulated

15. Regulatory information

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
1,2-Benzenedicarboxylic acid, monopotassium salt	877-24-7	X	ACTIVE	-

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
1,2-Benzenedicarboxylic acid, monopotassium salt	877-24-7	X	-	212-889-4	X	X	X	X	X	KE-02310

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313 Not applicable

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act) Not applicable

Clean Air Act Not applicable

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA Not applicable

California Proposition 65 This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations Not applicable

U.S. Department of Transportation
Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Authorisation/Restrictions according to EU REACH

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
1,2-Benzenedicarboxylic acid, monopotassium salt	877-24-7	Not applicable	Not applicable	Not applicable	Not applicable

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
1,2-Benzenedicarboxylic acid, monopotassium salt	877-24-7	Not applicable	Not applicable	Not applicable	Not applicable

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 30-Oct-2009
Revision Date 24-Dec-2021
Print Date 24-Dec-2021
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

HORIBA

SAFETY DATA SHEET

Section 1. Product and Company Identification

Product Name: 525-4, 500-4, 560-4 (pH 4.01 buffer solution)

Product code: 3999960018, 3999960029, 3999960146

Recommended use: For laboratory and Industrial use

Manufacturer / Supplier: Horiba Instruments (Singapore) Pte Ltd
83 Science Park Drive, #02-02A, The Curie
Singapore-118258
Contact No: +65 69089600

Section 2. Hazard identification

Classification of the Substance or Mixture: Mixture

The mixture is classified as not hazardous according to regulation (EC) 1272/2008, Globally Harmonized System (GHS)

GHS Label elements:

Signal word: No Signal word
Hazard statement: No Known significant effects or critical hazards

Precautionary statements:
General: Do not handle until all safety precautions have been read and understood

Other hazards which do not result in classification: None known

Section 3. Composition/ information on ingredients

Substance or Mixture: Mixture

CAS Numbers other identifiers:

Ingredients	CAS Number	Percentage
Potassium Hydrogen Phthalate	877-24-7	<2%
Water	7732-18-5	>98%

This product contains <0.01% other ingredient, not required to be listed as it is not hazardous to health and environment.

The exact percentage of composition has been withheld as a trade secret

Chemical formula: Not applicable

Section 4. First Aid Measures

Description of necessary first aid measures

Eye contact:	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Remove any contact lenses. Get medical attention if irritation occurs.
Inhalation:	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
Skin contact:	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Ingestion:	Clean mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Most important symptoms/effects, both acute and delayed

Potential acute health effects: No known significant effects or critical hazards

Over-exposure signs/symptoms: No specific data available

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

See toxicological information (Section 11)

Section 5. Firefighting Measures

Extinguishing Media

Suitable extinguishing media: Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing Media: No Information available

Specific hazards arising from the substance or mixture: No specific information available

Hazardous thermal decomposition products: No Specific data

Special protective actions for Fire-fighters: Promptly isolate the scene by removing all persons from the incident if there is fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus with a full face-piece operated in positive pressure mode.

Section 6. Accidental release Measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material

For emergency responders: If specialized clothing is required to deal with the spillage, take note of any information in section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel"

Environmental precautions: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, water ways, soil and air

Methods and material for containment and cleaning up:

Method for Containment: Prevent further leakage or spillage if safe to do so.

Methods of cleaning up: Soak up with inert absorbent material. Pick up and transfer to properly labelled containers.

Section 7. Handling and storage

Precautions for safe handling

Protective measures: Put on appropriate personal protective equipment (see Section 8).

Advice on general occupational hygiene: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas.

Conditions for safe storage, including any incompatibilities: Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits: None

Appropriate engineering controls: Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Hand protection:	Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
Body protection:	Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Other skin protection:	Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Respiratory protection:	Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Appearance	
Physical state:	Liquid
Colour:	Colourless
Odour:	Odourless
Odour Threshold:	Not available
pH:	4.01
Melting Point:	Not available
Boiling Point:	100° C
Flash point:	[Product does not sustain combustion.]
Evaporation rate:	Not available
Flammability (solid, gas):	Not available
Lower and upper explosive (Flammable) limits:	Not available
Vapour pressure:	Not available
Vapour density:	Not available
Relative density:	Not available
Partition coefficient n- octanol/water:	Not available
Auto-ignition temperature:	Not available
Decomposition temperature:	Not available
Viscosity:	Not available

Section 10. Stability and reactivity

Reactivity:	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability:	The product is stable
Possibility of hazardous reactions:	Hazardous reactions or instability may occur under certain conditions of storage or use.
Conditions to avoid:	No specific data
Incompatible materials:	No specific data
Hazardous decomposition Products:	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological Information

Information on toxicological effects

Acute toxicity:	Not available
Irritation/Corrosion:	Not available
Sensitization:	Not available
Mutagenicity:	Not available
Carcinogenicity:	Not available
Reproductive toxicity:	Not available
Teratogenicity:	Not available
Specific target organ toxicity (single exposure):	Not available
Specific target organ toxicity (repeated exposure):	Not available
Aspiration hazard:	Not available
Information on the likely routes of exposure:	Not available

Potential acute effects:

Eye contact:	No known significant effects or critical hazards
Inhalation:	No known significant effects or critical hazards
Skin contact:	No known significant effects or critical hazards
Ingestion:	No known significant effects or critical hazards

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact:	No specific data
Inhalation:	No specific data
Skin contact:	No specific data
Ingestion:	No specific data

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects:	Not available
Potential delayed effects:	Not available

Long term exposure

Potential immediate effects	Not available
Potential delayed effects:	Not available

Potential chronic health effects:	Not available
General:	No known significant effects or critical hazards
Carcinogenicity:	No known significant effects or critical hazards
Mutagenicity:	No known significant effects or critical hazards
Teratogenicity:	No known significant effects or critical hazards
Developmental effects:	No known significant effects or critical hazards
Fertility effects:	No known significant effects or critical hazards

Numerical measures of toxicity

Acute toxicity estimates:	Not available

Section 12. Ecological information

Toxicity:	Not available
Persistence/degradability:	Not available

Bio accumulative potential: Not available

Mobility in soil
Soil/water
partition coefficient (K_{OC}): Not available

Other adverse effects: No known significant effects or critical hazards.

Section 13. Disposal consideration

Disposal methods: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non- recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	UN	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-
Transport hazard class(es)	-	-	-
Packing group	-	-	-
Environmental hazards	No.	No.	No.
Additional information	-	-	-

Special precautions for user: Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 15. Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture.
International Inventories:
USINV Complies

CANINV	Complies
EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
KECL	Complies
PICCS	Complies
AICS	Complies

Key of abbreviation:
USINV / TSCA: United States Toxic Substanc3es Control Act Section 8(b) Inventory
CANINV / DSL/NDSL: Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS: European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
ENCS: Japanese Existing and New Chemical Substances
IECSC: Chinese Inventory of Existing Chemical Substances
KECL: Korean Existing and Evaluated Chemical Substances
PICCS: Philippines Inventory of Chemical and Chemical Substances
AICS: Australian Inventory of Chemical Substances

Chemical safety assessment:
A chemical safety assessment according to regulation (EC) No: 1907/2006 is not required.

Section 16. Other information

History:

Date of issue: 6 March 2018

Key of abbreviation:
ATE: Acute Toxicity Estimate
BCF: Bioconcentration Factor
GHS: Globally harmonized System of classification and labelling of chemicals
IATA: International Air Transport Association
IBC= Intermediate Bulk Container
IMDG International maritime Dangerous goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

Notice to reader:

To the best of our knowledge, the information contained herein is accurate. However, neither the above- named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

HORIBA

SAFETY DATA SHEET

Section 1. Product and Company Identification

Product Name: 525-7, 500-7, 560-7 (pH 7 buffer solution)

Product code: 3999960020, 3999960031, 3999960147

Recommended use: For laboratory and Industrial use

Manufacturer / Supplier: Horiba Instruments (Singapore) Pte Ltd
83 Science Park Drive, #02-02A, The Curie
Singapore-118258
Contact No: +65 69089600

Section 2. Hazard identification

Classification of the Substance or Mixture: Mixture

The mixture is classified as not hazardous according to regulation (EC) 1272/2008, Globally Harmonized System (GHS)

GHS Label elements:

Signal word: No Signal word
Hazard statement: No Known significant effects or critical hazards

Precautionary statements:
General: Do not handle until all safety precautions have been read and understood

Other hazards which do not result in classification: None known

Section 3. Composition/ information on ingredients

Substance or Mixture: Mixture

CAS Numbers other identifiers:

Ingredients	CAS Number	Percentage
Potassium Dihydrogen Phosphate	7778-77-0	<1%
Disodium Hydrogen Phosphate	7558-79-4	<1%
Water	7732-18-5	>98%

This product contains <0.01% other ingredient, not required to be listed as it is not hazardous to health and environment.

The exact percentage of composition has been withheld as a trade secret

Chemical formula: Not applicable

Section 4. First Aid Measures

Description of necessary first aid measures

Eye contact:	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Remove any contact lenses. Get medical attention if irritation occurs.
Inhalation:	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
Skin contact:	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Ingestion	Clean mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Most important symptoms/effects, both acute and delayed

Potential acute health effects: No known significant effects or critical hazards

Over-exposure signs/symptoms: No specific data available

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

See toxicological information (Section 11)

Section 5. Firefighting Measures

Extinguishing Media

Suitable extinguishing media: Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing Media: No Information available

Specific hazards arising from the substance or mixture: No specific information available

Hazardous thermal decomposition products: No Specific data

Special protective actions for Fire-fighters: Promptly isolate the scene by removing all persons from the incident if there is fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus with a full face-piece operated in positive pressure mode.

Section 6. Accidental release Measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material

For emergency responders: If specialized clothing is required to deal with the spillage, take note of any information in section 8 on suitable and unsuitable materials. See also the information in “For non-emergency personnel”

Environmental precautions: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, water ways, soil and air

Methods and material for containment and cleaning up:

Method for Containment: Prevent further leakage or spillage if safe to do so.

Methods of cleaning up: Soak up with inert absorbent material. Pick up and transfer to properly labelled containers.

Section 7. Handling and storage

Precautions for safe handling
Protective measures: Put on appropriate personal protective equipment (see Section 8).

Advice on general occupational hygiene: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas.

Conditions for safe storage, including any incompatibilities: Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits: None

Appropriate engineering controls: Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures
Hygiene measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Hand protection:	Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
Body protection:	Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Other skin protection:	Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Respiratory protection:	Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Appearance	
Physical state:	Liquid
Colour:	Colourless
Odour:	Odourless
Odour Threshold:	Not available
pH:	6.86
Melting Point:	Not available
Boiling Point:	100° C
Flash point:	[Product does not sustain combustion.]
Evaporation rate:	Not available
Flammability (solid, gas):	Not available
Lower and upper explosive (Flammable) limits:	Not available
Vapour pressure:	Not available
Vapour density:	Not available
Relative density:	Not available
Partition coefficient n- octanol/water:	Not available
Auto-ignition temperature:	Not available
Decomposition temperature:	Not available
Viscosity:	Not available

Section 10. Stability and reactivity

Reactivity:	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability:	The product is stable
Possibility of hazardous reactions:	Hazardous reactions or instability may occur under certain conditions of storage or use.
Conditions to avoid:	No specific data
Incompatible materials:	No specific data
Hazardous decomposition Products:	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological Information

Information on toxicological effects

Acute toxicity:	Not available
Irritation/Corrosion:	Not available
Sensitization:	Not available
Mutagenicity:	Not available
Carcinogenicity:	Not available
Reproductive toxicity:	Not available
Teratogenicity:	Not available
Specific target organ toxicity (single exposure):	Not available
Specific target organ toxicity (repeated exposure):	Not available
Aspiration hazard:	Not available
Information on the likely routes of exposure:	Not available

Potential acute effects:

Eye contact:	No known significant effects or critical hazards
Inhalation:	No known significant effects or critical hazards
Skin contact:	No known significant effects or critical hazards
Ingestion:	No known significant effects or critical hazards

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact:	No specific data
Inhalation:	No specific data
Skin contact:	No specific data
Ingestion:	No specific data

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects:	Not available
Potential delayed effects:	Not available

Long term exposure

Potential immediate effects:	Not available
Potential delayed effects:	Not available

Potential chronic health effects: Not available

General:	No known significant effects or critical hazards
Carcinogenicity:	No known significant effects or critical hazards
Mutagenicity:	No known significant effects or critical hazards
Teratogenicity:	No known significant effects or critical hazards
Developmental effects:	No known significant effects or critical hazards
Fertility effects:	No known significant effects or critical hazards

Numerical measures of toxicity

Acute toxicity estimates: Not available

Section 12. Ecological information

Toxicity: Not available

Persistence/degradability: Not available

Bio accumulative potential: Not available

Mobility in soil

Soil/water partition coefficient (K_{OC}): Not available

Other adverse effects: No known significant effects or critical hazards.

Section 13. Disposal consideration

Disposal methods: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non- recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	UN	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-
Transport hazard class(es)	-	-	-
Packing group	-	-	-
Environmental hazards	No.	No.	No.
Additional information	-	-	-

Special precautions for user: Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 15. Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture.

International Inventories:

USINV	Complies
CANINV	Complies
EINECS/ELINCS	Complies
ENCS	Complies

IECSC	Complies
KECL	Complies
PICCS	Complies
AICS	Complies

Key of abbreviation:
USINV / TSCA: United States Toxic Substanc3es Control Act Section 8(b) Inventory
CANINV / DSL/NDSL: Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS: European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
ENCS: Japanese Existing and New Chemical Substances
IECSC: Chinese Inventory of Existing Chemical Substances
KECL: Korean Existing and Evaluated Chemical Substances
PICCS: Philippines Inventory of Chemical and Chemical Substances
AICS: Australian Inventory of Chemical Substances

Chemical safety assessment:
A chemical safety assessment according to regulation (EC) No: 1907/2006 is not required.

Section 16. Other information

History:

Date of issue: 28 Feb 2018

Key of abbreviation:
ATE: Acute Toxicity Estimate
BCF: Bioconcentration Factor
GHS: Globally harmonized System of classification and labelling of chemicals
IATA: International Air Transport Association
IBC= Intermediate Bulk Container
IMDG International maritime Dangerous goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

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HORIBA

SAFETY DATA SHEET

Section 1. Product and Company Identification

Product Name: 525-10, 500-10, 560-10 (pH 10.01 buffer solution)

Product code: 3999960022, 3999960033, 3999960138

Recommended use: For laboratory and Industrial use

Manufacturer / Supplier: Horiba Instruments (Singapore) Pte Ltd
83 Science Park Drive, #02-02A, The Curie
Singapore-118258
Contact No: +65 69089600

Section 2. Hazard identification

Classification of the Substance or Mixture: Mixture

The mixture is classified as not hazardous according to regulation (EC) 1272/2008, Globally Harmonized System (GHS)

GHS Label elements:

Signal word: No Signal word
Hazard statement: No Known significant effects or critical hazards

Precautionary statements:
General: Do not handle until all safety precautions have been read and understood

Other hazards which do not result in classification: None known

Section 3. Composition/ information on ingredients

Substance or Mixture: Mixture

CAS Numbers other identifiers:

Ingredients	CAS Number	Percentage
Sodium Carbonate	497-19-8	<1%
Sodium Bicarbonate	144-55-8	<1%
Water	7732-18-5	>98%

This product contains <0.01% other ingredient, not required to be listed as it is not hazardous to health and environment.

The exact percentage of composition has been withheld as a trade secret

Chemical formula: Not applicable

Section 4. First Aid Measures

Description of necessary first aid measures

Eye contact:	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Remove any contact lenses. Get medical attention if irritation occurs.
Inhalation:	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
Skin contact:	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Ingestion	Clean mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Most important symptoms/effects, both acute and delayed

Potential acute health effects: No known significant effects or critical hazards

Over-exposure signs/symptoms: No specific data available

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

See toxicological information (Section 11)

Section 5. Firefighting Measures

Extinguishing Media

Suitable extinguishing media: Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing Media: No Information available

Specific hazards arising from the substance or mixture: No specific information available

Hazardous thermal decomposition products: No Specific data

Special protective actions for Fire-fighters: Promptly isolate the scene by removing all persons from the incident if there is fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus with a full face-piece operated in positive pressure mode.

Section 6. Accidental release Measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: No action shall be taken involving any personal risk or without suitable training. Evacuate

surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material

For emergency responders: If specialized clothing is required to deal with the spillage, take note of any information in section 8 on suitable and unsuitable materials. See also the information in “For non-emergency personnel”

Environmental precautions: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, water ways, soil and air

Methods and material for containment and cleaning up:

Method for Containment: Prevent further leakage or spillage if safe to do so.

Methods of cleaning up: Soak up with inert absorbent material. Pick up and transfer to properly labelled containers.

Section 7. Handling and storage

Precautions for safe handling
Protective measures: Put on appropriate personal protective equipment (see Section 8).

Advice on general occupational hygiene: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas.

Conditions for safe storage, including any incompatibilities: Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits: None

Appropriate engineering controls: Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures
Hygiene measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with

side-shields.

Skin protection

Hand protection:	Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
Body protection:	Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Other skin protection:	Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Respiratory protection:	Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Appearance

Physical state:	Liquid
Colour:	Colourless
Odour:	Odourless
Odour Threshold:	Not available
pH:	10.01
Melting Point:	Not available
Boiling Point:	100° C
Flash point:	[Product does not sustain combustion.]
Evaporation rate:	Not available
Flammability (solid, gas):	Not available
Lower and upper explosive (Flammable) limits:	Not available
Vapour pressure:	Not available
Vapour density:	Not available
Relative density:	Not available
Partition coefficient n- octanol/water:	Not available
Auto-ignition temperature:	Not available
Decomposition temperature:	Not available
Viscosity:	Not available

Section 10. Stability and reactivity

Reactivity:	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability:	The product is stable
Possibility of hazardous reactions:	Hazardous reactions or instability may occur under certain conditions of storage or use.
Conditions to avoid:	No specific data
Incompatible materials:	No specific data
Hazardous decomposition	

Products:	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological Information

Information on toxicological effects

Acute toxicity:	Not available
Irritation/Corrosion:	Not available
Sensitization:	Not available
Mutagenicity:	Not available
Carcinogenicity:	Not available
Reproductive toxicity:	Not available
Teratogenicity:	Not available
Specific target organ: toxicity (single exposure):	Not available
Specific target organ toxicity (repeated exposure):	Not available
Aspiration hazard:	Not available
Information on the likely routes of exposure:	Not available

Potential acute effects:

Eye contact:	No known significant effects or critical hazards
Inhalation:	No known significant effects or critical hazards
Skin contact:	No known significant effects or critical hazards
Ingestion:	No known significant effects or critical hazards

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact:	No specific data.
Inhalation:	No specific data.
Skin contact:	No specific data.
Ingestion:	No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effect:	Not available
Potential delayed effects:	Not available

Long term exposure

Potential immediate effects:	Not available
Potential delayed effects:	Not available

Potential chronic health effects:	Not available
General:	No known significant effects or critical hazards
Carcinogenicity:	No known significant effects or critical hazards
Mutagenicity:	No known significant effects or critical hazards
Teratogenicity:	No known significant effects or critical hazards
Developmental effects:	No known significant effects or critical hazards
Fertility effects:	No known significant effects or critical hazards

Numerical measures of toxicity

Acute toxicity estimates:	Not available

Section 12. Ecological information

Toxicity:	Not available
Persistence/degradability:	Not available
Bio accumulative potential:	Not available

Mobility in soil
Soil/water partition coefficient (K_{OC}): Not available

Other adverse effects: No known significant effects or critical hazards.

Section 13. Disposal consideration

Disposal methods: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non- recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	UN	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-
Transport hazard class(es)	-	-	-
Packing group	-	-	-
Environmental hazards	No.	No.	No.
Additional information	-	-	-

Special precautions for user: Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 15. Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture.
International Inventories:

USINV	Complies
CANINV	Complies
EINECS/ELINCS	Complies
ENCS	Complies

IECSC	Complies
KECL	Complies
PICCS	Complies
AICS	Complies

Key of abbreviation:
USINV / TSCA: United States Toxic Substanc3es Control Act Section 8(b) Inventory
CANINV / DSL/NDSL: Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS: European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
ENCS: Japanese Existing and New Chemical Substances
IECSC: Chinese Inventory of Existing Chemical Substances
KECL: Korean Existing and Evaluated Chemical Substances
PICCS: Philippines Inventory of Chemical and Chemical Substances
AICS: Australian Inventory of Chemical Substances

Chemical safety assessment:
A chemical safety assessment according to regulation (EC) No: 1907/2006 is not required.

Section 16. Other information

History:

Date of issue: 6 March 2018

Key of abbreviation:
ATE: Acute Toxicity Estimate
BCF: Bioconcentration Factor
GHS: Globally harmonized Syatem of classification and labelling of chemicals
IATA: International Air Transport Association
IBC= Intermediate Bulk Container
IMDG International maritime Dangerous goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

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Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

HORIBA

SAFETY DATA SHEET

Section 1. Product and Company Identification

Product Name: 525-3; 560-3 (internal filling solution for pH combination electrode)

Product code: 3999960023; 3999960139

Recommended use: For laboratory and Industrial use

Manufacturer / Supplier: Horiba Instruments (Singapore) Pte Ltd
83 Science Park Drive, #02-02A, The Curie
Singapore-118258
Contact No: +65 69089660

Section 2. Hazard identification

Classification of the Substance or Mixture: Mixture

The mixture is classified as not hazardous according to regulation (EC) 1272/2008, Globally Harmonized System (GHS)

GHS Label elements:

Signal word: No Signal word
Hazard statement: No Known significant effects or critical hazards

Precautionary statements:
General: Do not handle until all safety precautions have been read and understood

Other hazards which do not result in classification: None known

Section 3. Composition/ information on ingredients

Substance or Mixture: Mixture

CAS Numbers other identifiers:

Ingredients	CAS Number	Percentage
Potassium Chloride	7447-40-7	<25%
Water	7732-18-5	>75%

The exact percentage of composition has been withheld as a trade secret

Chemical formula: Not applicable

Section 4. First Aid Measures

Description of necessary first aid measures

Eye contact:	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Remove any contact lenses. Get medical attention if irritation occurs.
Inhalation:	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
Skin contact:	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Ingestion:	Clean mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Most important symptoms/effects, both acute and delayed

Potential acute health effects:

Eye contact: Causes eye irritation

Over-exposure signs/symptoms: No specific data available

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

See toxicological information (Section 11)

Section 5. Firefighting Measures

Extinguishing Media

Suitable extinguishing media:	Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing Media:	No Information available
Specific hazards arising from the substance or mixture:	No specific information available
Hazardous thermal decomposition products:	No Specific data
Special protective actions for Fire-fighters:	Promptly isolate the scene by removing all persons from the incident if there is fire. No action shall be taken involving any personal risk or without suitable training
Special protective equipment for fire-fighters	Fire-fighters should wear appropriate protective equipment self- contained breathing apparatus with a full face-piece operated in positive pressure mode.

Section 6. Accidental release Measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel:	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material.
For emergency responders:	If specialized clothing is required to deal with the spillage, take note of any information

In section 8 on suitable and unsuitable materials. See also the information in “For non-emergency personnel”.

Environmental precautions: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, water ways, soil and air.

Methods and material for containment and cleaning up:

Method for Containment: Prevent further leakage or spillage if safe to do so.

Methods of cleaning up: Soak up with inert absorbent material. Pick up and transfer to properly labelled containers.

Section 7. Handling and storage

Precautions for safe handling
Protective measures: Put on appropriate personal protective equipment (see Section 8).

Advice on general occupational hygiene: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas.

Conditions for safe storage, including any incompatibilities: Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters
Occupational exposure limits: None

Appropriate engineering controls: Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process Equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures
Hygiene measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection
Hand protection: Chemical-resistant, impervious gloves complying with an approved standard should

	be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
Body protection:	Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Other skin protection:	Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Respiratory protection:	Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Appearance	
Physical state:	Liquid
Colour:	Colourless
Odour:	Odourless
Odour Threshold:	Not available
pH:	Not available
Melting Point:	Not available
Boiling Point:	100° C
Flash point:	[Product does not sustain combustion.]
Evaporation rate:	Not available
Flammability (solid, gas):	Not available
Lower and upper explosive: (Flammable) limits	Not available
Vapour pressure:	Not available
Vapour density:	Not available
Relative density:	Not available
Partition coefficient: n- octanol/water	Not available
Auto-ignition temperature:	Not available
Decomposition temperature:	Not available
Viscosity:	Not available

Section 10. Stability and reactivity

Reactivity:	No specific test data related to reactivity available for this product or its ingredients
Chemical stability:	The product is stable
Possibility of hazardous:	Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid:	No specific data
Incompatible materials:	No specific data
Hazardous decomposition: Products	Under normal conditions of storage and use, hazardous decomposition products should be produced

Section 11. Toxicological Information

Information on toxicological effects

Acute toxicity:	Not available
Irritation/Corrosion:	Not available
Sensitization:	Not available
Mutagenicity:	Not available
Carcinogenicity:	Not available
Reproductive toxicity:	Not available
Teratogenicity:	Not available
Specific target organ toxicity (single exposure):	Not available
Specific target organ: toxicity (repeated exposure):	Not available
Aspiration hazard:	Not available
Information on the likely: routes of exposure	Not available

Potential acute health effects:

Eye contact:	Causes eye irritation
Inhalation:	No known significant effects or critical hazards
Skin contact:	No known significant effects or critical hazards
Ingestion:	No known significant effects or critical hazards

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact:	Adverse symptoms may include irritation, watering and redness
Inhalation:	No specific data
Skin contact:	No specific data
Ingestion:	No specific data

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate: effects	Not available
Potential delayed effects:	Not available

Long term exposure

Potential immediate: effects	Not available
Potential delayed effects:	Not available

Potential chronic health effects:	Not available
General:	No known significant effects or critical hazards
Carcinogenicity:	No known significant effects or critical hazards
Mutagenicity:	No known significant effects or critical hazards
Teratogenicity:	No known significant effects or critical hazards
Developmental effects:	No known significant effects or critical hazards
Fertility effects:	No known significant effects or critical hazards

Numerical measures of toxicity

Acute toxicity estimates:	Not available

Section 12. Ecological information

Toxicity: Not available

Persistence/degradability: Not available

Bio accumulative potential: Not available

Mobility in soil
Soil/water
partition coefficient (K_{OC}): Not available

Other adverse effects: No known significant effects or critical hazards.

Section 13. Disposal consideration

Disposal methods: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non- recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	UN	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-
Transport hazard class(es)	-	-	-
Packing group	-	-	-
Environmental hazards	No.	No.	No.
Additional information	-	-	-

Special precautions for user: Transport within user's premises: always transport in closed containers that are ` upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 15. Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture.
International Inventories:

USINV	Complies
CANINV	Complies
EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
KECL	Complies
PICCS	Complies
AICS	Complies

Key of abbreviation:
USINV / TSCA: United States Toxic Substanc3es Control Act Section 8(b) Inventory
CANINV / DSL/NDSL: Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS: European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
ENCS: Japanese Existing and New Chemical Substances
IECSC: Chinese Inventory of Existing Chemical Substances
KECL: Korean Existing and Evaluated Chemical Substances
PICCS: Philippines Inventory of Chemical and Chemical Substances
AICS: Australian Inventory of Chemical Substances

Chemical safety assessment:
A chemical safety assessment according to regulation (EC) No: 1907/2006 is not required.

Section 16. Other information

History:

Date of issue: 8 March 2018

Key of abbreviation:

ATE: Acute Toxicity Estimate

BCF: Bioconcentration Factor

GHS: Globally harmonized Syatem of classification and labelling of chemicals

IATA: International Air Transport Association

IBC= Intermediate Bulk Container

IMDG International maritime Dangerous goods

LogPow = logarithm of the octanol/water partition coefficient

MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)

UN = United Nations

Notice to reader:

To the best of our knowledge, the information contained herein is accurate. However, neither the above- named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

SAFETY DATA SHEET

Isobutylene

Section 1. Identification

GHS product identifier : Isobutylene

Chemical name : 2-methylpropene

Other means of identification : 1-Propene, 2-methyl-; Isobutene; Isobutylene; 1-Propene, 2-methyl- (isobutene); 1, 1-Dimethylethylene; Isopropylidenemethylene; iso-Butene; i-Butene; 2-Methylpropylene; 2-Methyl-2-propene; 2-Methyl-1-propene

Product type : Gas.

Product use : Synthetic/Analytical chemistry.

Synonym : 1-Propene, 2-methyl-; Isobutene; Isobutylene; 1-Propene, 2-methyl- (isobutene); 1, 1-Dimethylethylene; Isopropylidenemethylene; iso-Butene; i-Butene; 2-Methylpropylene; 2-Methyl-2-propene; 2-Methyl-1-propene

SDS # : 001031

Supplier's details : Airgas USA, LLC and its affiliates
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283
1-610-687-5253

24-hour telephone : 1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : FLAMMABLE GASES - Category 1
GASES UNDER PRESSURE - Liquefied gas

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : Extremely flammable gas.
May form explosive mixtures with air.
Contains gas under pressure; may explode if heated.
May displace oxygen and cause rapid suffocation.

Precautionary statements

General : Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction. Always keep container in upright position. Approach suspected leak area with caution.

Prevention : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Response : Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so.

Storage : Protect from sunlight. Store in a well-ventilated place.

Disposal : Not applicable.

Hazards not otherwise classified : In addition to any other important health or physical hazards, this product may displace oxygen and cause rapid suffocation.

Section 3. Composition/information on ingredients

Substance/mixture : Substance

Chemical name : 2-methylpropene

Other means of identification : 1-Propene, 2-methyl-; Isobutene; Isobutylene; 1-Propene, 2-methyl- (isobutene); 1, 1-Dimethylethylene; Isopropylidenemethylene; iso-Butene; i-Butene; 2-Methylpropylene; 2-Methyl-2-propene; 2-Methyl-1-propene

Product code : 001031

CAS number/other identifiers

CAS number : 115-11-7

Ingredient name	%	CAS number
Isobutylene	100	115-11-7

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. To avoid the risk of static discharges and gas ignition, soak contaminated clothing thoroughly with water before removing it. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : As this product is a gas, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Frostbite : Try to warm up the frozen tissues and seek medical attention.

Ingestion : As this product is a gas, refer to the inhalation section.

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Section 4. First aid measures

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : Contains gas under pressure. Extremely flammable gas. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. If involved in fire, shut off flow immediately if it can be done without risk. If this is impossible, withdraw from area and allow fire to burn. Fight fire from protected location or maximum possible distance. Eliminate all ignition sources if safe to do so.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : Accidental releases pose a serious fire or explosion hazard. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.

Large spill : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Avoid breathing gas. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.

Use only non-sparking tools. Avoid contact with eyes, skin and clothing. Empty containers retain product residue and can be hazardous. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Eliminate all ignition sources. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F). Keep container tightly closed and sealed until ready for use. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Isobutylene	**ACGIH TLV (United States, 3/2017).** TWA: 250 ppm 8 hours.

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Section 8. Exposure controls/personal protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state : Gas. [Compressed gas.]

Color : Colorless.

Odor : Characteristic.

Odor threshold : Not available.

pH : Not available.

Melting point : -140.7°C (-221.3°F)

Boiling point : -6.9°C (19.6°F)

Critical temperature : 144.75°C (292.6°F)

Flash point : Closed cup: -76.1°C (-105°F)

Evaporation rate : Not available.

Flammability (solid, gas) : Extremely flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and oxidizing materials.

Lower and upper explosive (flammable) limits : Lower: 1.8%
Upper: 9.6%

Vapor pressure : 24.3 (psig)

Vapor density : 1.94 (Air = 1)

Specific Volume (ft ^{3}/lb) : 6.6845

Gas Density (lb/ft ^{3}) : 0.1496 (25°C / 77 to °F)

Relative density : Not applicable.

Solubility : Not available.

Solubility in water : 0.26 g/l

Partition coefficient: n-octanol/water : 2.34

Auto-ignition temperature : 465°C (869°F)

Decomposition temperature : Not available.

Viscosity : Not applicable.

Flow time (ISO 2431) : Not available.

Molecular weight : 56.12 g/mole

Aerosol product

Heat of combustion : -45029034 J/kg

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

Incompatible materials : Oxidizers

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Isobutylene	LC50 Inhalation Vapor	Rat	550000 mg/m³	4 hours

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Section 11. Toxicological information

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : As this product is a gas, refer to the inhalation section.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
Isobutylene	2.34	-	low

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Section 12. Ecological information

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty Airgas-owned pressure vessels should be returned to Airgas. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1055	UN1055	UN1055	UN1055	UN1055
UN proper shipping name	ISOBUTYLENE	ISOBUTYLENE	ISOBUTYLENE	ISOBUTYLENE	ISOBUTYLENE
Transport hazard class(es)	2.1	2.1	2.1	2.1	2.1
Packing group	-	-	-	-	-
Environmental hazards	No.	No.	No.	No.	No.

"Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product."

Additional information

DOT Classification : **Limited quantity** Yes.
Quantity limitation Passenger aircraft/rail: Forbidden. Cargo aircraft: 150 kg.
Special provisions 19, T50

TDG Classification : Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.13-2.17 (Class 2).
Explosive Limit and Limited Quantity Index 0.125
ERAP Index 3000
Passenger Carrying Ship Index Forbidden
Passenger Carrying Road or Rail Index Forbidden
Special provisions 29

IATA : **Quantity limitation** Passenger and Cargo Aircraft: Forbidden. Cargo Aircraft Only: 150 kg.

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined

Clean Air Act (CAA) 112 regulated flammable substances: Isobutylene

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Refer to Section 2: Hazards Identification of this SDS for classification of substance.

State regulations

Massachusetts : This material is listed.

New York : This material is not listed.

New Jersey : This material is listed.

Pennsylvania : This material is listed.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia : This material is listed or exempted.

Canada : This material is listed or exempted.

China : This material is listed or exempted.

Europe : This material is listed or exempted.

Japan : **Japan inventory (ENCS)**: This material is listed or exempted.
Japan inventory (ISHL): Not determined.

Malaysia : Not determined.

New Zealand : This material is listed or exempted.

Philippines : This material is listed or exempted.

Republic of Korea : This material is listed or exempted.

Section 15. Regulatory information

Taiwan : This material is listed or exempted.

Thailand : Not determined.

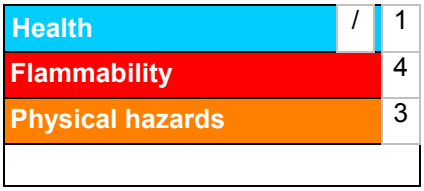
Turkey : Not determined.

United States : This material is listed or exempted.

Viet Nam : Not determined.

Section 16. Other information

Hazardous Material Information System (U.S.A.)



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

National Fire Protection Association (U.S.A.)

Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Procedure used to derive the classification

Classification	Justification
FLAMMABLE GASES - Category 1 GASES UNDER PRESSURE - Liquefied gas	Expert judgment Expert judgment

History

Date of printing : 5/10/2018

Date of issue/Date of revision : 5/10/2018

Date of previous issue : 7/11/2016

Version : 0.02

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973

Section 16. Other information

as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

References : Not available.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

SAFETY DATA SHEET

Version 4.10
Revision Date 04/22/2016
Print Date 05/01/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Sudan Blue II

Product Number : 306436
Brand : Sigma-Aldrich

CAS-No. : 17354-14-2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Not a hazardous substance or mixture.

2.2 GHS Label elements, including precautionary statements

Not a hazardous substance or mixture.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms : Solvent Blue 35

Formula : $C_{22}H_{26}N_2O_2$
Molecular weight : 350.45 g/mol
CAS-No. : 17354-14-2
EC-No. : 241-379-4

No components need to be disclosed according to the applicable regulations.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration.

In case of skin contact
Wash off with soap and plenty of water.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Avoid dust formation. Avoid breathing vapours, mist or gas.
For personal protection see section 8.

6.2 Environmental precautions
No special environmental precautions required.

6.3 Methods and materials for containment and cleaning up
Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

Keep in a dry place.
Storage class (TRGS 510): Non Combustible Solids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
General industrial hygiene practice.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
No special environmental precautions required.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: powder Colour: dark violet
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing	Melting point/range: 120 - 122 °C (248 - 252 °F)

	point	
f)	Initial boiling point and boiling range	No data available
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NOx)
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
Not dangerous goods

IMDG
Not dangerous goods

IATA
Not dangerous goods

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
No SARA Hazards

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
1,4-Bis(butylamino)anthraquinone	17354-14-2	1989-08-11

New Jersey Right To Know Components

	CAS-No.	Revision Date
1,4-Bis(butylamino)anthraquinone	17354-14-2	1989-08-11

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

HMIS Rating

Health hazard:	0
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	0
Fire Hazard:	0
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.10 Revision Date: 04/22/2016 Print Date: 05/01/2016

SAFETY DATA SHEET

Creation Date 08-Nov-2010 **Revision Date** 18-Jun-2015 **Revision Number** 2

1. Identification

Product Name **Fluoranthene**

Cat No. : **AC119170000; AC119170250; AC119171000; AC119175000**

Synonyms Benzo[j,k]fluorene

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Entity / Business Name
Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute oral toxicity	Category 4

Label Elements

Signal Word
Warning

Hazard Statements
Harmful if swallowed

Precautionary Statements
Prevention
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Ingestion
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell

Rinse mouth

Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

Very toxic to aquatic life with long lasting effects

3. Composition / information on ingredients

Component	CAS-No	Weight %
Fluoranthene	206-44-0	>95

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

Skin Contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Obtain medical attention.

Inhalation Move to fresh air. If breathing is difficult, give oxygen. Obtain medical attention.

Ingestion Do not induce vomiting. Get medical attention.

Most important symptoms/effects No information available.

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray. Carbon dioxide (CO_2). Dry chemical. alcohol-resistant foam.

Unsuitable Extinguishing Media No information available

Flash Point 100 °C / 212 °F

Method - No information available

Autoignition Temperature No information available

Explosion Limits

Upper No data available

Lower No data available

Sensitivity to Mechanical Impact No information available

Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical

Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products

Carbon monoxide (CO) Carbon dioxide (CO_2)

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	0	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment.

Environmental Precautions See Section 12 for additional ecological information. Avoid release to the environment. Collect spillage.

Methods for Containment and Clean Up Sweep up or vacuum up spillage and collect in suitable container for disposal.

7. Handling and storage

Handling Ensure adequate ventilation. Wear personal protective equipment. Avoid contact with skin and eyes. Do not breathe dust. Do not breathe vapors or spray mist. Avoid dust formation.

Storage Keep in a dry, cool and well-ventilated place. Keep container tightly closed.

8. Exposure controls / personal protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Powder Solid
Appearance	Light green
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	109 - 111 °C / 228.2 - 231.8 °F
Boiling Point/Range	384 - 34 °C / 723.2 - 93.2 °F
Flash Point	100 °C / 212 °F
Evaporation Rate	No information available
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	No information available
Relative Density	No information available
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C16 H10
Molecular Weight	202.25

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information No acute toxicity information is available for this product

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Fluoranthene	2 g/kg (Rat)	3180 mg/kg (Rabbit)	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Fluoranthene	206-44-0	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known

STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information.

12. Ecological information

Ecotoxicity

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Fluoranthene	Not listed	Oncorhynchus mykiss: LC50=0.0077 mg/L 96h	Not listed	EC50: 0.78 mg/L 20h

Persistence and Degradability No information available
Bioaccumulation/ Accumulation No information available.

Mobility .

Component	log Pow
Fluoranthene	5.33

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Fluoranthene - 206-44-0	U120	-

14. Transport information

DOT
- **UN-No** UN3077
- **Proper Shipping Name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE,SOLID, N.O.S.
- **Proper technical name** (Fluoranthene)
- **Hazard Class** 9
- **Packing Group** III

TDG
- **UN-No** UN3077
- **Proper Shipping Name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE,SOLID, N.O.S.
- **Hazard Class** 9
- **Packing Group** III

IATA
- **UN-No** UN3077
- **Proper Shipping Name** Environmentally hazardous substance, solid, n.o.s
- **Hazard Class** 9
- **Packing Group** III

IMDG/IMO
- **UN-No** UN3077
- **Proper Shipping Name** Environmentally hazardous substance, solid, n.o.s
- **Hazard Class** 9
- **Packing Group** III

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Fluoranthene	X	-	X	205-912-4	-		-	X	X	X	-

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).

Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Fluoranthene	206-44-0	>95	1.0 0.1

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Fluoranthene	-	-	X	X

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Fluoranthene	100 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Fluoranthene	X	X	X	-	-

U.S. Department of Transportation

Reportable Quantity (RQ):	N
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class D1B Toxic materials

16. Other information

Prepared By	Regulatory Affairs Thermo Fisher Scientific Email: EMSDS.RA@thermofisher.com
Creation Date	08-Nov-2010
Revision Date	18-Jun-2015
Print Date	18-Jun-2015
Revision Summary	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS

SAFETY DATA SHEET

Revision Date 10-Feb-2015 **Revision Number** 1

1. Identification

Product Name **Fluorene**

Cat No. : **AC156130000; AC156130250; AC156131000; AC156135000**

Synonyms Diphenylenemethane

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Entity / Business Name
Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
Classification under 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Label Elements
None required

Hazards not otherwise classified (HNOC)
Very toxic to aquatic life with long lasting effects
May form combustible dust concentrations in air

3. Composition / information on ingredients

Component	CAS-No	Weight %
Fluorene	86-73-7	98

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

Skin Contact Wash off immediately with soap and plenty of water while removing all contaminated

clothes and shoes. Obtain medical attention.

Inhalation Remove from exposure, lie down. Move to fresh air. Obtain medical attention.

Ingestion Clean mouth with water. Get medical attention.

Most important symptoms/effects No information available.
Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray. Carbon dioxide (CO_2). Dry chemical. chemical foam.

Unsuitable Extinguishing Media No information available

Flash Point 151 °C / 303.8 °F
Method - No information available

Autoignition Temperature Not applicable
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Dust can form an explosive mixture in air. Do not allow run-off from fire fighting to enter drains or water courses.

Hazardous Combustion Products
None known
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
0	1	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment.
Environmental Precautions Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

Methods for Containment and Clean Up Sweep up or vacuum up spillage and collect in suitable container for disposal. Do not let this chemical enter the environment.

7. Handling and storage

Handling Avoid contact with skin and eyes. Do not breathe dust. Do not ingest.

Storage Keep in a dry, cool and well-ventilated place. Keep container tightly closed.

8. Exposure controls / personal protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection	Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin and body protection	Wear appropriate protective gloves and clothing to prevent skin exposure.
Respiratory Protection	No protective equipment is needed under normal use conditions.
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Powder Solid
Appearance	Beige
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	112 - 116 °C / 233.6 - 240.8 °F
Boiling Point/Range	298 °C / 568.4 °F @ 760 mmHg
Flash Point	151 °C / 303.8 °F
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	13 hPa @ 146 °C
Vapor Density	Not applicable
Relative Density	1.200
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	Not applicable
Decomposition Temperature	No information available
Viscosity	Not applicable
Molecular Formula	C13 H10
Molecular Weight	166.22

10. Stability and reactivity

Reactive Hazard	None known, based on information available
Stability	Stable under normal conditions.
Conditions to Avoid	Incompatible products.
Incompatible Materials	Strong oxidizing agents
Hazardous Decomposition Products	None under normal use conditions
Hazardous Polymerization	No information available.
Hazardous Reactions	None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information	No acute toxicity information is available for this product
Component Information	

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Fluorene	86-73-7	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information.

12. Ecological information

Ecotoxicity

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Persistence and Degradability Insoluble in water May persist
Bioaccumulation/ Accumulation No information available.

Mobility . Is not likely mobile in the environment due its low water solubility.

Component	log Pow
Fluorene	4.18

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT Not regulated
TDG Not regulated
IATA
- **UN-No** 3077
- **Proper Shipping Name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.*
- **Hazard Class** 9
- **Packing Group** III

IMDG/IMO

UN-No	3077
Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
Hazard Class	9
Packing Group	III

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Fluorene	X	X	-	201-695-5	-		X	X	X	X	-

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313 Not applicable

SARA 311/312 Hazardous Categorization

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	Yes
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Fluorene	-	-	X	X

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Fluorene	5000 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Fluorene	X	X	X	-	-

U.S. Department of Transportation

Reportable Quantity (RQ):	N
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class B4 Flammable solid

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Revision Date 10-Feb-2015
Print Date 10-Feb-2015
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer
The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS

Safety Data Sheet

Material Name: Fuel Oil No. 2

SDS No. 0088
EU/CLP GHS

Synonyms: #2 Heating Oil; 2 Oil; Off-road Diesel Fuel

* * * Section 1 - Product and Company Identification * * *

Manufacturer Information

Hess Corporation
1 Hess Plaza
Woodbridge, NJ 07095-0961

Phone: 732-750-6000 Corporate EHS
Emergency # 800-424-9300 CHEMTREC
www.hess.com (Environment, Health, Safety Internet Website)

* * * Section 2 - Hazards Identification * * *

GHS Classification:

Flammable Liquids - Category 3
Acute Toxicity, Inhalation - Category 4
Skin Corrosion/Irritation – Category 2
Eye Damage/Irritation – Category 2
Carcinogenicity - Category 2
Specific Target Organ Toxicity (Single Exposure) – Category 3 (respiratory irritation, narcosis)
Aspiration Hazard – Category 1
Hazardous to the Aquatic Environment, Acute Hazard – Category 3

GHS LABEL ELEMENTS

Symbol(s)

Signal Word

DANGER

Hazard Statements

Flammable liquid and vapor.
Harmful if inhaled.
Causes skin irritation.
Causes eye irritation.
Suspected of causing cancer.
Suspected of causing genetic defects.
May cause respiratory irritation.
May cause drowsiness or dizziness.
May be fatal if swallowed and enters airways.
Harmful to aquatic life.

Precautionary Statements

Prevention

Keep away from heat/sparks/open flames/hot surfaces. No smoking
Keep container tightly closed.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting/equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Wear protective gloves/protective clothing/eye protection/face protection.
Avoid breathing fume/mist/vapors/spray.
Use only outdoors or in a well-ventilated area.
Wash hands and forearms thoroughly after handling.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Avoid release to the environment.

Response

In case of fire: Use water spray, fog or foam.
If on skin (or hair): Wash with plenty of soap and water. Take off immediately all contaminated clothing and wash it before reuse. If skin irritation occurs, get medical advice/attention.
If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center or doctor if you feel unwell.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
If exposed or concerned: Get medical advice/attention.
If swallowed: Immediately all a poison center or doctor/physician if you feel unwell. Do NOT induce vomiting.

Storage

Store in a well ventilated place.
Keep cool. Keep container tightly closed.
Store locked up.

Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

* * * Section 3 - Composition / Information on Ingredients * * *

CAS #	Component	Percent
68476-30-2	Fuel oil No. 2	100
91-20-3	Naphthalene	<0.1

A complex combination of hydrocarbons with carbon numbers in the range C9 and higher produced from the distillation of petroleum crude oil.

* * * Section 4 - First Aid Measures * * *

First Aid: Eyes

In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

First Aid: Skin

Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or with waterless hand cleanser. Obtain medical attention if irritation or redness develops.

First Aid: Ingestion

DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Monitor for breathing difficulties. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

First Aid: Inhalation

Remove person to fresh air. If person is not breathing, provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

* * * Section 5 - Fire Fighting Measures * * *

General Fire Hazards

See Section 9 for Flammability Properties.

Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

Hazardous Combustion Products

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

Extinguishing Media

SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO2, water spray, fire fighting foam, or gaseous extinguishing agent.

LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

Unsuitable Extinguishing Media

None

Fire Fighting Equipment/Instructions

Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment. Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing. Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

* * * Section 6 - Accidental Release Measures * * *

Recovery and Neutralization

Carefully contain and stop the source of the spill, if safe to do so.

Materials and Methods for Clean-Up

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal.

Emergency Measures

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Personal Precautions and Protective Equipment

Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

Environmental Precautions

Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Prevention of Secondary Hazards

None

* * * Section 7 - Handling and Storage * * *

Handling Procedures

Handle as a combustible liquid. Keep away from heat, sparks, excessive temperatures and open flame! No smoking or open flame in storage, use or handling areas. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when this product is loaded into tanks previously containing low flash point products (such as gasoline) - see API Publication 2003, "Protection Against Ignitions Arising Out Of Static, Lightning and Stray Currents."

Storage Procedures

Keep containers closed and clearly labeled. Use approved vented storage containers. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks."

Incompatibilities

Keep away from strong oxidizers; Fluorel ®

* * * Section 8 - Exposure Controls / Personal Protection * * *

Component Exposure Limits

Fuel oil No. 2 (270-671-4)

ACGIH: 100 mg/m3 TWA (inhalable fraction and vapor, as total hydrocarbons, listed under Diesel fuel)
Skin - potential significant contribution to overall exposure by the cutaneous route (listed under Diesel fuel)

Belgium: 100 mg/m3 TWA (as total hydrocarbon, aerosol and vapor)
Skin (listed under Gas oil)

Portugal: 100 mg/m3 TWA [VLE-MP] (aerosol and vapor, as total Hydrocarbons, listed under Fuel diesel)

Naphthalene (202-049-5)

ACGIH: 15 ppm STEL
10 ppm TWA
Skin - potential significant contribution to overall exposure by the cutaneous route

Austria: 10 ppm TWA [TMW]; 50 mg/m3 TWA [TMW]
skin notation

Belgium: 15 ppm STEL; 80 mg/m3 STEL
10 ppm TWA; 53 mg/m3 TWA
Skin

Denmark: 10 ppm TWA; 50 mg/m3 TWA

Finland: 2 ppm STEL; 10 mg/m3 STEL
1 ppm TWA; 5 mg/m3 TWA

France: 10 ppm TWA [VME]; 50 mg/m3 TWA [VME]

Germany: 0.1 ppm TWA AGW (The risk of damage to the embryo or fetus can be excluded when MAK and BAT values are observed, inhalable fraction, exposure factor 1); 0.5 mg/m3 TWA AGW (The risk of damage to the embryo or fetus can be excluded when MAK and BAT values are observed, inhalable fraction, exposure factor 1)

Greece: 10 ppm TWA; 50 mg/m3 TWA

Ireland: 15 ppm STEL; 75 mg/m3 STEL
10 ppm TWA; 50 mg/m3 TWA

Netherlands: 80 mg/m3 STEL
50 mg/m3 TWA

Portugal: 10 ppm TWA [VLE-MP]

Spain: 15 ppm STEL [VLA-EC]; 80 mg/m3 STEL [VLA-EC]
10 ppm TWA [VLA-ED]; 53 mg/m3 TWA [VLA-ED]
skin - potential for cutaneous exposure

Sweden: 10 ppm LLV; 50 mg/m3 LLV
15 ppm STV; 80 mg/m3 STV

Engineering Measures

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

Personal Protective Equipment: Respiratory

A NIOSH/MSHA-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

Personal Protective Equipment: Hands

Gloves constructed of nitrile, neoprene, or PVC are recommended.

Personal Protective Equipment: Eyes

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

Personal Protective Equipment: Skin and Body

Chemical protective clothing such as of E.I. DuPont TyChem®, Saranex® or equivalent recommended based on degree of exposure. Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

* * * Section 9 - Physical & Chemical Properties * * *

Appearance:	Red or reddish/orange colored (dyed)	**Odor:**	Mild, petroleum distillate odor
Physical State:	Liquid	**pH:**	ND
Vapor Pressure:	0.009 psia @ 70 °F (21 °C)	**Vapor Density:**	>1.0
Boiling Point:	340 to 700 °F (171 to 371 °C)	**Melting Point:**	ND
Solubility (H2O):	Negligible	**Specific Gravity:**	AP 0.823-0871
Evaporation Rate:	Slow; varies with conditions	**VOC:**	ND
Octanol/H2O Coeff.:	ND	**Flash Point:**	100 °F (38 °C) minimum
Flash Point Method:	PMCC	**Upper Flammability Limit (UFL):**	7.5
Lower Flammability Limit (LFL):	0.6	**Burning Rate:**	ND
Auto Ignition:	494°F (257°C)		

* * * Section 10 - Chemical Stability & Reactivity Information * * *

Chemical Stability

This is a stable material.

Hazardous Reaction Potential

Will not occur.

Conditions to Avoid

Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources.

Incompatible Products

Keep away from strong oxidizers; Fluorel ®

Hazardous Decomposition Products

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

* * * Section 11 - Toxicological Information * * *

Acute Toxicity

A: General Product Information

Harmful if swallowed.

B: Component Analysis - LD50/LC50

Fuel oil No. 2 (68476-30-2)

Oral LD50 Rat 12 g/kg; Dermal LD50 Rabbit 4720 µL/kg; Dermal LD50 Rabbit >2000 mg/kg; Inhalation LC50 Rat 4.6 mg/L 4 h

Naphthalene (91-20-3)

Inhalation LC50 Rat >340 mg/m3 1 h; Oral LD50 Rat 490 mg/kg; Dermal LD50 Rat >2500 mg/kg; Dermal LD50 Rabbit >20 g/kg

Product Mixture

Oral LD50 Rat 14.5 ml/kg; Dermal LD50 Rabbit >5 mL/kg; Guinea Pig Sensitization: negative; Primary dermal irritation: moderately irritating (Draize mean irritation score - 3.98 rabbits); Draize eye irritation: mildly irritating (Draize score, 48 hours, unwashed - 2.0 rabbits)

Potential Health Effects: Skin Corrosion Property/Stimulativeness

Practically non-toxic if absorbed following acute (single) exposure. May cause skin irritation with prolonged or repeated contact. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are repeatedly exposed.

Potential Health Effects: Eye Critical Damage/ Stimulativeness

Contact with eyes may cause mild irritation.

Potential Health Effects: Ingestion

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

Potential Health Effects: Inhalation

Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

WARNING: the burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

Respiratory Organs Sensitization/Skin Sensitization

This product is not reported to have any skin sensitization effects.

Generative Cell Mutagenicity

This product is not reported to have any mutagenic effects. Material of similar composition has been positive in a mutagenicity study.

Carcinogenicity

A: General Product Information

Suspected of causing cancer.

Dermal carcinogenicity: positive - mice

Studies have shown that similar products produce skin tumors in laboratory animals following repeated applications without washing or removal. The significance of this finding to human exposure has not been determined. Other studies with active skin carcinogens have shown that washing the animal's skin with soap and water between applications reduced tumor formation.

This product is similar to Diesel Fuel. IARC classifies whole diesel fuel exhaust particulates as probably carcinogenic to humans (Group 2A) and NIOSH regards it as a potential cause of occupational lung cancer based on animal studies and limited evidence in humans.

B: Component Carcinogenicity

Fuel oil No. 2 (68476-30-2)

ACGIH: A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans (listed under Diesel fuel)

Naphthalene (91-20-3)

ACGIH: A4 - Not Classifiable as a Human Carcinogen
NTP: Reasonably Anticipated To Be A Human Carcinogen (Possible Select Carcinogen)
IARC: Monograph 82 [2002] (Group 2B (possibly carcinogenic to humans))

Reproductive Toxicity

This product is not reported to have any reproductive toxicity effects.

Specified Target Organ General Toxicity: Single Exposure

This product is not reported to have any specific target organ general toxicity single exposure effects.

Specified Target Organ General Toxicity: Repeated Exposure

This product is not reported to have any specific target organ general toxicity repeat exposure effects.

Aspiration Respiratory Organs Hazard

The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

* * * Section 12 - Ecological Information * * *

Ecotoxicity

A: General Product Information

Very toxic to aquatic life with long lasting effects. Keep out of sewers, drainage areas and waterways. Report spills and releases, as applicable, under Federal and State regulations.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Fuel oil No. 2 (68476-30-2)

Test & Species		Conditions
96 Hr LC50 Pimephales promelas	35 mg/L [flow-through]	

Naphthalene (91-20-3)

Test & Species		Conditions
96 Hr LC50 Pimephales promelas	5.74-6.44 mg/L [flow-through]	
96 Hr LC50 Oncorhynchus mykiss	1.6 mg/L [flow-through]	

96 Hr LC50 Oncorhynchus mykiss	0.91-2.82 mg/L [static]
96 Hr LC50 Pimephales promelas	1.99 mg/L [static]
96 Hr LC50 Lepomis macrochirus	31.0265 mg/L [static]
72 Hr EC50 Skeletonema costatum	0.4 mg/L
48 Hr LC50 Daphnia magna	2.16 mg/L
48 Hr EC50 Daphnia magna	1.96 mg/L [Flow through]
48 Hr EC50 Daphnia magna	1.09 - 3.4 mg/L [Static]

Persistence/Degradability
No information available.

Bioaccumulation
No information available.

Mobility in Soil
No information available.

* * * Section 13 - Disposal Considerations * * *

Waste Disposal Instructions
See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

Disposal of Contaminated Containers or Packaging
Dispose of contents/container in accordance with local/regional/national/international regulations.

* * * Section 14 - Transportation Information * * *

IATA Information
Shipping Name: Heating oil, light
UN #: 1202 **Hazard Class:** 3 **Packing Group:** III

ICAO Information
Shipping Name: Heating oil, light
UN #: 1202 **Hazard Class:** 3 **Packing Group:** III

IMDG Information
Shipping Name: Heating oil, light
UN #: 1202 **Hazard Class:** 3 **Packing Group:** III

* * * Section 15 - Regulatory Information * * *

Regulatory Information

Component Analysis – Inventory

Component/CAS	EC #	EEC	CAN	TSCA
Fuel oil No. 2 68476-30-2	270-671-4	EINECS	DSL	Yes
Naphthalene 91-20-3	202-049-5	EINECS	DSL	Yes

* * * Section 16 - Other Information * * *

Key/Legend

ACGIH = American Conference of Governmental Industrial Hygienists; ADG = Australian Code for the Transport of Dangerous Goods by Road and Rail; ADR/RID = European Agreement of Dangerous Goods by Road/Rail; AS = Standards Australia; DFG = Deutsche Forschungsgemeinschaft; DOT = Department of Transportation; DSL = Domestic Substances List; EEC = European Economic Community; EINECS = European Inventory of Existing Commercial Chemical Substances; ELINCS = European List of Notified Chemical Substances; EU = European Union; HMIS = Hazardous Materials Identification System; IARC = International Agency for Research on Cancer; IMO = International Maritime Organization; IATA = International Air Transport Association; MAK = Maximum Concentration Value in the Workplace; NDSL = Non-Domestic Substances List; NFPA = National Fire Protection Association; NOHSC = National Occupational Health & Safety Commission; NTP = National Toxicology Program; STEL = Short-term Exposure Limit; TDG = Transportation of Dangerous Goods; TLV = Threshold Limit Value; TSCA = Toxic Substances Control Act; TWA = Time Weighted Average

Literature References

None

Other Information

Information presented herein has been compiled from sources considered to be dependable, and is accurate and reliable to the best of our knowledge and belief, but is not guaranteed to be so. Since conditions of use are beyond our control, we make no warranties, expressed or implied, except those that may be contained in our written contract of sale or acknowledgment.

Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in their use of the material.

End of Sheet

SAFETY DATA SHEET

SDS ID NO.: 0127MAR019
Revision Date: 06/01/2016

1. IDENTIFICATION

Product Name: Marathon Petroleum Gasoline - All Grades

Synonym: Gasoline; Regular Unleaded Gasoline; Conventional Regular Unleaded Gasoline; Mid Grade Unleaded Gasoline; Conventional Mid Grade Unleaded Gasoline; Premium Unleaded Gasoline; Conventional Premium Unleaded Gasoline; Sub-Octane Gasoline; Regular RBOB; Super RBOB; Premium RBOB; RBOB; Reformulated Blend Stock For Oxygenated Blending; 84 Octane Gasoline; CBOB; Premium CBOB; Conventional Blend Stock for Oxygenate Blending; Recreational Gasoline; Recreational Gasoline; Recreational Unleaded Gasoline; 89 Recreational Gasoline; Brand 89 Recreational Gasoline; 7.0 Max RVP 89 Recreational Gasoline; BR 7.0 Max RVP 89 Recreational Gasoline; 90 Recreational Gasoline; 90 Marina Gasoline; Brand 91 Recreational Gasoline; 91 Recreational Gasoline; 91 Marina Gasoline; 90 Octane Midgrade Gasoline with No Ethanol; 0125MAR019; 0126MAR019; 0134MAR019; 0313MAR019; 0314MAR019

Chemical Family: Complex Hydrocarbon Substance

Recommended Use: Fuel.
Restrictions on Use: All others.

Manufacturer, Importer, or Responsible Party Name and Address:

MARATHON PETROLEUM COMPANY LP
539 South Main Street
Findlay, OH 45840

SDS information: 1-419-421-3070

Emergency Telephone: 1-877-627-5463

2. HAZARD IDENTIFICATION

Classification

OSHA Regulatory Status
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 1
Skin corrosion/irritation	Category 2
Germ cell mutagenicity	Category 1B
Carcinogenicity	Category 1B
Reproductive toxicity	Category 2
Specific target organ toxicity (single exposure)	Category 3
Aspiration toxicity	Category 1
Acute aquatic toxicity	Category 2
Chronic aquatic toxicity	Category 2

Hazards Not Otherwise Classified (HNOC)

Static accumulating flammable liquid

Label elements

EMERGENCY OVERVIEW

Danger

EXTREMELY FLAMMABLE LIQUID AND VAPOR
May accumulate electrostatic charge and ignite or explode
May be fatal if swallowed and enters airways
Causes skin irritation
May cause respiratory irritation
May cause drowsiness or dizziness
May cause genetic defects
May cause cancer
Suspected of damaging fertility or the unborn child
Toxic to aquatic life with long lasting effects

Appearance Clear yellow liquid **Physical State** Liquid **Odor** Hydrocarbon

Precautionary Statements - Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/equipment
Use only non-sparking tools.
Take precautionary measures against static discharge
Avoid breathing mist/vapors/spray
Use only outdoors or in a well-ventilated area
Wear protective gloves/protective clothing/eye protection/face protection
Wash hands and any possibly exposed skin thoroughly after handling
Avoid release to the environment

Precautionary Statements - Response
IF exposed or concerned: Get medical attention
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
If skin irritation occurs: Get medical attention
Wash contaminated clothing before reuse
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor if you feel unwell
IF SWALLOWED: Immediately call a POISON CENTER or doctor
Do NOT induce vomiting
In case of fire: Use water spray, fog or regular foam for extinction
Collect spillage

Precautionary Statements - Storage
Store in a well-ventilated place. Keep container tightly closed
Keep cool
Store locked up

Precautionary Statements - Disposal
Dispose of contents/container at an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

Gasoline is a complex combination of hydrocarbons consisting of paraffins, cycloparaffins, aromatic and olefinic hydrocarbons having molecular chains ranging in length from four to ten carbons. May contain small amounts of dye and other additives (>0.02%) which are not considered hazardous at the concentrations used.

Composition Information:

Name	CAS Number	% Concentration
Gasoline	86290-81-5	100
Heptane (mixed isomers)	142-82-5	2.5-26
Pentane (mixed isomers)	78-78-4	6.5-19
Butane (mixed isomers)	106-97-8	0.5-14
Hexane Isomers (other than n-Hexane)	107-83-5	2-12
Toluene	108-88-3	3-9.5
Xylene (mixed isomers)	1330-20-7	3.5-9.5
n-Hexane	110-54-3	0.1-4.5
Cumene	98-82-8	0-4
1,2,4 Trimethylbenzene	95-63-6	1-4
Ethylbenzene	100-41-4	0.5-2.5
Benzene	71-43-2	0.1-1.5
Cyclohexane	110-82-7	0-1.5
Octane	111-65-9	0-1.5
1,2,3-trimethylbenzene	526-73-8	0-1
Naphthalene	91-20-3	0.1-0.5

All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

4. FIRST AID MEASURES

First Aid Measures

General Advice: In case of accident or if you feel unwell, seek medical advice immediately (show directions for use or safety data sheet if possible).

Inhalation: Remove to fresh air. If not breathing, institute rescue breathing. If breathing is difficult, ensure airway is clear, give oxygen and continue to monitor. If heart has stopped, immediately begin cardiopulmonary resuscitation (CPR). Keep affected person warm and at rest. If symptoms occur get medical attention.

Skin Contact: Immediately wash exposed skin with plenty of soap and water while removing contaminated clothing and shoes. May be absorbed through the skin in harmful amounts. Get medical attention if irritation persists. Any injection injury from high pressure equipment should be evaluated immediately by a physician as potentially serious (See NOTES TO PHYSICIAN).

Place contaminated clothing in closed container until cleaned or discarded. If clothing is to be laundered, inform the person performing the operation of contaminant's hazardous properties. Destroy contaminated, non-chemical resistant footwear.

Eye Contact: Flush immediately with large amounts of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Gently remove contacts while flushing. Get medical attention if irritation persists.

Ingestion: Do not induce vomiting because of danger of aspirating liquid into lungs, causing serious damage and chemical pneumonitis. If spontaneous vomiting occurs, keep head below hips, or if patient is lying down, turn body and head to side to prevent aspiration and monitor for breathing difficulty. Never give anything by mouth to an unconscious person. Keep affected person warm and at rest. GET IMMEDIATE MEDICAL ATTENTION.

Most important signs and symptoms, both short-term and delayed with overexposure

Adverse Effects: Irritating to the skin and mucous membranes. Symptoms may include redness, itching, and inflammation. May cause nausea, vomiting, diarrhea, and signs of nervous system depression: headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue. Aspiration hazard. May cause coughing, chest pains, shortness of breath, pulmonary edema and/or chemical pneumonitis. Repeated or prolonged skin contact may cause drying, reddening, itching and cracking.

Indication of any immediate medical attention and special treatment needed

Notes To Physician: INHALATION: This material (or a component) sensitizes the myocardium to the effects of sympathomimetic amines. Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias in individuals exposed to this material. Administration of sympathomimetic drugs should be avoided.

SKIN: Leaks or accidents involving high-pressure equipment may inject a stream of material through the skin and initially produce an injury that may not appear serious. Only a small puncture wound may appear on the skin surface but, without proper treatment and depending on the nature, original pressure, volume, and location of the injected material, can compromise blood supply to an affected body part. Prompt surgical debridement of the wound may be necessary to prevent irreversible loss of function and/or the affected body part. High pressure injection injuries may be SERIOUS SURGICAL EMERGENCIES.

INGESTION: This material represents a significant aspiration and chemical pneumonitis hazard. Induction of emesis is not recommended.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
For small fires, Class B fire extinguishing media such as CO2, dry chemical, foam (AFFF/ATC) or water spray can be used. For large fires, water spray, fog or foam (AFFF/ATC) can be used. Firefighting should be attempted only by those who are adequately trained and equipped with proper protective equipment.

Unsuitable extinguishing media
Do not use straight water streams to avoid spreading fire.

Specific hazards arising from the chemical
This product has been determined to be an extremely flammable liquid per the OSHA Hazard Communication Standard and should be handled accordingly. May accumulate electrostatic charge and ignite or explode. Vapors may travel along the ground or be moved by ventilation and ignited by many sources such as pilot lights, sparks, electric motors, static discharge, or other ignition sources at locations distant from material handling. Flashback can occur along vapor trail. For additional fire related information, see NFPA 30 or the Emergency Response Guidebook 128.

Hazardous combustion products
Smoke, carbon monoxide, and other products of incomplete combustion.

Explosion data
Sensitivity to Mechanical Impact No.
Sensitivity to Static Discharge Yes.

Special protective equipment and precautions for firefighters
Firefighters should wear full protective clothing and positive-pressure self-contained breathing apparatus (SCBA) with a full face-piece, as appropriate. Avoid using straight water streams. Water may be ineffective in extinguishing low flash point fires, but can be used to cool exposed surfaces. Avoid excessive water spray application. Water spray and foam (AFFF/ATC) must be applied carefully to avoid frothing and from as far a distance as possible. Keep run-off water out of sewers and water sources.

Additional firefighting tactics
FIRES INVOLVING TANKS OR CAR/TRAILER LOADS: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with flooding quantities of water until well after the fire is out. Do not direct water at source of leak or safety devices; icing may occur. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire. For massive fire, use unmanned hose holders or monitor nozzles: if this is impossible, withdraw from area and let fire burn.

EVACUATION: Consider initial downwind evacuation for at least 1000 feet. If tank, rail car or tank truck is involved in a fire, ISOLATE for 5280 feet (1 mile) in all directions; also, consider initial evacuation of 5280 feet (1 mile) in all directions.

NFPA	Health 1	Flammability 3	Instability 0	Special Hazard -

6. ACCIDENTAL RELEASE MEASURES

Personal precautions:	Keep public away. Isolate and evacuate area. Shut off source if safe to do so. Eliminate all ignition sources.
Protective equipment:	Use personal protection measures as recommended in Section 8.
Emergency procedures:	Advise authorities and National Response Center (800-424-8802) if the product has entered a water course or sewer. Notify local health and pollution control agencies, if appropriate.
Environmental precautions:	Avoid release to the environment. Avoid subsoil penetration. Ethanol in gasoline phase seperates in contact with water. Monitor downstream for dissolved ethanol or other appropriate indicators.
Methods and materials for containment:	Contain liquid with sand or soil. Prevent spilled material from entering storm drains, sewers, and open waterways.
Methods and materials for cleaning up:	Use suitable absorbent materials such as vermiculite, sand, or clay to clean up residual liquids. Recover and return free product to proper containers. When recovering free liquids ensure all equipment is grounded and bonded. Use only non-sparking tools.

7. HANDLING AND STORAGE

Safe Handling Precautions:

NEVER SIPHON THIS PRODUCT BY MOUTH. Use appropriate grounding and bonding practices. Static accumulating flammable liquid. Bonding and grounding may be insufficient to eliminate the hazard from static electricity. Do not expose to heat, open flames, strong oxidizers or other sources of ignition. Vapors may travel along the ground or be moved by ventilation. Flashback may occur along vapor trails. No smoking. Use only non-sparking tools. Avoid contact with skin, eyes and clothing. Avoid breathing fumes, gas, or vapors. Use only with adequate ventilation. Avoid repeated and prolonged skin contact. Use personal protection measures as recommended in Section 8. Exercise good personal hygiene including removal of soiled clothing and prompt washing with soap and water. Do not cut, drill, grind or weld on empty containers since explosive residues may remain. Refer to applicable EPA, OSHA, NFPA and consistent state and local requirements.

Hydrocarbons are basically non-conductors of electricity and can become electrostatically charged during mixing, filtering, pumping at high flow rates or loading and transfer operations. If this charge reaches a sufficiently high level, sparks can form that may ignite the vapors of flammable liquids. Sudden release of hot organic chemical vapors or mists from process equipment operating under elevated temperature and pressure, or sudden ingress of air into vacuum equipment may result in ignition of vapors or mists without the presence of obvious ignition sources. Nozzle spouts must be kept in contact with the containers or tank during the entire filling operation.

Portable containers should never be filled while in or on a motor vehicle or marine craft. Containers should be placed on the ground. Static electric discharge can ignite fuel vapors when filling non-grounded containers or vehicles on trailers. The nozzle spout must be kept in contact with the container before and during the entire filling operation. Use only approved containers.

A buildup of static electricity can occur upon re-entry into a vehicle during fueling especially in cold or dry climate conditions. The charge is generated by the action of dissimilar fabrics (i.e., clothing and upholstery) rubbing across each other as a person enters/exits the vehicle. A flash fire can result from this discharge if sufficient flammable vapors are present. Therefore, do not get back in your vehicle while refueling.

Cellular phones and other electronic devices may have the potential to emit electrical charges (sparks). Sparks in potentially explosive atmospheres (including fueling areas such as gas stations) could cause an explosion if sufficient flammable vapors are present. Therefore, turn off cellular phones and other electronic devices when working in potentially explosive atmospheres or keep devices inside your vehicle during refueling.

High-pressure injection of any material through the skin is a serious medical emergency even though the small entrance wound at the injection site may not initially appear serious. These injection injuries can occur from high-pressure equipment such as paint spray or grease or guns, fuel injectors, or pinhole leaks in hoses or hydraulic lines and should all be considered serious. High pressure injection injuries may be SERIOUS SURGICAL EMERGENCIES (See First Aid Section 4).

Storage Conditions:

Store in properly closed containers that are appropriately labeled and in a cool, well-ventilated area. Do not store near an open flame, heat or other sources of ignition.

Incompatible Materials

Strong oxidizing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Name	ACGIH TLV	OSHA PELS:	OSHA - Vacated PELs	NIOSH IDLH
Gasoline 86290-81-5	300 ppm TWA 500 ppm STEL	-	300 ppm TWA 900 mg/m^3 TWA 500 ppm STEL 1500 mg/m^3 STEL	-

Heptane (mixed isomers) 142-82-5	400 ppm TWA 500 ppm STEL	TWA: 500 ppm TWA: 2000 mg/m³	400 ppm TWA 1600 mg/m³ TWA 500 ppm STEL 2000 mg/m³ STEL	750 ppm
Pentane (mixed isomers) 78-78-4	1000 ppm TWA	-	-	-
Butane (mixed isomers) 106-97-8	1000 ppm STEL	-	800 ppm TWA 1900 mg/m³ TWA	-
Hexane Isomers (other than n-Hexane) 107-83-5	500 ppm TWA 1000 ppm STEL	-	500 ppm TWA 1800 mg/m³ TWA 1000 ppm STEL 3600 mg/m³ STEL	-
Toluene 108-88-3	20 ppm TWA	TWA: 200 ppm Ceiling: 300 ppm	100 ppm TWA 375 mg/m³ TWA 150 ppm STEL 560 mg/m³ STEL	500 ppm
Xylene (mixed isomers) 1330-20-7	100 ppm TWA 150 ppm STEL	TWA: 100 ppm TWA: 435 mg/m³	100 ppm TWA 435 mg/m³ TWA 150 ppm STEL 655 mg/m³ STEL	900 ppm
n-Hexane 110-54-3	50 ppm TWA Skin - potential significant contribution to overall exposure by the cutaneous route	TWA: 500 ppm TWA: 1800 mg/m³	50 ppm TWA 180 mg/m³ TWA	1100 ppm
Cumene 98-82-8	50 ppm TWA	TWA: 50 ppm TWA: 245 mg/m³ Skin	50 ppm TWA 245 mg/m³ TWA Limit applies to skin	900 ppm
1,2,4 Trimethylbenzene 95-63-6	25 ppm TWA	-	25 ppm TWA 125 mg/m³ TWA	-
Ethylbenzene 100-41-4	20 ppm TWA	TWA: 100 ppm TWA: 435 mg/m³	100 ppm TWA 435 mg/m³ TWA 125 ppm STEL 545 mg/m³ STEL	800 ppm
Benzene 71-43-2	0.5 ppm TWA 2.5 ppm STEL Skin - potential significant contribution to overall exposure by the cutaneous route	TWA: 10 ppm (applies to industry segments exempt from the benzene standard) TWA: 1 ppm STEL: 5 ppm (see 29 CFR 1910.1028)	25 ppm Ceiling 1 ppm TWA 5 ppm STEL	500 ppm
Cyclohexane 110-82-7	100 ppm TWA	TWA: 300 ppm TWA: 1050 mg/m³	300 ppm TWA 1050 mg/m³ TWA	1300 ppm
Octane 111-65-9	300 ppm TWA	TWA: 500 ppm TWA: 2350 mg/m³	300 ppm TWA 1450 mg/m³ TWA 375 ppm STEL 1800 mg/m³ STEL	1000 ppm
1,2,3-trimethylbenzene 526-73-8	25 ppm TWA	-	25 ppm TWA 125 mg/m³ TWA	-
Naphthalene 91-20-3	10 ppm TWA Skin - potential significant contribution to overall exposure by the cutaneous route	TWA: 10 ppm TWA: 50 mg/m³	10 ppm TWA 50 mg/m³ TWA 15 ppm STEL 75 mg/m³ STEL	250 ppm

Notes: The manufacturer has voluntarily elected to provide exposure limits contained in OSHA's 1989 air contaminants standard in its SDSs, even though certain of those exposure limits were vacated in 1992.

Engineering measures: Local or general exhaust required in an enclosed area or when there is inadequate ventilation. Use mechanical ventilation equipment that is explosion-proof.

Personal protective equipment

Eye protection: Use goggles or face-shield if the potential for splashing exists.

Skin and body protection: Use nitrile rubber, Viton® or PVA gloves for repeated or prolonged skin exposure. Glove suitability is based on workplace conditions and usage. Contact the glove manufacturer for specific advice on glove selection and breakthrough times.

Respiratory protection: Use a NIOSH approved organic vapor chemical cartridge or supplied air respirators when there is the potential for airborne exposures to exceed permissible exposure limits or if excessive vapors are generated. Observe respirator assigned protection factors (APFs) criteria cited in federal OSHA 29 CFR 1910.134. Self-contained breathing apparatus should be used for fire fighting.

Hygiene measures: Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical State	Liquid
Appearance	Clear yellow liquid
Color	Yellow
Odor	Hydrocarbon
Odor Threshold	No data available.

Property	**Values (Method)**
Melting Point / Freezing Point	No data available.
Initial Boiling Point / Boiling Range	24-210 °C / 75-410 °F (ASTM D86)
Flash Point	-43 °C / -45 °F
Evaporation Rate	No data available.
Flammability (solid, gas)	Not applicable.
Flammability Limit in Air (%):	
Upper Flammability Limit:	7.6
Lower Flammability Limit:	1.4
Explosion limits:	No data available.
Vapor Pressure	5.5-15 psi (ASTM D4814)
Vapor Density	3-4
Specific Gravity / Relative Density	0.70-0.76
Water Solubility	No data available.
Solubility in other solvents	No data available.
Partition Coefficient	2.13-4.5
Decomposition temperature	No data available.
pH:	Not applicable
Autoignition Temperature	280 °C / 536 °F
Kinematic Viscosity	No data available.
Dynamic Viscosity	No data available.
Explosive Properties	No data available.
VOC Content (%)	100%
Density	No data available.
Bulk Density	Not applicable.

10. STABILITY AND REACTIVITY

Reactivity The product is non-reactive under normal conditions.

Chemical stability The material is stable at 70°F, 760 mmHg pressure.

Possibility of hazardous reactions None under normal processing.

Hazardous polymerization Will not occur.

Conditions to avoid Excessive heat, sources of ignition, open flame.

Incompatible Materials Strong oxidizing agents.

Hazardous decomposition products None known under normal conditions of use.

11. TOXICOLOGICAL INFORMATION

Potential short-term adverse effects from overexposures

Inhalation May cause irritation of respiratory tract. May cause drowsiness or dizziness. Breathing high concentrations of this material in a confined space or by intentional abuse can cause irregular heartbeats which can cause death.

Eye contact Exposure to vapor or contact with liquid may cause mild eye irritation, including tearing, stinging, and redness.

Skin contact Causes skin irritation. Effects may become more serious with repeated or prolonged contact. May be absorbed through the skin in harmful amounts.

Ingestion May be fatal if swallowed or vomited and enters airways. May cause irritation of the mouth, throat and gastrointestinal tract.

Acute toxicological data

Name	Oral LD50	Dermal LD50	Inhalation LC50
Gasoline 86290-81-5	14000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 5.2 mg/L (Rat) 4 h
Heptane (mixed isomers) 142-82-5	-	3000 mg/kg (Rabbit)	103 g/m³ (Rat) 4 h
Pentane (mixed isomers) 78-78-4	-	-	450 mg/L (Mouse) 2 h
Butane (mixed isomers) 106-97-8	-	-	658 mg/L (Rat) 4 h
Hexane Isomers (other than n-Hexane) 107-83-5	> 5000 mg/kg (Rat)	-	-
Toluene 108-88-3	> 2000 mg/kg (Rat)	8390 mg/kg (Rabbit)	12.5 mg/L (Rat) 4 h
Xylene (mixed isomers) 1330-20-7	> 2000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 5.04 mg/L (Rat) 4 h
n-Hexane 110-54-3	15000 mg/kg (Rat)	3000 mg/kg (Rabbit)	48000 ppm (Rat) 4 h
Cumene 98-82-8	> 2000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 20 mg/L (Rat) 6 h
1,2,4 Trimethylbenzene 95-63-6	3280 mg/kg (Rat)	> 3160 mg/kg (Rabbit)	18,000 mg/m³ (Rat) 4 h
Ethylbenzene 100-41-4	> 2000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	17.2 mg/L (Rat) 4 h
Benzene 71-43-2	> 2000 mg/kg (Rat)	> 5000 mg/kg (Rabbit)	> 20 mg/l (Rat) 4 h
Cyclohexane 110-82-7	> 5000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	13.9 mg/L (Rat) 4 h
Octane 111-65-9	-	-	118 g/m³ (Rat) 4 h
1,2,3-trimethylbenzene 526-73-8	-	-	-
Naphthalene 91-20-3	490 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 340 mg/m³ (Rat) 1 h

Delayed and immediate effects as well as chronic effects from short and long-term exposure

NAPHTHAS: In a large epidemiological study on over 15,000 employees at several petroleum refineries and amongst residents located near these refineries, no increased risk of kidney cancer was observed in association with gasoline exposures (a similar material). In a similar study, no increased risk of kidney cancer was observed among petroleum refinery workers, but there was a slight trend in the incidence of kidney cancers among service station employees, especially after a 30-year latency period. Altered mental state, drowsiness, peripheral motor neuropathy, irreversible brain damage (so-called Petrol Sniffer's Encephalopathy), delirium, seizures, and sudden death have been reported from repeated overexposure to some hydrocarbon solvents, naphthas, and gasoline.

ISOPARAFFINS: Studies in laboratory animals have shown that long-term exposure to similar materials (isoparaffins) can cause kidney damage and kidney cancer in male laboratory rats. However, in-depth research indicates that these findings are unique to the male rat, and that these effects are not relevant to humans.

C9 AROMATIC HYDROCARBONS: A developmental inhalation study was conducted in laboratory mice. Increased implantation losses, reduced fetal weights, delayed ossification and an increased incidence of cleft palate were observed at the highest exposure level (1,500 ppm). This exposure level was extremely toxic to pregnant female mice (44% mortality). Reduced fetal body weights were also observed at 500 ppm. A multi-generation reproduction inhalation study was conducted in laboratory rats. Reductions in pup weights, pup weight gain, litter size, and pup survival were observed at 1,500 ppm, an exposure level at which significant maternal toxicity was observed. Reduced pup weight gain was also observed at 500 ppm.

PENTANES: Studies of pentane isomers in laboratory animals indicate exposure to extremely high levels (roughly 10 vol.%) may induce cardiac arrhythmias (irregular heartbeats) which may be serious or fatal.

BUTANES: Studies in laboratory animals indicate exposure to extremely high levels of butanes (1-10 or higher vol.% in air) may cause cardiac arrhythmias (irregular heartbeats) which may be serious or fatal.

TOLUENE: Case studies of persons abusing toluene suggest isolated incidences of adverse effects on the fetus including birth defects. Abuse of toluene at high concentrations (e.g., glue sniffing and solvent abuse) has been associated with adverse effects on the liver, kidney and nervous system, and can cause CNS depression, cardiac arrhythmias, and death. Studies of workers indicate longterm exposure may be related to impaired color vision and hearing. Some studies of workers suggest longterm exposure may be related to neurobehavioral and cognitive changes. Some of these effects have been observed in laboratory animals following repeated exposure to high levels of toluene. Several studies of workers suggest longterm exposure may be related to small increases in spontaneous abortions and changes in some gonadotropic hormones. However, the weight of evidence does not indicate toluene is a reproductive hazard to humans. Studies in laboratory animals indicate some changes in reproductive organs following high levels of exposure, but no significant effects on mating performance or reproduction were observed. Case studies of persons abusing toluene suggest isolated incidences of adverse effects on the fetus including birth defects. Findings in laboratory animals have been largely negative. Positive findings include small increases in minor skeletal and visceral malformations and developmental delays following very high levels of maternal exposure. Studies of workers indicate long-term exposure may be related to effects on the liver, kidney and blood, but these appear to be limited to changes in serum enzymes and decreased leukocyte counts. Adverse effects on the liver, kidney, thymus and nervous system were observed in animal studies following very high levels of exposure. The relevance of these findings to humans is not clear at this time.

XYLENES, ALL ISOMERS: Overexposure to xylene may cause upper respiratory tract irritation, headache, cyanosis, blood serum changes, nervous system damage and narcosis. Effects may be increased by the use of alcoholic beverages. Evidence of liver and kidney impairment were reported in workers recovering from a gross overexposure. Effects from Prolonged or Repeated Exposure: Impaired neurological function was reported

in workers exposed to solvents including xylene. Studies in laboratory animals have shown evidence of impaired hearing following high levels of exposure. Studies in laboratory animals suggest some changes in reproductive organs following high levels of exposure but no significant effects on reproduction were observed. Studies in laboratory animals indicate skeletal and visceral malformations, developmental delays, and increased fetal resorptions following extremely high levels of maternal exposure with evidence of maternal toxicity. The relevance of these observations to humans is not clear at this time. Adverse effects on the liver, kidney, bone marrow (changes in blood cell parameters) were observed in laboratory animals following high levels of exposure. The relevance of these observations to humans is not clear at this time.

1,2,4-TRIMETHYLBENZENE: The following information pertains to a mixture of C9 aromatic hydrocarbons, over 40% of which was composed of 1,2,4-trimethylbenzene. A developmental inhalation study was conducted in laboratory mice. Increased implantation losses, reduced fetal weights, delayed ossification and an increased incidence of cleft palate were observed at the highest exposure level (1,500 ppm). This exposure level was extremely toxic to pregnant female mice (44% mortality). Reduced fetal body weights were also observed at 500 ppm. A multi-generation reproduction inhalation study was conducted in laboratory rats. Reductions in pup weights, pup weight gain, litter size, and pup survival were observed at 1,500 ppm, an exposure level at which significant maternal toxicity was observed. Reduced pup weight gain was also observed at 500 ppm. Embryotoxicity has been reported in studies of laboratory animals. Adverse effects included increased implantation losses, reduced fetal weights, delayed ossification and an increased incidence of cleft palate.<n><n>

N-HEXANE: Long-term or repeated exposure to n-hexane can cause peripheral nerve damage. Initial symptoms are numbness of the fingers and toes. Also, motor weakness can occur in the digits, but may also involve muscles of the arms, thighs and forearms. The onset of these symptoms may be delayed for several months to a year after the beginning of exposure. Testicular atrophy and partial to full loss of the germ cell line were observed in sub-chronic high-dose inhalation studies of laboratory rodents. These effects appeared irreversible. Rodent reproduction studies have shown evidence of reduced fetal weight but no frank malformations.

CUMENE: Overexposure to cumene may cause upper respiratory tract irritation and CNS depression. Studies in laboratory animals indicate evidence of respiratory tract hyperplasia, and adverse effects on the liver, kidney and adrenal glands following high level exposure. The relevance of these findings to humans is not clear at this time. Findings from lifetime laboratory rodent inhalation studies were as follows: In F344/N rats: an increased incidence of renal carcinomas and adenomas, respiratory epithelial adenomas, and interstitial cell adenomas of the testes. In B6C3F1 mice: an increased incidence of carcinomas and adenomas of the bronchi and lung, liver neoplasms, hemangiosarcomas of the spleen, and adenomas of the thyroid.

ETHYLBENZENE: Findings from a 2-year inhalation study in rodents conducted by NTP were as follows: Effects were observed only at the highest exposure level (750 ppm). At this level the incidence of renal tumors was elevated in male rats (tubular carcinomas) and female rats (tubular adenomas). The incidence of tumors was also elevated in male mice (alveolar and bronchiolar carcinomas) and female mice (hepatocellular carcinomas). IARC has classified ethyl benzene as "possibly carcinogenic to humans" (Group 2B). Studies in laboratory animals indicate some evidence of post-implantation deaths following high levels of maternal exposure. The relevance of these findings to humans is not clear at this time. Studies in laboratory animals indicate limited evidence of renal malformations, resorptions, and developmental delays following high levels of maternal exposure with evidence of maternal toxicity. The relevance of these findings to humans is not clear at this time. Studies in laboratory animals have demonstrated evidence of ototoxicity (hearing loss) following exposure levels as low as 300 ppm for 5 days. Studies in laboratory animals indicate some evidence of adverse effects on the liver, kidney, thyroid, and pituitary gland.

BENZENE: Studies of workers exposed to benzene show clear evidence that overexposure can cause cancer and other diseases of the blood forming organs including Acute

Myelogenous Leukemia (AML), and Aplastic Anemia (AA), an often fatal disease. Some studies suggest overexposure to benzene may also be associated with Myelodysplastic Syndrome (MDS). Findings from a case control study of workers exposed to benzene was reported during the 2009 Benzene Symposium in Munich included an increase in Acute Myeloid Leukemias and Non-Hodgkins Lymphoid Neoplasms (NHLN) of the subtype follicular lymphoma (FL) in some occupational categories. Some studies of workers exposed to benzene have shown an association with increased rates of chromosome aberrations in circulating lymphocytes. One study of women workers exposed to benzene suggested a weak association with irregular menstruation. However, other studies of workers exposed to benzene have not demonstrated clear evidence of an effect on fertility or reproductive outcome in humans. Benzene can cross the placenta and affect the developing fetus. Cases of AA have been reported in the offspring of persons severely overexposed to benzene. Studies in laboratory animals indicate that prolonged, repeated exposure to high levels of benzene vapor can cause bone marrow suppression and cancer in multiple organ systems. Studies in laboratory animals show evidence of adverse effects on male reproductive organs following high levels of exposure but no significant effects on reproduction have been observed. Embryotoxicity has been reported in studies of laboratory animals but effects were limited to reduced fetal weight and minor skeletal variations. Benzene has been classified as a proven human carcinogen by OSHA and a Group 1 (Carcinogenic to Humans) material by IARC. The current proposed IARC classification for benzene is summarized as follows: Sufficient evidence for Acute Myeloid Leukemia; limited evidence for Acute Lymphatic Leukemia, Chronic Lymphatic Leukemia, Non-Hodgkin Lymphoma, and Multiple Myeloma.

NAPHTHALENE: Severe jaundice, neurotoxicity (kernicterus) and fatalities have been reported in young children and infants as a result of hemolytic anemia from overexposure to naphthalene. Persons with glucose 6-phosphate dehydrogenase (G6PD) deficiency are more prone to the hemolytic effects of naphthalene. Adverse effects on the kidney have been reported in persons overexposed to naphthalene but these effects are believed to be a consequence of hemolytic anemia, and not a direct effect. Hemolytic anemia has been observed in laboratory animals exposed to naphthalene. Laboratory rodents exposed to naphthalene vapor for 2 years (lifetime studies) developed non-neoplastic and neoplastic tumors and inflammatory lesions of the nasal and respiratory tract. Cataracts and other adverse effects on the eye have been observed in laboratory animals exposed to high levels of naphthalene. Findings from a large number of bacterial and mammalian cell mutation assays have been negative. A few studies have shown chromosomal effects (elevated levels of Sister Chromatid Exchange or chromosomal aberrations) in vitro. Naphthalene has been classified as Possibly Carcinogenic to Humans (2B) by IARC, based on findings from studies in laboratory animals.

CARBON MONOXIDE: is a chemical asphyxiant with no warning properties (such as odor). At 400-500 ppm for 1 hour headache and dyspnea may occur. If activity is increased, symptoms of overexposure may include nausea, irritability, increased respiration, tinnitus, sweating, chest pain, confusion, impaired judgement, dizziness, weakness, drowsiness, ataxia, irregular heart beat, cyanosis and pallor. Levels in excess of 1000 ppm can result in collapse, loss of conciousness, respiratory failure and death. Extremely high concentrations (12,800 ppm) can cause immediate unconsciousness and death in 1-3 minutes. Repeated anoxia can lead to central nervous system damage and peripheral neuropathy, with loss of sensation in the fingers, amnesia, and mental deterioration and possible congestive heart failure. Damage may also occur to the fetus, lung, liver, kidney, spleen, cardiovascular system and other organs.

WHOLLY-VAPORIZED UNLEADED GASOLINE: Lifetime exposure to wholly vaporized unleaded gasoline produced an increased incidence of liver tumors in female mice exposed to the highest exposure concentration (2056 ppm) and α-2 urinary globulin-mediated kidney tumors in male rats. No exposure-related tumors were observed in male mice or female rats. The male-specific rat kidney tumors are not considered relevant to human health. Mice receiving lifetime repeated skin application of various petroleum naphthas exhibited an irritation-dependent increased incidence of skin tumors. Additional studies suggest that these tumors occur through a mechanism that may not be relevant to human health. Epidemiological data from over 18,000 petroleum marketing and distribution workers

showed no increased risk of leukemia, multiple myeloma, or kidney cancer resulting from gasoline exposure. Unleaded gasoline has been identified as possibly carcinogenic to humans (2B) by the International Agency for Research on Cancer (IARC).

COMBUSTION ENGINE EXHAUST: Chronic inhalation studies of gasoline engine exhaust in mice, rats and hamsters did not produce any carcinogenic effects. Condensates/extracts of gasoline engine exhaust produced an increase in tumors compared to controls when testing by skin painting, subcutaneous injection, intratracheal instillation or implantation into the lungs. Gasoline exhaust has been classified as possibly carcinogenic to humans (2B) by the International Agency for Research on Cancer (IARC).

Adverse effects related to the physical, chemical and toxicological characteristics

Signs and Symptoms Irritating to the skin and mucous membranes. Symptoms may include redness, itching, and inflammation. May cause nausea, vomiting, diarrhea, and signs of nervous system depression: headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue. Aspiration hazard. May cause coughing, chest pains, shortness of breath, pulmonary edema and/or chemical pneumonitis. Repeated or prolonged skin contact may cause drying, reddening, itching and cracking.

Sensitization Not expected to be a skin or respiratory sensitizer.

Mutagenic effects May cause genetic defects.

Carcinogenicity May cause cancer.

Cancer designations are listed in the table below

Name	ACGIH (Class)	IARC (Class)	NTP	OSHA
Gasoline 86290-81-5	Confirmed animal carcinogen (A3)	Possible human carcinogen (2B)	Not Listed	Not Listed
Heptane (mixed isomers) 142-82-5	Not Listed	Not Listed	Not Listed	Not Listed
Pentane (mixed isomers) 78-78-4	Not Listed	Not Listed	Not Listed	Not Listed
Butane (mixed isomers) 106-97-8	Not Listed	Not Listed	Not Listed	Not Listed
Hexane Isomers (other than n-Hexane) 107-83-5	Not Listed	Not Listed	Not Listed	Not Listed
Toluene 108-88-3	Not Classifiable (A4)	Not Classifiable (3)	Not Listed	Not Listed
Xylene (mixed isomers) 1330-20-7	Not classifiable (A4)	Not classifiable (3)	Not Listed	Not Listed
n-Hexane 110-54-3	Not Listed	Not Listed	Not Listed	Not Listed
Cumene 98-82-8	Not listed	Possible human carcinogen (2B)	Reasonably anticipated to be a human carcinogen	Not listed
1,2,4 Trimethylbenzene 95-63-6	Not Listed	Not Listed	Not Listed	Not Listed
Ethylbenzene 100-41-4	Confirmed animal carcinogen (A3)	Possible human carcinogen (2B)	Not Listed	Not Listed
Benzene 71-43-2	Confirmed human carcinogen (A1)	Carcinogenic to humans (1)	Known to be human carcinogen	Known carcinogen
Cyclohexane 110-82-7	Not Listed	Not Listed	Not Listed	Not Listed
Octane 111-65-9	Not Listed	Not Listed	Not Listed	Not Listed
1,2,3-trimethylbenzene 526-73-8	Not Listed	Not Listed	Not Listed	Not Listed
Naphthalene 91-20-3	Confirmed animal carcinogen (A3)	Possible human carcinogen (2B)	Reasonably anticipated to be a human carcinogen	Not Listed

Reproductive toxicity Suspected of damaging fertility or the unborn child.

Specific Target Organ Toxicity (STOT) - single exposure Respiratory system. Central nervous system.

Specific Target Organ Toxicity (STOT) - repeated exposure Not classified.

Aspiration hazard May be fatal if swallowed or vomited and enters airways.

12. ECOLOGICAL INFORMATION

Ecotoxicity This product should be considered toxic to aquatic organisms, with the potential to cause long lasting adverse effects in the aquatic environment.

Name	Algae/aquatic plants	Fish	Toxicity to Microorganisms	Crustacea
Gasoline 86290-81-5	72-hr EC50 = 56 mg/l Algae	96-hr LC50 = 11 mg/l Rainbow trout (static)	-	48-hr LC50 = 7.6 mg/l Daphnia magna
Heptane (mixed isomers) 142-82-5	-	96-hr LC50 = 375 mg/L Tilapia	-	-
Pentane (mixed isomers) 78-78-4	-	96-hr LC50 = 3.1 mg/L Rainbow trout	-	48-hr EC50 = >1 - <10 mg/L Daphnia magna
Butane (mixed isomers) 106-97-8	-	-	-	-
Hexane Isomers (other than n-Hexane) 107-83-5	-	-	-	-
Toluene 108-88-3	72-hr EC50 = 12.5 mg/l Algae	96-hr LC50 <= 10 mg/l Rainbow trout	-	48-hr EC50 = 5.46-9.83 mg/l Daphnia magna 48-hr EC50 = 11.5 mg/l Daphnia magna (Static)
Xylene (mixed isomers) 1330-20-7	72-hr EC50 = 11 mg/l Algae	96-hr LC50 = 8 mg/l Rainbow trout	-	48-hr LC50 = 3.82 mg/l Daphnia magna
n-Hexane 110-54-3	-	96-hr LC50 = 2.5 mg/l Fathead minnow	-	-
Cumene 98-82-8	72-hr EC50 = 2.6 mg/l Algae	96-hr LC50 = 6.04-6.61 mg/l Fathead minnow (Flow-through) 96-hr LC50 = 2.7 mg/l Rainbow trout (semi-static)	-	48-hr EC50 = 7.9-14.1 mg/l Daphnia magna (static)
1,2,4 Trimethylbenzene 95-63-6	-	96-hr LC50 = 7.19-8.28 mg/l Fathead minnow (flow-through)	-	48-hr EC50 = 6.14 mg/L Daphnia magna
Ethylbenzene 100-41-4	72-hr EC50 = 1.7-7.6 mg/l Algae	96-hr LC50 = 4 mg/L Rainbow trout	-	48-hr EC50 = 1-4 mg/L Daphnia magna
Benzene 71-43-2	72-hr EC50 = 29 mg/l Algae	96-hr LC50 = 5.3 mg/l Rainbow trout (flow-through)	-	48-hr EC50 = 8.76-15.6 mg/l Daphnia magna (Static)
Cyclohexane 110-82-7	72-hr EC50 = 500 mg/l Algae	96-hr LC50 = 3.96-5.18 mg/l Fathead minnow	-	48-hr EC50 = 1.7-3.5 mg/L Bay shrimp
Octane 111-65-9	-	-	-	48-hr LC50 = 0.38 mg/l Daphnia magna
1,2,3-trimethylbenzene 526-73-8	-	96-hr LC50 = 7.72 mg/l Fathead Minnow (flow-through)	-	-
Naphthalene 91-20-3	-	96-hr LC50 = 0.91-2.82 mg/l Rainbow trout (static) 96-hr LC50 = 1.99 mg/l Fathead minnow (static)	-	48-hr LC50 = 1.6 mg/l Daphnia magna

Persistence and degradability Expected to be inherently biodegradable. The presence of ethanol in this product may impede the biodegradation of benzene, toluene, ethylbenzene and xylene in groundwater, resulting in elongated plumes of these constituents.

Bioaccumulation Has the potential to bioaccumulate.

Mobility in soil May partition into air, soil and water.

Other adverse effects No information available.

13. DISPOSAL CONSIDERATIONS

Description of Waste Residues
This material may be a flammable liquid waste.

Safe Handling of Wastes
Handle in accordance with applicable local, state, and federal regulations. Use personal protection measures as required. Use appropriate grounding and bonding practices. Use only non-sparking tools. Do not expose to heat, open flames, strong oxidizers or other sources of ignition. No smoking.

Disposal of Wastes / Methods of Disposal
The user is responsible for determining if any discarded material is a hazardous waste (40 CFR 262.11). Dispose of in accordance with federal, state and local regulations.

Methods of Contaminated Packaging Disposal
Empty containers should be completely drained and then discarded or recycled, if possible. Do not cut, drill, grind or weld on empty containers since explosive residues may be present. Dispose of in accordance with federal, state and local regulations.

14. TRANSPORT INFORMATION

DOT (49 CFR 172.101):

UN Proper Shipping Name:	Gasoline
UN/Identification No:	UN 1203
Transport Hazard Class(es):	3
Packing Group:	II

TDG (Canada):

UN Proper Shipping Name:	Gasoline
UN/Identification No:	UN 1203
Transport Hazard Class(es):	3
Packing Group:	II

15. REGULATORY INFORMATION

US Federal Regulatory Information:

US TSCA Chemical Inventory Section 8(b): This product and/or its components are listed on the TSCA Chemical Inventory.

EPA Superfund Amendment & Reauthorization Act (SARA):

SARA Section 302: This product does not contain any component(s) included on EPA's Extremely Hazardous Substance (EHS) List.

Name	CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs
Gasoline	NA
Heptane (mixed isomers)	NA
Pentane (mixed isomers)	NA
Butane (mixed isomers)	NA
Hexane Isomers (other than n-Hexane)	NA
Toluene	NA
Xylene (mixed isomers)	NA

n-Hexane	NA
Cumene	NA
1,2,4 Trimethylbenzene	NA
Ethylbenzene	NA
Benzene	NA
Cyclohexane	NA
Octane	NA
1,2,3-trimethylbenzene	NA
Naphthalene	NA

SARA Section 304: This product may contain component(s) identified either as an EHS or a CERCLA Hazardous substance which in case of a spill or release may be subject to SARA reporting requirements:

Name	Hazardous Substances RQs
Gasoline	NA
Heptane (mixed isomers)	NA
Pentane (mixed isomers)	NA
Butane (mixed isomers)	NA
Hexane Isomers (other than n-Hexane)	NA
Toluene	1000 lb final RQ 454 kg final RQ
Xylene (mixed isomers)	100 lb final RQ 45.4 kg final RQ
n-Hexane	5000 lb final RQ 2270 kg final RQ
Cumene	5000 lb final RQ 2270 kg final RQ
1,2,4 Trimethylbenzene	NA
Ethylbenzene	1000 lb final RQ 454 kg final RQ
Benzene	10 lb final RQ 4.54 kg final RQ
Cyclohexane	1000 lb final RQ 454 kg final RQ
Octane	NA
1,2,3-trimethylbenzene	NA
Naphthalene	100 lb final RQ 45.4 kg final RQ

SARA: The following EPA hazard categories apply to this product:

Acute Health Hazard
Chronic Health Hazard
Fire Hazard

SARA Section 313: This product may contain component(s), which if in exceedance of the de minimus threshold, may be subject to the reporting requirements of SARA Title III Section 313 Toxic Release Reporting (Form R).

Name	CERCLA/SARA 313 Emission reporting:
Gasoline	None
Heptane (mixed isomers)	None
Pentane (mixed isomers)	None
Butane (mixed isomers)	None
Hexane Isomers (other than n-Hexane)	None
Toluene	1.0 % de minimis concentration
Xylene (mixed isomers)	1.0 % de minimis concentration
n-Hexane	1.0 % de minimis concentration
Cumene	1.0 % de minimis concentration

1,2,4 Trimethylbenzene	1.0 % de minimis concentration
Ethylbenzene	0.1 % de minimis concentration
Benzene	0.1 % de minimis concentration
Cyclohexane	1.0 % de minimis concentration
Octane	None
1,2,3-trimethylbenzene	None
Naphthalene	0.1 % de minimis concentration

State and Community Right-To-Know Regulations:
The following component(s) of this material are identified on the regulatory lists below:

Gasoline

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 0957
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Not Listed
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Carcinogen; Flammable - third degree
New Jersey - Environmental Hazardous Substances List:	SN 0957 TPQ: 10000 lb (Under N.J.A.C. 7:1G, environmental hazardous substances in mixtures such as gasoline or new and used petroleum oil may be reported under these categories)
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Heptane (mixed isomers)

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 1339
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic; Flammable
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - third degree
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants:	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Pentane (mixed isomers)

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 1064
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Not Listed
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed

California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - fourth degree
New Jersey - Environmental Hazardous Substances List:	SN 1064 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Butane (mixed isomers)

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 0273
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic; Flammable
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - fourth degree
New Jersey - Environmental Hazardous Substances List:	SN 0273 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Hexane Isomers (other than n-Hexane)

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 1285
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Not Listed
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - third degree
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants:	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Toluene

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Developmental toxicity, initial date 1/1/91 Female reproductive toxicity, initial date 8/7/09
New Jersey Right-To-Know:	SN 1866
Pennsylvania Right-To-Know:	Environmental hazard
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic (skin); Flammable (skin)
Michigan Critical Materials Register List:	100 lb Annual usage threshold
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed

New Jersey - Special Hazardous Substances:	Flammable - third degree; Teratogen
New Jersey - Environmental Hazardous Substances List:	SN 1866 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	1000 lb RQ (air); 1 lb RQ (land/water)

Xylene (mixed isomers)

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 2014
Pennsylvania Right-To-Know:	Environmental hazard
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic (skin); Flammable (skin)
Michigan Critical Materials Register List:	100 lb Annual usage threshold all isomers
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - third degree
New Jersey - Environmental Hazardous Substances List:	SN 2014 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	1000 lb RQ (air); 1 lb RQ (land/water)

n-Hexane

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 1340
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic; Flammable
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - third degree
New Jersey - Environmental Hazardous Substances List:	SN 1340 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	1 lb RQ (air); 1 lb RQ (land/water)

Cumene

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Carcinogen, initial date 4/6/10
New Jersey Right-To-Know:	SN 0542
Pennsylvania Right-To-Know:	Environmental hazard
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic (skin); Flammable (skin)
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - third degree
New Jersey - Environmental Hazardous Substances List:	SN 0542 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Present

New York - Reporting of Releases Part 597 - List of Hazardous Substances:	5000 lb RQ (air); 1 lb RQ (land/water)

1,2,4 Trimethylbenzene

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 1929
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Not Listed
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Ethylbenzene

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Carcinogen, initial date 6/11/04
New Jersey Right-To-Know:	SN 0851
Pennsylvania Right-To-Know:	Environmental hazard
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic; Flammable
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Carcinogen; flammable - Third degree
New Jersey - Environmental Hazardous Substances List:	SN 0851 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	1000 lb RQ (air); 1 lb RQ (land/water)

Benzene

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Carcinogen, initial date 2/27/87 Developmental toxicity, initial date 12/26/97 Male reproductive toxicity, initial date 12/26/97
New Jersey Right-To-Know:	SN 0197
Pennsylvania Right-To-Know:	Environmental hazard; Special hazardous substance
Massachusetts Right-To Know:	Carcinogen; Extraordinarily hazardous
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic (skin); Flammable (skin); Carcinogen (skin)
Michigan Critical Materials Register List:	100 lb Annual usage threshold
Massachusetts Extraordinarily Hazardous Substances:	Carcinogen; Extraordinarily hazardous
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Present
New Jersey - Special Hazardous Substances:	Carcinogen; Flammable - third degree; Mutagen
New Jersey - Environmental Hazardous Substances List:	SN 0197 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	10 lb RQ (air); 1 lb RQ (land/water)

Cyclohexane

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 0565
Pennsylvania Right-To-Know:	Environmental hazard
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic; Flammable
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - third degree
New Jersey - Environmental Hazardous Substances List:	SN 0565 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	1000 lb RQ (air); 1 lb RQ (land/water)

Octane

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 1434
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic; Flammable
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - third degree
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants:	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

1,2,3-trimethylbenzene

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 1929
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Not Listed
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Naphthalene

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Carcinogen, initial date 4/19/02
New Jersey Right-To-Know:	SN 1322 SN 3758

Pennsylvania Right-To-Know:	Environmental hazard Present (particulate)
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic; Flammable
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Carcinogen
New Jersey - Environmental Hazardous Substances List:	SN 1322 TPQ: 500 lb (Reportable at the de minimis quantity of >0.1%)
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	100 lb RQ (air); 1 lb RQ (land/water)

Canada DSL/NDSL Inventory: This product and/or its components are listed either on the Domestic Substances List (DSL) or are exempt.

Canadian Regulatory Information: This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the (M)SDS contains all the information required by the Controlled Products Regulations.

Name	Canada - WHMIS: Classifications of Substances:	Canada - WHMIS: Ingredient Disclosure:
Gasoline	B2,D2A,D2B	0.1%
Heptane (mixed isomers)	B2,D2B	1%
Pentane (mixed isomers)	B2	1%
Butane (mixed isomers)	A,B1	1%
Hexane Isomers (other than n-Hexane)	B2	1%
Toluene	B2,D2A,D2B	0.1%
Xylene (mixed isomers)	B2,D2A,D2B	m-, o-isomers 1.0%; p-isomer 0.1%
n-Hexane	B2,D2A,D2B	1%
Cumene	B2,D2A	0.1%
1,2,4 Trimethylbenzene	B3,D2B	1%
Ethylbenzene	B2,D2A,D2B	0.1%
Benzene	B2,D2A,D2B	0.1%
Cyclohexane	B2,D2B	1%
Octane	B2,D2B	1%
1,2,3-trimethylbenzene	B3	1%
Naphthalene	B4,D2A	0.1%

Note: Not applicable.

16. OTHER INFORMATION

Prepared By Toxicology and Product Safety

Revision Date: 06/01/2016

Revision Note:

Revised Sections

The following sections (§) have been updated:
1. IDENTIFICATION
2. HAZARD IDENTIFICATION
3. COMPOSITION/INFORMATION ON INGREDIENTS
4. FIRST AID MEASURES
6. ACCIDENTAL RELEASE MEASURES
7. HANDLING AND STORAGE
8. EXPOSURE CONTROLS/PERSONAL PROTECTION
9. PHYSICAL AND CHEMICAL PROPERTIES
11. TOXICOLOGICAL INFORMATION
12. ECOLOGICAL INFORMATION
15. REGULATORY INFORMATION

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is intended as guidance for safe handling, use, processing, storage, transportation, accidental release, clean-up and disposal and is not considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

SAFETY DATA SHEET

Helium

Section 1. Identification

GHS product identifier : Helium

Chemical name : Helium

Other means of identification : helium (dot); Helium-4; He; o-Helium; UN 1046

Product use : Synthetic/Analytical chemistry.

Synonym : helium (dot); Helium-4; He; o-Helium; UN 1046

SDS # : 001025

Supplier's details : Airgas USA, LLC and its affiliates
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283
1-610-687-5253

Emergency telephone number (with hours of operation) : 1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : GASES UNDER PRESSURE - Compressed gas

GHS label elements

Hazard pictograms :

Signal word : Warning

Hazard statements : Contains gas under pressure; may explode if heated.
May displace oxygen and cause rapid suffocation.

Precautionary statements

General : Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction.

Prevention : Use and store only outdoors or in a well ventilated place.

Response : Not applicable.

Storage : Protect from sunlight. Protect from sunlight when ambient temperature exceeds 52°C/125°F. Store in a well-ventilated place.

Disposal : Not applicable.

Hazards not otherwise classified : In addition to any other important health or physical hazards, this product may displace oxygen and cause rapid suffocation.

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Section 3. Composition/information on ingredients

Substance/mixture : Substance

Chemical name : Helium

Other means of identification : helium (dot); Helium-4; He; o-Helium; UN 1046

CAS number/other identifiers

CAS number : 7440-59-7

Product code : 001025

Ingredient name	%	CAS number
Helium	100	7440-59-7

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : As this product is a gas, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Contact with rapidly expanding gas may cause burns or frostbite.

Inhalation : No known significant effects or critical hazards.

Skin contact : Contact with rapidly expanding gas may cause burns or frostbite.

Frostbite : Try to warm up the frozen tissues and seek medical attention.

Ingestion : As this product is a gas, refer to the inhalation section.

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

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Section 4. First aid measures

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : Contains gas under pressure. In a fire or if heated, a pressure increase will occur and the container may burst or explode.

Hazardous thermal decomposition products : No specific data.

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Immediately contact emergency personnel. Stop leak if without risk.

Large spill : Immediately contact emergency personnel. Stop leak if without risk. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

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Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Avoid contact with eyes, skin and clothing. Avoid breathing gas. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Keep container tightly closed and sealed until ready for use. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F).

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Helium	Oxygen Depletion [Asphyxiant]

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

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Section 8. Exposure controls/personal protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state : Gas. [Compressed gas.]

Color : Colorless.

Molecular weight : 4 g/mole

Molecular formula : He

Boiling/condensation point : -268.9°C (-452°F)

Melting/freezing point : -272.2°C (-458°F)

Critical temperature : -267.9°C (-450.2°F)

Odor : Odorless.

Odor threshold : Not available.

pH : Not available.

Flash point : [Product does not sustain combustion.]

Burning time : Not applicable.

Burning rate : Not applicable.

Evaporation rate : Not available.

Flammability (solid, gas) : Not available.

Lower and upper explosive (flammable) limits : Not available.

Vapor pressure : Not available.

Vapor density : 0.14 (Air = 1) Liquid Density@BP: 7.8 lb/ft3 (125 kg/m3)

Specific Volume (ft ^{3}/lb) : 96.1538

Gas Density (lb/ft ^{3}) : 0.0104

Relative density : Not applicable.

Solubility : Not available.

Solubility in water : Not available.

Partition coefficient: n-octanol/water : 0.28

Auto-ignition temperature : Not available.

Decomposition temperature : Not available.

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Section 9. Physical and chemical properties

SADT : Not available.

Viscosity : Not applicable.

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

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Section 11. Toxicological information

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Contact with rapidly expanding gas may cause burns or frostbite.

Inhalation : No known significant effects or critical hazards.

Skin contact : Contact with rapidly expanding gas may cause burns or frostbite.

Ingestion : As this product is a gas, refer to the inhalation section.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

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Section 12. Ecological information

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
Helium	0.28	-	low

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty Airgas-owned pressure vessels should be returned to Airgas. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1046	UN1046	UN1046	UN1046	UN1046
UN proper shipping name	HELIUM, COMPRESSED	HELIUM, COMPRESSED	HELIUM, COMPRESSED	HELIUM, COMPRESSED	HELIUM, COMPRESSED
Transport hazard class(es)	2.2	2.2	2.2	2.2	2.2
Packing group	-	-	-	-	-
Environment	No.	No.	No.	No.	No.
Additional information	**Limited quantity** Yes. **Packaging instruction** **Passenger aircraft** Quantity limitation: 75 kg **Cargo aircraft** Quantity limitation: 150 kg	**Explosive Limit and Limited Quantity Index** 0.125 **Passenger Carrying Road or Rail Index** 75	-	-	**Passenger and Cargo Aircraft**Quantity limitation: 75 kg **Cargo Aircraft Only** Quantity limitation: 150 kg

"Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product."

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Section 14. Transport information

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined

United States inventory (TSCA 8b): This material is listed or exempted.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Sudden release of pressure

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Helium	100	No.	Yes.	No.	No.	No.

State regulations

Massachusetts : This material is listed.

New York : This material is not listed.

New Jersey : This material is listed.

Pennsylvania : This material is listed.

Canada inventory : This material is listed or exempted.

International regulations

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Section 15. Regulatory information

International lists : **Australia inventory (AICS)**: This material is listed or exempted.
China inventory (IECSC): This material is listed or exempted.
Japan inventory: Not determined.
Korea inventory: This material is listed or exempted.
Malaysia Inventory (EHS Register): Not determined.
New Zealand Inventory of Chemicals (NZIoC): This material is listed or exempted.
Philippines inventory (PICCS): This material is listed or exempted.
Taiwan inventory (CSNN): Not determined.

Chemical Weapons Convention List Schedule I Chemicals : Not listed

Chemical Weapons Convention List Schedule II Chemicals : Not listed

Chemical Weapons Convention List Schedule III Chemicals : Not listed

Canada

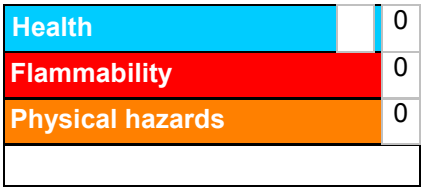
WHMIS (Canada) : Class A: Compressed gas.

CEPA Toxic substances: This material is not listed.
Canadian ARET: This material is not listed.
Canadian NPRI: This material is not listed.
Alberta Designated Substances: This material is not listed.
Ontario Designated Substances: This material is not listed.
Quebec Designated Substances: This material is not listed.

Section 16. Other information

Canada Label requirements : Class A: Compressed gas.

Hazardous Material Information System (U.S.A.)



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)

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Section 16. Other information

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

History

Date of printing : 10/15/2014.

Date of issue/Date of revision : 10/15/2014.

Date of previous issue : 10/2/2014.

Version : 0.02

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United NationsACGIH – American Conference of Governmental Industrial Hygienists
AIHA – American Industrial Hygiene Association
CAS – Chemical Abstract Services
CEPA – Canadian Environmental Protection Act
CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act (EPA)
CFR – United States Code of Federal Regulations
CPR – Controlled Products Regulations
DSL – Domestic Substances List
GWP – Global Warming Potential
IARC – International Agency for Research on Cancer
ICAO – International Civil Aviation Organisation
Inh – Inhalation
LC – Lethal concentration
LD – Lethal dosage
NDSL – Non-Domestic Substances List
NIOSH – National Institute for Occupational Safety and Health
TDG – Canadian Transportation of Dangerous Goods Act and Regulations
TLV – Threshold Limit Value
TSCA – Toxic Substances Control Act
WEEL – Workplace Environmental Exposure Level
WHMIS – Canadian Workplace Hazardous Material Information System

References : Not available.

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

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SAFETY DATA SHEET

Version 5.6
Revision Date 04/24/2015
Print Date 02/09/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Heptachlor

Product Number : PS78
Brand : Supelco
Index-No. : 602-046-00-2

CAS-No. : 76-44-8

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 2), H300
Acute toxicity, Dermal (Category 2), H310
Carcinogenicity (Category 2), H351
Specific target organ toxicity - repeated exposure (Category 2), H373
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H300 + H310 Fatal if swallowed or in contact with skin
H351 Suspected of causing cancer.
H373 May cause damage to organs through prolonged or repeated exposure.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.

P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P262	Do not get in eyes, on skin, or on clothing.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P302 + P350	IF ON SKIN: Gently wash with plenty of soap and water.
P310	Immediately call a POISON CENTER or doctor/ physician.
P322	Specific measures (see supplemental first aid instructions on this label).
P330	Rinse mouth.
P361	Remove/Take off immediately all contaminated clothing.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	1,4,5,6,7,8,8-Heptachloro-3a,4,7,7a-tetrahydro-4,7-methanoindene
Formula	:	$C_{10}H_5Cl_7$
Molecular weight	:	373.32 g/mol
CAS-No.	:	76-44-8
EC-No.	:	200-962-3
Index-No.	:	602-046-00-2

Hazardous components

Component	Classification	Concentration
Heptachlor		
	Acute Tox. 2; Carc. 2; STOT RE 2; Aquatic Acute 1; Aquatic Chronic 1; H300 + H310, H351, H373, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen chloride gas

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Heptachlor	76-44-8	TWA	0.050000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Skin contact does contribute to exposure. Confirmed animal carcinogen with unknown relevance to humans		
		TWA	0.5 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Skin designation		

		TWA	0.500000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Skin designation		
		TWA	0.500000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen See Appendix A Potential for dermal absorption		
		TWA	0.05 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Liver damage Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption		

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	No data available
f)	Initial boiling point and boiling range	No data available
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

Strong oxidizing agents

10.6 Hazardous decomposition products

Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 40.0 mg/kg

Inhalation: No data available

LD50 Dermal - Rat - 119.0 mg/kg

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

Limited evidence of carcinogenicity in animal studies

IARC:	2B - Group 2B: Possibly carcinogenic to humans (Heptachlor)
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: PC0700000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Oncorhynchus mykiss (rainbow trout) - 0.007 mg/l - 96.0 h
Toxicity to daphnia and other aquatic	LC50 - Daphnia magna (Water flea) - 0.078 mg/l - 48 h

invertebrates

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
Bioaccumulation Pimephales promelas (fathead minnow) - 276 d
- 0.00043 mg/l

Bioconcentration factor (BCF): 23,814

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2811 Class: 6.1 Packing group: II
Proper shipping name: Toxic solids, organic, n.o.s. (Heptachlor)
Reportable Quantity (RQ): 1 lbs
Marine pollutant:yes
Poison Inhalation Hazard: No

IMDG
UN number: 2811 Class: 6.1 Packing group: II EMS-No: F-A, S-A
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (Heptachlor)
Marine pollutant:yes

IATA
UN number: 2811 Class: 6.1 Packing group: II
Proper shipping name: Toxic solid, organic, n.o.s. (Heptachlor)

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Heptachlor	76-44-8	2007-03-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Heptachlor	76-44-8	2007-03-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Heptachlor	76-44-8	2007-03-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer. Heptachlor	CAS-No. 76-44-8	Revision Date 2007-09-28
WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm. Heptachlor	CAS-No. 76-44-8	Revision Date 2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
H300	Fatal if swallowed.
H300 + H310	Fatal if swallowed or in contact with skin
H310	Fatal in contact with skin.
H351	Suspected of causing cancer.
H373	May cause damage to organs through prolonged or repeated exposure.

HMIS Rating

Health hazard:	4
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	3
Fire Hazard:	0
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.6 Revision Date: 04/24/2015 Print Date: 02/09/2016

SAFETY DATA SHEET

Version 3.8
Revision Date 04/24/2015
Print Date 04/01/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Hexachlorobenzene

Product Number : 171050
Brand : Aldrich
Index-No. : 602-065-00-6

CAS-No. : 118-74-1

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Carcinogenicity (Category 1B), H350
Specific target organ toxicity - repeated exposure, Oral (Category 1), H372
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H350 May cause cancer.
H372 Causes damage to organs through prolonged or repeated exposure if swallowed.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.

P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P281	Use personal protective equipment as required.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	C_6Cl_6
Molecular weight	:	284.78 g/mol
CAS-No.	:	118-74-1
EC-No.	:	204-273-9
Index-No.	:	602-065-00-6

Hazardous components

Component	Classification	Concentration
Hexachlorobenzene		
	Carc. 1B; STOT RE 1; Aquatic Acute 1; Aquatic Chronic 1; H350, H372, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen chloride gas

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

Keep in a dry place.
Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Hexachlorobenzene	118-74-1	TWA	0.002000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Central Nervous System impairment Porphyrin effects Skin damage Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption		

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: powder Colour: white
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 227 - 229 °C (441 - 444 °F) - lit.
f)	Initial boiling point and boiling range	323 - 326 °C (613 - 619 °F) - lit.
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available

m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 10,000 mg/kg

LD50 Oral - Mouse - 4,000 mg/kg

LD50 Oral - Cat - 1,700 mg/kg

LD50 Oral - Rabbit - 2,600 mg/kg

LD50 Oral - Guinea pig - > 3,000 mg/kg

LD50 Oral - Quail - > 6,400 mg/kg

LD50 Oral - Mammal - > 5,000 mg/kg
Remarks: Behavioral:Somnolence (general depressed activity). Behavioral:Change in motor activity (specific assay).

LC50 Inhalation - Rat - 3,600 mg/m3

LC50 Inhalation - Mouse - 4,000 mg/m3

LC50 Inhalation - Cat - 1,600 mg/m3

LC50 Inhalation - Rabbit - 1,800 mg/m3

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
Causes photosensitivity. Exposure to light can result in allergic reactions resulting in dermatologic lesions, which can vary from sunburnlike responses to edematous, vesiculated lesions, or bullae

Germ cell mutagenicity
No data available

Carcinogenicity

This product is or contains a component that has been reported to be probably carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.

Possible human carcinogen

IARC:	2B - Group 2B: Possibly carcinogenic to humans (Hexachlorobenzene)
NTP:	Reasonably anticipated to be a human carcinogen (Hexachlorobenzene)
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
Ingestion - Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard
No data available

Additional Information
RTECS: Not available

Liver -

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Lepomis macrochirus (Bluegill) - 7.6 mg/l - 96.0 h
	NOEC - Pimephales promelas (fathead minnow) - > 0.0048 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	Immobilization EC50 - Daphnia magna (Water flea) - > 0.005 mg/l - 48 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
Bioaccumulation: Pimephales promelas (fathead minnow) - 32 d - 0.0003 mg/l

Bioconcentration factor (BCF): 22,000

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN number: 2729 Class: 6.1 Packing group: III
Proper shipping name: Hexachlorobenzene
Reportable Quantity (RQ): 10 lbs

Poison Inhalation Hazard: No

IMDG

UN number: 2729 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: HEXACHLOROBENZENE
Marine pollutant:yes

IATA

UN number: 2729 Class: 6.1 Packing group: III
Proper shipping name: Hexachlorobenzene

15. REGULATORY INFORMATION

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Hexachlorobenzene	118-74-1	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Hexachlorobenzene	118-74-1	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Hexachlorobenzene	118-74-1	2007-07-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer. Hexachlorobenzene	CAS-No. 118-74-1	Revision Date 2007-09-28
WARNING: This product contains a chemical known to the	CAS-No.	Revision Date

State of California to cause birth defects or other reproductive harm. Hexachlorobenzene	118-74-1	2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
H350	May cause cancer.
H372	Causes damage to organs through prolonged or repeated exposure if swallowed.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	3
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	3
Fire Hazard:	0
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 3.8 Revision Date: 04/24/2015 Print Date: 04/01/2016

SAFETY DATA SHEET

Issuing Date no data available **Revision Date** 29-Oct-2015 **Revision Number** 1

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product identifier

Product Number	**019**
Product Name	**Hexavalent Chromium - 1000 mg/L, 125 mL**
Synonyms	None

Recommended use of the chemical and restrictions on use

Recommended Use	Laboratory use only
Uses advised against	No information available

Details of the supplier of the safety data sheet

Supplier	ERA a Waters Company
Supplier Address	16341 Table Mountain Parkway, Golden, CO 80403 USA
Non-Emergency Telephone Number	+1-303-431-8454
Supplier Email	sdsinfo@waters.com

Emergency telephone number

Company Emergency Phone Number	In case of EMERGENCY call CHEMTREC Day or Night Within USA and Canada: 800-424-9300 International Call Collect: +1-703-527-3887

2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Respiratory sensitization	Category 1
Skin sensitization	Category 1
Germ cell mutagenicity	Category 1B
Carcinogenicity	Category 1A
Reproductive Toxicity	Category 1B

GHS Label elements, including precautionary statements

Emergency Overview

Signal word **Danger**

Hazard Statements

May cause allergy or asthma symptoms or breathing difficulties if inhaled
May cause an allergic skin reaction
May cause genetic defects
May cause cancer
May damage fertility or the unborn child

Appearance Yellow **Physical state** Liquid->Liquid **Odor** Odorless

Precautionary Statements - Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Avoid breathing dust/fume/gas/mist/vapors/spray
In case of inadequate ventilation wear respiratory protection
Contaminated work clothing should not be allowed out of the workplace
Wear protective gloves
Precautionary Statements - Response
IF exposed or concerned: Get medical advice/attention
Specific treatment (see supplemental first aid instructions on this label)
Skin
IF ON SKIN: Wash with plenty of soap and water
If skin irritation or rash occurs: Get medical advice/attention
Wash contaminated clothing before reuse
Inhalation
IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing
If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician

Precautionary Statements - Storage
Store locked up
Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

Not applicable
Unknown Toxicity
0 % of the mixture consists of ingredient(s) of unknown toxicity
Other information

Harmful to aquatic life with long lasting effects
Repeated or prolonged skin contact may cause allergic reactions with susceptible persons
Interactions with Other Chemicals
No information available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Note: only the components contributing to the product's GHS hazard classification are listed in this section.

Synonyms None.

Chemical Name	CAS-No	Percent
Potassium Dichromate	7778-50-9	0.25

4. FIRST AID MEASURES

First aid measures

General Advice Show this safety data sheet to the doctor in attendance.
Eye contact Rinse thoroughly with plenty of water, also under the eyelids. If symptoms persist, call a physician.
Skin contact Wash with soap and water. May cause an allergic skin reaction. In the case of skin irritation or allergic reactions see a physician.
Inhalation MAY CAUSE ALLERGIC RESPIRATORY REACTION. If breathing has stopped, give artificial respiration. Get medical attention immediately. Remove to fresh air. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Seek immediate medical attention/advice.
Ingestion May produce an allergic reaction. If an allergic reaction occurs, stop use and seek medical help right away. Do NOT induce vomiting. Rinse mouth immediately and drink plenty of

water. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately.

Self-protection of the first aider Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid contact with skin, eyes or clothing. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Use personal protective equipment as required. Wear personal protective clothing (see section 8).

Most important symptoms and effects, both acute and delayed

Most Important Symptoms and Effects Itching. Rashes. Hives. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Coughing and/ or wheezing.

Indication of any immediate medical attention and special treatment needed

Notes to Physician May cause sensitization in susceptible persons. Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media

CAUTION: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical

Product is or contains a sensitizer. May cause sensitization by skin contact. May cause sensitization by inhalation and skin contact.

Uniform Fire Code Sensitizer: Liquid

Hazardous Combustion Products

Carbon oxides.

Explosion Data

Sensitivity to Mechanical Impact No.

Sensitivity to Static Discharge No.

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Ensure adequate ventilation. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

Other Information Refer to protective measures listed in Sections 7 and 8.

Environmental precautions

Environmental precautions Refer to protective measures listed in Sections 7 and 8. Prevent further leakage or spillage if safe to do so.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Pick up and transfer to properly labeled containers. Soak up with inert absorbent material.

7. HANDLING AND STORAGE

Precautions for safe handling

Handling Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse. Ensure adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment.

Conditions for safe storage, including any incompatibilities

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up. Keep out of the reach of children.

Incompatible Products None known based on information supplied.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Potassium Dichromate 7778-50-9	TWA: 0.05 mg/m³ Cr	TWA: 5 µg/m³ Action Level: 2.5 µg/m³ Cr (vacated) Ceiling: 0.1 mg/m³ Ceiling: 0.1 mg/m³ CrO3 applies to any operations or sectors for which the Hexavalent Chromium standard [29 CFR 1910.1026] is stayed or is otherwise not in effect	IDLH: 15 mg/m³ Cr(VI) TWA: 0.0002 mg/m³ Cr

ACGIH TLV: American Conference of Governmental Industrial Hygienists - Threshold Limit Value OSHA PEL: Occupational Safety and Health Administration - Permissible Exposure Limits NIOSH IDLH Immediately Dangerous to Life or Health

Appropriate engineering controls

Engineering Measures Showers
Eyewash stations
Ventilation systems

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin and body protection Wear protective gloves and protective clothing.

Respiratory protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties

Physical state	Liquid->Liquid		
Appearance	Yellow	**Odor**	Odorless
Color	No information available	**Odor Threshold**	No information available

Property	Values	Remarks Method
pH	5	None known
Melting / freezing point	no data available	None known
Boiling point / boiling range	no data available	None known
Flash Point	no data available	None known
Evaporation Rate	no data available	None known
Flammability (solid, gas)	no data available	None known

Flammability Limit in Air		
Upper flammability limit	no data available	
Lower flammability limit	no data available	
Vapor pressure	no data available	None known
Vapor density	no data available	None known
Specific Gravity	1	None known
Water Solubility	Soluble in water	None known
Solubility in other solvents	no data available	None known
Partition coefficient: n-octanol/water	no data available	None known
Autoignition temperature	no data available	None known
Decomposition temperature	no data available	None known
Kinematic viscosity	no data available	None known
Dynamic viscosity	no data available	None known
Explosive properties	no data available	
Oxidizing properties	no data available	

Other Information

Softening Point	no data available
Particle Size	no data available
Particle Size Distribution	

10. STABILITY AND REACTIVITY

Reactivity

no data available.

Chemical stability
Stable under recommended storage conditions.
Possibility of Hazardous Reactions
None under normal processing.
Hazardous Polymerization
Hazardous polymerization does not occur.
Conditions to avoid
None known based on information supplied.
Incompatible materials
None known based on information supplied.
Hazardous Decomposition Products
Carbon oxides.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information	.
Inhalation	May cause allergy or asthma symptoms or breathing difficulties if inhaled. Specific test data for the substance or mixture is not available. May cause sensitization in susceptible persons. (based on components).
Eye contact	Specific test data for the substance or mixture is not available.
Skin contact	Specific test data for the substance or mixture is not available. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons. (based on components).
Ingestion	Specific test data for the substance or mixture is not available. May cause additional affects as listed under "Inhalation".

Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Potassium Dichromate 7778-50-9	= 25 mg/kg (Rat) = 48 mg/kg (Rat)	= 1150 mg/kg (Rabbit) = 14 mg/kg (Rabbit)	-

Information on toxicological effects

Symptoms Itching. Rashes. Hives. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain, or flushing. Coughing and/ or wheezing.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Sensitization May cause sensitization in susceptible persons. May cause sensitization by skin contact. May cause sensitization by inhalation.

Mutagenic Effects There is no data for this product. Contains a known or suspected mutagen.

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical Name	ACGIH	IARC	NTP	OSHA
Potassium Dichromate 7778-50-9	A1	Group 1	Known	X

ACGIH (American Conference of Governmental Industrial Hygienists)
A1 - Known Human Carcinogen
IARC (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
NTP (National Toxicology Program)
Known - Known Carcinogen
OSHA (Occupational Safety and Health Administration of the US Department of Labor)
X - Present

Reproductive toxicity Contains a known or suspected reproductive toxin.

STOT - single exposure No information available.

STOT - repeated exposure No information available.

Chronic toxicity No known effect based on information supplied. Prolonged exposure may cause chronic effects. Repeated contact may cause allergic reactions in very susceptible persons. Contains a known or suspected mutagen. Possible risk of irreversible effects. Contains a known or suspected carcinogen. Contains a known or suspected reproductive toxin.

Target Organ Effects Skin. Respiratory system. Eyes. May affect the genetic material in germ cells (sperm and eggs). Gastrointestinal tract (GI). Reproductive system.

Aspiration Hazard No information available.

Numerical measures of toxicity Product Information

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)
40,000.00 mg/kg
ATEmix (inhalation-dust/mist)
20.04 mg/L

12. ECOLOGICAL INFORMATION

Ecotoxicity

Harmful to aquatic life with long lasting effects.

Chemical Name	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Potassium Dichromate 7778-50-9		96h LC50: > 139 mg/L (Cyprinus carpio) 96h LC50: 113.6 - 155.7 mg/L (Lepomis macrochirus) 96h LC50: = 320 mg/L (Lepomis macrochirus) 96h LC50: 65.6 - 137.6 mg/L (Lepomis macrochirus) 96h LC50: = 12.3 mg/L (Oncorhynchus mykiss) 96h LC50: 21.209 - 30.046 mg/L (Oryzias latipes) 96h LC50: 15.41 - 30.36 mg/L (Pimephales promelas) 96h LC50: 14 - 20.9 mg/L (Pimephales promelas) 96h LC50: 24.81 - 34.55 mg/L (Poecilia reticulata) 96h LC50: 23 - 41.2 mg/L (Poecilia reticulata) 96h LC50: = 26 mg/L (Morone saxatilis)		

Persistence and Degradability

No information available.

Bioaccumulation

No information available

Other adverse effects

No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal methods This material, as supplied, is not a hazardous waste according to Federal regulations (40 CFR 261). This material could become a hazardous waste if it is mixed with or otherwise comes in contact with a hazardous waste, if chemical additions are made to this material, or if the material is processed or otherwise altered. Consult 40 CFR 261 to determine whether the altered material is a hazardous waste. Consult the appropriate state, regional, or local regulations for additional requirements.

Contaminated Packaging Dispose of contents/containers in accordance with local regulations.

This product contains one or more substances that are listed with the State of California as a hazardous waste.

Chemical Name	California Hazardous Waste
Potassium Dichromate 7778-50-9	Toxic Corrosive Ignitable

14. TRANSPORT INFORMATION

DOT Not regulated

Proper Shipping Name NON REGULATED

Hazard Class N/A

TDG Not regulated

MEX Not regulated

ICAO Not regulated

IATA Not regulated
Proper Shipping Name NON REGULATED
Special Provisions None

IMDG Not regulated
Special Provisions None
Marine Pollutant Not applicable

RID Not regulated
Special Provisions None

ADR Not regulated
Special Provisions None

ADN Not regulated

15. REGULATORY INFORMATION

International Inventories

TSCA	Complies
DSL	All components are listed either on the DSL or NDSL.
ENCS	Contact supplier for inventory compliance status
KECL	Contact supplier for inventory compliance status
PICCS	Contact supplier for inventory compliance status
AICS	Contact supplier for inventory compliance status

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical Name	CAS-No	Percent	SARA 313 - Threshold Values %
Potassium Dichromate - 7778-50-9	7778-50-9	0.25	0.1

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (Clean Water Act)

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Potassium Dichromate 7778-50-9	10 lb	X		X

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive

Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs	RQ
Potassium Dichromate 7778-50-9	10 lb		RQ 10 lb final RQ RQ 4.54 kg final RQ

US State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

.

International Regulations

Component	Carcinogen Status	Exposure Limits
Potassium Dichromate 7778-50-9 (0.25)	A1	Mexico: TWA 0.05 mg/m³ Mexico: TWA 0.5 mg/m³

A1 - Confirmed Human Carcinogen

Canada
WHMIS Hazard Class
Not determined

16. OTHER INFORMATION

NFPA	**Health Hazards** 2	**Flammability** 0	**Instability** 0	**Physical and Chemical Hazards** -
HMIS	**Health Hazards** 2 *	**Flammability** 0	**Physical Hazard** 0	**Personal Protection** X

Chronic Hazard Star Legend * = Chronic Health Hazard

Prepared By
Product Stewardship
23 British American Blvd.
Latham, NY 12110
1-800-572-6501

Revision Date 29-Oct-2015
Revision Note No information available

Disclaimer

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End of Safety Data Sheet

SAFETY DATA SHEET

Version 6.8
Revision Date 08/28/2024
Print Date 08/29/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Indeno[1,2,3-*cd*]pyrene

Product Number : 48499
Brand : Supelco
CAS-No. : 193-39-5

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Carcinogenicity (Category 2), H351

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal Word Warning

Hazard Statements
H351 Suspected of causing cancer.

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Precautionary Statements

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula	:	$C_{22}H_{12}$
Molecular weight	:	276.33 g/mol
CAS-No.	:	193-39-5
EC-No.	:	205-893-2

Component	Classification	Concentration
Indeno[1,2,3-cd]pyrene		
	Carc. 2; H351	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

In case of eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

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4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Combustible.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections
For disposal see section 13.

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SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Dry. Keep locked up or in an area accessible only to qualified or authorized persons.

Storage class
Storage class (TRGS 510): 11: Combustible Solids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
Handle with impervious gloves.

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm

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Break through time: 480 min
Material tested:KCL 741 Dermatril® L

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

Body Protection
protective clothing

Respiratory protection
Recommended Filter type: Filter type P3
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when dusts are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	163.6 °C (326.5 °F)
f)	Initial boiling point and boiling range	No data available
g)	Flash point	()Not applicable
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Density	No data available

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	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
no information available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Oral: No data available
Inhalation: No data available
Dermal: No data available

Skin corrosion/irritation
Remarks: No data available

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Serious eye damage/eye irritation
Remarks: No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity
This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

IARC: 2B - Group 2B: Possibly carcinogenic to humans (Indeno[1,2,3-cd]pyrene)

NTP: RAHC - Reasonably anticipated to be a human carcinogen (Indeno[1,2,3-cd]pyrene)

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties
No data available

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12.7 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)

Not dangerous goods

IMDG

Not dangerous goods

IATA

Not dangerous goods

Further information

Not classified as dangerous in the meaning of transport regulations.

SECTION 15: Regulatory information

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Indeno[1,2,3-cd]pyrene	193-39-5	100	100

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Chronic Health Hazard

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SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

Indeno[1,2,3-cd]pyrene	193-39-5	>= 90 - <= 100 %

US State Regulations

Massachusetts Right To Know

Indeno[1,2,3-cd]pyrene	193-39-5

Pennsylvania Right To Know

Indeno[1,2,3-cd]pyrene	193-39-5

Maine Chemicals of High Concern

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

California Prop. 65

WARNING: This product can expose you to chemicals including Indeno[1,2,3-cd]pyrene, which is/are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

The ingredients of this product are reported in the following inventories:

TSCA : All substances listed as active on the TSCA inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16: Other information

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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SAFETY DATA SHEET

Version 4.7
Revision Date 12/29/2015
Print Date 02/07/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Lead

Product Number : 391352
Brand : Aldrich

CAS-No. : 7439-92-1

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 4), H302
Carcinogenicity (Category 2), H351
Reproductive toxicity (Category 2), H361
Specific target organ toxicity - repeated exposure (Category 2), H373
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Warning

Hazard statement(s)
H302 Harmful if swallowed.
H351 Suspected of causing cancer.
H361 Suspected of damaging fertility or the unborn child.
H373 May cause damage to organs through prolonged or repeated exposure.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and

	understood.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	Pb
Molecular weight	:	207.20 g/mol
CAS-No.	:	7439-92-1
EC-No.	:	231-100-4

Hazardous components

Component	Classification	Concentration
Lead		
	Acute Tox. 4; Carc. 2; Repr. 2; STOT RE 2; Aquatic Acute 1; Aquatic Chronic 1; H302, H351, H361, H373, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Lead oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

Keep in a dry place.
Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
	Remarks	See 1910.1025		
Lead	7439-92-1	TWA	0.05 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Confirmed animal carcinogen with unknown relevance to humans		
		TWA	0.05 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Hematologic effects Peripheral Nervous System impairment Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Confirmed animal carcinogen with unknown relevance to humans		

		TWA	0.05 mg/m3	USA. NIOSH Recommended Exposure Limits
		See Appendix C		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Lead	7439-92-1	Lead	30µg/ 100 ml	In blood	ACGIH - Biological Exposure Indices (BEI)
	Remarks	Not critical			
		Lead	30µg/ 100 ml	In blood	ACGIH - Biological Exposure Indices (BEI)
		Not critical			

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: powder
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 327.4 °C (621.3 °F) - lit.
f)	Initial boiling point and boiling range	1,740 °C (3,164 °F) - lit.
g)	Flash point	Not applicable
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

Strong acids

10.6 Hazardous decomposition products

Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity

Rat
Cytogenetic analysis

Carcinogenicity

Limited evidence of carcinogenicity in animal studies

IARC:	2B - Group 2B: Possibly carcinogenic to humans (Lead)
NTP:	Reasonably anticipated to be a human carcinogen (Lead)
	Reasonably anticipated to be a human carcinogenThe reference note has been added by TD based on the background information of the NTP. (Lead)
OSHA:	1910.1025 (Lead)
	OSHA specifically regulated carcinogen (Lead)

Reproductive toxicity
Suspected human reproductive toxicant

Reproductive toxicity - Rat - Inhalation
Effects on Newborn: Biochemical and metabolic.

Reproductive toxicity - Rat - Oral
Effects on Newborn: Behavioral.

Reproductive toxicity - Mouse - Oral
Effects on Fertility: Female fertility index (e.g., # females pregnant per # sperm positive females; # females pregnant per # females mated). Effects on Fertility: Pre-implantation mortality (e.g., reduction in number of implants per female; total number of implants per corpora lutea).

Developmental Toxicity - Rat - Inhalation
Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Blood and lymphatic system (including spleen and marrow).

Developmental Toxicity - Rat - Oral
Specific Developmental Abnormalities: Blood and lymphatic system (including spleen and marrow). Effects on Newborn: Growth statistics (e.g., reduced weight gain).

Developmental Toxicity - Rat - Oral
Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Effects on Embryo or Fetus: Fetal death.

Developmental Toxicity - Mouse - Oral
Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Effects on Embryo or Fetus: Fetal death.

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard
No data available

Additional Information
RTECS: OF7525000

anemia

Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	mortality LOEC - Oncorhynchus mykiss (rainbow trout) - 1.19 mg/l - 96.0 h
	LC50 - Micropterus dolomieui - 2.2 mg/l - 96.0 h
	mortality NOEC - Salvelinus fontinalis - 1.7 mg/l - 10.0 d
Toxicity to daphnia and other aquatic invertebrates	mortality LOEC - Daphnia (water flea) - 0.17 mg/l - 24 h
	mortality NOEC - Daphnia (water flea) - 0.099 mg/l - 24 h
Toxicity to algae	mortality EC50 - Skeletonema costatum - 7.94 mg/l - 10 d

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
Bioaccumulation: Oncorhynchus kisutch - 2 Weeks - 150 µg/l

Bioconcentration factor (BCF): 12

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substances, solid, n.o.s. (Lead)
Reportable Quantity (RQ): 10 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 3077 Class: 9 Packing group: III EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Lead)
Marine pollutant:yes
IATA
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Lead)

Further information
EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Lead	7439-92-1	1994-04-01

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Lead	7439-92-1	1994-04-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Lead	7439-92-1	1994-04-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Lead	7439-92-1	1994-04-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer. Lead	CAS-No. 7439-92-1	Revision Date 1989-07-10
WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm. Lead	CAS-No. 7439-92-1	Revision Date 1989-07-10

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
H302	Harmful if swallowed.
H351	Suspected of causing cancer.
H361	Suspected of damaging fertility or the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.

H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	1
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	1
Fire Hazard:	0
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.7 Revision Date: 12/29/2015 Print Date: 02/07/2016

SAFETY DATA SHEET

Version 5.7
Revision Date 05/27/2015
Print Date 02/23/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Lindane

Product Number : 233390
Brand : Aldrich
Index-No. : 602-043-00-6

CAS-No. : 58-89-9

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Inhalation (Category 4), H332
Acute toxicity, Dermal (Category 4), H312
Carcinogenicity (Category 2), H351
Effects on or via lactation, H362
Specific target organ toxicity - repeated exposure (Category 2), H373
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)

H301	Toxic if swallowed.
H312 + H332	Harmful in contact with skin or if inhaled
H351	Suspected of causing cancer.
H362	May cause harm to breast-fed children.
H373	May cause damage to organs through prolonged or repeated exposure.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P263	Avoid contact during pregnancy/ while nursing.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Rinse mouth.
P302 + P352 + P312	IF ON SKIN: Wash with plenty of soap and water. Call a POISON CENTER or doctor/ physician if you feel unwell.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	1α,2α,3β,4α,5α,6β-Hexachlorocyclohexane γ-BHC
Formula	:	$C_6H_6Cl_6$
Molecular weight	:	290.83 g/mol
CAS-No.	:	58-89-9
EC-No.	:	200-401-2
Index-No.	:	602-043-00-6

Hazardous components

Component	Classification	Concentration
γ-1,2,3,4,5,6-Hexachlorocyclohexane		
	Acute Tox. 3; Acute Tox. 4; Carc. 2; Lact. ; STOT RE 2; Aquatic Acute 1; Aquatic Chronic 1; H301, H312 + H332, H351, H362, H373, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen chloride gas

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
γ-1,2,3,4,5,6-Hexachlorocyclohexane	58-89-9	TWA	0.500000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Central Nervous System impairment Liver damage Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption		
		TWA	0.500000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential for dermal absorption		
		TWA	0.500000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Skin designation		

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 113 - 115 °C (235 - 239 °F) - lit.
f)	Initial boiling point and boiling range	No data available
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	1.85 g/cm3
n)	Water solubility	8.35 g/l at 25 °C (77 °F)
o)	Partition coefficient: n-octanol/water	Pow: 3.5 at 22 °C (72 °F)
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

Strong oxidizing agents

10.6 Hazardous decomposition products

Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 88.0 mg/kg

LC50 Inhalation - Rat - 4 h - 1,560 mg/m3

Dermal: No data available

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation

Serious eye damage/eye irritation
Eyes - Rabbit
Result: No eye irritation

Respiratory or skin sensitisation
Will not occur

Germ cell mutagenicity
No data available

Carcinogenicity

IARC:	2B - Group 2B: Possibly carcinogenic to humans (γ-1,2,3,4,5,6-Hexachlorocyclohexane)
NTP:	Reasonably anticipated to be a human carcinogenThe reference note has been added by TD based on the background information of the NTP. (γ-1,2,3,4,5,6-Hexachlorocyclohexane)
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
Effects on or via lactation

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: GV4900000

Neurotoxic effects., Cyanosis, Headache, Nausea, Incoordination., Tremors, Vomiting, Dizziness, Seizures., Unconsciousness

Reproductive system. - Irregularities - Based on Human Evidence
Reproductive system. - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Cyprinus carpio (Carp) - 0.2 mg/l - 96.0 h
	LC50 - Cyprinodon variegatus (sheepshead minnow) - 0.9 - 1.3 mg/l - 96.0 h
	LC50 - Oncorhynchus mykiss (rainbow trout) - 0.03 - 0.28 mg/l - 48.0 h
	NOEC - Oncorhynchus mykiss (rainbow trout) - 0.056 mg/l - 3.0 d
	LC50 - Oncorhynchus mykiss (rainbow trout) - 0.038 mg/l - 96.0 h

	LOEC - Oncorhynchus mykiss (rainbow trout) - 0.1 mg/l - 3.0 d
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 0.80 - 6.50 mg/l - 48 h
	LOEC - Daphnia (water flea) - 0.021 mg/l - 7 d
Toxicity to algae	EC50 - Algae - 4.00 mg/l - 72 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential

Bioaccumulation	Pimephales promelas (fathead minnow) - 304 d - 0.0091 mg/l
	Bioconcentration factor (BCF): 674

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
Very toxic to aquatic life with long lasting effects.
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solids, organic, n.o.s. (γ-1,2,3,4,5,6-Hexachlorocyclohexane)
Reportable Quantity (RQ): 1 lbs
Marine pollutant:yes
Poison Inhalation Hazard: No

IMDG
UN number: 2811 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (γ-1,2,3,4,5,6-Hexachlorocyclohexane)
Marine pollutant:yes

IATA
UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solid, organic, n.o.s. (γ-1,2,3,4,5,6-Hexachlorocyclohexane)

15. REGULATORY INFORMATION

SARA 302 Components
The following components are subject to reporting levels established by SARA Title III, Section 302:

	CAS-No.	Revision Date
γ-1,2,3,4,5,6-Hexachlorocyclohexane	58-89-9	2007-07-01

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
γ-1,2,3,4,5,6-Hexachlorocyclohexane	58-89-9	2007-07-01

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
γ-1,2,3,4,5,6-Hexachlorocyclohexane	58-89-9	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
γ-1,2,3,4,5,6-Hexachlorocyclohexane	58-89-9	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
γ-1,2,3,4,5,6-Hexachlorocyclohexane	58-89-9	2007-07-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
γ-1,2,3,4,5,6-Hexachlorocyclohexane	58-89-9	2009-02-01

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
H301	Toxic if swallowed.
H312	Harmful in contact with skin.
H312 + H332	Harmful in contact with skin or if inhaled
H332	Harmful if inhaled.
H351	Suspected of causing cancer.
H362	May cause harm to breast-fed children.
H373	May cause damage to organs through prolonged or repeated exposure.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	0
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.7 Revision Date: 05/27/2015 Print Date: 02/23/2016

SAFETY DATA SHEET

Version 4.6
Revision Date 03/02/2015
Print Date 02/07/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Manganese

Product Number : 463728
Brand : Aldrich

CAS-No. : 7439-96-5

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Substances and mixtures, which in contact with water, emit flammable gases (Category 1), H260
Acute aquatic toxicity (Category 3), H402
Chronic aquatic toxicity (Category 3), H412

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H260 In contact with water releases flammable gases which may ignite spontaneously.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statement(s)
P223 Keep away from any possible contact with water, because of violent reaction and possible flash fire.
P231 + P232 Handle under inert gas. Protect from moisture.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P335 + P334 Brush off loose particles from skin. Immerse in cool water/ wrap in wet bandages.

P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P402 + P404	Store in a dry place. Store in a closed container.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	Mn
Molecular weight	:	54.94 g/mol
CAS-No.	:	7439-96-5
EC-No.	:	231-105-1

Hazardous components

Component	Classification	Concentration
Manganese		
	Water-react. 1; Aquatic Acute 3; Aquatic Chronic 3; H260, H412	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Dry powder Carbon dioxide (CO2)

Unsuitable extinguishing media
Water

5.2 Special hazards arising from the substance or mixture
Manganese/manganese oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Do not flush with water. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.Keep away from sources of ignition - No smoking.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.
Never allow product to get in contact with water during storage.

Moisture sensitive. Keep in a dry place.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Manganese	7439-96-5	TWA	0.200000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Central Nervous System impairment Adopted values or notations enclosed are those for which changes are proposed in the NIC See Notice of Intended Changes (NIC)		
		C	5 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Ceiling limit is to be determined from breathing-zone air samples.		
		C	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Ceiling limit is to be determined from breathing-zone air samples.		

		TWA	1.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	3.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	1.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	3.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		C	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Ceiling limit is to be determined from breathing-zone air samples.		
		TWA	1.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	3.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	0.200000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Adopted values or notations enclosed are those for which changes are proposed in the NIC See Notice of Intended Changes (NIC) varies		
		TWA	0.100000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment 2014 Adoption varies		
		TWA	0.020000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment 2014 Adoption varies		
		TWA	0.1 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment varies		
		TWA	0.02 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment varies		

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection
impervious clothing, Flame retardant protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: powder Colour: grey
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 1,244 °C (2,271 °F) - lit.
f)	Initial boiling point and boiling range	1,962 °C (3,564 °F) - lit.
g)	Flash point	Not applicable
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	7.3 g/mL at 25 °C (77 °F)
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Reacts violently with water.

10.4 Conditions to avoid
Exposure to moisture

10.5 Incompatible materials
acids, Halogens, Bases, Phosphorus, Sulphur oxides, Peroxides

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 9,000 mg/kg

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Mild skin irritation - 24 h

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Mild eye irritation - 24 h

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

Carcinogenicity - Rat - Intramuscular
Tumorigenic:Equivocal tumorigenic agent by RTECS criteria. Tumorigenic:Tumors at site or application.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

May cause reproductive disorders.

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: OO9275000

Men exposed to manganese dusts showed a decrease in fertility. Chronic manganese poisoning primarily involves the central nervous system. Early symptoms include languor, sleepiness and weakness in the legs. A stolid mask-like appearance of the face, emotional disturbances such as uncontrollable laughter and a spastic gait with tendency to fall in walking are findings in more advanced cases. High incidence of pneumonia has been found in workers exposed to the dust or fume of some manganese compounds.

Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 40 mg/l - 48 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life.

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3208 Class: 4.3 Packing group: I
Proper shipping name: Metallic substance, water-reactive, n.o.s. (Manganese)

Poison Inhalation Hazard: No

IMDG
UN number: 3208 Class: 4.3 Packing group: I EMS-No: F-G, S-N
Proper shipping name: METALLIC SUBSTANCE, WATER-REACTIVE, N.O.S. (Manganese)

IATA
UN number: 3208 Class: 4.3 Packing group: I
Proper shipping name: Metallic substance, water-reactive, n.o.s. (Manganese)
IATA Passenger: Not permitted for transport

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

	CAS-No.	Revision Date
Manganese	7439-96-5	2007-07-01

SARA 311/312 Hazards
Reactivity Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Manganese	7439-96-5	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Manganese	7439-96-5	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Manganese	7439-96-5	2007-07-01

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
H260	In contact with water releases flammable gases which may ignite spontaneously.
H402	Harmful to aquatic life.
H412	Harmful to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	0
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	2

NFPA Rating

Health hazard:	0
Fire Hazard:	0
Reactivity Hazard:	2
Special hazard.I:	W

Further information
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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.6 Revision Date: 03/02/2015 Print Date: 02/07/2016

SAFETY DATA SHEET

Version 6.12
Revision Date 07/27/2024
Print Date 07/28/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : *m*-Cresol

Product Number : W353000
Brand : Aldrich
Index-No. : 604-004-00-9
CAS-No. : 108-39-4

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 4), H227
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Dermal (Category 3), H311

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operates as MilliporeSigma in the US and Canada

Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318
Short-term (acute) aquatic hazard (Category 2), H401
Long-term (chronic) aquatic hazard (Category 3), H412

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal Word	Danger
Hazard Statements	
H227	Combustible liquid.
H301 + H311	Toxic if swallowed or in contact with skin.
H314	Causes severe skin burns and eye damage.
H401	Toxic to aquatic life.
H412	Harmful to aquatic life with long lasting effects.
Precautionary Statements	
P210	Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P362	Take off contaminated clothing and wash before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms : 3-Methylphenol

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Formula	:	C_7H_8O
Molecular weight	:	108.14 g/mol
CAS-No.	:	108-39-4
EC-No.	:	203-577-9
Index-No.	:	604-004-00-9

Component	Classification	Concentration
meta-Cresol		
	Flam. Liq. 4; Acute Tox. 3; Skin Corr. 1B; Eye Dam. 1; Aquatic Acute 2; Aquatic Chronic 3; H227, H301, H311, H314, H318, H401, H412	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

In case of eye contact
After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

If swallowed
If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible. Do not attempt to neutralise.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Carbon oxides
Combustible.
Vapors are heavier than air and may spread along floors.
Forms explosive mixtures with air on intense heating.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information

Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition.
Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge.

Hygiene measures

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Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Moisture sensitive.

Storage class
Storage class (TRGS 510): 6.1A: Combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
meta-Cresol	108-39-4	TWA	2.3 ppm 10 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	5 ppm 22 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	Remarks	Skin designation		
		TWA	20 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Not classifiable as a human carcinogen Danger of cutaneous absorption		
		PEL	5 ppm 22 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		Skin		

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

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operates as MilliporeSigma in the US and Canada

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

Skin protection
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Full contact
Material: Chloroprene
Minimum layer thickness: 0.65 mm
Break through time: 480 min
Material tested:KCL 720 Camapren®

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Splash contact
Material: Latex gloves
Minimum layer thickness: 0.6 mm
Break through time: 60 min
Material tested:Lapren® (KCL 706 / Aldrich Z677558, Size M)

Body Protection
protective clothing

Respiratory protection
Recommended Filter type: Filter A-(P3)
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when vapours/aerosols are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid Color: colorless, light yellow
b)	Odor	phenol-like

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c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/ range: 8 - 10 °C (46 - 50 °F) - lit.
f)	Initial boiling point and boiling range	203 °C 397 °F - lit.
g)	Flash point	86 °C (187 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 1.35 %(V) Lower explosion limit: 1.06 %(V)
k)	Vapor pressure	< 1 hPa at 20 °C (68 °F)
l)	Vapor density	3.73 - (Air = 1.0)
m)	Density	1.034 g/cm3 at 25 °C (77 °F) - lit.
	Relative density	1.0320 °C
n)	Water solubility	22.7 g/l at 25 °C (77 °F)
o)	Partition coefficient: n-octanol/water	log Pow: 1.96 - Bioaccumulation is not expected.
p)	Autoignition temperature	559 °C (1038 °F) at 1,013 hPa
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	Not classified as explosive.
t)	Oxidizing properties	none

9.2 Other safety information

Dissociation constant	10.09 at 25 °C (77 °F)
Relative vapor density	3.73 - (Air = 1.0)

SECTION 10: Stability and reactivity

10.1 Reactivity

Forms explosive mixtures with air on intense heating.
A range from approx. 15 Kelvin below the flash point is to be rated as critical.

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

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10.3 Possibility of hazardous reactions
Violent reactions possible with:
Strong oxidizing agents
Nitric acid
fuming sulfuric acid
chlorosulfonic acid
alkalines
Iron
Lead

10.4 Conditions to avoid
Strong heating.

10.5 Incompatible materials
No data available

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - male - 242 mg/kg
(OECD Test Guideline 401)
Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.
Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract
Inhalation: Corrosive to respiratory system.
LD50 Dermal - Rabbit - 620 mg/kg
Remarks: Behavioral:Somnolence (general depressed activity).
Behavioral:Tetany.
(RTECS)

Skin corrosion/irritation
Skin - Rabbit
Result: Causes burns. - 24 h
Remarks: (ECHA)
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Serious eye damage/eye irritation
Remarks: Causes serious eye damage.

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
Test Type: Ames test
Test system: Escherichia coli/Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471

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Result: negative
Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Test system: Chinese hamster lung cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: positive
Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Test Type: Chromosome aberration test
Species: Mouse
Cell type: Bone marrow
Application Route: Oral
Method: OECD Test Guideline 475
Result: negative

Carcinogenicity

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

Repeated dose toxicity - Rat - male - Oral - 13 Weeks - NOAEL (No observed adverse effect level) - 50 mg/kg

RTECS: GO6125000
Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., Cough, Shortness of breath, Headache, Nausea
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

After absorption:

Systemic effects:

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Headache
Nausea
Vomiting
Dizziness
agitation, spasms
respiratory arrest
Unconsciousness

Damage to:

Central nervous system
Liver
Kidney

This substance should be handled with particular care.

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	static test LC50 - Salvelinus fontinalis - 7.6 mg/l - 96 h Remarks: (ECHA)
	static test LC50 - Oncorhynchus mykiss (rainbow trout) - 8.6 mg/l - 96 h Remarks: (ECHA)
	static test LC50 - Salmo trutta (brown trout) - 8.4 mg/l - 96 h Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates	flow-through test EC50 - Daphnia pulicaria - > 99.5 mg/l - 48 h (US-EPA)
Toxicity to fish(Chronic toxicity)	flow-through test NOEC - Pimephales promelas (fathead minnow) - 1.35 mg/l - 32 d (OECD Test Guideline 210) Remarks: The value is given in analogy to the following substances: p-cresol
Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity)	semi-static test NOEC - Daphnia magna (Water flea) - 1 mg/l - 21 d Remarks: (ECHA) The value is given in analogy to the following substances: p-cresol

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12.2 Persistence and degradability

Biodegradability aerobic - Exposure time 10 d
Result: 96 % - Inherently biodegradable.
(OECD Test Guideline 302B)

12.3 Bioaccumulative potential

Bioaccumulation Leuciscus idus (Golden orfe) - 3 d
- 0.05 mg/l(meta-Cresol)

Bioconcentration factor (BCF): 17 - 20

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

Biological effects:
Hazard for drinking water supplies.
Change in the flavour characteristics of fish protein.
Discharge into the environment must be avoided.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)

UN number: 2076 Class: 6.1 (8) Packing group: II
Proper shipping name: Cresols, liquid
Reportable Quantity (RQ): 100 lbs
Reportable Quantity (RQ): 100 lbs
Poison Inhalation Hazard: No

IMDG

UN number: 2076 Class: 6.1 (8) Packing group: II EMS-No: F-A, S-B
Proper shipping name: CRESOLS, LIQUID

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IATA
UN number: 2076 Class: 6.1 (8) Packing group: II
Proper shipping name: Cresols, liquid

SECTION 15: Regulatory information

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
meta-Cresol	108-39-4	100	100
meta-Cresol	108-39-4	100	100 (D024)

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Fire Hazard
Acute Health Hazard
Chronic Health Hazard

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

meta-Cresol 108-39-4 >= 90 - <= 100 %

Clean Air Act

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).
The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 112 (40 CFR 61):

meta-Cresol 108-39-4 >= 90 - <= 100 %

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).
The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489):

meta-Cresol 108-39-4 >= 90 - <= 100 %

Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

meta-Cresol 108-39-4 >= 90 - <= 100 %

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.
This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307
This product does not contain any priority pollutants related to the U.S. Clean Water Act

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US State Regulations

Massachusetts Right To Know

meta-Cresol	108-39-4

Pennsylvania Right To Know

meta-Cresol	108-39-4

Maine Chemicals of High Concern

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

The ingredients of this product are reported in the following inventories:

TSCA : All substances listed as active on the TSCA inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16: Other information

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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Version: 6.12 Revision Date: 07/27/2024 Print Date: 07/28/2024

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SAFETY DATA SHEET

Version 6.5
Revision Date 02/07/2023
Print Date 02/07/2023

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Mercury

Product Number : 215457
Brand : SIGALD
Index-No. : 080-001-00-0
CAS-No. : 7439-97-6

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Scientific research and development, Reagent for analysis

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Inhalation (Category 2), H330
Reproductive toxicity (Category 1B), H360
Specific target organ toxicity - repeated exposure (Category 1), H372
Short-term (acute) aquatic hazard (Category 1), H400
Long-term (chronic) aquatic hazard (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal Word Danger

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Hazard statement(s)

H330	Fatal if inhaled.
H360	May damage fertility or the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P284	Wear respiratory protection.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula	:	Hg
Molecular weight	:	200.59 g/mol
CAS-No.	:	7439-97-6
EC-No.	:	231-106-7
Index-No.	:	080-001-00-0

Component	Classification	Concentration
mercury		
	Acute Tox. 2; Repr. 1B; STOT RE 1; Aquatic Acute 1; Aquatic Chronic 1; H330, H360, H372, H400, H410 M-Factor - Aquatic Acute: 1 - Aquatic Chronic: 100	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

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SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

In case of eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Mercury/mercury oxides.
Not combustible.
Ambient fire may liberate hazardous vapours.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal. In some instances, a mercury spill kit may be used. Please consult with your site EHS representative to determine the most appropriate clean up method.Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Store under inert gas.

Storage class
Storage class (TRGS 510): 6.1B: Non-combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

The life science business of Merck KGaA, Darmstadt, Germany
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Component	CAS-No.	Value	Control parameters	Basis
mercury	7439-97-6	C	0.1 mg/m3	USA. NIOSH Recommended Exposure Limits
	Remarks	Potential for dermal absorption		
		CEIL	1.0mg/10m3	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		TWA	0.05 mg/m3	USA. Table Z-1-A Limits for Air Contaminants (1989 vacated values)
		Skin notation		
		TWA	0.025 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Kidney damage Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen Danger of cutaneous absorption		
		TWA	0.05 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential for dermal absorption		

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

The life science business of Merck KGaA, Darmstadt, Germany
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Body Protection
protective clothing

Respiratory protection
required when vapours/aerosols are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid Color: silver, white
b)	Odor	odorless
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -38.87 °C (-37.97 °F) - lit.
f)	Initial boiling point and boiling range	356.6 °C 673.9 °F - lit.
g)	Flash point	()Not applicable
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	The product is not flammable.
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	< 0.01 hPa at 20 °C (68 °F) 1 hPa at 126 °C(259 °F)
l)	Vapor density	6.93 - (Air = 1.0)
m)	Density	13.55 g/cm3 at 25 °C (77 °F)
	Relative density	No data available
n)	Water solubility	0.00006 g/l at 25 °C (77 °F)
o)	Partition coefficient: n-octanol/water	Not applicable for inorganic substances
p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available

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s) Explosive properties No data available

t) Oxidizing properties none

9.2 Other safety information

Relative vapor density	6.93 - (Air = 1.0)

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
Risk of explosion with:
Acetylene
Alkali metals
Aluminum
Amines
Ammonia
chlorine dioxide
Potassium
sodium
oxalic acid
perchlorates
Risk of ignition or formation of inflammable gases or vapours with:
Chlorine
silanes
Oxygen
Generates dangerous gases or fumes in contact with:
Nitric acid
Exothermic reaction with:
Bromine
Metals
acetylidene
Oxygen

10.4 Conditions to avoid
no information available

10.5 Incompatible materials
Aluminum, Lead, Copper, silver, Zinc, zinc alloys, Tin

10.6 Hazardous decomposition products
In the event of fire: see section 5

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SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Oral: No data available
LC50 Inhalation - Rat - male - 2 h - < 27 mg/m3 - vapor

Dermal: No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity
This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
Presumed human reproductive toxicant

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard
No data available

11.2 Additional Information

RTECS: OV4550000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	mortality LC50 - Cyprinus carpio (Carp) - 0.160 mg/l - 96 h
Toxicity to fish(Chronic toxicity)	Remarks: No data available (mercury)

12.2 Persistence and degradability

The methods for determining biodegradability are not applicable to inorganic substances.

12.3 Bioaccumulative potential

Bioaccumulation	Carassius auratus (goldfish) - 1,789 d - 0.25 µg/l(mercury)
	Bioconcentration factor (BCF): 155,986

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

DOT (US)

UN number: 2809 Class: 8 (6.1) Packing group: III
Proper shipping name: Mercury
Reportable Quantity (RQ): 1 lbs
Reportable Quantity (RQ): 1 lbs
Poison Inhalation Hazard: No

IMDG

UN number: 2809 Class: 8 (6.1) Packing group: III EMS-No: F-A, S-B
Proper shipping name: MERCURY
Marine pollutant : yes

IATA

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

UN number: 2809 Class: 8 (6.1) Packing group: III
Proper shipping name: Mercury

SECTION 15: Regulatory information

SARA 302 Components
This material does not contain any components with a section 302 EHS TPQ.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
mercury	7439-97-6	2015-11-23

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Reportable Quantity : D009 lbs

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
mercury	7439-97-6	2015-11-23

California Prop. 65 Components

	CAS-No.	Revision Date
, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.mercury	7439-97-6	2013-12-20

SECTION 16: Other information

Further information
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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MATHESON
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Safety Data Sheet

Material Name METHYL CHLOROFORM **SDS ID: MAT14370**

* * *Section 1 - IDENTIFICATION* * *

Product Identifier: METHYL CHLOROFORM

Trade Names/Synonyms

MTG MSDS 219; 1,1,1-TRICHLOROETHANE; ALPHA-TRICHLOROETHANE; AEROTHENE TT; METHYLTRICHLOROMETHANE; METHYLCHLOROFORM; TRICHLOROMETHYLMETHANE; TRICHLOROETHANE; ETHANE, 1,1,1-TRICHLOROETHANE; CHLORTEN; 1,1,1-TRICHLORETHANE; UN 2831; C2H3Cl3

Chemical Family

halogenated, aliphatic

Recommended Use

industrial

Restrictions on Use

None known.

Manufacturer Information

MATHESON TRI-GAS, INC.
150 Allen Road, Suite 302
Basking Ridge, NJ 07920

General Information: 1-800-416-2505
Emergency #: 1-800-424-9300 (CHEMTREC)
Outside the US: 703-527-3887 (Call collect)

* * *Section 2 - HAZARDS IDENTIFICATION* * *

Classification in accordance with 29 CFR 1910.1200

Acute Toxicity (Inhalation), Category 4
Skin Corrosion / Irritation, Category 2
Eye Damage / Irritation, Category 2A
Toxic to Reproduction, Category 2
Specific Target Organ Toxicity - Single Exposure, Category 1 (central nervous system and heart)
Specific Target Organ Toxicity - Single Exposure, Category 3 (respiratory system)
Specific Target Organ Toxicity - Repeated Exposure, Category 1 (central nervous system, heart, and liver)
Specific Target Organ Toxicity - Repeated Exposure, Category 2 (brain, lungs, and nervous system)
Hazardous to the Aquatic Environment - Acute Hazard, Category 2
Hazardous to the Aquatic Environment - Chronic Hazard, Category 2
Hazardous for the ozone layer, Category 1

GHS LABEL ELEMENTS

Symbol(s)

Signal Word

DANGER

Hazard Statement(s)

Harmful if inhaled
Causes skin irritation
Causes serious eye irritation
Suspected of damaging fertility or the unborn child
Causes damage to central nervous system and heart.
May cause respiratory tract irritation.
Causes damage to central nervous system, heart, and liver through prolonged or repeated exposure.
May cause damage to brain, lungs, nervous system through prolonged or repeated exposure.
Toxic to aquatic life with long lasting effects
Harms public health and the environment by destroying ozone in the upper atmosphere

Precautionary Statement(s)

Prevention

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Do not breathe vapor or mist. Use only outdoors or in a well-ventilated area. Wear protective gloves and eye/face protection. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Avoid release to the environment.

Response

IF exposed: Call a POISON CENTER or doctor/physician. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell. IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash before reuse. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. Collect spillage.

Storage

Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Disposal

Dispose of in accordance with applicable regulations.
Refer to manufacturer/supplier for information on recovery/recycling.

* * *Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS* * *

CAS	Component	Percent
71-55-6	METHYL CHLOROFORM	100

Component Related Regulatory Information

This product may be regulated, have exposure limits or other information identified as the following: Trichloroethane (25323-89-1).

* * *Section 4 - FIRST AID MEASURES* * *

Description of Necessary Measures

Inhalation

If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

Skin

Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

Eyes

Flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Then get immediate medical attention.

Ingestion

If vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention immediately.

Most Important Symptoms/Effects

Acute

respiratory tract irritation, skin irritation, eye irritation, central nervous system depression, central nervous system damage, heart damage

Delayed

central nervous system damage, heart damage, liver damage, reproductive effects, lung damage, brain damage, nervous system damage

Indication of Immediate Medical Attention and Special Treatment

For inhalation, consider oxygen.

* * *Section 5 - FIRE FIGHTING MEASURES* * *

Suitable Extinguishing Media

carbon dioxide, regular dry chemical, water spray

Large fires: Use dry chemical, carbon dioxide, alcohol-resistant foam or water spray.

Unsuitable Extinguishing Media

Do not scatter spilled material with high-pressure water streams.

Specific Hazards Arising from the Chemical

Slight fire hazard.

Hazardous Combustion Products

Combustion: hydrogen chloride, phosgene, oxides of carbon

Fire Fighting Measures

Move container from fire area if it can be done without risk. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with water spray until well after the fire is out. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. Stay away from the ends of tanks. For tank, rail car or tank truck, evacuation radius: 800 meters (1/2 mile).

Special Protective Equipment and Precautions for Firefighters

Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

* * *Section 6 - ACCIDENTAL RELEASE MEASURES* * *

Personal Precautions, Protective Equipment and Emergency Procedures

Wear personal protective clothing and equipment, see Section 8. Avoid release to the environment.

Methods and Materials for Containment and Cleaning Up

Avoid heat, flames, sparks and other sources of ignition. Eliminate all ignition sources if safe to do so. Stop leak if possible without personal risk. **Small spills:** Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. **Large spills:** Dike for later disposal. Remove sources of ignition. Keep unnecessary people away, isolate hazard area and deny entry. Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).

* * *Section 7 - HANDLING AND STORAGE* * *

Precautions for Safe Handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Do not breathe vapor or mist. Use only outdoors or in a well-ventilated area. Wear protective gloves and eye/face protection. Wash thoroughly after handling. Do not eat, drink, or smoke when using this product. Avoid release to the environment.

Conditions for Safe Storage, including any Incompatibilities

Store and handle in accordance with all current regulations and standards. Store in a well-ventilated place. Keep container tightly closed. Store locked up. Store in a cool, dry place. Keep separated from incompatible substances.

Incompatibilities combustible materials, bases, metals, oxidizing materials

* * *Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION* * *

Component Exposure Limits

METHYL CHLOROFORM (71-55-6)

ACGIH:	350 ppm TWA
	450 ppm STEL
Europe:	100 ppm TWA; 555 mg/m3 TWA
	200 ppm STEL; 1110 mg/m3 STEL
OSHA (Final):	350 ppm TWA; 1900 mg/m3 TWA
OSHA (Vacated):	350 ppm TWA; 1900 mg/m3 TWA
	450 ppm STEL; 2450 mg/m3 STEL
NIOSH:	350 ppm Ceiling (15 min); 1900 mg/m3 Ceiling (15 min)

Component Biological Limit Values

METHYL CHLOROFORM (71-55-6)

ACGIH: 40 ppm Medium: end-exhaled air Time: prior to last shift of workweek Parameter: Methyl chloroform; 10 mg/L Medium: urine Time: end of workweek Parameter: Trichloroacetic acid (nonspecific, semi-quantitative); 30 mg/L Medium: urine Time: end of shift at end of workweek Parameter: Total trichloroethanol (nonspecific, semi-quantitative); 1 mg/L Medium: blood Time: end of shift at end of workweek Parameter: Total trichloroethanol (nonspecific)

IDLH

700 ppm

Appropriate Engineering Controls

Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

Individual Protection Measures, such as Personal Protective Equipment

Eyes/Face Protection

Wear splash resistant safety goggles with a faceshield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Skin Protection

Wear appropriate chemical resistant clothing.

Glove Recommendations

Wear appropriate chemical resistant gloves.

Respiratory Protection

The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA.

700 ppm

Any supplied-air respirator.

Any self-contained breathing apparatus with a full facepiece.
Emergency or planned entry into unknown concentrations or IDLH conditions -
Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.
Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.
Escape -
Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted organic vapor canister.
Any appropriate escape-type, self-contained breathing apparatus.

* * *Section 9 - PHYSICAL AND CHEMICAL PROPERTIES* * *

Physical State:	Liquid	**Appearance:**	clear, colorless liquid
Color:	colorless	**Physical Form:**	volatile liquid
Odor:	sweet odor	**Odor Threshold:**	44 - 100 ppm
pH:	Not available	**Melting/Freezing Point:**	-32 °C
Boiling Point:	74 °C	**Flash Point:**	>93.3 °C
Decomposition:	Not available	**Evaporation Rate:**	5.0 (butyl acetate=1)
LEL:	7.5 %	**UEL:**	12.5 %
Vapor Pressure:	100 mmHg @ 20 °C	**Henry's Law Constant:**	0.072 atm-cu m/mole @ 25°C
Vapor Density (air = 1):	4.55	**Specific Gravity (water=1):**	1.3390
Water Solubility:	0.078 % @ 25 °C	**Log KOW:**	2.49
KOC:	17823.79 estimated from water solubility	**Auto Ignition:**	537 °C
Viscosity:	0.858 cP @20 °C	**Volatility:**	100%
Molecular Weight:	133.40	**Molecular Formula:**	C-H3-C-Cl3

Other Property Information

No additional information is available.

Solvent Solubility

Soluble: acetone, benzene, chloroform, methanol, ethanol, carbon disulfide, ether, carbon tetrachloride, heptane

* * *Section 10 - STABILITY AND REACTIVITY* * *

Reactivity

No reactivity hazard is expected.

Chemical Stability

Stable at normal temperatures and pressure.

Possibility of Hazardous Reactions

Will not polymerize.

Conditions to Avoid

Avoid heat, flames, sparks and other sources of ignition. Containers may rupture or explode if exposed to heat.

Incompatible Materials

combustible materials, bases, metals, oxidizing materials

Hazardous Decomposition

Combustion: hydrogen chloride, phosgene, oxides of carbon

* * *Section 11 - TOXICOLOGICAL INFORMATION* * *

Acute and Chronic Toxicity

Component Analysis - LD50/LC50

The components of this material have been reviewed in various sources and the following selected endpoints are published:

METHYL CHLOROFORM (71-55-6)

Dermal LD50 Rabbit >15800 mg/kg; Inhalation LC50 Rat 18000 ppm 4 h; Oral LD50 Rat >2000 mg/kg

RTECS Acute Toxicity (selected)

The components of this material have been reviewed, and RTECS publishes the following endpoints:

METHYL CHLOROFORM (71-55-6)

Inhalation: 24400 mg/m3 Inhalation Cat LC50; 29492 ppm/10 minute(s) Inhalation Mouse LC50; 3911 ppm/2 hour Inhalation Mouse LC50
20000 ppm/2 hour Inhalation Rat LC50; 14250 ppm/7 hour Inhalation Rat LC50; 17000 ppm/4 hour Inhalation Rat LC50

Acute Toxicity Level

METHYL CHLOROFORM (71-55-6)

Slightly Toxic: inhalation, dermal absorption, ingestion

Information on Likely Routes of Exposure

Inhalation

irritation, changes in blood pressure, nausea, vomiting, diarrhea, difficulty breathing, irregular heartbeat, headache, drowsiness, dizziness, mood swings, loss of coordination, blood disorders, heart disorders, kidney damage, liver damage, convulsions, unconsciousness, coma, heart damage, reproductive effects

Ingestion

irritation, nausea, vomiting, diarrhea, stomach pain, irregular heartbeat, headache, drowsiness, dizziness, disorientation, loss of coordination, kidney damage, liver damage, convulsions, unconsciousness, coma, reproductive effects

Skin Contact

irritation (possibly severe)

Eye Contact

irritation

Immediate Effects

respiratory tract irritation, skin irritation, eye irritation, central nervous system depression, central nervous system damage, heart damage

Delayed Effects

central nervous system damage, heart damage, liver damage, reproductive effects, brain damage, lung damage, nervous system damage

Medical Conditions Aggravated by Exposure

heart or cardiovascular disorders, kidney disorders, liver disorders, skin disorders and allergies

Irritation/Corrosivity Data

respiratory tract irritation, skin irritation, eye irritation

RTECS Irritation

The components of this material have been reviewed, and RTECS publishes the following endpoints:

METHYL CHLOROFORM (71-55-6)

450 ppm/8 hour Eyes Man; 100 mg Eyes Rabbit mild; 2 mg/24 hour Eyes Rabbit severe; 5 gm/12 day(s) intermittent Skin Rabbit mild; 20 mg/24 hour Skin Rabbit moderate

Local Effects

METHYL CHLOROFORM (71-55-6)

Irritant: inhalation, skin, eye

Target Organs

METHYL CHLOROFORM (71-55-6)

central nervous system

Respiratory Sensitization

No data available.

Dermal Sensitization

No data available.

Carcinogenicity

Component Carcinogenicity

METHYL CHLOROFORM (71-55-6)

ACGIH: A4 - Not Classifiable as a Human Carcinogen

IARC: Monograph 71 [1999]; Supplement 7 [1987]; Monograph 20 [1979] (Group 3 (not classifiable))

RTECS Mutagenic

The components of this material have been reviewed, and RTECS publishes data for one or more components.

Reproductive Effects Data

Available data characterizes this substance as a reproductive hazard.

RTECS Reproductive Effects

The components of this material have been reviewed, and RTECS publishes the following endpoints:

METHYL CHLOROFORM (71-55-6)

2100 ppm Inhalation Rat TCLo (6 hour, pregnant 1-20 day(s)); 7000 ppm Inhalation Rat TCLo (3 hour, pregnant 13-19 day(s)); 43 mg/kg Oral Rat TDLo (pregnant 1-22 day(s), 21 day(s))

RTECS Tumorigenic

The components of this material have been reviewed, and RTECS publishes data for one or more components.

Additional Data

Alcohol may enhance the toxic effects. Stimulants such as epinephrine may induce ventricular fibrillation.

Specific Target Organ Toxicity - Single Exposure

central nervous system, heart, respiratory system

Specific Target Organ Toxicity - Repeated Exposure

central nervous system, heart, liver, brain, lungs, nervous system

Aspiration Hazard

Not expected to be an aspiration hazard.

* * *Section 12 - ECOLOGICAL INFORMATION* * *

Ecotoxicity

Toxic to aquatic life with long lasting effects.

Component Analysis - Aquatic Toxicity

METHYL CHLOROFORM (71-55-6)

Fish: 96 Hr LC50 Pimephales promelas: 35.2 - 50.7 mg/L [flow-through]; 96 Hr LC50 Lepomis macrochirus: 57 - 90 mg/L [static] (juvenile); 96 Hr LC50 Cyprinus carpio: 56 mg/L [flow-through]; 96 Hr LC50 Poecilia reticulata: 52.9 mg/L [flow-through]; 96 Hr LC50 Poecilia reticulata: 69.7 mg/L [static]; 96 Hr LC50 Pimephales promelas: 91 - 126 mg/L [static]; 96 Hr LC50 Oncorhynchus mykiss: 46 - 59 mg/L [static]

Algae: 96 Hr EC50 Pseudokirchneriella subcapitata: >500 mg/L

Invertebrate: 48 Hr LC50 Daphnia magna: >530 mg/L; 48 Hr EC50 Daphnia magna: 2384 mg/L; 48 Hr EC50 Daphnia magna: 9.7 - 12.8 mg/L [Static]

Persistence and Degradability

This material may biodegrade in soil and water.

Bioaccumulative Potential

Bioconcentration potential in aquatic organisms is low based on BCF value of 0.7-4.9.

Mobility

Expected to have high mobility in soil.

* * *Section 13 - DISPOSAL CONSIDERATIONS* * *

Disposal Methods

Dispose in accordance with all applicable regulations.

Component Waste Numbers

METHYL CHLOROFORM (71-55-6)

RCRA: waste number U226

* * *Section 14 - TRANSPORT INFORMATION* * *

US DOT Information

Shipping Name: 1,1,1-Trichloroethane
UN/NA #: UN2831 **Hazard Class:** 6.1 **Packing Group:** III
Required Label(s): 6.1

IMDG Information

Shipping Name: 1,1,1-Trichloroethane
UN #: UN2831 **Hazard Class:** 6.1 **Packing Group:** III
Required Label(s): 6.1

* * *Section 15 - REGULATORY INFORMATION* * *

Component Analysis

U.S. Federal Regulations

This material contains one or more of the following chemicals required to be identified under SARA Section 302/304 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

METHYL CHLOROFORM (71-55-6)

SARA 313: 1.0 % de minimis concentration

CERCLA: 1000 lb final RQ; 454 kg final RQ

SARA 311/312 Hazardous Categories

Acute Health: Yes **Chronic Health:** Yes **Fire:** No **Pressure:** No **Reactive:** No

U.S. State Regulations

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA
METHYL CHLOROFORM	71-55-6	Yes	Yes	Yes	Yes	Yes

Not regulated under California Proposition 65

Component Analysis - Inventory

Component	CAS	US	CA	EU	AU	PH	JP	KR	CN	NZ
METHYL CHLOROFORM	71-55-6	Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	Yes

* * *Section 16 - OTHER INFORMATION* * *

NFPA Ratings: Health: 2 **Fire:** 1 **Reactivity:** 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Key / Legend

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSL - Domestic Substances List; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; JP - Japan; Kow - Octanol/water partition coefficient; KR - Korea; LEL - Lower Explosive Limit; LOLI - List Of LIsts™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PH - Philippines; RCRA - Resource Conservation and Recovery Act; RID - European Rail Transport; RTECS - Registry of Toxic Effects of Chemical Substances®; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States

Other Information

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End of Sheet MAT14370

Fisher Scientific

Part of Thermo Fisher Scientific

SAFETY DATA SHEET

Creation Date 27-Jan-2010 **Revision Date** 02-Oct-2015 **Revision Number** 2

1. Identification

Product Name **Methylene chloride**

Cat No. : **D37-1; D37-4; D37-20; D37-200; D37-200LC; D37-500; D37FB-19; D37FB-50; D37FB-115; D37FB-200; D37POP-19; D37POPB-50; D37POPB-200; D37RB-19; D37RB-50; D37RB-115; D37RB-200; D37RS-19; D37RS-28; D37RS-50; D37RS-115; D37RS-200; D37SK-4; D37SK-4LC; D37SS-28; D37SS-50; D37SS-115; D37SS-200; D37SS-1350**

Synonyms Dichloromethane; DCM

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number
CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin Corrosion/irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Carcinogenicity	Category 1B
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Central nervous system (CNS), Respiratory system.	
Specific target organ toxicity - (repeated exposure)	Category 2
Target Organs - Liver, Kidney, Blood.	

Label Elements

Signal Word
Danger

Hazard Statements
Causes skin irritation
Causes serious eye irritation

May cause respiratory irritation
May cause drowsiness or dizziness
May cause cancer
May cause damage to organs through prolonged or repeated exposure

Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Wear eye/face protection
Do not breathe dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Response
IF exposed or concerned: Get medical attention/advice
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Skin
IF ON SKIN: Wash with plenty of soap and water
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash before reuse
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)

WARNING! This product contains a chemical known in the State of California to cause cancer, birth defects or other reproductive harm.

3. Composition / information on ingredients

Component	CAS-No	Weight %
Methylene chloride	75-09-2	>99.5
Methyl alcohol	67-56-1	0 - 0.4
Cyclohexene	110-83-8	0 - 0.01
2-Methyl-2-butene	513-35-9	0 - 0.01

4. First-aid measures

General Advice If symptoms persist, call a physician.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.

Inhalation Move to fresh air. If breathing is difficult, give oxygen. Obtain medical attention.

Ingestion Do not induce vomiting. Call a physician or Poison Control Center immediately.

Most important symptoms/effects Breathing difficulties. . Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature 556 °C / 1032.8 °F

Explosion Limits
Upper 23 vol %
Lower 13 vol %
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
Carbon monoxide (CO) Carbon dioxide (CO_2) Hydrogen chloride gas Phosgene
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	1	0	N/A

6. Accidental release measures

Personal Precautions Use personal protective equipment. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Keep people away from and upwind of spill/leak.

Environmental Precautions Should not be released into the environment. See Section 12 for additional ecological information.

Methods for Containment and Clean Up Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Use only under a chemical fume hood.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Methylene chloride	TWA: 50 ppm	(Vacated) TWA: 500 ppm (Vacated) STEL: 2000 ppm (Vacated) Ceiling: 1000 ppm TWA: 25 ppm STEL: 125 ppm	IDLH: 2300 ppm
Methyl alcohol	TWA: 200 ppm STEL: 250 ppm Skin	(Vacated) TWA: 200 ppm (Vacated) TWA: 260 mg/m³ (Vacated) STEL: 250 ppm (Vacated) STEL: 325 mg/m³ Skin TWA: 200 ppm TWA: 260 mg/m³	IDLH: 6000 ppm TWA: 200 ppm TWA: 260 mg/m³ STEL: 250 ppm STEL: 325 mg/m³
Cyclohexene	TWA: 300 ppm	(Vacated) TWA: 300 ppm (Vacated) TWA: 1015 mg/m³ TWA: 300 ppm TWA: 1015 mg/m³	IDLH: 2000 ppm TWA: 300 ppm TWA: 1015 mg/m³

Component	Quebec	Mexico OEL (TWA)	Ontario TWAEV
Methylene chloride	TWA: 50 ppm TWA: 174 mg/m³	TWA: 100 ppm TWA: 330 mg/m³ STEL: 500 ppm STEL: 1740 mg/m³	TWA: 50 ppm
Methyl alcohol	TWA: 200 ppm TWA: 262 mg/m³ STEL: 250 ppm STEL: 328 mg/m³ Skin	TWA: 200 ppm TWA: 260 mg/m³ STEL: 250 ppm STEL: 310 mg/m³	TWA: 200 ppm STEL: 250 ppm Skin
Cyclohexene	TWA: 300 ppm TWA: 1010 mg/m³	TWA: 300 ppm TWA: 1015 mg/m³	TWA: 300 ppm

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	sweet
Odor Threshold	No information available
pH	Not applicable
Melting Point/Range	-97 °C / -142.6 °F
Boiling Point/Range	39 °C / 102.2 °F
Flash Point	No information available

Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	23 vol %
Lower	13 vol %
Vapor Pressure	20 mmHg @ 3502°C
Vapor Density	2.93 (Air = 1.0)
Specific Gravity	1.33
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	556 °C / 1032.8 °F
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C H2 Cl2
Molecular Weight	84.93

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products. Excess heat.

Incompatible Materials Strong oxidizing agents, Strong acids, Amines

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2), Hydrogen chloride gas, Phosgene

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Methylene chloride	> 2000 mg/kg (Rat)	> 2000 mg/kg (Rat)	53 mg/L (Rat) 6 h 76000 mg/m³ (Rat) 4 h
Methyl alcohol	LD50 = 6200 mg/kg (Rat)	LD50 = 15800 mg/kg (Rabbit)	64000 ppm (Rat) 4 h 83.2 mg/L (Rat) 4 h
Cyclohexene	LD50 = 2400 µL/kg (Rat)	>200 mg/kg (Rat)	>21.6 mg/L/4h (rat)
2-Methyl-2-butene	700-2600 mg/kg (Rat)	>2000 mg/kg (Rat)	LC50 > 61000 ppm (Rat) 4 h

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Irritating to eyes and skin

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Methylene chloride	75-09-2	Group 2A	Reasonably Anticipated	A3	X	A3
Methyl alcohol	67-56-1	Not listed	Not listed	Not listed	Not listed	Not listed

Cyclohexene	110-83-8	Not listed	Not listed	Not listed	Not listed	Not listed
2-Methyl-2-butene	513-35-9	Not listed	Not listed	Not listed	Not listed	Not listed

IARC: (International Agency for Research on Cancer)

IARC: (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2A - Probably Carcinogenic to Humans
Group 2B - Possibly Carcinogenic to Humans

NTP: (National Toxicity Program)

NTP: (National Toxicity Program)
Known - Known Carcinogen
Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

ACGIH: (American Conference of Governmental Industrial Hygienists)

A1 - Known Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Animal Carcinogen
ACGIH: (American Conference of Governmental Industrial Hygienists)

Mexico - Occupational Exposure Limits - Carcinogens

Mexico - Occupational Exposure Limits - Carcinogens
A1 - Confirmed Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Confirmed Animal Carcinogen
A4 - Not Classifiable as a Human Carcinogen
A5 - Not Suspected as a Human Carcinogen

Mutagenic Effects Mutagenic effects have occured in microorganisms.

Reproductive Effects Experiments have shown reproductive toxicity effects on laboratory animals.

Developmental Effects Developmental effects have occurred in experimental animals.

Teratogenicity No information available.

STOT - single exposure Central nervous system (CNS) Respiratory system
STOT - repeated exposure Liver Kidney Blood

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting
Endocrine Disruptor Information No information available

Other Adverse Effects Tumorigenic effects have been reported in experimental animals. See actual entry in RTECS for complete information.

12. Ecological information

Ecotoxicity

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Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Methylene chloride	EC50:>660 mg/L/96h	Pimephales promelas: LC50:193 mg/L/96h	EC50: 1 mg/L/24 h EC50: 2.88 mg/L/15 min	EC50: 140 mg/L/48h
Methyl alcohol	Not listed	Pimephales promelas: LC50 > 10000 mg/L 96h	EC50 = 39000 mg/L 25 min EC50 = 40000 mg/L 15 min EC50 = 43000 mg/L 5 min	EC50 > 10000 mg/L 24h
Cyclohexene	Not listed	Poecillia reticulata: 7.1 mg/L/96h	Not listed	Daphnia: EC50: 5.3 mg/L/48h
2-Methyl-2-butene	Not listed	Not listed	Not listed	EC50: = 3 mg/L, 48h (Daphnia magna)

Persistence and Degradability Persistence is unlikely based on information available.
Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its volatility.

Component	log Pow
Methylene chloride	1.25
Methyl alcohol	-0.74

Cyclohexene	3.27

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Methylene chloride - 75-09-2	U080	-
Methyl alcohol - 67-56-1	U154	-

14. Transport information

DOT

UN-No UN1593
Proper Shipping Name DICHLOROMETHANE
Hazard Class 6.1
Packing Group III

TDG

UN-No UN1593
Proper Shipping Name DICHLOROMETHANE
Hazard Class 6.1
Packing Group III

IATA

UN-No UN1593
Proper Shipping Name Dichloromethane
Hazard Class 6.1
Packing Group III

IMDG/IMO

UN-No UN1593
Proper Shipping Name Dichloromethane
Hazard Class 6.1
Packing Group III

15. Regulatory information

All of the components in the product are on the following Inventory lists: X = listed

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Methylene chloride	X	X	-	200-838-9	-		X	X	X	X	X
Methyl alcohol	X	X	-	200-659-6	-		X	X	X	X	X
Cyclohexene	X	X	-	203-807-8	-		X	X	X	X	X
2-Methyl-2-butene	X	X	-	208-156-3	-		X	X	X	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b)

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Methylene chloride	75-09-2	>99.5	0.1
Methyl alcohol	67-56-1	0 - 0.4	1.0

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Methylene chloride	-	-	X	X

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Methylene chloride	X		-
Methyl alcohol	X		-

OSHA Occupational Safety and Health Administration

Component	Specifically Regulated Chemicals	Highly Hazardous Chemicals
Methylene chloride	125 ppm STEL 12.5 ppm Action Level 25 ppm TWA	-

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Methylene chloride	1000 lb 1 lb	-
Methyl alcohol	5000 lb	-

California Proposition 65 This product contains the following proposition 65 chemicals

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Methylene chloride	75-09-2	Carcinogen	200 µg/day 50 µg/day	Carcinogen
Methyl alcohol	67-56-1	Developmental	-	Developmental

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Methylene chloride	X	X	X	X	X
Methyl alcohol	X	X	X	X	X
Cyclohexene	X	X	X	-	X
2-Methyl-2-butene	X	X	X	-	-

U.S. Department of Transportation

Reportable Quantity (RQ):	Y
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class D1B Toxic materials
D2A Very toxic materials

16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

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Print Date 02-Oct-2015
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer
The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS

SAFETY DATA SHEET

Version 6.15
Revision Date 09/07/2024
Print Date 09/08/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : *tert*-Butyl methyl ether

Product Number : 306975
Brand : Sigma-Aldrich
Index-No. : 603-181-00-X
CAS-No. : 1634-04-4

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 2), H225
Skin irritation (Category 2), H315

For the full text of the H-Statements mentioned in this Section, see Section 16.

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operates as MilliporeSigma in the US and Canada

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal Word Danger

Hazard Statements

H225	Highly flammable liquid and vapor.
H315	Causes skin irritation.

Precautionary Statements

P210	Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P264	Wash skin thoroughly after handling.
P280	Wear protective gloves/ eye protection/ face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P235	Store in a well-ventilated place. Keep cool.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms	:	MTBE Methyl tert-butyl ether
Formula	:	$C_5H_{12}O$
Molecular weight	:	88.15 g/mol
CAS-No.	:	1634-04-4
EC-No.	:	216-653-1
Index-No.	:	603-181-00-X

Component	Classification	Concentration
tert-butyl methyl ether		
	Flam. Liq. 2; Skin Irrit. 2; H225, H315	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

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SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

In case of eye contact
After eye contact: rinse out with plenty of water. Remove contact lenses.

If swallowed
After swallowing: caution if victim vomits. Risk of aspiration! Keep airways free. Pulmonary failure possible after aspiration of vomit. Call a physician immediately.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Carbon dioxide (CO2) Foam Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Combustible.
Pay attention to flashback.
Vapors are heavier than air and may spread along floors.
Development of hazardous combustion gases or vapours possible in the event of fire.
Forms explosive mixtures with air at ambient temperatures.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition.
Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb®).
Dispose of properly. Clean up affected area.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.

Storage class
Storage class (TRGS 510): 3: Flammable liquids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

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Component	CAS-No.	Value	Control parameters	Basis
tert-butyl methyl ether	1634-04-4	TWA	50 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Confirmed animal carcinogen with unknown relevance to humans		
		PEL	40 ppm 144 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 120 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

Body Protection
Flame retardant antistatic protective clothing.

Respiratory protection
Recommended Filter type: Filter type AX
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when vapours/aerosols are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains. Risk of explosion.

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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid Color: colorless
b)	Odor	characteristic
c)	Odor Threshold	0.053 ppm
d)	pH	No data available
e)	Melting point/freezing point	Melting point: -108.6 °C (-163.5 °F) at 1,013 hPa
f)	Initial boiling point and boiling range	55 - 56 °C 131 - 133 °F - lit.
g)	Flash point	-28 °C (-18 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 8.5 %(V) Lower explosion limit: 1.6 %(V)
k)	Vapor pressure	330 hPa at 25 °C (77 °F) - OECD Test Guideline 104
l)	Vapor density	No data available
m)	Density	0.74 g/cm3 at 25 °C (77 °F) - lit.
	Relative density	0.7420 °C
n)	Water solubility	42 g/l at 20 °C (68 °F) - OECD Test Guideline 105
o)	Partition coefficient: n-octanol/water	log Pow: 1.06 at 20 °C (68 °F) - OECD Test Guideline 107 - Bioaccumulation is not expected.
p)	Autoignition temperature	460 °C (860 °F) at 1013.0 hPa - DIN 51794
q)	Decomposition temperature	Distillable in an undecomposed state at normal pressure.
r)	Viscosity	0.409 mm2/s at 40 °C (104 °F) - OECD Test Guideline 114 - 0.464 mm2/s at 20 °C (68 °F) - OECD Test Guideline 114 -
s)	Explosive properties	No data available
t)	Oxidizing properties	none

9.2 Other safety information

Surface tension	72.5 mN/m at 1.07g/l at 21.5 °C (70.7 °F) - Surface tension

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SECTION 10: Stability and reactivity

10.1 Reactivity
Vapors may form explosive mixture with air.

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
Violent reactions possible with:
Oxidizing agents
Strong acids
halogens
Strong bases

10.4 Conditions to avoid
Heat, flames and sparks.
Warming.

10.5 Incompatible materials
rubber, various plastics

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - male and female - > 2,000 mg/kg
(OECD Test Guideline 401)
Symptoms: Nausea, Vomiting, Pulmonary failure possible after aspiration of vomit., Aspiration may cause pulmonary edema and pneumonitis.
LC50 Inhalation - Rat - male and female - 4 h - 85 mg/l - vapor

(OECD Test Guideline 403)
Symptoms: Possible damages:, mucosal irritations
LD50 Dermal - Rat - male and female - > 2,000 mg/kg
(OECD Test Guideline 402)

Skin corrosion/irritation
Skin - Rabbit
Result: Skin irritation - 4 h
(OECD Test Guideline 404)
Remarks: Drying-out effect resulting in rough and chapped skin.

Serious eye damage/eye irritation
Eyes - Rabbit
Result: No eye irritation

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(OECD Test Guideline 405)

Respiratory or skin sensitization
Maximization Test - Guinea pig
Result: negative
(OECD Test Guideline 406)

Germ cell mutagenicity
Test Type: In vitro mammalian cell gene mutation test
Test system: Chinese hamster lung cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative
Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
Test Type: Mutagenicity (mammal cell test): micronucleus.
Test system: mouse lymphoma cells
Metabolic activation: without metabolic activation
Method: OECD Test Guideline 473
Result: negative

Test Type: unscheduled DNA synthesis assay
Species: Mouse
Cell type: Liver cells
Application Route: inhalation (vapor)
Method: OECD Test Guideline 486
Result: negative

Test Type: Micronucleus test
Species: Mouse
Cell type: Bone marrow
Application Route: inhalation (vapor)
Method: US-EPA
Result: negative

Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Species: Rat
Cell type: Bone marrow
Application Route: inhalation (vapor)
Method: US-EPA
Result: negative

Test Type: Transgenic rodent somatic cell gene mutation assay
Species: Rat
Cell type: Bone marrow
Application Route: inhalation (vapor)
Method: OECD Test Guideline 488
Result: negative

Carcinogenicity

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IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

Repeated dose toxicity - Rat - male and female - Oral - 90 d - NOAEL (No observed adverse effect level) - 3,000 mg/kg
Remarks: Subchronic toxicity

RTECS: KN5250000
Nausea, Vomiting, Dizziness, Central nervous system depression, Aspiration or inhalation may cause chemical pneumonitis., MTBE (methyl-tert-butyl ether) is reported to metabolize to tert-butyl alcohol and formaldehyde by microsomal demethylation, MTBE (methyl-tert-butyl ether) should be considered a "potential human carcinogen" due to an increase in leydig interstitial cell tumors of testes in male rats and an increase in lymphomas, leukemias, and uterine sarcomas in female rats., In another unpublished study MTBE was shown to be carcinogenic due to "increased incidence of a rare type of kidney tumor" in male rats and an "increase in the incidence of hepatocellular adenomas" in female mice.
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Systemic effects:

After absorption of large quantities:

somnolence
Dizziness
agitation, spasms
CNS disorders
narcosis
Unconsciousness

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

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SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	semi-static test LC50 - Menidia beryllina - 574 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	flow-through test EC50 - Americamysis bahia (Mysid) - 187 mg/l - 96 h (US-EPA OPPTS 850.1035)
Toxicity to algae	static test IC50 - Pseudokirchneriella subcapitata (green algae) - 491 mg/l - 96 h
Toxicity to bacteria	static test EC10 - Pseudomonas putida - 710 mg/l - 18 h Remarks: (ECHA)
Toxicity to fish(Chronic toxicity)	flow-through test NOEC - Pimephales promelas (fathead minnow) - 299 mg/l - 31 d Remarks: (ECHA)
	flow-through test NOEC - Pimephales promelas (fathead minnow) - 450 mg/l - 31 d Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity)	flow-through test NOEC - Daphnia magna (Water flea) - 51 mg/l - 21 d (OPPTS 850.1300)

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 28 d Result: 0 % - Not readily biodegradable. (OECD Test Guideline 301D)

12.3 Bioaccumulative potential

Bioaccumulation	Cyprinus carpio (Carp) - 28 d at 25 °C(tert-butyl methyl ether) Bioconcentration factor (BCF): 1.5

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

No data available

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SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)
UN number: 2398 Class: 3 Packing group: II
Proper shipping name: Methyl tert-butyl ether
Reportable Quantity (RQ): 1000 lbs
Poison Inhalation Hazard: No

IMDG
UN number: 2398 Class: 3 Packing group: II EMS-No: F-E, S-D
Proper shipping name: METHYL tert-BUTYL ETHER

IATA
UN number: 2398 Class: 3 Packing group: II
Proper shipping name: Methyl tert-butyl ether

SECTION 15: Regulatory information

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
tert-butyl methyl ether	1634-04-4	1000	1000

SARA 304 Extremely Hazardous Substances Reportable Quantity
This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity
This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Fire Hazard
Acute Health Hazard
Chronic Health Hazard

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

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tert-butyl methyl ether	1634-04-4	>= 90 - <= 100 %

US State Regulations

Massachusetts Right To Know

tert-butyl methyl ether 1634-04-4

Pennsylvania Right To Know

tert-butyl methyl ether 1634-04-4

Maine Chemicals of High Concern

tert-butyl methyl ether 1634-04-4

Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

The ingredients of this product are reported in the following inventories:

TSCA : All substances listed as active on the TSCA inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16: Other information

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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Version: 6.15 Revision Date: 09/07/2024 Print Date: 09/08/2024

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SAFETY DATA SHEET

Version 6.12
Revision Date 09/07/2024
Print Date 09/08/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Naphthalene

Product Number : 147141
Brand : Aldrich
Index-No. : 601-052-00-2
CAS-No. : 91-20-3

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable solids (Category 2), H228
Carcinogenicity (Category 2), H351
Short-term (acute) aquatic hazard (Category 1), H400

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Long-term (chronic) aquatic hazard (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal Word Warning

Hazard Statements

H228	Flammable solid.
H351	Suspected of causing cancer.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary Statements

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula	:	C10H8
Molecular weight	:	128.17 g/mol
CAS-No.	:	91-20-3
EC-No.	:	202-049-5
Index-No.	:	601-052-00-2

Component	Classification	Concentration
Naphthalene		
	Flam. Sol. 2; Carc. 2; Aquatic Acute 1; Aquatic Chronic 1; H228, H351, H400, H410	<= 100 %

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For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

In case of eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Combustible.
Vapors are heavier than air and may spread along floors.
Forms explosive mixtures with air on intense heating.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture.

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Keep away from heat and sources of ignition.

Storage class
Storage class (TRGS 510): 4.1B: Flammable solid hazardous materials

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Naphthalene	91-20-3	TWA	10 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption		
		TWA	10 ppm 50 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	15 ppm 75 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	10 ppm 50 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		PEL	0.1 ppm 0.5 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		Skin		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Naphthalene	91-20-3	1-Naphthol + 2-Naphthol			ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift (As soon as possible after exposure ceases)			

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Full contact
Material: Nitrile rubber

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Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

Body Protection
Flame retardant antistatic protective clothing.

Respiratory protection
Recommended Filter type: Filter A-(P3)
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when dusts are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains. Risk of explosion.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: flakes, granules Color: white
b)	Odor	aromatic
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/ range: 80 - 82 °C (176 - 180 °F) - lit.
f)	Initial boiling point and boiling range	218 °C 424 °F - lit.
g)	Flash point	78.5 °C (173.3 °F) - closed cup - ISO 2719
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	The substance or mixture is a flammable solid with the category 2. - Flammability (solids)
j)	Upper/lower flammability or	Upper explosion limit: 5.9 %(V) Lower explosion limit: 0.9 %(V)

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	explosive limits	
k)	Vapor pressure	0.072 hPa at 20 °C (68 °F) - OECD Test Guideline 104
l)	Vapor density	No data available
m)	Density	1.08 g/cm3 at 24.7 °C (76.5 °F) - OECD Test Guideline 109
	Relative density	No data available
n)	Water solubility	0.0308 g/l at 25 °C (77 °F) - OECD Test Guideline 105 - slightly soluble
o)	Partition coefficient: n-octanol/water	log Pow: 3.4 at 25 °C (77 °F) - OECD Test Guideline 107 - Bioaccumulation is not expected.
p)	Autoignition temperature	526 - 587 °C (979 - 1089 °F) at 1,013 hPa - DIN 51794
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	none

9.2 Other safety information

Surface tension	31.8 mN/m at 100.0 °C (212.0 °F)

SECTION 10: Stability and reactivity

10.1 Reactivity

Forms explosive mixtures with air on intense heating.
A range from approx. 15 Kelvin below the flash point is to be rated as critical.
The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions

Violent reactions possible with:
Oxidizing agents
chromium(VI) oxide
benzoyl chloride
aluminium chloride
Risk of explosion with:
nitrogen oxides

10.4 Conditions to avoid

Heat, flames and sparks.
Strong heating.

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10.5 Incompatible materials
No data available

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Oral: No data available
LC50 Inhalation - Rat - male and female - 4 h - > 0.4 mg/l - vapor

(OECD Test Guideline 403)
LD50 Dermal - Rabbit - 20,000 mg/kg
Remarks: (RTECS)

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation - 24 h
Remarks: (ECHA)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: No eye irritation - 24 h
Remarks: (ECHA)

Respiratory or skin sensitization
Maximization Test - Guinea pig
Result: negative
(OECD Test Guideline 406)

Germ cell mutagenicity
Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Test system: Chinese hamster ovary cells
Metabolic activation: Metabolic activation
Method: OECD Test Guideline 473
Result: positive
Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Test Type: unscheduled DNA synthesis assay
Species: Rat
Cell type: Liver cells
Application Route: Oral
Method: OECD Test Guideline 486
Result: negative

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Test Type: Micronucleus test
Species: Mouse
Cell type: Bone marrow
Application Route: Intraperitoneal
Method: US-EPA
Result: negative
Remarks: (ECHA)

Carcinogenicity
Suspected of causing cancer.

IARC: 2B - Group 2B: Possibly carcinogenic to humans (Naphthalene)

No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. (Naphthalene)

NTP: RAHC - Reasonably anticipated to be a human carcinogen (Naphthalene)

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. (Naphthalene)

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

Repeated dose toxicity - Rat - male and female - Oral - 91 Days - NOAEL (No observed adverse effect level) - 200 mg/kg - LOAEL (Lowest observed adverse effect level) - 400 mg/kg

Repeated dose toxicity - Mouse - male and female - Oral - 90 Days - NOAEL (No observed adverse effect level) - 100 mg/kg

Repeated dose toxicity - Rat - male and female - Dermal - 90 Days - NOAEL (No observed adverse effect level) - 1,000 mg/kg

Repeated dose toxicity - Rat - male and female - inhalation (vapor) - 90 Days - NOAEL (No observed adverse effect level) - 300 mg/kg

RTECS: QJ0525000
Absorption into the body leads to the formation of methemoglobin which in sufficient concentration causes cyanosis. Onset may be delayed 2 to 4 hours or longer., Naphthalene is retinotoxic and systemic absorption of its vapors above 15ppm, may result in:, cataracts,

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optic neuritis, corneal injury, Eye irritation, Ingestion may provoke the following symptoms:, hemolytic anemia, hemoglobinuria, Nausea, Headache, Vomiting, Gastrointestinal disturbance, Convulsions, anemia, Kidney injury may occur., Seizures., Coma.
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

After absorption:

Headache
Stomach/intestinal disorders
Tremors
Convulsions
Changes in the blood count

Other dangerous properties can not be excluded.

This substance should be handled with particular care.

Heart -

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	flow-through test LC50 - Oncorhynchus mykiss (rainbow trout) - 1.6 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - 2.16 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	static test EC50 - Pseudokirchneriella subcapitata (green algae) - 2.96 mg/l - 4 h (US-EPA) Remarks: (ECHA)
Toxicity to fish(Chronic toxicity)	flow-through test LC50 - Oncorhynchus kisutch (coho salmon) - 2.1 mg/l - 96 h Remarks: (ECHA)
	flow-through test NOEC - Oncorhynchus kisutch (coho salmon) - 0.37 mg/l - 40 Days Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity)	static test NOEC - Daphnia pulex (Water flea) - 0.59 mg/l - 125 d Remarks: (ECHA)

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12.2 Persistence and degradability

Biodegradability aerobic - Exposure time 28 d
Result: 2 % - Not readily biodegradable.
(OECD Test Guideline 302C)

12.3 Bioaccumulative potential

Bioaccumulation Cyprinus carpio (Carp) - 56 d
at 25 °C(Naphthalene)

Bioconcentration factor (BCF): 36.5 - 168
(OECD Test Guideline 305)

Remarks: Bioaccumulation is unlikely.

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)

UN number: 1334 Class: 4.1 Packing group: III
Proper shipping name: Naphthalene, refined
Reportable Quantity (RQ): 100 lbs
Marine pollutant: yes Poison Inhalation Hazard: No

IMDG

UN number: 1334 Class: 4.1 Packing group: III EMS-No: F-A, S-G
Proper shipping name: NAPHTHALENE, REFINED

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Marine pollutant : yes

IATA
UN number: 1334 Class: 4.1 Packing group: III
Proper shipping name: Naphthalene, refined

SECTION 15: Regulatory information

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Naphthalene	91-20-3	100	100

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Fire Hazard
Acute Health Hazard
Chronic Health Hazard

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

US State Regulations

Massachusetts Right To Know

Naphthalene 91-20-3

Maine Chemicals of High Concern

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

The ingredients of this product are reported in the following inventories:

TSCA : All substances listed as active on the TSCA inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

The life science business of Merck KGaA, Darmstadt, Germany
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SECTION 16: Other information

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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Version: 6.12 Revision Date: 09/07/2024 Print Date: 09/08/2024

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SAFETY DATA SHEET

Revision Date 03-May-2012 **Revision Number** 2

SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product Identifier

Product Description: **n-Butylbenzene**
Cat No. **107850000; 107850050; 107850500; 107852500**
Synonyms 1-Phenylbutane

Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Laboratory chemicals
Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Acros Organics BVBA
Janssen Pharmaceuticalaan 3a
2440 Geel, Belgium
E-mail address begel.sdsdesk@thermofisher.com

Emergency Telephone Number

For information in the US, call: 001-800-ACROS-01
For information in Europe, call: +32 14 57 52 11

Emergency Number, Europe: +32 14 57 52 99
Emergency Number, US: 001-201-796-7100

CHEMTREC Phone Number, US: 001-800-424-9300
CHEMTREC Phone Number, Europe: 001-703-527-3887

SECTION 2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

REGULATION (EC) No 1272/2008

Flammable liquids.	Category 3

Classification according to EU Directives 67/548/EEC or 1999/45/EC

For the full text of the R-phrases and H-Statements mentioned in this Section, see Section 16

R-phrase(s) none

Label Elements

SECTION 2. HAZARDS IDENTIFICATION

Signal Word **Warning**

Hazard Statements
H226 - Flammable liquid and vapor

Precautionary Statements - EU (§28, 1272/2008)
P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking

Other Hazards

No information available.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	EC-No.	Weight %	CAS-No	67/548/EEC Classification	CLP Classification - Regulation (EC) No 1272/2008	REACH No.
Butyl benzene 104-51-8	EEC No. 203-209-7	> 99	104-51-8	-	Flam. Liq. 3 (H226)	-

For the full text of the R-phrases and H-Statements mentioned in this Section, see Section 16

SECTION 4. FIRST AID MEASURES

Description of first aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

Skin Contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Obtain medical attention.

Ingestion Do not induce vomiting. Clean mouth with water. Aspiration hazard. Get medical attention.

Inhalation Remove from exposure, lie down. Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Obtain medical attention.

Notes to Physician Treat symptomatically

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing media

Suitable Extinguishing Media
Water spray. Carbon dioxide (CO_2). Dry chemical. Use water spray to cool unopened containers. chemical foam. Do not use a solid water stream as it may scatter and spread fire.

Extinguishing media which must not be used for safety reasons
No information available.

Special hazards arising from the substance or mixture

Combustible material. Flammable. Vapors may travel to source of ignition and flash back. Containers may explode when heated.

Advice for fire-fighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation

Environmental precautions

Prevent further leakage or spillage if safe to do so

Methods and material for containment and cleaning up

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

SECTION 7. HANDLING AND STORAGE

Precautions for Safe Handling

Avoid contact with skin and eyes. Do not breathe dust. Do not breathe vapors or spray mist. Use explosion-proof equipment. Use only non-sparking tools.

Conditions for safe storage, including any incompatibilities

Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Keep away from heat and sources of ignition.

Specific End Uses

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits	This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.
Biological limit values	This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.
Derived No Effect Level (DNEL)	No information available.
Predicted No Effect Concentration (PNEC)	No information available.

Exposure controls

Engineering Measures	Ensure adequate ventilation, especially in confined areas
Personal protective equipment	
Eye Protection	Goggles
Hand Protection	Protective gloves
Skin and body protection	Wear appropriate protective gloves and clothing to prevent skin exposure
Respiratory Protection	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice
Environmental exposure controls	No information available.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid
Appearance	Colorless
odor	odorless
pH	No information available.
Vapor Pressure	1.33 hPa @ 23 °C
Vapor Density	4.6
Boiling Point/Range	183°C / 361.4°F@ 760 mmHg
Melting Point/Range	-88°C / -126.4°F
Flash Point	59°C / 138.2°F
Autoignition Temperature	412°C / 773.6°F
Explosion Limits	
Lower	0.8
Upper	5.8
Water Solubility	Insoluble
Specific Gravity	0.860
Molecular Formula	C10 H14
Molecular Weight	134.22

SECTION 10. STABILITY AND REACTIVITY

Reactivity

Chemical Stability

Stable under normal conditions.

Possibility of Hazardous Reactions

Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions .	No information available.

Conditions to Avoid

Keep away from open flames, hot surfaces and sources of ignition, Incompatible products.

Incompatible Materials

Strong oxidizing agents, oxygen.

Hazardous Decomposition Products

Carbon monoxide (CO). Carbon dioxide (CO_2).

SECTION 11. TOXICOLOGICAL INFORMATION

Information on Toxicological Effects

Acute Toxicity

Product Information	No acute toxicity information is available for this product

Component Information

Chronic Toxicity

Carcinogenicity	There are no known carcinogenic chemicals in this product
Sensitization	No information available.
Mutagenic Effects	No information available
Reproductive Effects	No information available.
Developmental Effects	No information available.
Target Organs	No information available.
Other Adverse Effects	The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information

Endocrine Disruptor Information

SECTION 11. TOXICOLOGICAL INFORMATION

Component	EU - Endocrine Disrupters Candidate List	EU - Endocrine Disruptors - Evaluated Substances	Japan - Endocrine Disruptor Information
Butyl benzene	Group III Chemical		

SECTION 12. ECOLOGICAL INFORMATION

Toxicity

Ecotoxicity effects Contains no substances known to be hazardous to the environment or that are not degradable in waste water treatment plants

Persistence and degradability

No information available

Bioaccumulative potential

No information available.

Component	log Pow
Butyl benzene	4.2

Mobility in soil

Results of PBT and vPvB assessment

Other adverse effects

No information available

SECTION 13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from Residues / Unused Products Dispose of in accordance with local regulations

Contaminated Packaging Empty containers should be taken to local recyclers for disposal

SECTION 14. TRANSPORT INFORMATION

IMDG/IMO

SECTION 14. TRANSPORT INFORMATION

UN-No	2709
Hazard Class	3
Packing Group	III
Proper Shipping Name	BUTYLBENZENES

ADR

UN-No	2709
Hazard Class	3
Packing Group	III
Proper Shipping Name	BUTYLBENZENES

IATA

UN-No	2709
Hazard Class	3
Packing Group	III
Proper Shipping Name	BUTYLBENZENES

SECTION 15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

International Inventories

Component	EINECS	ELINCS	NLP	TSCA	DSL	NDSL	PICCS	ENCS	CHINA	AICS	KECL
Butyl benzene	203-209-7	-		X	X	-	X	X	X	X	-

Legend

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
PICCS - Philippines Inventory of Chemicals and Chemical Substances
ENCS - Japan Existing and New Chemical Substances
CHINA - China Inventory of Existing Chemical Substances
AICS - Inventory of Chemical Substances
KECL - Existing and Evaluated Chemical Substances

Chemical Safety Assessment

SECTION 16. OTHER INFORMATION

Full text of R-phrases referred to under sections 2 and 3
No information available.

Revision Date 03-May-2012
Revision Summary

Reason for revision Not applicable
This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006
Disclaimer
The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of Safety Data Sheet

SAFETY DATA SHEET

Creation Date 04-Oct-2010 **Revision Date** 10-Feb-2015 **Revision Number** 1

1. Identification

Product Name **Nickel, powder**

Cat No. : **AC193610000; AC193610250; AC193611000; AC193615000**

Synonyms Raney alloy

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Entity / Business Name
Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin Sensitization	Category 1
Carcinogenicity	Category 2
Specific target organ toxicity - (repeated exposure)	Category 1
Target Organs - Kidney, Blood.	

Label Elements

Signal Word
Danger

Hazard Statements
May cause an allergic skin reaction
Causes damage to organs through prolonged or repeated exposure
Suspected of causing cancer

Precautionary Statements

Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Wear protective gloves/protective clothing/eye protection/face protection
Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Contaminated work clothing should not be allowed out of the workplace
Response
IF exposed or concerned: Get medical attention/advice
Skin
IF ON SKIN: Wash with plenty of soap and water
If skin irritation or rash occurs: Get medical advice/attention
Wash contaminated clothing before reuse
Storage
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Harmful to aquatic life with long lasting effects

3. Composition / information on ingredients

Component	CAS-No	Weight %
Nickel powder	7440-02-0	>95

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

Inhalation Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Immediate medical attention is required.

Ingestion Do not induce vomiting. Call a physician or Poison Control Center immediately.

Most important symptoms/effects May cause allergic skin reaction. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature 400 °C / 752 °F
Explosion Limits
Upper No data available
Lower No data available

Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Combustible material.

Hazardous Combustion Products
Nickel oxides.
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health	Flammability	Instability	Physical hazards
3	1	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas. Avoid dust formation.

Environmental Precautions Should not be released into the environment. See Section 12 for additional ecological information. Avoid release to the environment. Collect spillage.

Methods for Containment and Clean Up Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation.

7. Handling and storage

Handling Use only under a chemical fume hood. Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Avoid dust formation. Do not breathe vapors/dust. Do not ingest.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Nickel powder	TWA: 1.5 mg/m³	(Vacated) TWA: 1 mg/m³ TWA: 1 mg/m³	IDLH: 10 mg/m³ TWA: 0.015 mg/m³

Component	Quebec	Mexico OEL (TWA)	Ontario TWAEV
Nickel powder	TWA: 1 mg/m³	TWA: 1 mg/m³	TWA: 1 mg/m³

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Solid
Appearance	Brown
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	1455 °C / 2651 °F
Boiling Point/Range	2730 °C / 4946 °F
Flash Point	No information available
Evaporation Rate	No information available
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	1 mmHg @ 1810 °C
Vapor Density	No information available
Relative Density	No information available
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	400 °C / 752 °F
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	Ni
Molecular Weight	58.7

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products. Excess heat. Avoid dust formation.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products Nickel oxides

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Nickel powder	9000 mg/kg (Rat)	Not listed	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization May cause sensitization by skin contact Nickel and nickel compounds may cause a form of dermatitis known as nickel itch. May cause an allergic skin reaction

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Nickel powder	7440-02-0	Group 2B	Reasonably Anticipated	Not listed	X	Not listed

IARC: (International Agency for Research on Cancer) *Group 2B - Possibly Carcinogenic to Humans*

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure Kidney Blood

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing
Endocrine Disruptor Information No information available

Other Adverse Effects See actual entry in RTECS for complete information.

12. Ecological information

Ecotoxicity
Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Do not empty into drains. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Nickel powder	0.18 mg/L EC50 = 72 h 0.174 - 0.311 mg/L EC50 96 h	10.4 mg/L LC50 96 h 1.3 mg/L LC50 96 h 100 mg/L LC50 96 h	Not listed	1 mg/L EC50 = 48 h 100 mg/L EC50 > 48 h

Persistence and Degradability No information available
Bioaccumulation/ Accumulation No information available.

Mobility No information available.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT
- **UN-No** UN3089
- **Proper Shipping Name** METAL POWDERS, FLAMMABLE, N.O.S.
- **Hazard Class** 4.1
- **Packing Group** II

TDG
- **UN-No** UN3089
- **Proper Shipping Name** METAL POWDERS, FLAMMABLE, N.O.S.
- **Hazard Class** 4.1
- **Packing Group** II

IATA

UN-No	3089
Proper Shipping Name	METAL POWDERS, FLAMMABLE, N.O.S.
Hazard Class	4.1
Packing Group	II

IMDG/IMO

UN-No	3089
Proper Shipping Name	METAL POWDERS, FLAMMABLE, N.O.S.
Hazard Class	4.1
Packing Group	II

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Nickel powder	X	X	-	231-111-4	-		X	-	X	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Nickel powder	7440-02-0	>95	0.1

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Nickel powder	-	-	X	X

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Nickel powder	X		-

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive

Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Nickel powder	100 lb	-

California Proposition 65 This product contains the following Proposition 65 chemicals:

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Nickel powder	7440-02-0	Carcinogen	-	Carcinogen

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Nickel powder	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class D2A Very toxic materials

16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 04-Oct-2010
Revision Date 10-Feb-2015
Print Date 10-Feb-2015
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer
The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/28/2019 Version Number 3 Reviewed on 03/23/2019

*

1 Identification

· **Product identifier**

· **Trade name: n-Propylbenzene Standard (1X1 mL)**

· **Part number:** EPA-1045-1
· **Application of the substance / the mixture** Reagents and Standards for Analytical Chemical Laboratory Use

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Agilent Technologies, Inc.
5301 Stevens Creek Blvd.
Santa Clara, CA 95051 USA

· **Information department:**
Telephone: 800-227-9770
e-mail: pdl-msds_author@agilent.com
· **Emergency telephone number:** CHEMTREC®: 1-800-424-9300

2 Hazard(s) identification

· **Classification of the substance or mixture**

GHS02 Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.

GHS06 Skull and crossbones

Acute Tox. 3 H331 Toxic if inhaled.

GHS08 Health hazard

Carc. 2 H351 Suspected of causing cancer.
STOT SE 1 H370 Causes damage to organs.

· **Label elements**
· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms**

GHS02 GHS06 GHS08

· **Signal word** Danger

· **Hazard-determining components of labeling:**
methanol
· **Hazard statements**
Highly flammable liquid and vapor.
Toxic if inhaled.
Suspected of causing cancer.

(Contd. on page 2)

Safety Data Sheet
acc. to OSHA HCS

Trade name: n-Propylbenzene Standard (1X1 mL)

(Contd. of page 1)

Causes damage to organs.

· **Precautionary statements**
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting/equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Do not breathe dust/fume/gas/mist/vapors/spray.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF exposed or concerned: Get medical advice/attention.
Specific treatment (see on this label).
In case of fire: Use for extinction: CO2, powder or water spray.
Store in a well-ventilated place. Keep container tightly closed.
Store in a well-ventilated place. Keep cool.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 1
Fire = 3
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

Health = *1
Fire = 3
Reactivity = 0

· **Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**
· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**		
67-56-1	methanol	99.368%
103-65-1	propylbenzene	0.632%

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

(Contd. of page 2)

4 First-aid measures

· **Description of first aid measures**
· **General information:**
Immediately remove any clothing soiled by the product.
Remove breathing apparatus only after contaminated clothing have been completely removed.
In case of irregular breathing or respiratory arrest provide artificial respiration.
· **After inhalation:**
Supply fresh air or oxygen; call for doctor.
In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
· **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
· **After swallowing:** If symptoms persist consult doctor.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **For safety reasons unsuitable extinguishing agents:** Water with full jet
· **Special hazards arising from the substance or mixture**
During heating or in case of fire poisonous gases are produced.
· **Advice for firefighters**
· **Protective equipment:** Mouth respiratory protective device.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Mount respiratory protective device.
Wear protective equipment. Keep unprotected persons away.
· **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
· **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
· **Protective Action Criteria for Chemicals**

· **PAC-1:**		
67-56-1	methanol	530 ppm
103-65-1	propylbenzene	3.7 ppm

(Contd. on page 4)

(Contd. of page 3)

· **PAC-2:**		
67-56-1	methanol	2,100 ppm
103-65-1	propylbenzene	41 ppm

· **PAC-3:**		
67-56-1	methanol	7200* ppm
103-65-1	propylbenzene	240 ppm

7 Handling and storage

· **Handling:**
· **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
Prevent formation of aerosols.
· **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
Keep respiratory protective device available.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** Store in a cool location.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:**
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
67-56-1 methanol	
PEL	Long-term value: 260 mg/m³, 200 ppm
REL	Short-term value: 325 mg/m³, 250 ppm Long-term value: 260 mg/m³, 200 ppm Skin
TLV	Short-term value: 328 mg/m³, 250 ppm Long-term value: 262 mg/m³, 200 ppm Skin; BEI

· **Ingredients with biological limit values:**	
67-56-1 methanol	
BEI	15 mg/L Medium: urine Time: end of shift Parameter: Methanol (background, nonspecific)

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS

(Contd. of page 4)

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
· **Breathing equipment:**
When used as intended with Agilent instruments, the use of the product under normal laboratory conditions and with standard practices does not result in significant airborne exposures and therefore respiratory protection is not needed.
Under an emergency condition where a respirator is deemed necessary, use a NIOSH or equivalent approved device/equipment with appropriate organic or acid gas cartridge.
· **Protection of hands:**
Although not recommended for constant contact with the chemicals or for clean-up, nitrile gloves 11-13 mil thickness are recommended for normal use. The breakthrough time is 1 hr. For cleaning a spill where there is direct contact of the chemical, butyl rubber gloves are recommended 12-15 mil thickness with breakthrough times exceeding 4 hrs. Supplier recommendations should be followed.
· **Material of gloves**
For normal use: nitrile rubber, 11-13 mil thickness
For direct contact with the chemical: butyl rubber, 12-15 mil thickness
· **Penetration time of glove material**
For normal use: nitrile rubber: 1 hour
For direct contact with the chemical: butyl rubber: >4 hours
· **Eye protection:**

Tightly sealed goggles

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Fluid
Color:	Colorless
· **Odor:**	Alcohol-like
· **Odor threshold:**	Not determined.
· **pH-value:**	Not determined.
· **Change in condition**	
Melting point/Melting range:	-98 °C (-144.4 °F)
Boiling point/Boiling range:	64.7 °C (148.5 °F)
· **Flash point:**	9 °C (48.2 °F)
· **Flammability (solid, gaseous):**	Not applicable.

(Contd. on page 6)

(Contd. of page 5)

· **Ignition temperature:**	455 °C (851 °F)
· **Decomposition temperature:**	Not determined.
· **Auto igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· **Explosion limits:**	
Lower:	5.5 Vol %
Upper:	44 Vol %
· **Vapor pressure at 20 °C (68 °F):**	100 hPa (75 mm Hg)
· **Density at 20 °C (68 °F):**	0.80063 g/cm³ (6.68126 lbs/gal)
· **Relative density**	Not determined.
· **Vapor density**	Not determined.
· **Evaporation rate**	Not determined.
· **Solubility in / Miscibility with**	
Water:	Not miscible or difficult to mix.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Solvent content:**	
Organic solvents:	100.0 %
VOC content:	100.00 % 800.6 g/l / 6.68 lb/gal
Solids content:	0.0 %
· **Other information**	No further relevant information available.

10 Stability and reactivity

· **Reactivity** No further relevant information available.
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**		
ATE (Acute Toxicity Estimate)		
Inhalative	LC50/4 h	3.02 mg/L

(Contd. on page 7)

(Contd. of page 6)

67-56-1 methanol		
Oral	LD50	5,628 mg/kg (rat)
Dermal	LD50	15,800 mg/kg (rabbit)
103-65-1 propylbenzene		
Oral	LD50	6,040 mg/kg (rat)

· **Primary irritant effect:**
· **on the skin:** No irritant effect.
· **on the eye:** No irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Toxic

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**
None of the ingredients is listed.

· **NTP (National Toxicology Program)**
None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**
None of the ingredients is listed.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Additional ecological information:**
· **General notes:**
Water hazard class 1 (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

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Safety Data Sheet
acc. to OSHA HCS

Trade name: n-Propylbenzene Standard (1X1 mL)

(Contd. of page 7)

· **Uncleaned packagings:**
· **Recommendation:** Disposal must be made according to official regulations.

*
14 Transport information

· **Not Regulated, De minimus Quantities**	-
· **UN-Number**	
· **DOT, IMDG, IATA**	UN1230
· **UN proper shipping name**	
· **DOT**	Methanol solution
· **IMDG, IATA**	METHANOL solution
· **Transport hazard class(es)**	
· **DOT**	
· **Class**	3 Flammable liquids
· **Label**	3, 6.1
· **IMDG**	
· **Class**	3 Flammable liquids
· **Label**	3/6.1
· **IATA**	
· **Class**	3 Flammable liquids
· **Label**	3 (6.1)
· **Packing group**	
· **DOT, IMDG, IATA**	II
· **Environmental hazards:**	Not applicable.
· **Special precautions for user**	Warning: Flammable liquids
· **Danger code (Kemler):**	336
· **EMS Number:**	F-E,S-D
· **Stowage Category**	B
· **Stowage Code**	SW2 Clear of living quarters.
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.

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Safety Data Sheet
acc. to OSHA HCS

(Contd. of page 8)

· **Transport/Additional information:**

· **DOT**

· **Quantity limitations**	On passenger aircraft/rail: 1 L On cargo aircraft only: 60 L

· **IMDG**

· **Limited quantities (LQ)**	1L
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **UN "Model Regulation":**	UN 1230 METHANOL SOLUTION, 3 (6.1), II

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**

· **Sara**

· **Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**

67-56-1	methanol

· **TSCA (Toxic Substances Control Act):**

All ingredients are listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**

67-56-1	methanol

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

· **TLV (Threshold Limit Value established by ACGIH)**

None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

(Contd. on page 10)

Safety Data Sheet
acc. to OSHA HCS

(Contd. of page 9)

16 Other information

The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

· **Department issuing SDS:** Document Control / Regulatory
· **Contact:** regulatory@ultrasci.com
· **Date of preparation / last revision** 03/28/2019 / 2
· **Abbreviations and acronyms:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
BEI: Biological Exposure Limit
Flam. Liq. 2: Flammable liquids – Category 2
Acute Tox. 3: Acute toxicity – Category 3
Carc. 2: Carcinogenicity – Category 2
STOT SE 1: Specific target organ toxicity (single exposure) – Category 1
· *** Data compared to the previous version altered.**

SAFETY DATA SHEET

Version 4.7
Revision Date 05/27/2015
Print Date 04/01/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : *o*-Cresol

Product Number : C85700
Brand : Sigma-Aldrich
Index-No. : 604-004-00-9

CAS-No. : 95-48-7

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Dermal (Category 3), H311
Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318
Acute aquatic toxicity (Category 2), H401
Chronic aquatic toxicity (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H301 + H311 Toxic if swallowed or in contact with skin
H314 Causes severe skin burns and eye damage.
H318 Causes serious eye damage.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P260 Do not breathe dust or mist.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.

P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Rinse mouth.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.
P362	Take off contaminated clothing and wash before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	2-Methylphenol
Formula	:	C_7H_8O
Molecular weight	:	108.14 g/mol
CAS-No.	:	95-48-7
EC-No.	:	202-423-8
Index-No.	:	604-004-00-9

Hazardous components

Component	Classification	Concentration
o-Cresol		
	Acute Tox. 3; Skin Corr. 1B; Eye Dam. 1; Aquatic Acute 2; Aquatic Chronic 2; H301 + H311, H314, H318, H411	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.Continue rinsing eyes during transport to hospital.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

Air and light sensitive. Keep in a dry place.
Storage class (TRGS 510): Non-combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
o-Cresol	95-48-7	TWA	5.000000 ppm 22.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	Remarks	Skin contact does contribute to exposure.		

		TWA	5.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Eye, skin, & Upper Respiratory Tract irritation Adopted values or notations enclosed are those for which changes are proposed in the NIC 2010 Revision or addition to the notice of intended changes See Notice of Intended Changes (NIC) Danger of cutaneous absorption		
		TWA	2.300000 ppm 10.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	20.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Not classifiable as a human carcinogen Danger of cutaneous absorption		

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 480 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.2 mm
Break through time: 30 min
Material tested:Dermatril® P (KCL 743 / Aldrich Z677388, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: powder Colour: white
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	4.5 at 25.00000 g/l
e)	Melting point/freezing point	Melting point/range: 29 - 31 °C (84 - 88 °F) - lit.
f)	Initial boiling point and boiling range	191 °C (376 °F) - lit.
g)	Flash point	81.0 °C (177.8 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 58 %(V) Lower explosion limit: 1.3 %(V)
k)	Vapour pressure	3.1 hPa (2.3 mmHg) at 60.0 °C (140.0 °F) 1.3 hPa (1.0 mmHg) at 38.2 °C (100.8 °F) 0.4 hPa (0.3 mmHg) at 20.0 °C (68.0 °F)
l)	Vapour density	No data available
m)	Relative density	1.05 g/cm3 at 20.00 °C (68.00 °F)
n)	Water solubility	25 g/l at 20 °C (68 °F)
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	599.0 °C (1,110.2 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

Oxidizing agents

10.6 Hazardous decomposition products

Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 121.0 mg/kg
Remarks: Behavioral:Convulsions or effect on seizure threshold. Lungs, Thorax, or Respiration:Dyspnea. Gastrointestinal:Ulceration or bleeding from stomach.

LC50 Inhalation - Rat - 1 h - > 1,220 mg/m3
Remarks: Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Eye:Lacrimation. Behavioral:Somnolence (general depressed activity).

LD50 Dermal - Rabbit - 890.0 mg/kg

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Severe skin irritation - 24 h
(Draize Test)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Severe eye irritation
(Draize Test)

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: GO6300000

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, Central nervous system depression, Diarrhoea, Gastrointestinal disturbance

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Leuciscus idus (Golden orfe) - 10.00 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	Immobilization EC50 - Daphnia magna (Water flea) - 15.8 mg/l - 48 h
Toxicity to algae	EC50 - SELENASTRUM - 100.00 mg/l - 72 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life with long lasting effects.

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3455 Class: 6.1 (8) Packing group: II
Proper shipping name: Cresols, solid
Reportable Quantity (RQ): 100 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 3455 Class: 6.1 (8) Packing group: II EMS-No: F-A, S-B
Proper shipping name: CRESOLS, SOLID

IATA
UN number: 3455 Class: 6.1 (8) Packing group: II
Proper shipping name: Cresols, solid

15. REGULATORY INFORMATION

SARA 302 Components
The following components are subject to reporting levels established by SARA Title III, Section 302:

	CAS-No.	Revision Date
o-Cresol	95-48-7	2007-07-01

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
o-Cresol	95-48-7	2007-07-01

Massachusetts Right To Know Components

	CAS-No.	Revision Date
o-Cresol	95-48-7	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
o-Cresol	95-48-7	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
o-Cresol	95-48-7	2007-07-01

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Eye Dam.	Serious eye damage
H301	Toxic if swallowed.
H301 + H311	Toxic if swallowed or in contact with skin
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.

HMIS Rating

Health hazard:	3
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	3
Fire Hazard:	2
Reactivity Hazard:	0

Further information
Copyright 2015 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.7 Revision Date: 05/27/2015 Print Date: 04/01/2016

SAFETY DATA SHEET

Version 4.10
Revision Date 11/12/2015
Print Date 02/07/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : *p*-Cresol

Product Number : W233706
Brand : Aldrich
Index-No. : 604-004-00-9

CAS-No. : 106-44-5

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Dermal (Category 3), H311
Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318
Acute aquatic toxicity (Category 2), H401
Chronic aquatic toxicity (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H301 + H311 Toxic if swallowed or in contact with skin
H314 Causes severe skin burns and eye damage.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P260 Do not breathe dust or mist.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.

P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor/ physician.
P322	Specific measures (see supplemental first aid instructions on this label).
P361	Remove/Take off immediately all contaminated clothing.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms : 4-Methylphenol

Formula : C_7H_8O

Molecular weight : 108.14 g/mol

CAS-No. : 106-44-5

EC-No. : 203-398-6

Index-No. : 604-004-00-9

Hazardous components

Component	Classification	Concentration
p-Cresol		
	Acute Tox. 3; Skin Corr. 1B; Eye Dam. 1; Aquatic Acute 2; Aquatic Chronic 2; H301 + H311, H314, H411	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

hygroscopic Air and light sensitive. Handle and store under inert gas.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
p-Cresol	106-44-5	TWA	2.3 ppm 10 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	5 ppm 22 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	Remarks	Skin designation The value in mg/m3 is approximate.		

		TWA	20 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Not classifiable as a human carcinogen Danger of cutaneous absorption		

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 480 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.2 mm
Break through time: 30 min
Material tested:Dermatril® P (KCL 743 / Aldrich Z677388, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: crystalline Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing	Melting point/range: 31 - 37 °C (88 - 99 °F)

	point	Melting point/range: 32 - 34 °C (90 - 93 °F) - lit.
f)	Initial boiling point and boiling range	202 °C (396 °F) - lit.
g)	Flash point	85.0 °C (185.0 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Lower explosion limit: 1.1 %(V)
k)	Vapour pressure	1.3 hPa (1.0 mmHg) at 20.0 °C (68.0 °F)
l)	Vapour density	No data available
m)	Relative density	1.034 g/cm3 at 25 °C (77 °F)
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	log Pow: 1.94
p)	Auto-ignition temperature	559.0 °C (1,038.2 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Oxidizing agents, Bases

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 207.0 mg/kg
Remarks: Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Olfaction:Other changes. Behavioral:Convulsions or effect on seizure threshold. Gastrointestinal:Ulceration or bleeding from stomach.

LC50 Inhalation - Rat - 1 h - > 710 mg/m3

LD50 Dermal - Rabbit - 301.0 mg/kg
Remarks: Behavioral:Tremor. Gastrointestinal:Changes in structure or function of salivary glands. Kidney, Ureter, Bladder:Other changes.

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Severe skin irritation - 24 h

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Severe eye irritation

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: GO6475000

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, laryngitis, Dizziness, Cardiovascular effects., Muscle cramps/spasms., Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting.

Kidney -

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - other fish - 16.00 - 24.00 mg/l - 24 h
	LC50 - Oncorhynchus mykiss (rainbow trout) - 7.9 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	LC50 - Daphnia magna (Water flea) - 1.4 mg/l - 48 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
Does not bioaccumulate.

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life.

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3455 Class: 6.1 (8) Packing group: II
Proper shipping name: Cresols, solid
Reportable Quantity (RQ): 100 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 3455 Class: 6.1 (8) Packing group: II EMS-No: F-A, S-B
Proper shipping name: CRESOLS, SOLID

IATA
UN number: 3455 Class: 6.1 (8) Packing group: II
Proper shipping name: Cresols, solid

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
p-Cresol	106-44-5	2007-07-01

SARA 311/312 Hazards
Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
p-Cresol	106-44-5	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
p-Cresol	106-44-5	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
p-Cresol	106-44-5	2007-07-01

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Eye Dam.	Serious eye damage
H301	Toxic if swallowed.
H301 + H311	Toxic if swallowed or in contact with skin
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.

HMIS Rating

Health hazard:	3
Chronic Health Hazard:	
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	3
Fire Hazard:	2
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.10 Revision Date: 11/12/2015 Print Date: 02/07/2016

SAFETY DATA SHEET

Version 4.9
Revision Date 12/29/2015
Print Date 02/22/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Pentachlorophenol

Product Number : P2604
Brand : Aldrich
Index-No. : 604-002-00-8

CAS-No. : 87-86-5

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Inhalation (Category 2), H330
Acute toxicity, Dermal (Category 3), H311
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Carcinogenicity (Category 2), H351
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H301 + H311 Toxic if swallowed or in contact with skin
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H330 Fatal if inhaled.
H335 May cause respiratory irritation.

H351	Suspected of causing cancer.
H400	Very toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P284	Wear respiratory protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Rinse mouth.
P302 + P352 + P312	IF ON SKIN: Wash with plenty of soap and water. Call a POISON CENTER or doctor/ physician if you feel unwell.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	C_6HCl_5O
Molecular weight	:	266.34 g/mol
CAS-No.	:	87-86-5
EC-No.	:	201-778-6
Index-No.	:	604-002-00-8

Hazardous components

Component	Classification	Concentration
Pentachlorophenol		
	Acute Tox. 3; Acute Tox. 2; Acute Tox. 3; Skin Irrit. 2; Eye Irrit. 2A; Carc. 2; STOT SE 3; Aquatic Acute 1; Aquatic Chronic 2; H301 + H311, H315, H319, H330, H335, H351, H400, H411	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen chloride gas

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Pentachlorophenol	87-86-5	TWA	0.500000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Cardiac impairment Adopted values or notations enclosed are those for which changes are proposed in the NIC See Notice of Intended Changes (NIC) Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption		
		TWA	0.500000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential for dermal absorption		
		TWA	0.500000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Skin designation		
		TWA	0.5 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Cardiac impairment 2015 Adoption Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption		
		STEL	1 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Cardiac impairment 2015 Adoption Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Pentachlorophenol	87-86-5	pentachlorophenol	2.0000 mg/g	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	Prior to last shift of workweek			
		Free PCP	5.0000 mg/l	In plasma	ACGIH - Biological Exposure Indices (BEI)
		End of shift (As soon as possible after exposure ceases)			
		pentachlorophenol		Urine	ACGIH - Biological Exposure Indices (BEI)

		Prior to last shift of workweek

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Splash contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 120 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: crystalline Colour: light red
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 165 - 180 °C (329 - 356 °F)
f)	Initial boiling point and boiling range	310 °C (590 °F)
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower	No data available

	flammability or explosive limits	
k)	Vapour pressure	53.3 hPa (40.0 mmHg) at 211.2 °C (412.2 °F)
l)	Vapour density	No data available
m)	Relative density	1.978 g/mL at 25 °C (77 °F)
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	log Pow: 5.12
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents, Strong bases

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 27 mg/kg
Remarks: Vascular:BP elevation not charactertized in autonomic section. Endocrine:Hyperglycemia. Nutritional and Gross Metabolic:Changes in:Body temperature increase.

LC50 Inhalation - Rat - 355 mg/m3
Remarks: Behavioral:Excitement. Behavioral:Muscle contraction or spasticity. Lungs, Thorax, or Respiration:Dyspnea.

LD50 Dermal - Rat - 96.0 mg/kg
Remarks: Behavioral:Excitement. Behavioral:Muscle contraction or spasticity. Lungs, Thorax, or Respiration:Dyspnea.

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Open irritation test - 24.00 h

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Mild eye irritation - 24.00 h

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

The evidence for carcinogenicity of pentachlorophenol (PCP) is based on assays that utilized less than pure PCP. Contaminants of PCP include: tri- or tetra- chlorophenol, hexachlorobenzene, polychlorinated dibenzo-p-dioxins, or polychlorinated dibenzofurans. Indications are that positive evidence for carcinogenicity is from the contaminant(s) and not the PCP. This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

Limited evidence of carcinogenicity in animal studies

IARC:	2B - Group 2B: Possibly carcinogenic to humans (Pentachlorophenol)
NTP:	Reasonably anticipated to be a human carcinogen (Pentachlorophenol)
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

Overexposure may cause reproductive disorder(s) based on tests with laboratory animals.

Specific target organ toxicity - single exposure
May cause respiratory irritation.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

Convulsions

Kidney -

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Cyprinodon variegatus (sheepshead minnow) - 0.16 - 0.5 mg/l - 96.0 h
	LC50 - Carassius auratus (goldfish) - 0.16 - 0.38 mg/l - 96.0 h
	LC50 - Oncorhynchus mykiss (rainbow trout) - 0.075 mg/l - 96.0 h
	NOEC - other fish - 0.01 mg/l - 24.0 h
	LOEC - other fish - 0.1 mg/l - 24.0 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 0.30 - 1.30 mg/l - 48 h
Toxicity to algae	EC50 - No information available. - 0.36 mg/l - 10 d
	EC50 - Chlorella vulgaris (Fresh water algae) - 10.30 mg/l - 96 h
	Growth inhibition EC50 - Scenedesmus quadricauda (Green algae) - 0.08 mg/l - 96 h

12.2 Persistence and degradability

Biodegradability Result: 99 % - Biodegradable

12.3 Bioaccumulative potential

Bioaccumulation Oncorhynchus mykiss (rainbow trout) - 144 h
- 0.0912 mg/l

Bioconcentration factor (BCF): 482

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN number: 3155 Class: 6.1 Packing group: II
Proper shipping name: Pentachlorophenol
Reportable Quantity (RQ): 10 lbs

Poison Inhalation Hazard: No

IMDG

UN number: 3155 Class: 6.1 Packing group: II EMS-No: F-A, S-A
Proper shipping name: PENTACHLOROPHENOL
Marine pollutant: yes

IATA

UN number: 3155 Class: 6.1 Packing group: II
Proper shipping name: Pentachlorophenol

15. REGULATORY INFORMATION

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Pentachlorophenol	87-86-5	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Pentachlorophenol	87-86-5	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Pentachlorophenol	87-86-5	2007-07-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
Pentachlorophenol	87-86-5	2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
Eye Irrit.	Eye irritation
H301	Toxic if swallowed.
H301 + H311	Toxic if swallowed or in contact with skin
H311	Toxic in contact with skin.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H335	May cause respiratory irritation.
H351	Suspected of causing cancer.
H400	Very toxic to aquatic life.

HMIS Rating

Health hazard:	3
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	1

NFPA Rating

Health hazard:	4
Fire Hazard:	0
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.9 Revision Date: 12/29/2015 Print Date: 02/22/2016

SAFETY DATA SHEET

Creation Date 01-May-2012 **Revision Date** 11-Aug-2014 **Revision Number** 1

1. Identification

Product Name **Phenanthrene**

Cat No. : **AC130090000; AC130090050; AC130090500; AC130095000**

Synonyms No information available

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Entity / Business Name
Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute oral toxicity	Category 4

Label Elements

Signal Word
Warning

Hazard Statements
Harmful if swallowed

Precautionary Statements
Prevention
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Ingestion
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth

Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Very toxic to aquatic life with long lasting effects

3. Composition / information on ingredients

Component	CAS-No	Weight %
Phenanthrene	85-01-8	>95

4. First-aid measures

General Advice If symptoms persist, call a physician.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

Skin Contact Obtain medical attention. Wash off immediately with plenty of water for at least 15 minutes.

Inhalation Move to fresh air. If breathing is difficult, give oxygen. Obtain medical attention.

Ingestion Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.

Most important symptoms/effects None reasonably foreseeable.
Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature Not applicable
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Do not allow run-off from fire fighting to enter drains or water courses.

Hazardous Combustion Products
Carbon monoxide (CO) Carbon dioxide (CO_2)
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
1	1	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment. Avoid dust formation.

Environmental Precautions Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained. See Section 12 for additional ecological information. Avoid release to the environment. Collect spillage.

Methods for Containment and Clean Up Sweep up or vacuum up spillage and collect in suitable container for disposal. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling Wear personal protective equipment. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Avoid dust formation.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

- **Eye/face Protection** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
- **Skin and body protection** Long sleeved clothing.
- **Respiratory Protection** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
- **Hygiene Measures** Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Solid
Appearance	Beige
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	95 - 101 °C / 203 - 213.8 °F
Boiling Point/Range	336 °C / 636.8 °F
Flash Point	No information available
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	1 mmHg @ 116 °C
Vapor Density	Not applicable
Relative Density	1.063
Solubility	Insoluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	Not applicable
Decomposition temperature	No information available
Viscosity	Not applicable
Molecular Formula	C14 H10
Molecular Weight	178.23

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products. Excess heat. Avoid dust formation.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Phenanthrene	1.8 g/kg (Rat)	Not listed	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Phenanthrene	85-01-8	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known

STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information.

12. Ecological information

Ecotoxicity

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea

Phenanthrene	Not listed	LC50 = 3.2 mg/L 96h	Not listed	LC50 = 0.35 mg/L 48h

Persistence and Degradability Insoluble in water May persist

Bioaccumulation/ Accumulation No information available.

Mobility . Is not likely mobile in the environment due its low water solubility.

Component	log Pow
Phenanthrene	4.46

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No UN3077
Proper Shipping Name ENVIRONMENTALLY HAZARDOUS SUBSTANCE,SOLID, N.O.S.
Hazard Class 9
Packing Group III

TDG

UN-No UN3077
Proper Shipping Name ENVIRONMENTALLY HAZARDOUS SUBSTANCE,SOLID, N.O.S.
Hazard Class 9
Packing Group III

IATA

UN-No UN3077
Proper Shipping Name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.*
Hazard Class 9
Packing Group III

IMDG/IMO

UN-No UN3077
Proper Shipping Name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
Hazard Class 9
Packing Group III

15. Regulatory information

All of the components in the product are on the following Inventory lists: X = listed

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Phenanthrene	X	X	-	201-581-5	-		X	X	X	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Phenanthrene	85-01-8	>95	1.0

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Phenanthrene	-	-	X	X

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Phenanthrene	5000 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Phenanthrene	X	X	X	-	-

U.S. Department of Transportation

Reportable Quantity (RQ):	N
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class Non-controlled

16. Other information

Prepared By Regulatory Affairs

Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date	01-May-2012
Revision Date	11-Aug-2014
Print Date	11-Aug-2014
Revision Summary	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS

SAFETY DATA SHEET

Version 6.10
Revision Date 09/06/2024
Print Date 09/06/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Phenol

Product Number : P5566
Brand : Sigma-Aldrich
Index-No. : 604-001-00-2
CAS-No. : 108-95-2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 3), H301
Acute toxicity, Inhalation (Category 3), H331
Acute toxicity, Dermal (Category 3), H311

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Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318
Germ cell mutagenicity (Category 2), H341
Specific target organ toxicity - repeated exposure (Category 2), Nervous system, Kidney, Liver, Skin, H373
Short-term (acute) aquatic hazard (Category 2), H401
Long-term (chronic) aquatic hazard (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal Word: Danger

Hazard Statements

H301 + H311 + H331	Toxic if swallowed, in contact with skin or if inhaled.
H314	Causes severe skin burns and eye damage.
H341	Suspected of causing genetic defects.
H373	May cause damage to organs (Nervous system, Kidney, Liver, Skin) through prolonged or repeated exposure.
H411	Toxic to aquatic life with long lasting effects.

Precautionary Statements

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

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2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Vesicant., Rapidly absorbed through skin.

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms : Hydroxybenzene

Formula : C_6H_6O
Molecular weight : 94.11 g/mol
CAS-No. : 108-95-2
EC-No. : 203-632-7
Index-No. : 604-001-00-2

Component	Classification	Concentration
Phenol		
	Acute Tox. 3; Skin Corr. 1B; Eye Dam. 1; Muta. 2; STOT RE 2; Aquatic Acute 2; Aquatic Chronic 2; H301, H331, H311, H314, H318, H341, H373, H401, H411 Concentration limits: >= 3 %: Skin Corr. 1B, H314; 1 - < 3 %: Skin Irrit. 2, H315; 1 - < 3 %: Eye Irrit. 2, H319;	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

In case of skin contact
After contact with skin: rinse out with polyethylene glycol 400 or a mixture of polyethylene glycol 300/ethanol 2:1 and wash with plenty of water. If neither is available wash with plenty of water. Immediately take off contaminated clothing. Call a physician immediately.

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In case of eye contact
After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

If swallowed
If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible. Do not attempt to neutralise.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Combustible.
Vapors are heavier than air and may spread along floors.
Forms explosive mixtures with air on intense heating.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Avoid generation and inhalation of dusts in all circumstances. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

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6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture.

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Dry. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.
Storage stability Recommended storage temperature
2 - 8 °C
Handle and store under inert gas. Light sensitive.

Storage class
Storage class (TRGS 510): 6.1A: Combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Phenol	108-95-2	TWA	5 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Not classifiable as a human carcinogen		

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		Danger of cutaneous absorption		
		TWA	5 ppm 19 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential for dermal absorption		
		C	15.6 ppm 60 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential for dermal absorption		
		TWA	5 ppm 19 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Skin designation		
		PEL	5 ppm 19 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		Skin		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Phenol	108-95-2	Phenol	250mg/g creatinine	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift (As soon as possible after exposure ceases)			

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

Skin protection
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Full contact
Material: Viton®
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please

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contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Splash contact
Material: Viton®
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Body Protection
Flame retardant antistatic protective clothing.

Respiratory protection
Recommended Filter type: Filter A-(P3)
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when dusts/vapours/aerosols are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odor	stinging
c)	Odor Threshold	0.005 ppm
d)	pH	6.0
e)	Melting point/freezing point	Melting point/ range: 38 - 43 °C (100 - 109 °F)
f)	Initial boiling point and boiling range	181.8 °C 359.2 °F at 1,013 hPa
g)	Flash point	79.0 °C (174.2 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 9.5 %(V) Lower explosion limit: 1.3 %(V)
k)	Vapor pressure	0.53 hPa at 20.0 °C (68.0 °F)
l)	Vapor density	3.2 at 20 °C(68 °F) - (Air = 1.0)
m)	Density	1.13 g/cm3 at 25 °C (77 °F) - DIN 51757
	Relative density	No data available

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n)	Water solubility	87 g/l at 25 °C (77 °F)
o)	Partition coefficient: n-octanol/water	log Pow: 1.47 at 30 °C (86 °F) - (ECHA), Bioaccumulation is not expected.
p)	Autoignition temperature	715 °C (1319 °F) at 1,013 hPa
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

Surface tension	38.2 mN/m at 50.0 °C (122.0 °F)
Relative vapor density	3.2 at 20 °C (68 °F) - (Air = 1.0)

SECTION 10: Stability and reactivity

10.1 Reactivity

Forms explosive mixtures with air on intense heating.
A range from approx. 15 Kelvin below the flash point is to be rated as critical.
The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .
Contains the following stabilizer(s):
Hypophosphorous acid (0.15 %)

10.3 Possibility of hazardous reactions

Exothermic reaction with:
Aluminum
Aldehydes
halogens
hydrogen peroxide
iron(III) compounds
Oxidizing agents
Strong acids
Strong bases
formaldehyde
Risk of explosion with:
nitrites
nitrates
salts of oxyhalogenic acids
peroxi compounds

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10.4 Conditions to avoid
Strong heating.

10.5 Incompatible materials
rubber, various plastics, various alloys, various metals

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Acute toxicity estimate Oral - 100.1 mg/kg
(Calculation method)
Acute toxicity estimate Oral - 100.1 mg/kg
(Expert judgment)
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
Acute toxicity estimate Inhalation - 4 h - 0.51 mg/l - dust/mist(Calculation method)

Acute toxicity estimate Inhalation - 4 h - 0.51 mg/l - dust/mist

(Expert judgment)
Symptoms: Irritation, Lung edema
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
Acute toxicity estimate Dermal - 660 mg/kg
(Calculation method)
LD50 Dermal - Rat - female - 660 mg/kg
(OECD Test Guideline 402)
No data available

Skin corrosion/irritation
Skin - In vitro study
Result: Causes burns.
(OECD Test Guideline 431)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Corrosive
(OECD Test Guideline 405)
Remarks: Causes serious eye damage.
Risk of blindness!

Respiratory or skin sensitization
Sensitisation test: - Guinea pig
Result: negative
Remarks: (IUCLID)

Germ cell mutagenicity
Suspected of causing genetic defects.
Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Test system: Chinese hamster ovary cells
Metabolic activation: Metabolic activation

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Method: OECD Test Guideline 473
Result: positive
Test Type: Mutagenicity (mammal cell test): micronucleus.
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 487
Result: positive

Carcinogenicity
This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
May cause damage to organs through prolonged or repeated exposure.
- Nervous system, Kidney, Liver, Skin
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Aspiration hazard
No data available

11.2 Additional Information

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, Circulatory collapse, tachypnea, paralysis, Convulsions, Coma., necrosis of mouth and G.I. Tract, Jaundice, respiratory failure, cardiac arrest
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	flow-through test LC50 - Onchorhynchus clarki - 8.9 mg/l - 96 h

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	(US-EPA)
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Ceriodaphnia dubia (water flea) - 3.1 mg/l - 48 h (US-EPA)
Toxicity to algae	static test EC50 - Pseudokirchneriella subcapitata (algae) - 61.1 mg/l - 96 h (US-EPA)
Toxicity to bacteria	static test IC50 - microorganisms - 21 mg/l - 24 h Remarks: (ECHA)
Toxicity to fish(Chronic toxicity)	semi-static test NOEC - Fish - 0.077 mg/l - 60 d Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity)	semi-static test NOEC - Daphnia magna (Water flea) - 0.16 mg/l - 16 d Remarks: (ECHA)

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 100 h Result: 62 % - Readily biodegradable. (OECD Test Guideline 301C)

12.3 Bioaccumulative potential

Bioaccumulation	Danio rerio (zebra fish) - 5 h at 25 °C - 2 mg/l(Phenol) Bioconcentration factor (BCF): 17.5 (OECD Test Guideline 305) Remarks: Does not bioaccumulate.

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

No data available

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SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)
UN number: 1671 Class: 6.1 Packing group: II
Proper shipping name: Phenol, solid
Reportable Quantity (RQ): 1000 lbs
Poison Inhalation Hazard: No

IMDG
UN number: 1671 Class: 6.1 Packing group: II EMS-No: F-A, S-A
Proper shipping name: PHENOL, SOLID
Marine pollutant : yes

IATA
UN number: 1671 Class: 6.1 Packing group: II
Proper shipping name: Phenol, solid

SECTION 15: Regulatory information

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Phenol	108-95-2	1000	1000

SARA 304 Extremely Hazardous Substances Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Phenol	108-95-2	1000	1000

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

Components	CAS-No.	Component TPQ (lbs)
Phenol	108-95-2	10000
Phenol	108-95-2	500*

*: Solid in the molten or powdered form (particles < 100 microns), in solution, or meeting the NFPA reactivity criteria

SARA 311/312 Hazards : Acute Health Hazard
Chronic Health Hazard

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SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

Phenol	108-95-2	>= 90 - <= 100 %

US State Regulations

Massachusetts Right To Know

No components are subject to the Massachusetts Right to Know Act.

Maine Chemicals of High Concern

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

The ingredients of this product are reported in the following inventories:

TSCA : All substances listed as active on the TSCA inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16: Other information

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

Version: 6.10 Revision Date: 09/06/2024 Print Date: 09/06/2024

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SAFETY DATA SHEET

Creation Date 01-Jul-2010 **Revision Date** 10-Feb-2015 **Revision Number** 1

1. Identification

Product Name **Pyrene**

Cat No. : **AC180830000; AC180830250; AC180831000; AC180835000**

Synonyms Benzo[def]phenanthrene

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Entity / Business Name
Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin Corrosion/irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Central nervous system (CNS).	
Specific target organ toxicity - (repeated exposure)	Category 2
Target Organs - Liver.	

Label Elements

Signal Word
Warning

Hazard Statements
Causes skin irritation
Causes serious eye irritation
May cause drowsiness or dizziness
May cause damage to organs through prolonged or repeated exposure

Precautionary Statements
Prevention
Wear protective gloves/protective clothing/eye protection/face protection
Use only outdoors or in a well-ventilated area
Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling
Do not get in eyes, on skin, or on clothing
Response
Get medical attention/advice if you feel unwell
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Skin
IF ON SKIN: Wash with plenty of soap and water
Take off contaminated clothing and wash before reuse
If skin irritation occurs: Get medical advice/attention
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
Storage
Store in a well-ventilated place. Keep container tightly closed
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Very toxic to aquatic life with long lasting effects

3. Composition / information on ingredients

Component	CAS-No	Weight %
Pyrene	129-00-0	>95

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.

Inhalation Move to fresh air. If breathing is difficult, give oxygen. Obtain medical attention.

Ingestion Do not induce vomiting. Obtain medical attention.

Most important symptoms/effects No information available.
Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable Extinguishing Media No information available

Flash Point	210 °C / 410 °F
Method -	No information available
Autoignition Temperature	No information available
Explosion Limits	
Upper	No data available
Lower	No data available
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical
Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
Carbon monoxide (CO) Carbon dioxide (CO_2)
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health	Flammability	Instability	Physical hazards
2	1	0	N/A

6. Accidental release measures

Personal Precautions	Ensure adequate ventilation. Use personal protective equipment. Avoid dust formation.
Environmental Precautions	Should not be released into the environment. See Section 12 for additional ecological information. Avoid release to the environment. Collect spillage.
Methods for Containment and Clean Up	Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation.

7. Handling and storage

Handling	Ensure adequate ventilation. Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Avoid dust formation. Avoid breathing dust/fume/gas/mist/vapours/spray. Avoid ingestion and inhalation.
Storage	Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines	This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.
Engineering Measures	Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection	Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin and body protection	Wear appropriate protective gloves and clothing to prevent skin exposure.
Respiratory Protection	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Solid
Appearance	Yellow
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	148 - 152 °C / 298 - 306 °F
Boiling Point/Range	393 °C / 739.4 °F @ 760 mmHg
Flash Point	210 °C / 410 °F
Evaporation Rate	No information available
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	No information available
Relative Density	No information available
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C16 H10
Molecular Weight	202.25

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products. Excess heat. Avoid dust formation.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information No acute toxicity information is available for this product

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Pyrene	2700 mg/kg (Rat)	Not listed	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Irritating to eyes and skin

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Pyrene	129-00-0	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Central nervous system (CNS)
STOT - repeated exposure Liver

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects Tumorigenic effects have been reported in experimental animals. The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information.

12. Ecological information

Ecotoxicity

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Do not empty into drains. Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Pyrene	Not listed	Oncorhynchus mykiss: LC50 > 2mg/L 96h	Not listed	EC50 48h 1.8 mg/L EC50 48h 0.002-0.003 mg/L

Persistence and Degradability No information available
Bioaccumulation/ Accumulation No information available.

Mobility .

Component	log Pow
Pyrene	4.88

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No UN3077
Proper Shipping Name Environmentally hazardous substance, solid, n.o.s
Proper technical name Pyrene
Hazard Class 9
Packing Group III

TDG

UN-No UN3077
Proper Shipping Name Environmentally hazardous substance, solid, n.o.s.
Hazard Class 9
Packing Group III

IATA

UN-No	UN3077
Proper Shipping Name	Environmentally hazardous substance, solid, n.o.s
Hazard Class	9
Packing Group	III

IMDG/IMO

UN-No	UN3077
Proper Shipping Name	Environmentally hazardous substance, solid, n.o.s
Hazard Class	9
Packing Group	III

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Pyrene	X	X	-	204-927-3	-		X	X	X	X	-

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313 Not applicable

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Pyrene	-	-	X	X

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Pyrene	5000 lb	5000 lb

California Proposition 65 This product does not contain any Proposition 65 chemicals

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Pyrene	X	X	X	X	-

U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

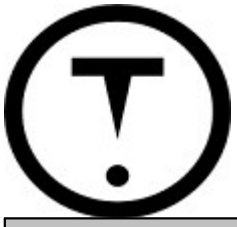
U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class D2B Toxic materials



16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 01-Jul-2010
Revision Date 10-Feb-2015
Print Date 10-Feb-2015
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer
The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS

SAFETY DATA SHEET

Version 6.7
Revision Date 10/27/2023
Print Date 07/13/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : *sec*-Butylbenzene

Product Number : B90408
Brand : Aldrich
CAS-No. : 135-98-8

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 3), H226
Acute toxicity, Oral (Category 4), H302
Short-term (acute) aquatic hazard (Category 1), H400
Long-term (chronic) aquatic hazard (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

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Signal Word	Warning
Hazard statement(s)	
H226	Flammable liquid and vapor.
H302	Harmful if swallowed.
H410	Very toxic to aquatic life with long lasting effects.
Precautionary statement(s)	
P210	Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/ eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P391	Collect spillage.
P403 + P235	Store in a well-ventilated place. Keep cool.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms	:	2-Phenylbutane
Formula	:	$C_{10}H_{14}$
Molecular weight	:	134.22 g/mol
CAS-No.	:	135-98-8
EC-No.	:	205-227-0

Component	Classification	Concentration
sec-Butylbenzene		
	Flam. Liq. 3; Acute Tox. 4; Aquatic Acute 1; Aquatic Chronic 1; H226, H302, H400, H410 M-Factor - Aquatic Acute: 1	<= 100 %

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For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

In case of eye contact
After eye contact: rinse out with plenty of water. Remove contact lenses.

If swallowed
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Carbon dioxide (CO2) Foam Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Carbon oxides
Combustible.
Vapors are heavier than air and may spread along floors.
Forms explosive mixtures with air at elevated temperatures.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters

In the event of fire, wear self-contained breathing apparatus.

5.4 Further information

Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition.
Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge.

Hygiene measures
Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.

Storage class
Storage class (TRGS 510): 3: Flammable liquids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters
Contains no substances with occupational exposure limit values.

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8.2 Exposure controls

Appropriate engineering controls

Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.

Personal protective equipment

Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection

Flame retardant antistatic protective clothing.

Respiratory protection

Recommended Filter type: Filter type ABEK
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when vapours/aerosols are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure

Do not let product enter drains. Risk of explosion.

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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid, clear Color: colorless
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 75.5 °C (167.9 °F) - lit.
f)	Initial boiling point and boiling range	173 - 174 °C 343 - 345 °F - lit.
g)	Flash point	52.0 °C (125.6 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Lower explosion limit: 0.8 %(V)
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Density	0.863 g/mL at 25 °C (77 °F) - lit.
	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Autoignition temperature	418.0 °C (784.4 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

No data available

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SECTION 10: Stability and reactivity

10.1 Reactivity
Vapor/air-mixtures are explosive at intense warming.

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
Violent reactions possible with:
Strong oxidizing agents

10.4 Conditions to avoid
Heating.

10.5 Incompatible materials
various plastics

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 1,926 mg/kg
Remarks: (RTECS)
Inhalation: No data available
LD50 Dermal - Rabbit - > 13,760 mg/kg
Remarks: (RTECS)
No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Mild eye irritant - 24 h
Remarks: (RTECS)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Mild eye irritation - 24 h
Remarks: (RTECS)

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is

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identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

RTECS: CY9100000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

After absorption:

Headache
Nausea
narcosis

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to daphnia and other aquatic invertebrates	semi-static test EC50 - Daphnia magna (Water flea) - 0.6 mg/l - 48 h (OECD Test Guideline 202) Remarks: (in analogy to similar products)
Toxicity to algae	static test ErC50 - Pseudokirchneriella subcapitata (green algae) - 0.42 mg/l - 72 h (OECD Test Guideline 201) Remarks: (in analogy to similar products)
	static test NOEC - Pseudokirchneriella subcapitata (green algae) - 0.26 mg/l - 72 h (OECD Test Guideline 201) Remarks: (in analogy to similar products)

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12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties
No data available

12.7 Other adverse effects
Discharge into the environment must be avoided.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)
UN number: 2709 Class: 3 Packing group: III
Proper shipping name: Butyl benzenes
Reportable Quantity (RQ):
Marine pollutant: yes Poison Inhalation Hazard: No

IMDG
UN number: 2709 Class: 3 Packing group: III EMS-No: F-E, S-D
Proper shipping name: BUTYLBENZENES
Marine pollutant : yes
Marine pollutant : yes

IATA
UN number: 2709 Class: 3 Packing group: III
Proper shipping name: Butylbenzenes

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SECTION 15: Regulatory information

SARA 302 Components
This material does not contain any components with a section 302 EHS TPQ.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
sec-Butylbenzene	135-98-8	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
sec-Butylbenzene	135-98-8	1993-04-24

SECTION 16: Other information

Further information
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact misbranding@sial.com.

Version: 6.7 Revision Date: 10/27/2023 Print Date: 07/13/2024

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SAFETY DATA SHEET

Revision Date 10-Feb-2015 **Revision Number** 1

1. Identification

Product Name **Selenium**

Cat No. : **AC419270000; AC419271000; AC419275000**

Synonyms None

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Entity / Business Name
Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute oral toxicity	Category 3
Acute Inhalation Toxicity - Dusts and Mists	Category 3
Specific target organ toxicity - (repeated exposure)	Category 2

Label Elements

Signal Word
Danger

Hazard Statements
Toxic if swallowed
Toxic if inhaled
May cause damage to organs through prolonged or repeated exposure

Precautionary Statements
Prevention

Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
Do not breathe dust/fume/gas/mist/vapors/spray

Response

Get medical attention/advice if you feel unwell

Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician

Ingestion

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
Rinse mouth

Storage

Store locked up
Store in a well-ventilated place. Keep container tightly closed

Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

May cause long lasting harmful effects to aquatic life

3. Composition / information on ingredients

Component	CAS-No	Weight %
Selenium	7782-49-2	> 99.5

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Skin Contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.

Inhalation Remove from exposure, lie down. Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Immediate medical attention is required.

Ingestion Do not induce vomiting. Never give anything by mouth to an unconscious person. Drink plenty of water. Call a physician immediately. If possible drink milk afterwards.

Most important symptoms/effects No information available.
Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray. Carbon dioxide (CO_2). Dry chemical. chemical foam.

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature No information available
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical

Vapors may form explosive mixtures with air.

Hazardous Combustion Products
None known
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
3	0	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment.
Environmental Precautions See Section 12 for additional ecological information. Avoid release to the environment. Collect spillage.

Methods for Containment and Clean Up Sweep up or vacuum up spillage and collect in suitable container for disposal.

7. Handling and storage

Handling Avoid contact with skin and eyes. Do not breathe dust. Do not breathe vapors or spray mist. Use only in area provided with appropriate exhaust ventilation.

Storage Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Keep under nitrogen.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Selenium	TWA: 0.2 mg/m³	(Vacated) TWA: 0.2 mg/m³	IDLH: 1 mg/m³ TWA: 0.2 mg/m³

Component	Quebec	Mexico OEL (TWA)	Ontario TWAEV
Selenium	TWA: 0.2 mg/m³	TWA: 0.2 mg/m³	TWA: 0.2 mg/m³

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection A NIOSH/MSHA approved air purifying dust or mist respirator or European Standard EN 149.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Powder Solid
Appearance	Grey
Odor	No information available
Odor Threshold	No information available
pH	No information available
Melting Point/Range	217 - 222 °C / 422.6 - 431.6 °F
Boiling Point/Range	685 °C / 1265 °F
Flash Point	No information available
Evaporation Rate	No information available
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	1 mmHg @ 345 °C
Vapor Density	No information available
Relative Density	4.810
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	Se
Molecular Weight	78.96

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products.

Incompatible Materials Acids, Strong oxidizing agents, Fluorine, oxygen, Metals

Hazardous Decomposition Products None under normal use conditions

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information No acute toxicity information is available for this product

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Selenium	6700 mg/kg (Rat)	Not listed	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Selenium	7782-49-2	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available
Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity
Do not empty into drains.

Persistence and Degradability No information available
Bioaccumulation/ Accumulation No information available.

Mobility No information available.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT
- **UN-No** UN3283
- **Hazard Class** 6.1
- **Packing Group** III

TDG
- **UN-No** UN3283
- **Hazard Class** 6.1
- **Packing Group** III

IATA
- **UN-No** 3283
- **Proper Shipping Name** SELENIUM COMPOUND, SOLID, N.O.S.
- **Hazard Class** 6.1
- **Packing Group** III

IMDG/IMO
- **UN-No** 3283
- **Proper Shipping Name** SELENIUM COMPOUND, SOLID, N.O.S.
- **Hazard Class** 6.1
- **Packing Group** III

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Selenium	X	X	-	231-957-4	-		X	-	X	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Selenium	7782-49-2	> 99.5	1.0

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Selenium	-	-	X	X

Clean Air Act Not applicable

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Selenium	X		-

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Selenium	100 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Selenium	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ):	N
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class D1A Very toxic materials
D2B Toxic materials

16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Revision Date 10-Feb-2015
Print Date 10-Feb-2015
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer
The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS

SAFETY DATA SHEET

Version 4.6
Revision Date 12/02/2015
Print Date 02/09/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Silver

Product Number : 327093
Brand : Aldrich

CAS-No. : 7440-22-4

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Not a hazardous substance or mixture.

2.2 GHS Label elements, including precautionary statements

Not a hazardous substance or mixture.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula : Ag
Molecular weight : 107.87 g/mol
CAS-No. : 7440-22-4
EC-No. : 231-131-3

Hazardous components

Component	Classification	Concentration
Silver		
		<= 100 %

4. FIRST AID MEASURES

4.1 Description of first aid measures

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration.

In case of skin contact
Wash off with soap and plenty of water.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Silver/silver oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Avoid dust formation. Avoid breathing vapours, mist or gas.
For personal protection see section 8.

6.2 Environmental precautions
No special environmental precautions required.

6.3 Methods and materials for containment and cleaning up
Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

Air sensitive. Store under inert gas. Keep in a dry place.
Storage class (TRGS 510): Non Combustible Solids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Silver	7440-22-4	TWA	0.010000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	0.010000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	0.100000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Argyria		
		TWA	0.010000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	0.010000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	0.010000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	0.100000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Argyria		
		TWA	0.010000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	0.1 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Argyria		
		TWA	0.01 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants

8.2 Exposure controls

Appropriate engineering controls
General industrial hygiene practice.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
No special environmental precautions required.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: powder
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 960 °C (1,760 °F) - lit.
f)	Initial boiling point and boiling range	2,212 °C (4,014 °F) - lit.
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	10.49 g/cm3
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Oxygen, Strong acids and strong bases

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - male - > 5,000 mg/kg

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

Carcinogenicity - Rat - Unreported
Tumorigenic:Tumors at site or application.

Carcinogenicity classification not possible from current data.

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

May cause argyria (a slate-gray or bluish discoloration of the skin and deep tissues due to the deposit of insoluble albuminate of silver).

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substances, solid, n.o.s. (Silver)
Reportable Quantity (RQ): 1 lbs

Poison Inhalation Hazard: No

IMDG
Not dangerous goods

IATA
Not dangerous goods

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Silver	7440-22-4	1993-04-24

SARA 311/312 Hazards
No SARA Hazards

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Silver	7440-22-4	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date

Silver	7440-22-4	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Silver	7440-22-4	1993-04-24

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

HMIS Rating

Health hazard:	0
Chronic Health Hazard:	
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	0
Fire Hazard:	0
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.6 Revision Date: 12/02/2015 Print Date: 02/09/2016

Fisher Scientific

Part of Thermo Fisher Scientific

SAFETY DATA SHEET

Revision Date 10-Feb-2015 **Revision Number** 1

1. Identification

Product Name **2-(2,4,5-Trichlorophenoxy)propionic acid**

Cat No. : **AC171700000; AC171700050**

Synonyms Silvex

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Entity / Business Name
Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute oral toxicity	Category 4
Skin Corrosion/irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Carcinogenicity	Category 2

Label Elements

Signal Word
Warning

Hazard Statements
Harmful if swallowed
Causes skin irritation
Causes serious eye irritation
Suspected of causing cancer

Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Wear eye/face protection
Response
IF exposed or concerned: Get medical attention/advice
Skin
IF ON SKIN: Wash with plenty of soap and water
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash before reuse
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
Ingestion
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth
Storage
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Very toxic to aquatic life with long lasting effects

3. Composition / information on ingredients

Component	CAS-No	Weight %
Silvex (2,4,5-TP)	93-72-1	97

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

Skin Contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Obtain medical attention.

Inhalation Remove from exposure, lie down. Move to fresh air. Obtain medical attention.

Ingestion Clean mouth with water. Get medical attention.

Most important symptoms/effects No information available.
Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray. Carbon dioxide (CO_2). Dry chemical. chemical foam.

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature No information available
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
Hydrogen chloride gas Carbon monoxide (CO) Carbon dioxide (CO_2)
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	0	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment.
Environmental Precautions See Section 12 for additional ecological information. Avoid release to the environment. Collect spillage.

Methods for Containment and Clean Up Avoid dust formation. Sweep up or vacuum up spillage and collect in suitable container for disposal. Do not let this chemical enter the environment.

7. Handling and storage

Handling Avoid contact with skin and eyes. Do not breathe dust. Do not breathe vapors or spray mist. Do not ingest.

Storage Keep in a dry, cool and well-ventilated place. Keep container tightly closed.

8. Exposure controls / personal protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Powder Solid
Appearance	Beige
Odor	Slight
Odor Threshold	No information available
pH	No information available
Melting Point/Range	177 - 181 °C / 350.6 - 357.8 °F
Boiling Point/Range	No information available
Flash Point	No information available
Evaporation Rate	No information available
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	No information available
Relative Density	1.209
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C9 H7 Cl3 O3
Molecular Weight	269.51

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products Hydrogen chloride gas, Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization No information available.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information No acute toxicity information is available for this product

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Silvex (2,4,5-TP)	650 mg/kg (Rat)	3200 mg/kg (Rabbit)	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Silvex (2,4,5-TP)	93-72-1	Group 2B	Not listed	Not listed	X	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available
Endocrine Disruptor Information No information available

Other Adverse Effects See actual entry in RTECS for complete information.

12. Ecological information

Ecotoxicity
Do not empty into drains.

Persistence and Degradability No information available
Bioaccumulation/ Accumulation No information available.

Mobility No information available.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT Not regulated
TDG Not regulated
IATA
- **UN-No** 3077
- **Proper Shipping Name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.*
- **Hazard Class** 9
- **Packing Group** III

IMDG/IMO
- **UN-No** 3077
- **Proper Shipping Name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
- **Hazard Class** 9
- **Packing Group** III

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Silvex (2,4,5-TP)	-	-	-	202-271-2	-		X	X	-	-	-

Legend:
X - Listed

E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313 Not applicable

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Silvex (2,4,5-TP)	X	100 lb	-	-

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Silvex (2,4,5-TP)	100 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Silvex (2,4,5-TP)	X	X	X	X	-

U.S. Department of Transportation

Reportable Quantity (RQ):	N
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class D1B Toxic materials
D2B Toxic materials

16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Revision Date 10-Feb-2015
Print Date 10-Feb-2015
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS

SAFETY DATA SHEET

Version 6.15
Revision Date 09/07/2024
Print Date 09/08/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : *tert*-Butyl methyl ether

Product Number : 306975
Brand : Sigma-Aldrich
Index-No. : 603-181-00-X
CAS-No. : 1634-04-4

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 2), H225
Skin irritation (Category 2), H315

For the full text of the H-Statements mentioned in this Section, see Section 16.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal Word Danger

Hazard Statements

H225	Highly flammable liquid and vapor.
H315	Causes skin irritation.

Precautionary Statements

P210	Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P264	Wash skin thoroughly after handling.
P280	Wear protective gloves/ eye protection/ face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P235	Store in a well-ventilated place. Keep cool.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms	:	MTBE Methyl tert-butyl ether
Formula	:	$C_5H_{12}O$
Molecular weight	:	88.15 g/mol
CAS-No.	:	1634-04-4
EC-No.	:	216-653-1
Index-No.	:	603-181-00-X

Component	Classification	Concentration
tert-butyl methyl ether		
	Flam. Liq. 2; Skin Irrit. 2; H225, H315	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

In case of eye contact
After eye contact: rinse out with plenty of water. Remove contact lenses.

If swallowed
After swallowing: caution if victim vomits. Risk of aspiration! Keep airways free. Pulmonary failure possible after aspiration of vomit. Call a physician immediately.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Carbon dioxide (CO2) Foam Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Combustible.
Pay attention to flashback.
Vapors are heavier than air and may spread along floors.
Development of hazardous combustion gases or vapours possible in the event of fire.
Forms explosive mixtures with air at ambient temperatures.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition.
Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb®).
Dispose of properly. Clean up affected area.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.

Storage class
Storage class (TRGS 510): 3: Flammable liquids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Component	CAS-No.	Value	Control parameters	Basis
tert-butyl methyl ether	1634-04-4	TWA	50 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Confirmed animal carcinogen with unknown relevance to humans		
		PEL	40 ppm 144 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 120 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

Body Protection
Flame retardant antistatic protective clothing.

Respiratory protection
Recommended Filter type: Filter type AX
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when vapours/aerosols are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains. Risk of explosion.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid Color: colorless
b)	Odor	characteristic
c)	Odor Threshold	0.053 ppm
d)	pH	No data available
e)	Melting point/freezing point	Melting point: -108.6 °C (-163.5 °F) at 1,013 hPa
f)	Initial boiling point and boiling range	55 - 56 °C 131 - 133 °F - lit.
g)	Flash point	-28 °C (-18 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 8.5 %(V) Lower explosion limit: 1.6 %(V)
k)	Vapor pressure	330 hPa at 25 °C (77 °F) - OECD Test Guideline 104
l)	Vapor density	No data available
m)	Density	0.74 g/cm3 at 25 °C (77 °F) - lit.
	Relative density	0.7420 °C
n)	Water solubility	42 g/l at 20 °C (68 °F) - OECD Test Guideline 105
o)	Partition coefficient: n-octanol/water	log Pow: 1.06 at 20 °C (68 °F) - OECD Test Guideline 107 - Bioaccumulation is not expected.
p)	Autoignition temperature	460 °C (860 °F) at 1013.0 hPa - DIN 51794
q)	Decomposition temperature	Distillable in an undecomposed state at normal pressure.
r)	Viscosity	0.409 mm2/s at 40 °C (104 °F) - OECD Test Guideline 114 - 0.464 mm2/s at 20 °C (68 °F) - OECD Test Guideline 114 -
s)	Explosive properties	No data available
t)	Oxidizing properties	none

9.2 Other safety information

Surface tension	72.5 mN/m at 1.07g/l at 21.5 °C (70.7 °F) - Surface tension

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SECTION 10: Stability and reactivity

10.1 Reactivity
Vapors may form explosive mixture with air.

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
Violent reactions possible with:
Oxidizing agents
Strong acids
halogens
Strong bases

10.4 Conditions to avoid
Heat, flames and sparks.
Warming.

10.5 Incompatible materials
rubber, various plastics

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - male and female - > 2,000 mg/kg
(OECD Test Guideline 401)
Symptoms: Nausea, Vomiting, Pulmonary failure possible after aspiration of vomit., Aspiration may cause pulmonary edema and pneumonitis.
LC50 Inhalation - Rat - male and female - 4 h - 85 mg/l - vapor

(OECD Test Guideline 403)
Symptoms: Possible damages:, mucosal irritations
LD50 Dermal - Rat - male and female - > 2,000 mg/kg
(OECD Test Guideline 402)

Skin corrosion/irritation
Skin - Rabbit
Result: Skin irritation - 4 h
(OECD Test Guideline 404)
Remarks: Drying-out effect resulting in rough and chapped skin.

Serious eye damage/eye irritation
Eyes - Rabbit
Result: No eye irritation

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(OECD Test Guideline 405)

Respiratory or skin sensitization
Maximization Test - Guinea pig
Result: negative
(OECD Test Guideline 406)

Germ cell mutagenicity
Test Type: In vitro mammalian cell gene mutation test
Test system: Chinese hamster lung cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative
Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
Test Type: Mutagenicity (mammal cell test): micronucleus.
Test system: mouse lymphoma cells
Metabolic activation: without metabolic activation
Method: OECD Test Guideline 473
Result: negative

Test Type: unscheduled DNA synthesis assay
Species: Mouse
Cell type: Liver cells
Application Route: inhalation (vapor)
Method: OECD Test Guideline 486
Result: negative

Test Type: Micronucleus test
Species: Mouse
Cell type: Bone marrow
Application Route: inhalation (vapor)
Method: US-EPA
Result: negative

Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Species: Rat
Cell type: Bone marrow
Application Route: inhalation (vapor)
Method: US-EPA
Result: negative

Test Type: Transgenic rodent somatic cell gene mutation assay
Species: Rat
Cell type: Bone marrow
Application Route: inhalation (vapor)
Method: OECD Test Guideline 488
Result: negative

Carcinogenicity

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IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

Repeated dose toxicity - Rat - male and female - Oral - 90 d - NOAEL (No observed adverse effect level) - 3,000 mg/kg
Remarks: Subchronic toxicity

RTECS: KN5250000
Nausea, Vomiting, Dizziness, Central nervous system depression, Aspiration or inhalation may cause chemical pneumonitis., MTBE (methyl-tert-butyl ether) is reported to metabolize to tert-butyl alcohol and formaldehyde by microsomal demethylation, MTBE (methyl-tert-butyl ether) should be considered a "potential human carcinogen" due to an increase in leydig interstitial cell tumors of testes in male rats and an increase in lymphomas, leukemias, and uterine sarcomas in female rats., In another unpublished study MTBE was shown to be carcinogenic due to "increased incidence of a rare type of kidney tumor" in male rats and an "increase in the incidence of hepatocellular adenomas" in female mice.
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Systemic effects:

After absorption of large quantities:

somnolence
Dizziness
agitation, spasms
CNS disorders
narcosis
Unconsciousness

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

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SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	semi-static test LC50 - Menidia beryllina - 574 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	flow-through test EC50 - Americamysis bahia (Mysid) - 187 mg/l - 96 h (US-EPA OPPTS 850.1035)
Toxicity to algae	static test IC50 - Pseudokirchneriella subcapitata (green algae) - 491 mg/l - 96 h
Toxicity to bacteria	static test EC10 - Pseudomonas putida - 710 mg/l - 18 h Remarks: (ECHA)
Toxicity to fish(Chronic toxicity)	flow-through test NOEC - Pimephales promelas (fathead minnow) - 299 mg/l - 31 d Remarks: (ECHA)
	flow-through test NOEC - Pimephales promelas (fathead minnow) - 450 mg/l - 31 d Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity)	flow-through test NOEC - Daphnia magna (Water flea) - 51 mg/l - 21 d (OPPTS 850.1300)

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 28 d Result: 0 % - Not readily biodegradable. (OECD Test Guideline 301D)

12.3 Bioaccumulative potential

Bioaccumulation	Cyprinus carpio (Carp) - 28 d at 25 °C(tert-butyl methyl ether) Bioconcentration factor (BCF): 1.5

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

No data available

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SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)
UN number: 2398 Class: 3 Packing group: II
Proper shipping name: Methyl tert-butyl ether
Reportable Quantity (RQ): 1000 lbs
Poison Inhalation Hazard: No

IMDG
UN number: 2398 Class: 3 Packing group: II EMS-No: F-E, S-D
Proper shipping name: METHYL tert-BUTYL ETHER

IATA
UN number: 2398 Class: 3 Packing group: II
Proper shipping name: Methyl tert-butyl ether

SECTION 15: Regulatory information

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
tert-butyl methyl ether	1634-04-4	1000	1000

SARA 304 Extremely Hazardous Substances Reportable Quantity
This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity
This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Fire Hazard
Acute Health Hazard
Chronic Health Hazard

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

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tert-butyl methyl ether	1634-04-4	>= 90 - <= 100 %

US State Regulations

Massachusetts Right To Know

tert-butyl methyl ether 1634-04-4

Pennsylvania Right To Know

tert-butyl methyl ether 1634-04-4

Maine Chemicals of High Concern

tert-butyl methyl ether 1634-04-4

Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

The ingredients of this product are reported in the following inventories:

TSCA : All substances listed as active on the TSCA inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16: Other information

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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Version: 6.15 Revision Date: 09/07/2024 Print Date: 09/08/2024

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SAFETY DATA SHEET

Version 8.10
Revision Date 09/06/2024
Print Date 09/07/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Tetrachloroethylene

Product Number : 371696
Brand : Sigma-Aldrich
Index-No. : 602-028-00-4
CAS-No. : 127-18-4

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Skin sensitization (Category 1), H317

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Carcinogenicity (Category 2), H351
Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336
Short-term (acute) aquatic hazard (Category 2), H401
Long-term (chronic) aquatic hazard (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal Word: Warning

Hazard Statements

H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.
H351	Suspected of causing cancer.
H411	Toxic to aquatic life with long lasting effects.

Precautionary Statements

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P261	Avoid breathing mist or vapors.
P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing must not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P333 + P313	If skin irritation or rash occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

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SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms	:	Perchloroethylene PCE
Formula	:	C_2Cl_4
Molecular weight	:	165.83 g/mol
CAS-No.	:	127-18-4
EC-No.	:	204-825-9
Index-No.	:	602-028-00-4

Component	Classification	Concentration
Tetrachlorethylene		
	Skin Irrit. 2; Eye Irrit. 2A; Skin Sens. 1; Carc. 2; STOT SE 3; Aquatic Acute 2; Aquatic Chronic 2; H315, H319, H317, H351, H336, H401, H411 Concentration limits: >= 20 %: STOT SE 3, H336;	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

In case of eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

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4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Hydrogen chloride gas
Combustible.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

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Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Storage class
Storage class (TRGS 510): 6.1C: Combustible, acute toxic Cat.3 / toxic compounds or compounds which causing chronic effects

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Tetrachlorethylene	127-18-4	TWA	25 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Confirmed animal carcinogen with unknown relevance to humans		
		STEL	100 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Confirmed animal carcinogen with unknown relevance to humans		
		Potential Occupational Carcinogen		

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		TWA	100 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		CEIL	200 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Peak	300 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		PEL	25 ppm 170 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		STEL	100 ppm 685 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		C	300 ppm	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Tetrachlorethylene	127-18-4	Tetrachloroethylene	3parts per million	In end-exhaled air	ACGIH - Biological Exposure Indices (BEI)
	Remarks	Prior to shift (16 hours after exposure ceases)			
		Tetrachloroethylene	0.5 mg/l	In blood	ACGIH - Biological Exposure Indices (BEI)
		Prior to shift (16 hours after exposure ceases)			

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Full contact
Material: Viton®
Minimum layer thickness: 0.7 mm

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Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 240 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

Body Protection
protective clothing

Respiratory protection
Recommended Filter type: Filter A (acc. to DIN 3181) for vapours of organic compounds
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when vapours/aerosols are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid, clear Color: colorless
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/ range: -22 °C (-8 °F) - lit.
f)	Initial boiling point and boiling range	121 °C 250 °F - lit.
g)	Flash point	()No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower	No data available

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	flammability or explosive limits	
k)	Vapor pressure	25.3 hPa at 25.0 °C (77.0 °F) 17.3 hPa at 20.0 °C(68.0 °F)
l)	Vapor density	No data available
m)	Density	1.623 g/cm3 at 25 °C (77 °F) - lit.
	Relative density	No data available
n)	Water solubility	0.15 g/l at 25 °C (77 °F)
o)	Partition coefficient: n-octanol/water	log Pow: 2.53 at 23 °C (73 °F) - Bioaccumulation is not expected.
p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

Surface tension	32.1 mN/m at 20 °C (68 °F)

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
Risk of explosion with:
Alkali metals
Aluminum
sodium amide
Barium
nitrogen dioxide
Oxygen
with
alkali hydroxides
Exothermic reaction with:
strong alkalis
Alkaline earth metals
strong alkalis
Light metals
Powdered metals

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Oxidizing agents
Strong acids
Strong bases
nitrous gases
Risk of ignition or formation of inflammable gases or vapours with:
zinc oxide
with
Aluminum

10.4 Conditions to avoid
no information available

10.5 Incompatible materials
various plastics

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - male and female - 3,420 mg/kg
(OECD Test Guideline 401)
Remarks: (ECHA)
Inhalation: No data available
Dermal: No data available
No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Skin irritation - 4 h
(OECD Test Guideline 404)
Remarks: (ECHA)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Mild eye irritation - 24 h
(Draize Test)
Remarks: (RTECS)

Respiratory or skin sensitization
Local lymph node assay (LLNA) - Mouse
Result: May cause sensitization by skin contact.
(OECD Test Guideline 429)
Remarks: (ECHA)

Germ cell mutagenicity
Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473

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Result: negative
Remarks: (ECHA)
Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: without metabolic activation
Method: OECD Test Guideline 471
Result: negative
Remarks: (ECHA)

Test Type: Micronucleus test
Species: Mouse

Application Route: Intraperitoneal
Method: OECD Test Guideline 474
Result: negative
Remarks: (ECHA)

Carcinogenicity
Suspected of causing cancer.

IARC:	2A - Group 2A: Probably carcinogenic to humans (Tetrachlorethylene)
NTP:	RAHC - Reasonably anticipated to be a human carcinogen (Tetrachlorethylene)
OSHA:	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
May cause drowsiness or dizziness.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

Repeated dose toxicity - Mouse - female - Oral - LOAEL (Lowest observed adverse effect level) - 390 mg/kg

RTECS: KX3850000
narcosis, Liver injury may occur., Kidney injury may occur.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	flow-through test LC50 - Oncorhynchus mykiss (rainbow trout) - 5 mg/l - 96 h Remarks: (ECHA)

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Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 7.50 mg/l - 48 h
Toxicity to algae	ErC50 - Chlamydomonas reinhardtii (green algae) - 3.64 mg/l - 72 h Remarks: (ECHA)
Toxicity to fish(Chronic toxicity)	flow-through test NOEC - Jordanella floridae - 1.99 mg/l - 10 d Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity)	semi-static test NOEC - Daphnia magna (Water flea) - 0.51 mg/l - 28 d Remarks: (ECHA)

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 28 d Result: 11 % - Not readily biodegradable. (OECD Test Guideline 301C)

12.3 Bioaccumulative potential

Bioaccumulation	Lepomis macrochirus (Bluegill) - 21 d - 0.00343 mg/l(Tetrachlorethylene) Bioconcentration factor (BCF): 49

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

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SECTION 14: Transport information

DOT (US)

UN number: 1897 Class: 6.1 Packing group: III
Proper shipping name: Tetrachloroethylene
Reportable Quantity (RQ): 100 lbs
Reportable Quantity (RQ): 100 lbs
Reportable Quantity (RQ): 10 lbs
Reportable Quantity (RQ): 10 lbs
Marine pollutant: yes Poison Inhalation Hazard: No

IMDG

UN number: 1897 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: TETRACHLOROETHYLENE
Marine pollutant : yes
Marine pollutant : yes

IATA

UN number: 1897 Class: 6.1 Packing group: III
Proper shipping name: Tetrachloroethylene

SECTION 15: Regulatory information

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Tetrachlorethylene	127-18-4	100	100
Tetrachlorethylene	127-18-4	100	100 (D039)
Tetrachlorethylene	127-18-4	10	10 (F001)
Tetrachlorethylene	127-18-4	10	10 (F002)

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Acute Health Hazard
Chronic Health Hazard

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

Tetrachlorethylene 127-18-4 >= 90 - <= 100 %

US State Regulations

Massachusetts Right To Know

Tetrachlorethylene 127-18-4

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Pennsylvania Right To Know

Tetrachlorethylene 127-18-4

Maine Chemicals of High Concern

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Tetrachlorethylene 127-18-4

Washington Chemicals of High Concern

Tetrachlorethylene 127-18-4

California Prop. 65

WARNING: This product can expose you to chemicals including Tetrachlorethylene, which is/are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

The ingredients of this product are reported in the following inventories:

TSCA : All substances listed as active on the TSCA inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16: Other information

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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Version: 8.10 Revision Date: 09/06/2024 Print Date: 09/07/2024

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Safety Data Sheets (SDS)

SECTION 1-IDENTIFICATION

Product name: Toluene

Other names:-

Proper shipping name: Toluene

Recommended use of the chemical and restrictions on use:
The major use of toluene is as a mixture added to gasoline to improve octane ratings. Used as a solvent for paint, resins, lacquers inks & adhesives. Component of solvent blends and thinners. Used in the manufacture of chemicals, dyes, explosives, benzoic acid. Some grades of toluene may contain traces of xylene and benzene.
The use of a quantity of material in an unventilated or confined space may result in increased exposure and an irritating atmosphere developing. Before starting consider control of exposure by mechanical ventilation.
WARNING: Intentional misuse by concentrating/inhaling contents may be lethal.

Manufacturer/Supplier Name: Taiwan SM Corp., Kaohsiung plant
Address: NO.7, Industrial 1st Rd, Lin-Yuan Kaohsiung County 83203, Taiwan, R.O.C.
Phone No.: 886-7-6414511

Emergency phone No./Fax No.: 886-7-6414511 Ext. 221 (on duty), 886-7-6414517 (off duty)/886-7-6423828

SECTION 2-HAZARDS IDENTIFICATION

GHS Classification:

Flammable Liquid Category 2
Acute Toxicity (Oral) Category 4
Skin Corrosion/ Irritation Category 2
Serious Eye Damage/ Eye Irritation Category 2
Specific Target Organ Toxicity Repeated Exposure Category 2
Hazardous To The Aquatic Environment (Acute) Category 3
Aspiration Hazard Category 1

GHS Label elements:

Hazard symbols

Signal word

Danger

Hazard statements

Highly flammable liquid and vapor
Harmful if inhaled
Causes skin irritation
Causes serious eye irritation
May cause damage to organs through prolonged or repeated exposure.
May cause long lasting harmful effects to aquatic life.
May be fatal if swallowed and enters airways.

Precautionary statements

Use only in well ventilated area.
Control of exposure by mechanical ventilation in an unventilated or confined space.
Avoid breathing vapors and contact with skin and eyes.
Wear breathing apparatus/protective gloves/face protection.
Store in well-ventilated place.
Disposal must be in accordance with applicable federal, state, or local regulations.

Other hazards: —

SECTION 3-COMPOSITION/INFORMATION ON INGREDIENTS

CAS No.	Chemical Name	wt% by weight	EINECS No.
00108-88-3	Toluene	97.0 min.	203-625-9
Synonyms	**Methylbenzol; Methylbenzene; Toluol; Phenylmethane**		

SECTION 4-FIRST AID MEASURES

Description of necessary first aid measures

Eye:

1. Flush immediately with warm water for at least 20 minutes.
2. Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
3. If pain persists or recurs seek medical attention.
4. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

Skin:

1. Removing contaminated clothing, shoes, and leathery wearings, cleaning procedure is available before reused or waste treatment.
2. Washing affected area thoroughly with soap and water for at least 20 minutes.
3. Call a Physician if irritation develops or persists.

Ingestion:

1. If spontaneous vomiting appears imminent or occurs, hold patient's head down, lower than their hips to help avoid possible aspiration of vomits.
2. If victim is conscious and alert, give 2～4 cupfuls of milk/water to dilute the substance in stomach.
3. Never give anything by mouth to an unconscious person.
4. Don't induce vomiting unless directed to do so by medical person.
5. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
6. Then seek for medical attention.

Inhalation:

1. Remove from further exposure and flush thoroughly with air.
2. Lay patient down. Keep warm and rested.
3. Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
4. If respiratory irritation, seek immediate medical assistance and call a physician.

Most important symptoms/effects, acute and delayed

Headache, fatigue, drowsiness, insomnia, anorexia and pain in limbs, nervousness, impairment of memory.

Indication of immediate medical attention and special treatment needed, if necessary

For acute or short term repeated exposures to toluene:

Inhalation:

1. Inhalation overexposure can produce toxic effects. Monitor for respiratory distress.
2. If cough or difficulty in breathing develops, evaluate for upper respiratory tract inflammation, bronchitis, and pneumonitis. Administer supplemental oxygen with assisted ventilation, as required.
3. This material (or a component) sensitizes the heart to the effects of sympathomimetic amines. Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias in individuals exposed to this material.
4. Administration of sympathomimetic drugs should be avoided.

Ingestion:

1. If ingested, this material presents a significant aspiration and chemical pneumonitis hazard.
2. Induction of emesis is not recommended.
3. Consider activated charcoal and/or gastric lavage.
4. If patient is obtunded, protect the airway by cuffed endotracheal intubation or by placement of the body in a Trendelenburg and left lateral decubitus position.

SECTION 5-FIRE FIGHTING MEASURES

Extinguishing media

Foam、CO_2、Dry chemical、Water fog.

Specific hazards arising from the chemical

1. Liquid and vapor are highly flammable.
2. Severe fire hazard when exposed to heat, flame and/or oxidizers.
3. Vapor may travel a considerable distance to source of ignition.
4. Heating may cause expansion or decomposition leading to violent rupture of containers.
5. On combustion, may emit toxic fumes of carbon monoxide (CO).

Special protective equipment and precautions for fire-fighters

1. Firefighters must use full bunker gear including NIOSH-approved positive pressure self-contained breathing apparatus to protect against potential hazardous combustion or decomposition products and oxygen deficiencies.
2. Evacuate area and fight the fire from a maximum distance or use unmanned hose holders or monitor nozzles.
3. Cover pooling liquid with foam.
4. Containers can build pressure if exposed to radiant heat; cool adjacent containers with flooding quantities of water until well after the fire is out.
5. Withdraw immediately from the area if there is a rising sound from a venting safety device or discoloration of vessels, tanks, or pipelines.
6. Be aware that burning liquid will float on water.
7. Notify appropriate authorities of potential fire and explosion hazard if liquid enter sewers or waterways

SECTION 6-ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedure

1. Personal protective equipment (specified in Section 8)
   Eyes : Chemical safety goggles are recommended, and a face shield is added when needed.
   Skin : Wear appropriate protective gloves to avoid skin contact.
   Clothing: When direct contact is likely, use rubberized clothings, apron and boots.
   Respiratory : When limits are exceeded, wear a respirator approved by NIOSH/MSHA for protection against organic dust, mists and vapors.
2. Remove all sources of ignition. No smoking, naked lights or ignition sources. Ventilate area of leak or spill.
3. Keep unnecessary and unprotected personnel from entering. Evacuate personnel from the danger area. Consult with an expert about the emergency procedures.

Environmental precautions

1. Prevent spillage from entering drains, surface, and groundwater.
2. Contain and recover liquid when possible. Use non-sparking tools and equipment.
3. Collect liquid in an appropriate container or absorb with an inert material (e.g. vermiculite, dry sand, earth), and place in a chemical waste container.
4. Report the accidental spill/release to Local/State government.

Methods and materials for containment and cleaning up

Minor spill:

1. Remove all ignition sources.
2. Clean up all spills immediately.
3. Avoid breathing vapors and contact with skin and eyes.
4. Control personal contact by using protective equipment.
5. Contain and absorb small quantities with vermiculite or other absorbent material.
6. Wipe up.
7. Collect residues in a flammable waste container.

Major spill

1. Clear area of personnel and move upwind.
2. Alert emergency responders and tell them location and nature of hazard.
3. May be violently or explosively reactive.
4. Wear breathing apparatus plus protective gloves.
5. Prevent spillage from entering drains or water course.
6. No smoking, naked lights or ignition sources. Increase ventilation.
7. Stop leak if safe to do so.
8. Water spray or fog may be used to disperse/absorb vapor.
9. Contain spill with sand, earth or vermiculite.
10. Use only spark-free shovels and explosion proof equipment.
11. Collect recoverable product into labeled containers for recycling..
12. Absorb remaining product with sand, earth or vermiculite.
13. Collect solid residues and seal in labeled drums for disposal.
14. Wash area and prevent runoff into drains.
15. If contamination of drains or waterways occurs, advise emergency services.

SECTION 7-HANDLING AND STORAGE

Precautions for safe handling

1. Wash thoroughly after handling.
2. Use only in well ventilated area.
3. Ground and bond containers when transferring.
4. Use spark-free tools and explosion proof equipment.
5. Empty containers retain product residue (liquid/vapor), and can be dangerous.
6. Do not pressurize, cut, weld, braze, solder, drill, or expose empty containers to heat, sparks or open flames.

Conditions for safe storage, including any incompatibilities

1. Store in original containers in approved flame-proof area.
2. No smoking, naked lights, heat or ignition sources.
3. DO NOT store in pits, depressions, basements or areas where vapors may be trapped.
4. Keep containers securely sealed.
5. Store away from incompatible materials in a cool, dry well ventilated area.
6. Protect containers against physical damage and check regularly for leaks.
7. Keep containers tightly closed and store in a cool, dry, well-ventilated place, plainly labeled, and out of closed vehicles.
8. Ground all equipment containing this material.
9. Observe manufacturer's storing and handling recommendations.
10. Containers should be able to withstand pressures expected from warming and cooling in storage. This flammable liquid should be stored in a separate safety cabinet or room. A refrigerated room is preferable for materials with a flash point temperature lower than 70°F (21°C).

SECTION 8-EXPOSURE CONTROLS, PERSONAL PROTECTION

OSHA - Final PELs : 200 ppm TWA.
OSHA Ceiling : 300ppm.
ACGIH : 50 ppm, skin -potential forcutaneous absorption.
NIOSH : 100 ppm TWA; 375 mg/m^3 TWA; 500 ppm IDLH.
Taiwan TWA : 100 ppm (skin).
Taiwan STEL : 125 ppm (skin).
Taiwan Ceiling : -------.
Taiwan BEI : 1 mg/l (before on duty).

Engineering control

1. Process should be located at least 17 meter (50 feet) away from open flames and all high temperature operations likely to cause ignition of the styrene monomer vapor.
2. In venting styrene monomer vapors, consideration should be given to possible halogenation of the vapors by low concentrations of free chlorine and bromine with the resultant formation of lacrimations.
3. Process should be designed so that the operator is not exposed to direct contact with Toluene or the vapor. The technical problems of designing equipment, providing adequate ventilation and operating procedures which promise maximum security and economy, can best be handled by competent engineers.
4. It is essential for safety that equipment be used and maintained as recommended by the manufacturer.
5. Tanks used to store or process Toluene should be closed vessels vented to a safe point of discharge in the outside atmosphere away from operating stations, roadways, and at least 17 meter (50 feet) from possible sources of ignitions. All sparks, flames, heated surface, or other sources of ignition should be kept away from all vents. It is advisable, to provide suction on vessels when inspection or observation openings are made, to minimize or eliminate escape of vapors.

Personal protective equipment

Eye Protection:
Safety glasses equipped with side shields are recommended as minimum protection in industrial settings. Chemical goggles should be worn during transfer operations or when there is a likelihood of misting, splashing, or spraying of this material. A suitable emergency eye wash water and safety shower should be located near the work station.

Skin protection:
Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Clothing:
Avoid skin contact. Wear long-sleeved fire-retardant garments (e.g., Nomex®) while working with flammable and combustible liquids. Additional chemical-resistant protective gear may be required if splashing or spraying conditions exist. This may include an apron, boots and additional facial protection. If product comes in contact with clothing, immediately remove soaked clothing and shower. Promptly remove and discard contaminated leather goods.

Respirators:
For known vapor concentrations above the occupational exposure guidelines (see below), use a NIOSH-approved organic vapor respirator if adequate protection is provided. Protection factors vary depending upon the type of respirator used. Respirators should be used in accordance with OSHA requirements (29 CFR 1910.134). For airborne vapor concentrations that exceed the recommended protection factors for organic vapor respirators, use a full-face, positive-pressure, supplied air respirator. Due to fire and explosion hazards, do not enter atmospheres containing concentrations greater than 10% of the lower flammable limit of this product.

SECTION 9-PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Transparent liquid	Upper/lower explosive limits : 1.2%～7.1%
Odour : pleasant aromatic petroleum odour	Vapor Pressure : 22 mmHg @20℃/68℉
Odour threshold : 0.16～37 ppm (detect) 1.9～69 ppm (recognition)	Vapor Density : 3.1 (air=1)
PH : Not available	Relative density : 0.86 (water=1)
Melting/Freezing Point : －95 ℃	Solubility in water : 54～58 mg/100 ml
Initial boiling point/boiling range : 110.6 ℃	Partition coefficient : 2.73 (n-octanol/water)
Flash point : 4.4 ℃ (closed cup)	Auto-ignition temperature : 480℃
Evaporation Rate : 2.24 (BuAc=1)	Decomposition temperature : Not available
Flammability (solid/gas) : Not available	Viscosity : 0.6 mPa.s max @20℃
Molecular Formula : $C_6H_5CH_3$	Molecular Weight : 92.056

SECTION 10-STABILITY AND REACTIVITY

Reactivity
Vapor is explosive when exposed to heat or flame

Chemical stability
Stable at room temperature in closed containers under normal storage and handling conditions.

Possibility of hazardous reaction
Has not been reported.

Condition to avoid
Product is highly flammable – Keep away from sources of ignition. Avoid the higher temperatures. Keep away from open fire, heating elements and heat radiating surface and prevent from forming of the vapours mixtures with air in explosion limits.

Incompatible materials
Heat, flame, strong oxidizers, nitric and sulfuric acids, chlorine, nitrogen tetraoxide; will attack some forms of plastics, rubber, coatings.

Hazardous decomposition products
Carbon monoxide, carbon dioxide, hydrocarbons.

SECTION 11-TOXICOLOGICAL INFORMATION

Routes of exposure
Eye, Skin, inhalation, Ingestion.

Symptoms (treatments as indicated in Section 4)
Eye: The liquid produces a high level of eye discomfort and is capable of causing pain and severe conjunctivitis. Corneal injury may develop, with possible permanent impairment of vision, if not promptly and adequately treated. There is evidence that material may produce eye irritation in some persons and produce eye damage 24 hours or more after instillation. Severe inflammation may be expected with pain. There may be damage to the cornea. Unless treatment is prompt and adequate there may be permanent loss of vision. Conjunctivitis can occur following repeated exposure.

Skin: Contact with the material may damage the health of the individual; systemic effects may result following absorption. The material may cause moderate inflammation of the skin either following direct contact or after a delay of some time. Repeated exposure can cause contact dermatitis which is characterized by redness, swelling and blistering. Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

Ingestion: Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual. Swallowing of the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis; serious consequences may result. (ICSC13733). Considered an unlikely route of entry in commercial/industrial environments. The liquid may produce gastrointestinal discomfort and may be harmful if swallowed. Ingestion may result in nausea, pain and vomiting. Vomit entering the lungs by aspiration may cause potentially lethal chemical pneumonitis.

Inhalation: Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual. There is some evidence to suggest that the material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage. Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by sleepiness, reduced alertness, loss of reflexes, lack of co-ordination, and vertigo. Inhalation of high concentrations of gas/vapour causes lung irritation with coughing and nausea, central nervous depression with headache and dizziness, slowing of reflexes, fatigue and inco-ordination. If exposure to highly concentrated solvent atmosphere is prolonged this may lead to narcosis, unconsciousness, even coma and possible death. The use of a quantity of material in an unventilated or confined space may result in increased exposure and an irritating atmosphere developing. Before starting consider control of exposure by mechanical ventilation.

Chronic exposure: There has been some concern that this material can cause cancer or mutations but there is not enough data to make an assessment. Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.

Toxicity
LD50: <870 mg/kg (rat, oral)
LC50: 6000 ppm/6h (rat, inhalation)

Chronic effect
Carcinogenicity:
ACGIH : A4-Not classifiable as a Human Carcinogen.
OSHA : Possible select carcinogen.
IARC : Group 3 carcinogen.

Epide miology: Not available.

Teratogenicity: Teratogenic effects have occurred in experimental animals.

Reproductive Effects: Adverse reproductive effects have occurred in experimental animals.

Neurotoxicity: Not available.

Mutagenicity: Not available.

SECTION 12-ECOLOGICAL INFORMATION

Ecotoxicity
LC_{50} (96 hr.) Fish: 7.3～22.8 mg/l
EC_{50} (48 hr.) Water flea: —
Biocencentration factor (BCF): 1.67～380

Persistence and degradability
1. The material are expected to form a slick on the surface of waters after release in calm sea conditions. This is expected to evaporate and enter the atmosphere where it will be degraded through reaction with hydroxyl radicals.
2. Some of the material will become associated with benthic sediments, and it is likely to be spread over a fairly wide area of sea floor. Marine sediments may be either aerobic or anaerobic. The material, in probability, is biodegradable, under aerobic conditions. Evidence also suggests that the hydrocarbons may be degradable under anaerobic conditions although such degradation in benthic sediments may be a relatively slow process.
3. Under aerobic conditions the material will degrade to water and carbon dioxide, while under aerobic processes it will produce water, methane, carbon dioxide and carbon dioxide.
4. Based on test results, as well as theoretical considerations, the potential for bioaccumulation may be high. Toxic effects are often observed in species such as blue mussel, daphnia, freshwater green algae, marine copepods and amphipods.

Half-life (Air): 10～104 hr
Half-life (Surface water): 96～528 hr
Half-life (Ground water): 168～672 hr
Half-life (Soil): 96～528 hr

Bioaccumulative potential
This material is not expected to significantly bioaccumulate.

Mobility in soil: —

Other adverse effects: —

SECTION 13-DISPOSAL CONSIDERATIONS

Residues and spilled material are hazardous waste due to ignitability. Disposal must be in accordance with applicable federal, state, or local regulations.
The container for this product can present explosion or fire hazards, even when emptied. To avoid risk of injury, do not cut, puncture, or weld on or near this container. Since the emptied containers retain product residue, follow label warnings even after container is emptied.

SECTION 14-TRANSPORTATION INFORMATION

US DOT	Shipping Name	Toluene	Hazard Labels	
	Hazard Class	3		
	UN Number	1294		
	Packing Group	II		
Sea(IMO/IMDG)	Shipping Name	Toluene	Hazard Labels	
	Hazard Class	3.2		
	UN Number	1294		
	Packing Group	II		
	IMDG Code Page	3285		
	MARPOL	Not a DOT "Marine Pollutant" per 49 CFR 171.8.		
Air(ICAO/IATA)	Shipping Name	Toluene	Hazard Labels	
	Hazard Class	3.2		
	Subsidiary Class	1294		
	Packing Group	II		
RID/ ADR	No information available.			
Canadian TDG	Shipping Name	Toluene	Hazard Labels	
	Hazard Class	3		
	UN Number	1294		
	Packing Group	II		
	Subsidiary Class	9.2		

SECTION 15-REGULATORY INFORMATION

US FEDERAL

TSCA

CAS# 108-88-3 is listed on the TSCA inventory.

Health & Safety Reporting List

CAS# 108-88-3: Effective Date: 10/4/82; Sunset Date: 10/4/92

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

SARA

Section 302 (RQ)

CAS# 108-88-3 : final RQ = 1000 pounds (454 kg)

Section 302 (TPQ)

None of the chemicals in this material have a TPQ.

SARA Codes

CAS# 108-88-3 : acute, flammable.

Section 313

This material contains Toluene (CAS# 108-88-3, 99% & 100%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 372.

Clean Air Act

CAS# 108-88-3 is listed as a hazardous air pollutant (HAP).

This material does not contain any Class 1 Ozone depletors.

This material does not contain any Class 2 Ozone depletors.

Clean Water Act

CAS# 108-88-3 is listed as a Hazardous Substance under the CWA.
CAS# 108-88-3 is listed as a Priority Pollutant under the Clean Water Act.
CAS# 108-88-3 is listed as a Toxic Pollutant under the Clean Water Act.

OSHA

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

Toluene can be found on the following state right to know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.

WARNING: This product contains Toluene, a chemical known to the state of California to cause birth defects or other reproductive harm.

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: XN F
Risk Phrases : R 10 Flammable.
R 20 Harmful by inhalation.
Safety Phrases : S 9 Keep container in a well-ventilated place.
S 16 Keep away from sources of ignition - No smoking.
S 25 Avoid contact with eyes.
S 29 Do not empty into drains.
S 33 Take precautionary measures against static discharges.

WGK (Water Danger/Protection)

CAS# 108-88-3: 2

United Kingdom Occupational Exposure Limits

CAS# 108-88-3: OES-United Kingdom, TWA 50 ppm TWA; 191 mg/m3 TWA.
CAS# 108-88-3: OES-United Kingdom, STEL 150 ppm STEL; 574 mg/m3 STEL.

CANADA

CAS#100-42-5 is listed on Canada's DSL/NDSL list.
This product has a WHMIS classification of B2, D2A (99%)/B3, D2A (100%).
CAS# 105-05-5 is not listed on Canada's Ingredient Disclosure List.

Exposure Limits

- CAS# 108-88-3: OEL-AUSTRALIA:TWA 100 ppm (375 mg/m3);STEL 150 ppm (560 mg/m3)
- OEL-BELGIUM:TWA 100 ppm (377 mg/m3);STEL 150 ppm (565 mg/m3)
- OEL-CZECHOSLOVAKIA:TWA 200 mg/m3;STEL 1000 mg/m3
- OEL-DENMARK:TWA 50 ppm (190 mg/m3);Skin
- OEL-FINLAND:TWA 100 ppm (375 mg/m3);STEL 150 ppm; Skin
- OEL-FRANCE:TWA 100 ppm (375 mg/m3);STEL 150 ppm (560 mg/m3)
- OEL-GERMANY:TWA 100 ppm (380 mg/m3)
- OEL-HUNGARY:TWA 100 mg/m3;STEL 300 mg/m3;Skin
- OEL-JAPAN:TWA 100 ppm (380 mg/m3)
- OEL-THE NETHERLANDS:TWA 100 ppm (375 mg/m3);Skin
- OEL-THE PHILIPPINES:TWA 100 ppm (375 mg/m3)
- OEL-POLAND:TWA 100 mg/m3
- OEL-RUSSIA:TWA 100 ppm; STEL 50 mg/m3
- OEL-SWEDEN:TWA 50 ppm (200 mg/m3);STEL 100 ppm (400 mg/m3);Skin
- OEL-SWITZERLAND:TWA 100 ppm (380 mg/m3);STEL 500 ppm
- OEL-THAILAND:TWA 200 ppm; STEL 300 ppm
- OEL-TURKEY:TWA 200 ppm (750 mg/m3)
- OEL-UNITED KINGDOM:TWA 100 ppm (375 mg/m3);STEL 150 ppm; Skin OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV

SECTION 16-OTHER INFORMATION

References and sources

1. CHEMINFO Data Bank, CCINFO CD, 2005-3
2. HAZARD TEXT Data Bank, TOMES PLUS CD, Vol.65, 2005
3. RETECS Data Bank, TOMES CPS CD, Vol.65, 2005
4. HSDB Data Bank, TOMES CPS CD, Vol.65, 2005
5. Hazardous Substance Data Bank, Environment Protection, Administration, Executive Yuan, ROC (Taiwan)
6. Chemwatch Data Bank, 2005-1
7. SDS, GHS in Taiwan, Council of Labor Affairs, Executive Yuan, ROC (Taiwan)

Version	Date	Remark
Version 1	06/01/1998	Original Version.
Version 2	04/20/2001	Updated 10 sections to 16 sections.
Version 3	08/01/2003	Updated “SECTION 9-PHYSICAL AND CHEMICAL PROPERTIES”.
Version 4	01/01/2006	Updated “SECTION 14-TRANSPORTATION INFORMATION”.
Version 5	08/05/2008	Updated each section by GHS SDS.
Prepared by	Safety & Environment Protection Section, Taiwan SM Corporation Kaohsiung Plant.	

SAFETY DATA SHEET

Version 6.8
Revision Date 09/07/2024
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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : PCB No 28

Product Number : 35601
Brand : Sigma-Aldrich
Index-No. : 602-039-00-4
CAS-No. : 7012-37-5

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Specific target organ toxicity - repeated exposure (Category 2), H373
Short-term (acute) aquatic hazard (Category 1), H400
Long-term (chronic) aquatic hazard (Category 1), H410

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For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal Word Warning

Hazard Statements

H373	May cause damage to organs through prolonged or repeated exposure.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary Statements

P260	Do not breathe dust.
P273	Avoid release to the environment.
P314	Get medical advice/ attention if you feel unwell.
P391	Collect spillage.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms : 2,4,4'-Trichlorobiphenyl
2,4,4'-PCB

Formula : $C_{12}H_7Cl_3$
Molecular weight : 257.54 g/mol
CAS-No. : 7012-37-5
EC-No. : 230-293-2
Index-No. : 602-039-00-4

Component	Classification	Concentration
2,4,4'-Trichlorobiphenyl		
	STOT RE 2; Aquatic Acute 1; Aquatic Chronic 1; H373, H400, H410 Concentration limits: >= 0.005 %: STOT RE 2, H373; >= 0.005 %: STOT RE 2, H373; M-Factor - Aquatic Acute: 10 - Aquatic Chronic: 10	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

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SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

In case of eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Hydrogen chloride gas
Combustible.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture.

Hygiene measures
Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Dry.

Storage class
Storage class (TRGS 510): 11: Combustible Solids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

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Component	CAS-No.	Value	Control parameters	Basis
2,4,4'-Trichlorobiphenyl	7012-37-5	TWA	0.001 mg/m3	USA. NIOSH Recommended Exposure Limits
	Remarks	Potential Occupational Carcinogen		

8.2 Exposure controls

Appropriate engineering controls
Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
Handle with impervious gloves.

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

Body Protection
protective clothing

Respiratory protection
Recommended Filter type: Filter type P2
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.
These measures have to be properly documented.
required when dusts are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains.

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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/ range: 56 °C (133 °F)
f)	Initial boiling point and boiling range	No data available
g)	Flash point	> 100.00 °C (> 212.00 °F)
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Density	No data available
	Relative density	No data available
n)	Water solubility	insoluble
o)	Partition coefficient: n-octanol/water	No data available
p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	none

9.2 Other safety information

No data available

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SECTION 10: Stability and reactivity

10.1 Reactivity
The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
Violent reactions possible with:
strong oxidising agents

10.4 Conditions to avoid
no information available

10.5 Incompatible materials
No data available

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Oral: No data available
Inhalation: No data available
Dermal: No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: 1 - Group 1: Carcinogenic to humans (2,4,4'-Trichlorobiphenyl)

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

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Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard
No data available

11.2 Additional Information

RTECS: DV8840000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - > 0.16 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - > 0.16 mg/l - 48 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties
No data available

12.7 Other adverse effects
No data available

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SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)
UN number: 3432 Class: 9 Packing group: II
Proper shipping name: Polychlorinated biphenyls, solid
Reportable Quantity (RQ):
Marine pollutant: yes Poison Inhalation Hazard: No

IMDG
UN number: 3432 Class: 9 Packing group: II EMS-No: F-A, S-A
Proper shipping name: POLYCHLORINATED BIPHENYLS, SOLID
Marine pollutant : yes
Marine pollutant : yes

IATA
UN number: 3432 Class: 9 Packing group: II
Proper shipping name: Polychlorinated biphenyls, solid

SECTION 15: Regulatory information

CERCLA Reportable Quantity
This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity
This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity
This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : No SARA Hazards

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

US State Regulations

Massachusetts Right To Know
No components are subject to the Massachusetts Right to Know Act.

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Pennsylvania Right To Know

2,4,4'-Trichlorobiphenyl 7012-37-5

Maine Chemicals of High Concern

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

California Prop. 65

WARNING: This product can expose you to chemicals including 2,4,4'-Trichlorobiphenyl, which is/are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

The ingredients of this product are reported in the following inventories:

TSCA : Product contains substance(s) not listed on TSCA inventory.

TSCA list

No substances are subject to a Significant New Use Rule.

The following substance(s) is/are subject to TSCA 12(b) export notification requirements:
2,4,4'-Trichlorobiphenyl 7012-37-5

SECTION 16: Other information

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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Version: 6.8 Revision Date: 09/07/2024 Print Date: 09/08/2024

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SAFETY DATA SHEET
Xylene

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Date issued 11.11.2013

1.1. Product identifier

Product name	Xylene
Chemical name	Xylene
Synonyms	Xylol, dimethyl benzene, xylenol
REACH Reg No.	01-2119488216-32-0000
CAS no.	1330-20-7
EC no.	215-535-7
Index no.	601-022-00-9
Article no.	13000000

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/preparation For the preparation of paints and as a solvent. General purpose cleaner.

1.3. Details of the supplier of the safety data sheet

Manufacturer

Company name	Fred Holmberg & Co AB
Office address	Geijersgatan 8
Postal address	Box 60056
Postcode	S-216 10
City	Limhamn
Country	Sweden
Tel	+46 (0)40 15 79 20
Fax	+46 (0)40 16 22 95
E-mail	info@holmberg.se
Website	http://www.holmberg.se/en/

1.4. Emergency telephone number

Emergency telephone 112 (Europe)

SECTION 2: Hazards identification

2.1. Classification of substance or mixture

Classification according to 67/548/EEC or 1999/45/EC	Xi; R38 Xn; R20/21 R10
Classification according to Regulation (EC) No 1272/2008 [CLP/GHS]	Flam. Liq. 3; H226; Acute tox. 4; H312; Skin Irrit. 2; H315; Acute tox. 4; H332;

2.2. Label elements

Hazard Pictograms (CLP)

Signal word	Danger
Hazard statements	H226 Flammable liquid and vapour. H312 Harmful in contact with skin. H315 Causes skin irritation. H332 Harmful if inhaled.
Precautionary statements	P210 Keep away from heat/sparks/open flames/hot surfaces. – No smoking. P233 Keep container tightly closed. P243 Take precautionary measures against static discharge. P280 Wear protective gloves/protective clothing/eye protection/face protection. P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. P303 + P361 + P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. P331 Do NOT induce vomiting. P403 + P235 Store in a well-ventilated place. Keep cool.

2.3. Other hazards

Other hazards	Not known.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Substance	Identification	Classification	Contents
Xylene	CAS no.: 1330-20-7 EC no.: 215-535-7 Index no.: 601-022-00-9	R10 Xn; R20/21 Xi; R38 Flam. Liq. 3; H226 Acute tox. 4; H332 Acute tox. 4; H312 Skin Irrit. 2; H315 Note : C	75 - 90 %
Ethylbenzene	CAS no.: 100-41-4 EC no.: 202-849-4 Index no.: 601-023-00-4 Synonyms: Ethylbenzene	F; R11 Xn; R20 Flam. Liq. 2; H225 Acute tox. 4; H332	10 - 25 %

Column headings	CAS no. = Chemical Abstracts Service; EU (Einecs or Elincs number) = European inventory of Existing Commercial Chemical Substances; Ingredient name = Name as specified in the substance list (substances that are not included in the substance list must be translated, if possible). Contents given in; %, %wt/wt, %vol/wt, %vol/vol, mg/m3, ppb, ppm, weight%, vol%
HH/HF/HE	T+ = Very toxic, T = Toxic, C = Corrosive, Xn = Harmful, Xi = Irritating, E = Explosive, O = Oxidizing, F+ = Extremly flammable, F = Very flammable, N = Environmental hazard

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation	Move the exposed person to fresh air at once. Get medical attention if any discomfort continues.
Skin contact	Remove contaminated clothes and rinse skin thoroughly with water.
Eye contact	Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyes wide apart. Get medical attention if any discomfort continues.
Ingestion	NEVER MAKE AN UNCONSCIOUS PERSON VOMIT OR DRINK FLUIDS! Do not induce vomiting. Rinse mouth with water. Get medical attention.

4.2. Most important symptoms and effects, both acute and delayed

Information for health personnel	Treat Symptomatically. Do not give victim anything to drink if he is

unconscious.

4.3. Indication of any immediate medical attention and special treatment needed

Specific details on antidotes	No recommendation given.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog.

5.2. Special hazards arising from the substance or mixture

Fire and explosion hazards	Solvent vapours may form explosive mixtures with air.
Hazardous combustion products	Fire creates: Carbon monoxide (CO). Carbon dioxide (CO2).

5.3. Advice for firefighters

Fire fighting procedures	No specific fire fighting procedure given.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal protection measures	Ensure suitable personal protection (including respiratory protection) during removal of spillages in a confined area. Ventilate well. Stop leak if possible without risk. Avoid contact with skin and eyes. Do not breathe vapour.

6.2. Environmental precautions

Environmental precautionary measures	Avoid discharge into drains, water courses or onto the ground.

6.3. Methods and material for containment and cleaning up

Cleaning method	Dam and absorb spillages with sand, earth or other non-combustible material.

6.4. Reference to other sections

Other instructions	No recommendation given.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Handling	Keep away from heat, sparks and open flame. Take precautionary measures against static discharges. Mechanical ventilation may be required.

Protective Safety Measures

Advice on general occupational hygiene	Provide easy access to water supply and eye wash facilities.

7.2. Conditions for safe storage, including any incompatibilities

Storage	Keep away from heat, sparks and open flame. Ground container and transfer equipment to eliminate static electric sparks. Store in a cool and well-ventilated place.

7.3. Specific end use(s)

Specific use(s)	Not entered.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

DNEL / PNEC

Method of testing	Contents
DNEL	Group: Industrial Exposure route: Inhalation Exposure frequency: Short term (acute) Critical Component: Etylbenzen Value: 289 mg/kg/dag

DNEL	Group: Industrial Exposure route: Inhalation Exposure frequency: Long term (repeated) Critical Component: Etylbenzen Type of effect: Systemic effect Value: 77 mg/kg/dag
DNEL	Group: Industrial Exposure route: Dermal Exposure frequency: Long term (repeated) Critical Component: Etylbenzen Type of effect: Systemic effect Value: 180 mg/kg/dag
DNEL	Group: Consumer Exposure route: Inhalation Exposure frequency: Long term (repeated) Critical Component: Etylbenzen Type of effect: Systemic effect Value: 14,8 mg/kg/dag
DNEL	Group: Consumer Exposure route: Dermal Exposure frequency: Long term (repeated) Critical Component: Etylbenzen Type of effect: Systemic effect Value: 108 mg/kg/dag
DNEL	Group: Consumer Exposure route: Oral Exposure frequency: Long term (repeated) Critical Component: Etylbenzen Type of effect: Systemic effect Value: 1,6 mg/kg/dag
DNEL	Group: Industrial Exposure route: Inhalation Exposure frequency: Short term (acute) Critical Component: xylen Value: 442 mg/kg/dag
DNEL	Group: Industrial Exposure route: Inhalation Exposure frequency: Long term (repeated) Critical Component: xylen Type of effect: Systemic effect Value: 221 mg/kg/dag
DNEL	Group: Industrial Exposure route: Dermal Exposure frequency: Long term (repeated) Critical Component: xylen Type of effect: Systemic effect Value: 3182 mg/kg/dag
DNEL	Group: Consumer Exposure route: Inhalation Exposure frequency: Short term (acute) Critical Component: xylen Value: 260 mg/kg/dag
DNEL	Group: Consumer Exposure route: Inhalation Exposure frequency: Long term (repeated) Critical Component: xylen Type of effect: Systemic effect

	Value: 65,3 mg/kg/dag
DNEL	Group: Consumer Exposure route: Dermal Exposure frequency: Long term (repeated) Critical Component: xylen Type of effect: Systemic effect Value: 1872 mg/kg/dag
DNEL	Group: Consumer Exposure route: Oral Exposure frequency: Long term (repeated) Critical Component: xylen Type of effect: Systemic effect Value: 12,5 mg/kg/dag
Exposure guidelines	Country of origin: Sverige Limit value type: NGV 200 mg/m3 OEL Short Term Value: 450 mg/m3 Source: Nationella hygieniska gränsvärden, AFS 2005:17
Other Information	Ovanstående NGV resp. KTV gäller både xylen och etylbenzen

8.2. Exposure controls

Occupational exposure limits: Provide adequate ventilation. Observe Occupational Exposure Limits and minimise the risk of inhalation of vapours. Protective gloves and goggles are recommended. Provide eyewash, quick drench.

Safety signs

Respiratory protection

Respiratory protection: Respiratory protection must be used if air contamination exceeds acceptable level. Use respiratory equipment with gas filter, type A2.

Hand protection

Hand protection: Use protective gloves. Chemical resistant gloves required for prolonged or repeated contact. Gloves of nitrile rubber, PVA or Viton are recommended.

Eye / face protection

Eye protection: Use safety goggles or face shield in case of splash risk.

Skin protection

Skin protection (except hands): Wear appropriate clothing to prevent any possibility of skin contact.

Hygiene / Environmental

Specific hygiene measures: Wash hands after contact.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Fluid.
Colour	Colourless.
Odour	Aromatic.
Comments, pH (as supplied)	Not relevant.
Melting point/melting range	Value: < -48 °C
Boiling point / boiling range	Value: 136-145 °C
Flash point	Value: 27 °C
Evaporation rate	Value: 13,5
Explosion limit	Value: 1-7,1 %
Vapour pressure	Value: 1 kPa Test temperature: 20 °C

Vapour density	Value: 3,7
Specific gravity	Value: 0,870 kg/m3 Test temperature: 20 °C
Solubility description	Soluble in: Organic solvents. Not soluble in water.
Partition coefficient: n-octanol/water	Value: 3,15
Spontaneous combustability	Value: > 432-530 °C
Viscosity	Value: < 0,90 mPas Method of testing: Kinematisk Test temperature: 25 °C

9.2. Other information

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity: Heating may cause a fire.

10.2. Chemical stability

Stability: Stable under the prescribed storage conditions.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions: Not known.

10.4. Conditions to avoid

Conditions to avoid: Avoid heat, flames and other sources of ignition.

10.5. Incompatible materials

Materials to avoid: Avoid contact with oxidising agents (e.g. nitric acid, peroxides and chromates). Strong acids.

10.6. Hazardous decomposition products

Hazardous decomposition products: Fire creates: Carbon monoxide (CO). Carbon dioxide (CO_2).

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Toxicological Information:

Other toxicological data: Acute Toxicity (Oral LD50): mg/kg (oral rat) > 2000
Acute Toxicity (Inhalation LC50): mg/l (vapours) (4h) > 20
Acute Toxicity (Dermal LD50): mg/kg Rabbit > 2000

Toxicological data for substances

Potential acute effects

Inhalation	In high concentrations, vapours are narcotic and may cause headache, fatigue, dizziness and nausea. Icke klassificerad som aspirationstoxisk (Not classified as asp. tox.)
Skin contact	Prolonged or frequent contact may cause redness, itching, eczema and skin cracking. Defats the skin.
Eye contact	May irritate and cause redness and pain.
Ingestion	Ingestion of large amounts may cause unconsciousness. However, ingestion may cause nausea, headache, dizziness and intoxication. Ingestion may cause irritation of the gastrointestinal tract, vomiting and diarrhoea. May cause irritation to the mouth and throat.

Delayed effects / repeated exposure

Sensitisation	Not known.
Chronic effects	None known.

Carcinogenic, Mutagenic or Reprotoxic

Carcinogenicity	None.
Mutagenicity	Not known.
Teratogenic properties	Suspected of damaging the unborn child

Reproductive toxicity	Not known.

SECTION 12: Ecological information

12.1. Toxicity

Acute aquatic, fish	Value: 2 mg/l Method of testing: LC50 Fish, species: Roccus saxatilis Duration: 96h
Acute aquatic, algae	Value: > 3,2 mg/l Method of testing: IC50 Algae, species: Selenastrum Capricornum Duration: 72h
Acute aquatic, Daphnia	Value: 8,5 mg/l Method of testing: EC50 Daphnia, species: Daphnia magna Duration: 48h

12.2. Persistence and degradability

Persistence and degradability description	Lättnedbrytbar av biologiska organismer.
Chemical oxygen demand (COD)	Value: 5 Method of testing: COD
Biological oxygen demand (BOD)	Value: 0,55 Method of testing: BOD

12.3. Bioaccumulative potential

Bioaccumulative potential	Will not bio-accumulate.
Bioconcentration factor (BCF)	Value: 22 Method of testing: BCF

12.4. Mobility in soil

Mobility	The product is insoluble in water and will spread on the water surface.

12.5. Results of PBT and vPvB assessment

PBT assessment results	This substance is not classified as PBT or vPvB.

12.6. Other adverse effects

Other adverse effects / Remarks	None known.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Specify the appropriate methods of disposal	Confirm disposal procedures with environmental engineer and local regulations. Absorb in vermiculite or dry sand and dispose of at a licenced hazardous waste collection point. Liquid components can be disposed of by incineration.
Product classified as hazardous waste	Yes
Packaging classified as hazardous waste	Yes

SECTION 14: Transport information

14.1. UN number

ADR	1307
RID	1307
IMDG	1307
ICAO/IATA	1307

14.2. UN proper shipping name

ADR	XYLENES

RID	XYLENES
IMDG	XYLENES
ICAO/IATA	XYLENES

14.3. Transport hazard class(es)

ADR	3
Hazard no.	30
RID	3
ADN	33
IMDG	3
ICAO/IATA	3

14.4. Packing group

ADR	III
RID	III
IMDG	III
ICAO/IATA	III

14.5. Environmental hazards

Comment	Not relevant.

14.6. Special precautions for user

EmS	F-E, S-D

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

SECTION 15: Regulatory information

EC no.	215-535-7

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Other Label Information	Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 with amendments.
Legislation and regulations	Dangerous Substance Directive 67/548/EEC. The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009 (S.I 2009 No. 716). The List of Wastes (England) (Amendment) Regulations 2005. (SI 2005 No. 895). Avfallsförordningen (2011:927).

15.2. Chemical safety assessment

SECTION 16: Other information

Hazard symbol

R-phrases	R10 Flammable. R38 Irritating to skin. R20/22 Harmful by inhalation and if swallowed. R38 Irritating to skin.
S-phrases	S7 Keep container tightly closed. S16 Keep away from sources of ignition - No smoking.
Classification according to Regulation (EC) No 1272/2008 [CLP/GHS]	Flam. Liq. 3; H226; Acute tox. 4; H312; Skin Irrit. 2; H315;

	Acute tox. 4; H332;
List of relevant R-phrases (under headings 2 and 3).	R38 Irritating to skin. R11 Highly flammable. R10 Flammable. R20/21 Harmful by inhalation and in contact with skin. R20 Harmful by inhalation.
List of relevant H-phrases (Section 2 and 3).	H332 Harmful if inhaled. H312 Harmful in contact with skin. H225 Highly flammable liquid and vapour. H226 Flammable liquid and vapour. H315 Causes skin irritation.
Responsible for safety data sheet	Fred Holmberg & Co AB

SAFETY DATA SHEET

Version 4.10
Revision Date 05/27/2016
Print Date 01/23/2017

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : *trans*-1,2-Dichloroethene

Product Number : 48527
Brand : Supelco
Index-No. : 602-026-00-3

CAS-No. : 156-60-5

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 2), H225
Acute toxicity, Inhalation (Category 4), H332
Acute aquatic toxicity (Category 3), H402
Chronic aquatic toxicity (Category 3), H412

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H225 Highly flammable liquid and vapour.
H332 Harmful if inhaled.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 Use only non-sparking tools.

P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ eye protection/ face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P312	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P403 + P235	Store in a well-ventilated place. Keep cool.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms : *trans*-1,2-Dichloroethene
trans-1,2-Dichloroethylene
trans-Acetylene dichloride

Formula : $C_2H_2Cl_2$
Molecular weight : 96.94 g/mol
CAS-No. : 156-60-5
EC-No. : 205-860-2
Index-No. : 602-026-00-3

Hazardous components

Component	Classification	Concentration
trans-Dichloroethylene		
	Flam. Liq. 2; Acute Tox. 4; Aquatic Acute 3; Aquatic Chronic 3; H225, H332, H412	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Use explosion-proof equipment.Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Recommended storage temperature 2 - 8 °C

Light sensitive. Air and moisture sensitive. Refrigerate before opening.
Storage class (TRGS 510): Flammable liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
trans-Dichloroethylene	156-60-5	TWA	200.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Central Nervous System impairment Eye irritation		

		TWA	200.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Eye irritation		
		TWA	200 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Eye irritation		

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid, clear Colour: light yellow
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -50 °C (-58 °F) - lit.
f)	Initial boiling point and boiling range	48 °C (118 °F) - lit.
g)	Flash point	6.0 °C (42.8 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or	Upper explosion limit: 12.8 %(V) Lower explosion limit: 9.7 %(V)

	explosive limits	
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	1.257 g/cm3 at 25 °C (77 °F)
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Oxidizing agents, Bases

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 1,235 mg/kg

LD50 Oral - Mouse - 2,122 mg/kg
Remarks: Behavioral:Altered sleep time (including change in righting reflex). Behavioral:Somnolence (general depressed activity). Behavioral:Ataxia.

LC50 Inhalation - Rat - 24100 ppm
Remarks: Behavioral:Somnolence (general depressed activity).

LD50 Dermal - Rabbit - > 5,000 mg/kg
Remarks: Prolonged skin contact may cause skin irritation and/or dermatitis. Nutritional and Gross Metabolic:Weight loss or decreased weight gain.

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Skin irritation - 24 h

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Eye irritation

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

prolonged or repeated exposure can cause:, narcosis, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Kidney -

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 220.00 mg/l - 48 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN number: 1150 Class: 3 Packing group: II
Proper shipping name: 1,2-Dichloroethylene
Reportable Quantity (RQ): 1000 lbs

Poison Inhalation Hazard: No

IMDG

UN number: 1150 Class: 3 Packing group: II EMS-No: F-E, S-D
Proper shipping name: 1,2-DICHLOROETHYLENE

IATA

UN number: 1150 Class: 3 Packing group: II
Proper shipping name: 1,2-Dichloroethylene

15. REGULATORY INFORMATION

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Fire Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
trans-Dichloroethylene	156-60-5	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
trans-Dichloroethylene	156-60-5	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
trans-Dichloroethylene	156-60-5	1993-04-24

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H332	Harmful if inhaled.
H402	Harmful to aquatic life.

HMIS Rating

Health hazard:	1
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.10 Revision Date: 05/27/2016 Print Date: 01/23/2017

SAFETY DATA SHEET

Version 4.6
Revision Date 03/02/2015
Print Date 02/18/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Trichloroethylene

Product Number : 251402
Brand : Sigma-Aldrich
Index-No. : 602-027-00-9

CAS-No. : 79-01-6

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Germ cell mutagenicity (Category 2), H341
Carcinogenicity (Category 1B), H350
Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336
Acute aquatic toxicity (Category 3), H402
Chronic aquatic toxicity (Category 3), H412

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.
H341 Suspected of causing genetic defects.
H350 May cause cancer.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear eye protection/ face protection.
P280	Wear protective gloves.
P281	Use personal protective equipment as required.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P312	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	TCE Trichloroethene
Formula	:	C_2HCl_3
Molecular weight	:	131.39 g/mol
CAS-No.	:	79-01-6
EC-No.	:	201-167-4
Index-No.	:	602-027-00-9

Hazardous components

Component	Classification	Concentration
Trichloroethylene Included in the Candidate List of Substances of Very High Concern (SVHC) according to Regulation (EC) No. 1907/2006 (REACH)		
	Skin Irrit. 2; Eye Irrit. 2A; Muta. 2; Carc. 1B; STOT SE 3; Aquatic Acute 3; Aquatic Chronic 3; H315, H319, H336, H341, H350, H412	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen chloride gas

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Light sensitive. Handle and store under inert gas.
Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Trichloroethylene	79-01-6	TWA	10.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Central Nervous System impairment cognitive decrement Renal toxicity Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Suspected human carcinogen		
		STEL	25.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment cognitive decrement Renal toxicity Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Suspected human carcinogen		
		Potential Occupational Carcinogen See Appendix C See Appendix A		
		See Table Z-2		
		TWA	100.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.19-1967		
		CEIL	200.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.19-1967		
		Peak	300.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.19-1967		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Trichloroethylene	79-01-6	Trichloroacetic acid	15.0000 mg/l	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift at end of workweek			
		Trichloroethanol	0.5000 mg/l	In blood	ACGIH - Biological Exposure Indices (BEI)
		End of shift at end of workweek			
		Trichloroethylene		In blood	ACGIH - Biological Exposure Indices (BEI)
		End of shift at end of workweek			
		Trichloroethylene		In end-exhaled air	ACGIH - Biological Exposure Indices (BEI)
		End of shift at end of workweek			

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid, clear Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -84.8 °C (-120.6 °F) - lit.
f)	Initial boiling point and boiling range	86.7 °C (188.1 °F) - lit.
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower	Upper explosion limit: 10.5 %(V)

	flammability or explosive limits	Lower explosion limit: 8 %(V)
k)	Vapour pressure	81.3 hPa (61.0 mmHg) at 20.0 °C (68.0 °F)
l)	Vapour density	No data available
m)	Relative density	1.463 g/mL at 25 °C (77 °F)
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	log Pow: 2.29log Pow: 5
p)	Auto-ignition temperature	410.0 °C (770.0 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Oxidizing agents, Strong bases, Magnesium

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 4,920 mg/kg

LC50 Inhalation - Mouse - 4 h - 8450 ppm

LD50 Dermal - Rabbit - > 20,000 mg/kg

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Severe skin irritation - 24 h

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Eye irritation - 24 h

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
Laboratory experiments have shown mutagenic effects.
In vitro tests showed mutagenic effects

Carcinogenicity

This product is or contains a component that has been reported to be probably carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.

Possible human carcinogen

IARC:	1 - Group 1: Carcinogenic to humans (Trichloroethylene)
NTP:	Reasonably anticipated to be a human carcinogen (Trichloroethylene)
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: KX4550000

burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, Exposure to and/or consumption of alcohol may increase toxic effects., Gastrointestinal disturbance, Kidney injury may occur., narcosis
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 41 mg/l - 96.0 h
	LOEC - other fish - 11 mg/l - 10.0 d
	NOEC - Oryzias latipes - 40 mg/l - 10.0 d
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 18.00 mg/l - 48 h
Toxicity to algae	IC50 - Pseudokirchneriella subcapitata (green algae) - 175.00 mg/l - 96 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
Does not bioaccumulate.

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life with long lasting effects.

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1710 Class: 6.1 Packing group: III
Proper shipping name: Trichloroethylene
Reportable Quantity (RQ): 100 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 1710 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: TRICHLOROETHYLENE

IATA
UN number: 1710 Class: 6.1 Packing group: III
Proper shipping name: Trichloroethylene

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Trichloroethylene	79-01-6	2007-07-01

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Trichloroethylene	79-01-6	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Trichloroethylene	79-01-6	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Trichloroethylene	79-01-6	2007-07-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer. Trichloroethylene	CAS-No. 79-01-6	Revision Date 2011-09-01
WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.	CAS-No. 79-01-6	Revision Date 2011-09-01

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
Eye Irrit.	Eye irritation
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.
H341	Suspected of causing genetic defects.
H350	May cause cancer.
H402	Harmful to aquatic life.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	0
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.6 Revision Date: 03/02/2015 Print Date: 02/18/2016

SAFETY DATA SHEET
CHROMIUM HARD,TRIVALENT

1. Identification

Product identifier

Product name CHROMIUM HARD,TRIVALENT

Product number 2403

Recommended use of the chemical and restrictions on use

Application Industrial Use

Details of the supplier of the safety data sheet

Supplier

SIFCO Applied Surface Concepts
5708 E. Schaaf Road
Independence, Ohio 44131
U.S.A.
Tel.: +1 216-524-0099
Fax: +1 216-524-6331
E-Mail: info@sifcoasc.com

Emergency telephone number

Emergency telephone CHEMTREC (United States) (800) 424-9300; CHEMTREC (International) +1 703-527-3887

2. Hazard(s) identification

Classification of the substance or mixture

Physical hazards Not Classified

Health hazards Skin Corr. 1B - H314 Eye Dam. 1 - H318 STOT SE 3 - H335

Environmental hazards Aquatic Acute 3 - H402

Label elements

Pictogram

Signal word Danger

Hazard statements H314 Causes severe skin burns and eye damage.
H335 May cause respiratory irritation.
H402 Harmful to aquatic life.

CHROMIUM HARD,TRIVALENT

Precautionary statements

P260 Do not breathe vapor/ spray.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P304+P340 If inhaled: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P363 Wash contaminated clothing before reuse.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P501 Dispose of contents/ container in accordance with national regulations.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P284 [In case of inadequate ventilation] wear respiratory protection.
P301+P310 If swallowed: Immediately call a poison center/ doctor.
P302+P352 If on skin: Wash with plenty of water.

Contains AMMONIUM FORMATE, CHROMIUM (III) SULPHATE, AMMONIA ...%

Other hazards

This product does not contain any substances classified as PBT or vPvB.

3. Composition/information on ingredients

Mixtures

AMMONIUM FORMATE **25-30%**

CAS number: 540-69-2

Classification
Skin Irrit. 2 - H315
Eye Irrit. 2 - H319
STOT SE 3 - H335

AMMONIUM CHLORIDE **5-10%**

CAS number: 12125-02-9

Classification
Acute Tox. 4 - H302
Eye Irrit. 2 - H319

CHROMIUM (III) SULPHATE **5-10%**

CAS number: 10101-53-8

Classification
Acute Tox. 4 - H302
Acute Tox. 4 - H312
Acute Tox. 4 - H332
Skin Corr. 1B - H314
Eye Dam. 1 - H318
STOT SE 3 - H335

CHROMIUM HARD,TRIVALENT

Potassium Sulfate	**1-5%**
CAS number: 7778-80-5	
Classification Not Classified	

AMMONIA ...%	**1-5%**
CAS number: 1336-21-6 M factor (Acute) = 1	
Classification Skin Corr. 1B - H314 Eye Dam. 1 - H318 STOT SE 3 - H335 Aquatic Acute 1 - H400	

SODIUM BROMIDE	**<1%**
CAS number: 7647-15-6	
Classification Acute Tox. 4 - H312	

The full text for all hazard statements is displayed in Section 16.

4. First-aid measures

Description of first aid measures

Inhalation Move affected person to fresh air at once. Get medical attention.

Ingestion Get medical attention immediately. Do not induce vomiting.

Skin Contact Remove contaminated clothing immediately and wash skin with soap and water. Continue to rinse for at least 15 minutes and get medical attention.

Eye contact Remove affected person from source of contamination. Rinse immediately with plenty of water. Continue to rinse for at least 15 minutes and get medical attention.

Most important symptoms and effects, both acute and delayed

Inhalation Coughing, chest tightness, feeling of chest pressure.

Ingestion May cause chemical burns in mouth and throat. May cause stomach pain or vomiting.

Skin contact May cause serious chemical burns to the skin.

Eye contact Causes severe burns. May cause serious eye damage.

Indication of immediate medical attention and special treatment needed

Notes for the doctor No specific recommendations.

5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media The product is not flammable. Use fire-extinguishing media suitable for the surrounding fire.

Special hazards arising from the substance or mixture

CHROMIUM HARD,TRIVALENT

Specific hazards Corrosive gases or vapors.

Advice for firefighters

Protective actions during firefighting Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

Special protective equipment for firefighters Use protective equipment appropriate for surrounding materials.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Follow precautions for safe handling described in this safety data sheet. Avoid inhalation of vapors. Provide adequate general and local exhaust ventilation.

Environmental precautions

Environmental precautions Do not discharge into drains or watercourses or onto the ground. Inform the relevant authorities if environmental pollution occurs (sewers, waterways, soil or air).

Methods and material for containment and cleaning up

Methods for cleaning up Wear suitable protective equipment, including gloves, goggles/face shield, respirator, boots, clothing or apron, as appropriate. Flush contaminated area with plenty of water. Avoid the spillage or runoff entering drains, sewers or watercourses. Collect and dispose of spillage as indicated in Section 13. Wash thoroughly after dealing with a spillage.

Reference to other sections Wear protective clothing as described in Section 8 of this safety data sheet. See Section 11 for additional information on health hazards. See Section 12 for additional information on ecological hazards. For waste disposal, see Section 13.

7. Handling and storage

Precautions for safe handling

Usage precautions Avoid spilling. Avoid contact with skin and eyes. Avoid inhalation of vapors and spray/mists. Provide adequate general and local exhaust ventilation.

Conditions for safe storage, including any incompatibilities

Storage precautions Store in tightly-closed, original container in a dry, cool and well-ventilated place. Protect from freezing and direct sunlight.

Storage class Corrosive storage.

Specific end uses(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.

8. Exposure controls/Personal protection

Exposure controls

Protective equipment

Appropriate engineering controls As this product contains ingredients with exposure limits, process enclosures, local exhaust ventilation or other engineering controls should be used to keep worker exposure below any statutory or recommended limits, if use generates dust, fumes, gas, vapor or mist.

Eye/face protection Tight-fitting safety glasses.

CHROMIUM HARD,TRIVALENT

Hand protection	It is recommended that chemical-resistant, impervious gloves are worn. Considering the data specified by the glove manufacturer, check during use that the gloves are retaining their protective properties and change them as soon as any deterioration is detected. It is recommended that gloves are made of the following material: Nitrile rubber.
Other skin and body protection	Appropriate footwear and additional protective clothing complying with an approved standard should be worn if a risk assessment indicates skin contamination is possible.
Hygiene measures	Do not eat, drink or smoke when using this product. Wash at the end of each work shift and before eating, smoking and using the toilet.
Respiratory protection	If ventilation is inadequate, suitable respiratory protection must be worn. Respiratory protection must be used if the airborne contamination exceeds the recommended occupational exposure limit.

9. Physical and chemical properties

Information on basic physical and chemical properties

Appearance	Liquid.
Color	Dark. Blue.
Odor	Acidic.
pH	pH (concentrated solution): 6.0-7.0
Initial boiling point and range	100°C/212°F @
Relative density	1.150-1.180
Other information	Not available.

10. Stability and reactivity

Reactivity	There are no known reactivity hazards associated with this product.
Stability	Stable at normal ambient temperatures and when used as recommended.
Possibility of hazardous reactions	Under normal conditions of storage and use, no hazardous reactions will occur.
Conditions to avoid	Avoid excessive heat for prolonged periods of time.
Materials to avoid	None known.
Hazardous decomposition products	None at ambient temperatures.

11. Toxicological information

Information on toxicological effects

Acute toxicity - oral

ATE oral (mg/kg)	4,284.49

Acute toxicity - dermal

ATE dermal (mg/kg)	19,400.35

Acute toxicity - inhalation

ATE inhalation (vapours mg/l)	194.0

CHROMIUM HARD,TRIVALENT

Inhalation	Vapors irritate the respiratory system.
Ingestion	Causes severe burns. May cause chemical burns in mouth, esophagus and stomach.
Skin Contact	May cause serious chemical burns to the skin.
Eye contact	Causes serious eye damage. Immediate first aid is imperative.
Acute and chronic health hazards	May cause burns in mucous membranes, throat, esophagus and stomach.
Route of exposure	Ingestion Inhalation Skin and/or eye contact

Toxicological information on ingredients.

AMMONIUM FORMATE

Acute toxicity - oral	
Acute toxicity oral (LD_{50} mg/kg)	2,250.0
Species	Mouse
ATE oral (mg/kg)	2,250.0

CHROMIUM (III) SULPHATE

Acute toxicity - oral	
ATE oral (mg/kg)	500.0
Acute toxicity - dermal	
ATE dermal (mg/kg)	1,100.0
Acute toxicity - inhalation	
ATE inhalation (vapours mg/l)	11.0

Potassium Sulfate

Acute toxicity - oral	
Acute toxicity oral (LD_{50} mg/kg)	6,600.0
Species	Rat
ATE oral (mg/kg)	6,600.0

AMMONIA ...%

Acute toxicity - oral	
Acute toxicity oral (LD_{50} mg/kg)	350.0
Species	Rat

SODIUM BROMIDE

Acute toxicity - oral

Acute toxicity oral (LD_{50} mg/kg)	3,500.0
Species	Rat
ATE oral (mg/kg)	3,500.0

Acute toxicity - dermal

Acute toxicity dermal (LD_{50} mg/kg)	2,000.0
Species	Rabbit
ATE dermal (mg/kg)	2,000.0

12. Ecological information

Ecotoxicity The product contains a substance which may have hazardous effects on the environment.

Toxicity No data available.

Ecological information on ingredients.

Potassium Sulfate

Acute aquatic toxicity

Acute toxicity - fish LC_{50}, 96 hour: 680 mg/l, Pimephales promelas (Fat-head Minnow)

AMMONIA ...%

Acute aquatic toxicity

$LE(C)_{50}$	0.1 < L(E)C50 ≤ 1
M factor (Acute)	1
Acute toxicity - fish	LC_{50}, 96 hours: 0.53 mg/l, Freshwater fish LC_{50}, 96 hours: 0.75 -3.4 mg/l, Freshwater fish LC_{50}, 96 hours: 8.2 mg/l, Freshwater fish
Acute toxicity - aquatic invertebrates	EC_{50}, 48 hours: 0.66 mg/l, Daphnia magna

SODIUM BROMIDE

Acute aquatic toxicity

Acute toxicity - fish	NOEC, 96 hour: 7800 mg/l, Oryzias latipes (Red killifish) LC_{50}, 96 hour: 160,000 mg/l, Poecilia reticulata (Guppy)
Acute toxicity - aquatic invertebrates	NOEC, 48 hour: 7800 mg/l, Daphnia magna EC_{50}, 48 hours: 5800 mg/l, Daphnia magna

Persistence and degradability

Persistence and degradability No data available.

Bioaccumulative potential

Bio-Accumulative Potential The product does not contain any substances expected to be bioaccumulating.

Mobility in soil

Mobility The product is soluble in water.

CHROMIUM HARD,TRIVALENT

Other adverse effects

Other adverse effects Not determined.

13. Disposal considerations

Waste treatment methods

General information Disposal of this product, process solutions, residues and by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any local authority requirements.

Disposal methods Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

14. Transport information

General The product is not covered by international regulations on the transport of dangerous goods (IMDG, IATA, DOT).

UN Number

UN No. (International) Not applicable.

UN proper shipping name

Proper shipping name (International) Not applicable.

Proper shipping name (DOT) NOT RESTRICTED LIQUID

Transport hazard class(es)

Transport Labels (International) No transport warning sign required.

Packing group

Packing group (International) Not applicable.

Environmental hazards

Environmentally Hazardous Substance
No.

Special precautions for user

Not applicable.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

15. Regulatory information

National regulations The customer is advised to check if there are specific local or national regulations specifically applicable to the chemicals contained in the product. The hazards statement for this product is in accordance with international regulations, always observing the most stringent requirements.

US Federal Regulations

SARA Section 302 Extremely Hazardous Substances Tier II Threshold Planning Quantities
Exempt.

CHROMIUM HARD,TRIVALENT

CERCLA/Superfund, Hazardous Substances/Reportable Quantities (EPA)

Ammonium Chloride
Final CERCLA RQ: 5,000 lbs
Chromium Sulphate
Final CERCLA RQ: 1,000 lbs

SARA Extremely Hazardous Substances EPCRA Reportable Quantities

Exempt.

SARA 313 Emission Reporting

Chromium Sulphate

CAA Accidental Release Prevention

HAP
Chromium Sulphate

SARA (311/312) Hazard Categories

Acute
Chronic

OSHA Highly Hazardous Chemicals

Exempt.

US State Regulations

California Proposition 65 Carcinogens and Reproductive Toxins

Chromium Sulphate

California Directors List of Hazardous Substances

Ammonium Chloride
Chromium Sulphate

Inventories

US - TSCA

All ingredients are present.

16. Other information

Classification abbreviations and acronyms	Acute Tox. = Acute toxicity Carc. = Carcinogenicity Eye Dam. = Serious eye damage Eye Irrit. = Eye irritation Flam. Liq. = Flammable liquid Muta. = Germ cell mutagenicity Resp. Sens. = Respiratory sensitisation Skin Corr. = Skin corrosion Skin Irrit. = Skin irritation Skin Sens. = Skin sensitisation STOT RE = Specific target organ toxicity-repeated exposure STOT SE = Specific target organ toxicity-single exposure
Revision date	8/10/2018
Revision	3

CHROMIUM HARD,TRIVALENT

Hazard statements in full	H302 Harmful if swallowed. H312 Harmful in contact with skin. H314 Causes severe skin burns and eye damage. H315 Causes skin irritation. H318 Causes serious eye damage. H319 Causes serious eye irritation. H332 Harmful if inhaled. H335 May cause respiratory irritation. H400 Very toxic to aquatic life. H402 Harmful to aquatic life.
NFPA - health hazard	Extremely hazardous, serious injury. (3)
NFPA - flammability hazard	Will not burn. (0)
NFPA - instability hazard	Normally stable. (0)

The Information in this data sheet is believed to be correct but neither we nor our employees or agents give any warranty or make any representation to the accuracy thereof and accept no liability for any loss, injury or damage which may result in it's use. The sole purpose of this data sheet is to provide guidance on the safe handling and use of the products to which it relates. It does not form part of any product specification nor part of any contract. It is not practical for the guidance and information in this data sheet to cover every conceivable application of a product and as we may not be aware of the use to which the products covered by this data sheet are to be put it remains the responsibility of the user to conduct it's own tests and to satisy itself as to the suitability of the product.

SAFETY DATA SHEET

Version 3.11
Revision Date 12/01/2015
Print Date 02/18/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Vinyl chloride

Product Number : 387622
Brand : Aldrich
Index-No. : 602-023-00-7

CAS-No. : 75-01-4

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable gases (Category 1), H220
Gases under pressure (Liquefied gas), H280
Carcinogenicity (Category 1A), H350

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H220 Extremely flammable gas.
H280 Contains gas under pressure; may explode if heated.
H350 May cause cancer.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P281 Use personal protective equipment as required.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.

P377	Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381	Eliminate all ignition sources if safe to do so.
P405	Store locked up.
P410 + P403	Protect from sunlight. Store in a well-ventilated place.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

May form explosive peroxides.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	Chloroethylene
Formula	:	C_2H_3Cl
Molecular weight	:	62.50 g/mol
CAS-No.	:	75-01-4
EC-No.	:	200-831-0
Index-No.	:	602-023-00-7

Hazardous components

Component	Classification	Concentration
Vinyl chloride		
	Flam. Gas 1; Press. Gas Liquefied gas; Carc. 1A; SA ; H220, H280, H350,	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Flush eyes with water as a precaution.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Carbon oxides, Hydrogen chloride gas

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Clean up promptly by sweeping or vacuum.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid inhalation of vapour or mist.
Use explosion-proof equipment.Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

Contents under pressure. Light sensitive.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Vinyl chloride	75-01-4	TWA	1 ppm	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		TWA	1 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Liver damage Lung cancer Confirmed human carcinogen		
		STEL	5 ppm	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		TWA	1 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		STEL	5 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		See 1910.1017		
		Potential Occupational Carcinogen See Appendix A		

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Splash contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 120 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: Liquefied gas
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -153.8 °C (-244.8 °F) - lit.
f)	Initial boiling point and boiling range	-13.4 °C (7.9 °F) - lit.
g)	Flash point	-61.0 °C (-77.8 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or	Upper explosion limit: 33 %(V) Lower explosion limit: 3.6 %(V)

	explosive limits	
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	0.911 g/cm3 at 25 °C (77 °F)
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.
Contains the following stabiliser(s):
Hydroquinone (>=0 - <=0.0001 %)
Phenol (>=0 - <=0.01 %)

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
Heat, flames and sparks. Extremes of temperature and direct sunlight.

10.5 Incompatible materials
Chemically active metals, Copper

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

LC50 Inhalation - Rat - 0.3 h - 180000 ppm
Remarks: Behavioral:Tremor. Behavioral:Convulsions or effect on seizure threshold. Respiratory disorder

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

This is or contains a component that has been reported to be carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.

Human carcinogen.

IARC: 1 - Group 1: Carcinogenic to humans (Vinyl chloride)

NTP: Known to be human carcinogen (Vinyl chloride)

OSHA: OSHA specifically regulated carcinogen (Vinyl chloride)

Reproductive toxicity
No data available

Overexposure may cause reproductive disorder(s) based on tests with laboratory animals.

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: KU9625000

burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Central nervous system -
Stomach - Irregularities - Based on Human Evidence (Phenol)
Liver - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1086 Class: 2.1
Proper shipping name: Vinyl chloride, stabilized
Reportable Quantity (RQ): 1 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 1086 Class: 2.1 EMS-No: F-D, S-U
Proper shipping name: VINYL CHLORIDE, STABILIZED

IATA
UN number: 1086 Class: 2.1
Proper shipping name: Vinyl chloride, stabilized
IATA Passenger: Not permitted for transport

15. REGULATORY INFORMATION

SARA 302 Components
The following components are subject to reporting levels established by SARA Title III, Section 302:

	CAS-No.	Revision Date
Phenol	108-95-2	2007-07-01
Hydroquinone	123-31-9	2007-07-01

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Vinyl chloride	75-01-4	2007-07-01

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Vinyl chloride	75-01-4	2007-07-01
Phenol	108-95-2	2007-07-01
Hydroquinone	123-31-9	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Vinyl chloride	75-01-4	2007-07-01
Phenol	108-95-2	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Vinyl chloride	75-01-4	2007-07-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
Vinyl chloride	75-01-4	2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

	May displace oxygen and cause rapid suffocation.
Carc.	Carcinogenicity
Flam. Gas	Flammable gases
H220	Extremely flammable gas.
H280	Contains gas under pressure; may explode if heated.
H350	May cause cancer.
Press. Gas	Gases under pressure
SA	Simple Asphyxiant

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	4
Physical Hazard	3

NFPA Rating

Health hazard:	2
Fire Hazard:	4
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 3.11 Revision Date: 12/01/2015 Print Date: 02/18/2016

SAFETY DATA SHEET

Creation Date 22-Sep-2009 **Revision Date** 25-Apr-2019 **Revision Number** 6

1. Identification

Product Name **Vinylidene chloride, stabilized**

Cat No. : **AC172290000; AC172290010; AC172290025; AC172290250**

CAS-No 75-35-4
Synonyms 1,1-Dichloroethylene

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company

Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 1
Acute oral toxicity	Category 4
Acute Inhalation Toxicity - Vapors	Category 4
Serious Eye Damage/Eye Irritation	Category 2
Carcinogenicity	Category 2
Specific target organ toxicity - (repeated exposure)	Category 2
Target Organs - Nasal Cavities, Liver.	

Label Elements

Signal Word
Danger

Hazard Statements
Extremely flammable liquid and vapor
Causes serious eye irritation

Suspected of causing cancer
May cause damage to organs through prolonged or repeated exposure
Harmful if swallowed or if inhaled

Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
Wear eye/face protection
Do not breathe dust/fume/gas/mist/vapors/spray
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Response
IF exposed or concerned: Get medical attention/advice
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Skin
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
Ingestion
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth
Fire
In case of fire: Use CO2, dry chemical, or foam for extinction
Storage
Store locked up
Store in a well-ventilated place. Keep cool
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Toxic to aquatic life with long lasting effects
WARNING. Cancer - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Vinylidene chloride	75-35-4	>95
4-Methoxyphenol	150-76-5	0.02

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Get medical attention.

Inhalation Remove to fresh air. If breathing is difficult, give oxygen. Get medical attention.

Ingestion Do NOT induce vomiting. Get medical attention.

Most important symptoms and effects Difficulty in breathing. . Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray. Carbon dioxide (CO_2). Dry chemical. Water mist may be used to cool closed containers. Chemical foam. Water mist may be used to cool closed containers.

Unsuitable Extinguishing Media No information available

Flash Point -25 °C / -13 °F

Method - No information available

Autoignition Temperature 520 °C / 968 °F

Explosion Limits

Upper	16.5%
Lower	8.4%
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical
Extremely flammable. Vapors may travel to source of ignition and flash back. Vapors may form explosive mixture with air. Containers may explode when heated. Vapors may form explosive mixtures with air.

Hazardous Combustion Products
Carbon monoxide (CO). Carbon dioxide (CO_2). Formaldehyde. peroxides. Hydrogen chloride gas.

Protective Equipment and Precautions for Firefighters
Vapors are heavier than air and may spread along floors. As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	4	1	N/A

6. Accidental release measures

Personal Precautions Remove all sources of ignition. Take precautionary measures against static discharges.

Environmental Precautions Do not flush into surface water or sanitary sewer system. See Section 12 for additional Ecological Information. Avoid release to the environment. Collect spillage.

Methods for Containment and Clean Up Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Do not let this chemical enter the environment.

7. Handling and storage

Handling

Ensure adequate ventilation. Wear personal protective equipment/face protection. Avoid contact with skin and eyes. Take precautionary measures against static discharges. Do not ingest. If swallowed then seek immediate medical assistance. Handle product only in closed system or provide appropriate exhaust ventilation. Use spark-proof tools and explosion-proof equipment. Use only non-sparking tools. Do not subject to grinding/shock/friction. Avoid breathing dust/fume/gas/mist/vapors/spray. Keep away from open flames, hot surfaces and sources of ignition. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded.

Storage

Refrigerator/flammables. Keep away from heat, sparks and flame. Protect from light. May form explosive peroxides on prolonged storage. Keep under nitrogen. Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Vinylidene chloride	TWA: 5 ppm	(Vacated) TWA: 1 ppm (Vacated) TWA: 4 mg/m³		TWA: 5 ppm
4-Methoxyphenol	TWA: 5 mg/m³	(Vacated) TWA: 5 mg/m³	TWA: 5 mg/m³	TWA: 5 mg/m³

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures

Use explosion-proof electrical/ventilating/lighting/equipment. Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	aromatic
Odor Threshold	No information available
pH	7 2.5 g/l aq.sol
Melting Point/Range	-122 °C / -187.6 °F
Boiling Point/Range	31.2 - 32 °C / 88.2 - 89.6 °F @ 760 mmHg
Flash Point	-25 °C / -13 °F
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	

Upper	16.5%
Lower	8.4%
Vapor Pressure	665 mbar @ 20 °C
Vapor Density	3.4 (Air = 1.0)
Specific Gravity	1.218
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	520 °C / 968 °F
Decomposition Temperature	No information available
Viscosity	.377 mPa.s at 15 °C
Molecular Formula	C2 H2 Cl2
Molecular Weight	96.94

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability May form explosive peroxides. Hazardous polymerization may occur upon depletion of inhibitor. Moisture sensitive. Air sensitive. Light sensitive.

Conditions to Avoid Keep away from open flames, hot surfaces and sources of ignition. Excess heat. Exposure to air. Exposure to light. Incompatible products. Exposure to moist air or water.

Incompatible Materials Strong oxidizing agents, Strong bases, Finely powdered metals, oxygen, Peroxides, Metals, copper, Finely powdered metals, Acids

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2), Formaldehyde, peroxides, Hydrogen chloride gas

Hazardous Polymerization Hazardous polymerization may occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Oral LD50 Category 4. ATE = 300 - 2000 mg/kg.

Vapor LC50 Category 4. ATE = 10 - 20 mg/l.

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Vinylidene chloride	LD50 = 1500 mg/kg (Rat) LD50 = 200 mg/kg (Rat)	Not listed	LC50 = 1.66 mg/L (Rat) 4 h LC50 = 6350 ppm (Rat) 4 h
4-Methoxyphenol	1600 mg/kg (Rat)	LD50 > 2000 mg/kg (Rabbit)	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation May cause skin, eye, and respiratory tract irritation

Sensitization No information available

Carcinogenicity Limited evidence of a carcinogenic effect. The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Vinylidene chloride	75-35-4	Group 2B	Not listed	Not listed	X	Not listed
4-Methoxyphenol	150-76-5	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects Ames test: positive.

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure Nasal Cavities Liver

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information.

12. Ecological information

Ecotoxicity

The product contains following substances which are hazardous for the environment. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Vinylidene chloride	Not listed	LC50: 161 - 179 mg/L, 96h static (Pimephales promelas) LC50: 57 - 91 mg/L, 96h static (Lepomis macrochirus) LC50: 85 - 117 mg/L, 96h flow-through (Pimephales promelas)	EC50 > 2000 mg/L 17 h	LC50: 62 - 110 mg/L, 48h Static (Daphnia magna) LC50: 9.0 - 14.0 mg/L, 48h Static (Daphnia magna)
4-Methoxyphenol	Not listed	LC50: = 28.5 mg/L, 96h flow-through (Oncorhynchus mykiss) LC50: = 84.3 mg/L, 96h flow-through (Pimephales promelas)	EC50 = 3.66 mg/L 5 min EC50 = 4.30 mg/L 15 min EC50 = 4.61 mg/L 30 min	Not listed

Persistence and Degradability No information available

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its volatility.

Component	log Pow
Vinylidene chloride	2.02
4-Methoxyphenol	1.3

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Vinylidene chloride - 75-35-4	U078	-

14. Transport information

DOT

UN-No	UN1303
Proper Shipping Name	VINYLIDENE CHLORIDE, STABILIZED
Hazard Class	3
Packing Group	I

TDG

UN-No	UN1303
Proper Shipping Name	VINYLIDENE CHLORIDE, STABILIZED
Hazard Class	3
Packing Group	I

IATA

UN-No	UN1303
Proper Shipping Name	VINYLIDENE CHLORIDE, STABILIZED
Hazard Class	3
Packing Group	I

IMDG/IMO

UN-No	UN1303
Proper Shipping Name	VINYLIDENE CHLORIDE, STABILIZED
Hazard Class	3
Subsidiary Hazard Class	P
Packing Group	I

15. Regulatory information

United States of America Inventory

Component	CAS-No	TSCA	TSCA Inventory notification - Active/Inactive	TSCA - EPA Regulatory Flags
Vinylidene chloride	75-35-4	X	ACTIVE	-
4-Methoxyphenol	150-76-5	X	ACTIVE	-

Legend:
TSCA - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Australia (AICS), China (IECSC), Korea (ECL).

Component	CAS-No	DSL	NDSL	EINECS	PICCS	ENCS	AICS	IECSC	KECL
Vinylidene chloride	75-35-4	X	-	200-864-0	X	X	X	X	KE-10122
4-Methoxyphenol	150-76-5	X	-	205-769-8	X	X	X	X	KE-23353

U.S. Federal Regulations

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Vinylidene chloride	75-35-4	>95	1.0

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Vinylidene chloride	X	100 lb	X	X

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Vinylidene chloride	X		-

OSHA - Occupational Safety and Health Administration: Not applicable

CERCLA: This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Vinylidene chloride	100 lb 1 lb	-

California Proposition 65: This product contains the following Proposition 65 chemicals.

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Vinylidene chloride	75-35-4	Carcinogen	0.88 µg/day	Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Vinylidene chloride	X	X	X	X	X
4-Methoxyphenol	X	X	X	-	X

U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security: This product contains the following DHS chemicals:
Legend - STQs = Screening Threshold Quantities, APA = A placarded amount

Component	DHS Chemical Facility Anti-Terrorism Standard
Vinylidene chloride	Release STQs - 10000lb

Other International Regulations

Mexico - Grade: No information available

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 22-Sep-2009
Revision Date 25-Apr-2019
Print Date 25-Apr-2019
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Version 4.9
Revision Date 08/24/2015
Print Date 02/07/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Zinc

Product Number : 324930
Brand : Aldrich
Index-No. : 030-001-00-1

CAS-No. : 7440-66-6

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Self-heating substances and mixtures (Category 1), H251
Substances and mixtures, which in contact with water, emit flammable gases (Category 1), H260
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H251 Self-heating: may catch fire.
H260 In contact with water releases flammable gases which may ignite spontaneously.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P223 Do not allow contact with water.
P231 + P232 Handle under inert gas. Protect from moisture.
P235 + P410 Keep cool. Protect from sunlight.
P273 Avoid release to the environment.

P280	Wear protective gloves/ eye protection/ face protection.
P335 + P334	Brush off loose particles from skin. Immerse in cool water/ wrap in wet bandages.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P391	Collect spillage.
P402 + P404	Store in a dry place. Store in a closed container.
P407	Maintain air gap between stacks/ pallets.
P413	Store bulk masses greater than .? kg/ .? lbs at temperatures not exceeding .? °C/ .? °F.
P420	Store away from other materials.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Combustible dust

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	Zn
Molecular weight	:	65.39 g/mol
CAS-No.	:	7440-66-6
EC-No.	:	231-175-3
Index-No.	:	030-001-00-1

Hazardous components

Component	Classification	Concentration
Zinc powder (pyrophoric)		
	Self-heat. 1; Water-react. 1; Aquatic Acute 1; Aquatic Chronic 1; H251, H260, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Dry powder

5.2 Special hazards arising from the substance or mixture
Zinc/zinc oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Do not flush with water. Keep in suitable, closed containers for disposal. Contain spillage, pick up with an electrically protected vacuum cleaner or by wet-brushing and transfer to a container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.Keep away from sources of ignition - No smoking.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Never allow product to get in contact with water during storage.

Keep in a dry place.
Storage class (TRGS 510): Pyrophoric and self-heating hazardous materials

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Protective gloves against thermal risks

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Flame retardant protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: powder Colour: grey
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 420 °C (788 °F) - lit.
f)	Initial boiling point and boiling range	907 °C (1,665 °F) - lit.
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	May form combustible dust concentrations in air
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	1 hPa (1 mmHg) at 487 °C (909 °F)

l)	Vapour density	No data available
m)	Relative density	7.133 g/mL at 25 °C (77 °F)
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	log Pow: 5
p)	Auto-ignition temperature	The substance or mixture is classified as self heating with the category 1.
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Reacts violently with water.

10.4 Conditions to avoid
Exposure to moisture

10.5 Incompatible materials
Strong acids and oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
Did not cause sensitisation on laboratory animals.

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as

probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: ZG8600000

chills, dry throat, sweet taste, Fever, Cough, Nausea, Vomiting, Weakness
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Cyprinus carpio (Carp) - 450.0 µg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	LC50 - Daphnia magna (Water flea) - 0.068 mg/l - 48 h
	mortality NOEC - Daphnia (water flea) - 0.101 - 0.14 mg/l - 7 d

12.2 Persistence and degradability

12.3 Bioaccumulative potential

Bioaccumulation	Algae - 7 d at 16 °C - 5 µg/l
	Bioconcentration factor (BCF): 466

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Contact a licensed professional waste disposal service to dispose of this material. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1436 Class: 4.3 (4.2) Packing group: II
Proper shipping name: Zinc powder
Reportable Quantity (RQ): 1000 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 1436 Class: 4.3 (4.2) Packing group: II EMS-No: F-G, S-O
Proper shipping name: ZINC POWDER
Marine pollutant:yes

IATA
UN number: 1436 Class: 4.3 (4.2) Packing group: II
Proper shipping name: Zinc powder

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Zinc powder (pyrophoric)	7440-66-6	1993-04-24

SARA 311/312 Hazards
Reactivity Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Zinc powder (pyrophoric)	7440-66-6	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Zinc powder (pyrophoric)	7440-66-6	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Zinc powder (pyrophoric)	7440-66-6	1993-04-24

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
H251	Self-heating: may catch fire.
H260	In contact with water releases flammable gases which may ignite spontaneously.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
Self-heat.	Self-heating substances and mixtures

HMIS Rating
Health hazard: 0

Chronic Health Hazard:	
Flammability:	3
Physical Hazard	1

NFPA Rating

Health hazard:	0
Fire Hazard:	3
Reactivity Hazard:	1
Special hazard.I:	W

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.9 Revision Date: 08/24/2015 Print Date: 02/07/2016

SAFETY DATA SHEET

Version 4.10
Revision Date 01/28/2016
Print Date 02/18/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Biphenyl

Product Number : W312908
Brand : Aldrich
Index-No. : 601-042-00-8

CAS-No. : 92-52-4

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Warning

Hazard statement(s)
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.

P273	Avoid release to the environment.
P280	Wear protective gloves/ eye protection/ face protection.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	$C_{12}H_{10}$
Molecular weight	:	154.21 g/mol
CAS-No.	:	92-52-4
EC-No.	:	202-163-5
Index-No.	:	601-042-00-8

Hazardous components

Component	Classification	Concentration
Biphenyl		
	Skin Irrit. 2; Eye Irrit. 2A; STOT SE 3; Aquatic Acute 1; Aquatic Chronic 1; H315, H319, H335, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Storage class (TRGS 510): Non Combustible Solids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Biphenyl	92-52-4	TWA	0.2 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Pulmonary function		
		TWA	0.200000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Pulmonary function		

		TWA	0.2 ppm 1 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		TWA	0.200000 ppm 1.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		
		TWA	0.2 ppm 1 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		
		TWA	0.200000 ppm 1.000000 mg/m3	USA. NIOSH Recommended Exposure Limits

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: butyl-rubber
Minimum layer thickness: 0.3 mm
Break through time: 480 min
Material tested:Butoject® (KCL 897 / Aldrich Z677647, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 30 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator.For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: crystalline Colour: light yellow
b)	Odour	characteristic
c)	Odour Threshold	No data available
d)	pH	5.5
e)	Melting point/freezing point	Melting point/range: 68 - 70 °C (154 - 158 °F) - lit.
f)	Initial boiling point and boiling range	255 °C (491 °F) - lit.
g)	Flash point	110 °C (230 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	The product is not flammable. - Flammability (solids)
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 5.8 %(V) Lower explosion limit: 0.6 %(V)
k)	Vapour pressure	0.04 hPa (0.03 mmHg) at 20 °C (68 °F) 5.5 hPa (4.1 mmHg) at 100 °C (212 °F) 12.6 hPa (9.5 mmHg) at 115 °C (239 °F) 95.7 hPa (71.8 mmHg) at 166 °C (331 °F)
l)	Vapour density	No data available
m)	Relative density	0.992 g/cm3
n)	Water solubility	0.0075 g/l at 15 °C (59 °F)
o)	Partition coefficient: n-octanol/water	log Pow: 4.008 at 25 °C (77 °F)
p)	Auto-ignition temperature	566 °C (1,051 °F) at 1,013.0 hPa (759.8 mmHg)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

Strong oxidizing agents

10.6 Hazardous decomposition products

Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
Inhalation: No data available

LD50 Dermal - Rabbit - > 5,010 mg/kg

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Irritating to skin. - 24 h
(Draize Test)

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
Maximisation Test (GPMT) - Guinea pig
Does not cause skin sensitisation.
(OECD Test Guideline 406)

Germ cell mutagenicity
Ames test
S. typhimurium
Result: negative

Mouse - male and female
Result: negative

Carcinogenicity

Carcinogenicity - Mouse - Oral
Tumorigenic:Equivocal tumorigenic agent by RTECS criteria. Lungs, Thorax, or Respiration:Tumors. Blood:Tumors.

Carcinogenicity - Mouse - Subcutaneous
Tumorigenic:Neoplastic by RTECS criteria. Lungs, Thorax, or Respiration:Tumors. Liver:Tumors.

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: DU8050000

Liver injury may occur., Gastrointestinal disturbance

Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	flow-through test LC50 - Pimephales promelas (fathead minnow) - 3 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	flow-through test EC50 - Daphnia magna (Water flea) - 0.36 mg/l - 48 h

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 14 d Result: 84 % - Readily biodegradable (OECD Test Guideline 301C)

12.3 Bioaccumulative potential

Bioaccumulation	Leuciscus idus (Golden orfe) - 3 d - 50 µg/l Bioconcentration factor (BCF): 281

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substances, solid, n.o.s. (Biphenyl)
Reportable Quantity (RQ): 100 lbs
Marine pollutant:yes
Poison Inhalation Hazard: No

IMDG
UN number: 3077 Class: 9 Packing group: III EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Biphenyl)
Marine pollutant:yes

IATA
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Biphenyl)

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Biphenyl	92-52-4	2007-07-01

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Biphenyl	92-52-4	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Biphenyl	92-52-4	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Biphenyl	92-52-4	2007-07-01

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Eye Irrit.	Eye irritation
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	1
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	1
Reactivity Hazard:	0

Further information
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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.10 Revision Date: 01/28/2016 Print Date: 02/18/2016

SAFETY DATA SHEET

Version 6.5
Revision Date 05/02/2022
Print Date 05/14/2022

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : 1,2,4,5-Tetramethylbenzene

Product Number : T19607
Brand : Aldrich
CAS-No. : 95-93-2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable solids (Category 1), H228
Short-term (acute) aquatic hazard (Category 1), H400
Long-term (chronic) aquatic hazard (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal Word Danger

Hazard statement(s)
H228 Flammable solid.

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H410	Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P210	Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P273	Avoid release to the environment.
P280	Wear protective gloves/ eye protection/ face protection.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P391	Collect spillage.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms	:	Durene 1,2,4,5-Tetramethylbenzene
Formula	:	$C_{10}H_{14}$
Molecular weight	:	134.22 g/mol
CAS-No.	:	95-93-2
EC-No.	:	202-465-7

Component	Classification	Concentration
1,2,4,5-tetramethylbenzene		
	Flam. Sol. 1; Aquatic Acute 1; Aquatic Chronic 1; H228, H400, H410 M-Factor - Aquatic Acute: 1 - Aquatic Chronic: 1	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

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In case of eye contact
After eye contact: rinse out with plenty of water. Remove contact lenses.

If swallowed
After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Combustible.
Vapors are heavier than air and may spread along floors.
Forms explosive mixtures with air on intense heating.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters
In the event of fire, wear self-contained breathing apparatus.

5.4 Further information
Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections
For disposal see section 13.

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SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge.

Hygiene measures
Change contaminated clothing. Wash hands after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Keep away from heat and sources of ignition.

Storage class
Storage class (TRGS 510): 4.1B: Flammable solid hazardous materials

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Change contaminated clothing. Wash hands after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

Body Protection
Flame retardant antistatic protective clothing.

Respiratory protection
required when dusts are generated.

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Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains. Risk of explosion.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: crystals
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 76 - 80 °C (169 - 176 °F) - lit.
f)	Initial boiling point and boiling range	191 - 193 °C 376 - 379 °F
g)	Flash point	74 °C (165 °F) - c.c.
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	The substance or mixture is a flammable solid with the category 1.
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Density	0.838 g/mL at 25 °C (77 °F) - lit.
	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	none

9.2 Other safety information

No data available

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SECTION 10: Stability and reactivity

10.1 Reactivity

Forms explosive mixtures with air on intense heating.
A range from approx. 15 Kelvin below the flash point is to be rated as critical.
The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions

Violent reactions possible with:
Oxidizing agents

10.4 Conditions to avoid

Strong heating.

10.5 Incompatible materials

No data available

10.6 Hazardous decomposition products

In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 6,700 mg/kg
Remarks: (RTECS)
Inhalation: No data available
Dermal: No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

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Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

RTECS: DC0500000
The data available to us do not suffice to permit any industrial-toxicological assessment.

Further toxicological data:

Risk of absorption.

Other dangerous properties can not be excluded.

Further data:

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	LC0 - Leuciscus idus (Golden orfe) - 10 mg/l - 48 h Remarks: (ECOTOX Database) LC50 - Leuciscus idus (Golden orfe) - 30 mg/l - 48 h Remarks: (ECOTOX Database) LC100 - Leuciscus idus (Golden orfe) - 50 mg/l - 48 h Remarks: (ECOTOX Database)
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 0.47 mg/l - 48 h Remarks: (External MSDS)

12.2 Persistence and degradability
Not readily biodegradable.

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

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12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

Discharge into the environment must be avoided.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

DOT (US)

UN number: 1325 Class: 4.1 Packing group: II
Proper shipping name: Flammable solids, organic, n.o.s. (1,2,4,5-tetramethylbenzene)
Reportable Quantity (RQ):
Poison Inhalation Hazard: No

IMDG

UN number: 1325 Class: 4.1 Packing group: II EMS-No: F-A, S-G
Proper shipping name: FLAMMABLE SOLID, ORGANIC, N.O.S. (1,2,4,5-tetramethylbenzene)
Marine pollutant : yes

IATA

UN number: 1325 Class: 4.1 Packing group: II
Proper shipping name: Flammable solid, organic, n.o.s. (1,2,4,5-tetramethylbenzene)

SECTION 15: Regulatory information

SARA 302 Components

This material does not contain any components with a section 302 EHS TPQ.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Fire Hazard

Massachusetts Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

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No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

1,2,4,5-tetramethylbenzene	CAS-No. 95-93-2	Revision Date

New Jersey Right To Know Components

1,2,4,5-tetramethylbenzene	CAS-No. 95-93-2	Revision Date

SECTION 16: Other information

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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Version: 6.5 Revision Date: 05/02/2022 Print Date: 05/14/2022

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SAFETY DATA SHEET

Creation Date 13-Apr-2009 **Revision Date** 24-Dec-2021 **Revision Number** 7

1. Identification

Product Name **2-Butanone**

Cat No. : **AC149670000; AC149670010; AC149670025; AC149670051; AC149670250; AC149670251**

CAS No 78-93-3
Synonyms Methyl ethyl ketone; MEK; Ethyl methyl ketone

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company
Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Central nervous system (CNS).	
Specific target organ toxicity - (repeated exposure)	Category 2
Target Organs - Kidney, Liver.	

Label Elements

Signal Word
Danger

Hazard Statements

Highly flammable liquid and vapor
Causes serious eye irritation
May cause drowsiness or dizziness
May cause damage to organs through prolonged or repeated exposure

Precautionary Statements
Prevention
Wash face, hands and any exposed skin thoroughly after handling
Do not breathe dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Wear protective gloves/protective clothing/eye protection/face protection
Keep cool
Response
Get medical attention/advice if you feel unwell
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell
Skin
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
Fire
In case of fire: Use CO2, dry chemical, or foam for extinction
Storage
Store in a well-ventilated place. Keep container tightly closed
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Repeated exposure may cause skin dryness or cracking
Other hazards
Contains a known or suspected endocrine disruptor.

3. Composition/Information on Ingredients

Component	CAS No	Weight %
Methyl ethyl ketone	78-93-3	>95

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get

	medical attention.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. Get medical attention if symptoms occur.
Inhalation	Remove to fresh air. Get medical attention if symptoms occur. If not breathing, give artificial respiration.
Ingestion	Do NOT induce vomiting. Get medical attention.
Most important symptoms and effects	Difficulty in breathing. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting
Notes to Physician	Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media	CO_2, dry chemical, dry sand, alcohol-resistant foam. Water mist may be used to cool closed containers.
Unsuitable Extinguishing Media	Water may be ineffective
Flash Point	-7 °C / 19.4 °F
Method -	CC (closed cup)
Autoignition Temperature	404 °C / 759.2 °F
Explosion Limits	
Upper	11.4 vol %
Lower	1.4 vol %
Oxidizing Properties	Not oxidising
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical
Flammable. Risk of ignition. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated. Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
Carbon monoxide (CO). Carbon dioxide (CO_2).
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	3	1	N/A

6. Accidental release measures

Personal Precautions	Use personal protective equipment as required. Remove all sources of ignition. Take precautionary measures against static discharges. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation.
Environmental Precautions	Avoid release to the environment. See Section 12 for additional Ecological Information.
Methods for Containment and Clean Up	Remove all sources of ignition. Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Use spark-proof tools and explosion-proof equipment.

7. Handling and storage

Handling

Wear personal protective equipment/face protection. Ensure adequate ventilation. Use spark-proof tools and explosion-proof equipment. Avoid contact with skin, eyes or clothing. Avoid ingestion and inhalation. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges. Use only non-sparking tools. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded.

Storage.

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks and flame. Flammables area. Incompatible Materials. Strong oxidizing agents. Strong acids. Strong bases. Strong reducing agents. Ammonia. copper. Amines.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Methyl ethyl ketone	TWA: 200 ppm STEL: 300 ppm	(Vacated) TWA: 200 ppm (Vacated) TWA: 590 mg/m³ (Vacated) STEL: 300 ppm (Vacated) STEL: 885 mg/m³ TWA: 200 ppm TWA: 590 mg/m³	IDLH: 3000 ppm TWA: 200 ppm TWA: 590 mg/m³ STEL: 300 ppm STEL: 885 mg/m³	TWA: 200 ppm STEL: 300 ppm

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures

Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting equipment. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	Characteristic - sweet
Odor Threshold	No information available
pH	No information available
Melting Point/Range	-87 °C / -124.6 °F
Boiling Point/Range	80 °C / 176 °F
Flash Point	-7 °C / 19.4 °F
Method -	CC (closed cup)

Evaporation Rate	3.7
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	11.4 vol %
Lower	1.4 vol %
Vapor Pressure	105 mbar @ 20 °C
Vapor Density	2.41
Specific Gravity	0.806
Solubility	Soluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	404 °C / 759.2 °F
Decomposition Temperature	No information available
Viscosity	0.42 mPa.s @ 15°C
Molecular Formula	C4 H8 O
Molecular Weight	72.11

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Hygroscopic.

Conditions to Avoid Incompatible products. Excess heat. Keep away from open flames, hot surfaces and sources of ignition. Exposure to moist air or water.

Incompatible Materials Strong oxidizing agents, Strong acids, Strong bases, Strong reducing agents, Ammonia, copper, Amines

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Methyl ethyl ketone	LD50 = 2483 mg/kg (Rat)	LD50 = 5000 mg/kg (Rabbit)	LC50 = 11700 ppm (Rat) 4 h

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Irritating to eyes

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Methyl ethyl ketone	78-93-3	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects Not mutagenic in AMES Test

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Central nervous system (CNS)
STOT - repeated exposure Kidney Liver

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Methyl ethyl ketone	Not listed	Lepomis macrochirus: LC50=3,22 g/L 96 h	EC50 = 3403 mg/L 30 min EC50 = 3426 mg/L 5 min	EC50: = 5091 mg/L, 48h (Daphnia magna) EC50: 4025 - 6440 mg/L, 48h Static (Daphnia magna) EC50: > 520 mg/L, 48h (Daphnia magna)

Persistence and Degradability Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its volatility.

Component	log Pow
Methyl ethyl ketone	0.29

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Methyl ethyl ketone - 78-93-3	U159	-

14. Transport information

DOT

UN-No UN1193
Proper Shipping Name Ethyl methyl ketone
Hazard Class 3
Packing Group II

TDG

UN-No UN1193
Proper Shipping Name ETHYL METHYL KETONE
Hazard Class 3
Packing Group II

IATA

UN-No UN1193
Proper Shipping Name Methyl ethyl ketone
Hazard Class 3

Packing Group II

IMDG/IMO

UN-No UN1193
Proper Shipping Name Ethyl methyl ketone (Methyl ethyl ketone)
Hazard Class 3
Packing Group II

15. Regulatory information

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
Methyl ethyl ketone	78-93-3	X	ACTIVE	-

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Methyl ethyl ketone	78-93-3	X	-	201-159-0	X	X	X	X	X	KE-24094

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313 Not applicable

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act) Not applicable

Clean Air Act Not applicable

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Methyl ethyl ketone	5000 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Methyl ethyl ketone	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ):	Y
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade Serious risk, Grade 3

Authorisation/Restrictions according to EU REACH

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Methyl ethyl ketone	-	Use restricted. See item 75. (see link for restriction details)	-

https://echa.europa.eu/substances-restricted-under-reach

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Methyl ethyl ketone	78-93-3	Listed	Not applicable	Not applicable	Not applicable

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Methyl ethyl ketone	78-93-3	Not applicable	Not applicable	Not applicable	Annex I - Y42

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 13-Apr-2009
Revision Date 24-Dec-2021
Print Date 24-Dec-2021
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Version 6.8
Revision Date 09/08/2024
Print Date 09/09/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : 2-Hexanone

Product Number : 02473
Brand : Sigma-Aldrich
Index-No. : 606-030-00-6
CAS-No. : 591-78-6

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 3), H226
Reproductive toxicity (Category 2), H361
Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336
Specific target organ toxicity - repeated exposure (Category 1), H372

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For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal Word Danger

Hazard Statements

H226	Flammable liquid and vapor.
H336	May cause drowsiness or dizziness.
H361	Suspected of damaging fertility or the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure.

Precautionary Statements

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P260	Do not breathe mist or vapors.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

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SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms : Butyl methyl ketone

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Formula	:	$C_6H_{12}O$
Molecular weight	:	100.16 g/mol
CAS-No.	:	591-78-6
EC-No.	:	209-731-1
Index-No.	:	606-030-00-6

Component	Classification	Concentration
Methyl butyl ketone		
	Flam. Liq. 3; Repr. 2; STOT SE 3; STOT RE 1; H226, H361, H336, H372	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

In case of eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

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5.2 Special hazards arising from the substance or mixture

Carbon oxides
Combustible.
Vapors are heavier than air and may spread along floors.
Forms explosive mixtures with air at elevated temperatures.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information

Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition.
Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

The life science business of Merck KGaA, Darmstadt, Germany
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Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorized persons.

Storage class
Storage class (TRGS 510): 3: Flammable liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Methyl butyl ketone	591-78-6	TWA	100 ppm 410 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Danger of cutaneous absorption		
		STEL	10 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Danger of cutaneous absorption		
		TWA	5 ppm 20 mg/m3	USA. Table Z-1-A Limits for Air Contaminants (1989 vacated values)
		TWA	1 ppm 4 mg/m3	USA. NIOSH Recommended Exposure Limits
		PEL	1 ppm 4 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		Skin		
		STEL	10 ppm 40 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		Skin		

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

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Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
required

Body Protection
Flame retardant antistatic protective clothing.

Respiratory protection
Recommended Filter type: Filter type ABEK
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when vapours/aerosols are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains. Risk of explosion.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: clear, liquid Color: colorless
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/ range: -57 °C (-71 °F) - lit.
f)	Initial boiling point and boiling range	127 °C 261 °F - lit.
g)	Flash point	23 °C (73 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 8.1 %(V) Lower explosion limit: 1.3 %(V)
k)	Vapor pressure	1,013 hPa at 127.5 °C (261.5 °F) 13 hPa at 39 °C(102 °F)
l)	Vapor density	3.46 - (Air = 1.0)

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m)	Density	0.812 g/mL at 25 °C (77 °F) - lit.
	Relative density	No data available
n)	Water solubility	slightly soluble
o)	Partition coefficient: n-octanol/water	log Pow: 1.38
p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	none

9.2 Other safety information

Surface tension	25.49 mN/m at 20 °C (68 °F)
Relative vapor density	3.46 - (Air = 1.0)

SECTION 10: Stability and reactivity

10.1 Reactivity
Vapor/air-mixtures are explosive at intense warming.

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
Heating.

10.5 Incompatible materials
Oxidizing agents, Strong bases

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 2,590 mg/kg
LC50 Inhalation - Rat - 4 h - 8000 ppm - vapor

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LD50 Dermal - Rabbit - 4,800 mg/kg

Skin corrosion/irritation
Skin - Rabbit
Result: Mild skin irritation - 24 h

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Mild eye irritation - 24 h

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
Overexposure may cause reproductive disorder(s) based on tests with laboratory animals. Suspected of damaging fertility.

Specific target organ toxicity - single exposure
May cause drowsiness or dizziness.

Specific target organ toxicity - repeated exposure
Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard
No data available

11.2 Additional Information

RTECS: MP1400000
narcosis, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 428 mg/l - 96 h

12.2 Persistence and degradability
No data available

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12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties
No data available

12.7 Other adverse effects
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)
UN number: 1224 Class: 3 Packing group: III
Proper shipping name: Ketones, liquid, n.o.s. (Methyl butyl ketone)
Reportable Quantity (RQ):
Poison Inhalation Hazard: No

IMDG
UN number: 1224 Class: 3 Packing group: III EMS-No: F-E, S-D
Proper shipping name: KETONES, LIQUID, N.O.S. (Methyl butyl ketone)

IATA
UN number: 1224 Class: 3 Packing group: III
Proper shipping name: Ketones, liquid, n.o.s. (Methyl butyl ketone)

SECTION 15: Regulatory information

CERCLA Reportable Quantity
This material does not contain any components with a CERCLA RQ.

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SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards	:	Fire Hazard Chronic Health Hazard
SARA 313	:	This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

US State Regulations

Massachusetts Right To Know

Methyl butyl ketone	591-78-6

Pennsylvania Right To Know

Methyl butyl ketone	591-78-6

Maine Chemicals of High Concern

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

California Prop. 65

WARNING: This product can expose you to chemicals including Methyl butyl ketone, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

The ingredients of this product are reported in the following inventories:

TSCA	:	All substances listed as active on the TSCA inventory

TSCA list

The following substance(s) is/are subject to a Significant New Use Rule:

Methyl butyl ketone	591-78-6	See 40 CFR § 721.4925; Final Rule

The following substance(s) is/are subject to TSCA 12(b) export notification requirements:

Methyl butyl ketone	591-78-6

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SECTION 16: Other information

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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Version: 6.8 Revision Date: 09/08/2024 Print Date: 09/09/2024

The life science business of Merck KGaA, Darmstadt, Germany
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Fisher Scientific

Part of Thermo Fisher Scientific

SAFETY DATA SHEET

Revision Date 10-Feb-2015 **Revision Number** 1

1. Identification

Product Name **2-Methylnaphthalene, 99% (gc)**

Cat No. : **AC414551000; AC414555000**

Synonyms No information available

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Entity / Business Name
Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute oral toxicity	Category 4
Skin Corrosion/irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system.	

Label Elements

Signal Word
Warning

Hazard Statements
Harmful if swallowed
Causes skin irritation
Causes serious eye irritation
May cause respiratory irritation

Precautionary Statements
Prevention
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Wear protective gloves/protective clothing/eye protection/face protection
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell
Skin
IF ON SKIN: Wash with plenty of soap and water
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash before reuse
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
Ingestion
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth
Storage
Store in a well-ventilated place. Keep container tightly closed
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Toxic to aquatic life with long lasting effects

3. Composition / information on ingredients

Component	CAS-No	Weight %
2-Methylnaphthalene	91-57-6	99.0

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes.

Inhalation Move to fresh air.

Ingestion Do not induce vomiting.

Most important symptoms/effects No information available.
Notes to Physician Treat symptomatically

5. Fire-fighting measures

Unsuitable Extinguishing Media No information available

Flash Point
Method - No information available

Autoignition Temperature No information available
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
None known
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	1	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment.
Environmental Precautions See Section 12 for additional ecological information. Avoid release to the environment. Collect spillage.

Methods for Containment and Clean Up No information available.

7. Handling and storage

Handling Ensure adequate ventilation.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
2-Methylnaphthalene	TWA: 0.5 ppm Skin		

Component	Quebec	Mexico OEL (TWA)	Ontario TWAEV
2-Methylnaphthalene			TWA: 0.5 ppm Skin

Legend

ACGIH - American Conference of Governmental Industrial Hygienists

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Solid
Appearance	No information available
Odor	Odorless
Odor Threshold	No information available
pH	
Melting Point/Range	37 38 °C
Boiling Point/Range	°C
Flash Point	
Evaporation Rate	No information available
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	< 1 mmHg @ 25 °C
Vapor Density	No information available
Relative Density	1.0000
Solubility	Insoluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C11H10
Molecular Weight	142.20

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products None under normal use conditions

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
2-Methylnaphthalene	1630 mg/kg (Rat)	Not listed	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
2-Methylnaphthalene	91-57-6	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Respiratory system
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity
Do not empty into drains.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
2-Methylnaphthalene	Not listed	Pimephales promelas:LC50 = 2.5mg/L	Not listed	EC50 = 1.5 mg/L/48h

Persistence and Degradability No information available
Bioaccumulation/ Accumulation No information available.

Mobility No information available.

Component	log Pow
2-Methylnaphthalene	3.86

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT Not regulated
TDG Not regulated
IATA Not regulated
IMDG/IMO Not regulated

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
2-Methylnaphthalene	X	X	-	202-078-3	-		X	X	X	X	-

Legend:

X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313 Not applicable

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act Not applicable

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
Not applicable

California Proposition 65 This product does not contain any Proposition 65 chemicals

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
2-Methylnaphthalene	-	X	-	-	-

U.S. Department of Transportation

Reportable Quantity (RQ):	N
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class D1B Toxic materials

D2B Toxic materials

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Revision Date 10-Feb-2015
Print Date 10-Feb-2015
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS

SAFETY DATA SHEET

Revision Date 10-Feb-2015 **Revision Number** 1

1. Identification

Product Name **p-Cymene**

Cat No. : **AC111760000; AC111760010; AC111760025; AC111760100; AC111762500**

Synonyms Dolcymene; p-Isopropyltoluene

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Entity / Business Name
Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 3
Skin Corrosion/irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system.	
Aspiration Toxicity	Category 1

Label Elements

Signal Word
Danger

Hazard Statements
Flammable liquid and vapor
May be fatal if swallowed and enters airways
Causes skin irritation
Causes serious eye irritation
May cause respiratory irritation

Precautionary Statements
Prevention
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Keep cool
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell
Skin
If skin irritation occurs: Get medical advice/attention
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
Ingestion
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
Do NOT induce vomiting
Fire
In case of fire: Use CO2, dry chemical, or foam for extinction
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
None identified

3. Composition / information on ingredients

Component	CAS-No	Weight %
p-Cymene	99-87-6	>95

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

Skin Contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Obtain medical attention.

Inhalation Remove from exposure, lie down. Move to fresh air. If breathing is difficult, give oxygen. If

not breathing, give artificial respiration. Obtain medical attention.

Ingestion Do not induce vomiting. Clean mouth with water. Get medical attention.

Most important symptoms/effects Breathing difficulties. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray. Carbon dioxide (CO_2). Dry chemical. Use water spray to cool unopened containers. chemical foam.

Unsuitable Extinguishing Media No information available

Flash Point 47 °C / 116.6 °F
Method - No information available

Autoignition Temperature 435 °C / 815 °F
Explosion Limits
Upper 5.60%
Lower .70%
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Flammable. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated.

Hazardous Combustion Products
Carbon monoxide (CO) Carbon dioxide (CO_2)
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
3	2	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment.
Environmental Precautions See Section 12 for additional ecological information.

Methods for Containment and Clean Up Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

7. Handling and storage

Handling Avoid contact with skin and eyes. Do not breathe dust. Do not breathe vapors or spray mist. Take precautionary measures against static discharges. Use explosion-proof equipment. Use only non-sparking tools.

Storage Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Keep away from heat and sources of ignition. Flammables area.

8. Exposure controls / personal protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Clear
Odor	aromatic
Odor Threshold	No information available
pH	No information available
Melting Point/Range	-68 °C / -90.4 °F
Boiling Point/Range	176 - 178 °C / 348.8 - 352.4 °F @ 760 mmHg
Flash Point	47 °C / 116.6 °F
Evaporation Rate	No information available
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	5.60%
Lower	.70%
Vapor Pressure	1.5 mmHg @ 20 °C
Vapor Density	4.62 (Air = 1.0)
Relative Density	0.854
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	435 °C / 815 °F
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C10 H14
Molecular Weight	134.22

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Keep away from open flames, hot surfaces and sources of ignition. Excess heat. Incompatible products.

Incompatible Materials Strong oxidizing agents, Strong acids, Strong bases

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization No information available.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
p-Cymene	3669 mg/kg (Rat)	Not listed	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
p-Cymene	99-87-6	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects Not mutagenic in AMES Test

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Respiratory system

STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information.

12. Ecological information

Ecotoxicity

Do not empty into drains.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
p-Cymene	Not listed	LC50: 48 mg/L/96h (sheepshead minnow)	Not listed	LC50: 6.5 mg/L/48h

Persistence and Degradability No information available

Bioaccumulation/ Accumulation No information available.

Mobility .

Component	log Pow
p-Cymene	4.1

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No	UN2046
Hazard Class	3
Packing Group	III

TDG

UN-No	UN2046
Hazard Class	3
Packing Group	III

IATA

UN-No	2046
Proper Shipping Name	CYMENES
Hazard Class	3
Packing Group	III

IMDG/IMO

UN-No	2046
Proper Shipping Name	CYMENES
Hazard Class	3
Packing Group	III

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
p-Cymene	X	X	-	202-796-7	-		X	X	X	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313 Not applicable

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	Yes
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act Not applicable

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
Not applicable

California Proposition 65 This product does not contain any Proposition 65 chemicals

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
p-Cymene	X	-	X	-	-

U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class B2 Flammable liquid
D2B Toxic materials

16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Revision Date 10-Feb-2015
Print Date 10-Feb-2015
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer
The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS

SAFETY DATA SHEET

Version 6.7
Revision Date 09/09/2024
Print Date 09/10/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Acetophenone

Product Number : W200910
Brand : Aldrich
Index-No. : 606-042-00-1
CAS-No. : 98-86-2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 4), H227
Acute toxicity, Oral (Category 4), H302
Eye irritation (Category 2A), H319

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Short-term (acute) aquatic hazard (Category 3), H402

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal Word Warning

Hazard Statements

H227	Combustible liquid.
H302	Harmful if swallowed.
H319	Causes serious eye irritation.
H402	Harmful to aquatic life.

Precautionary Statements

P210	Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/ eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P235	Store in a well-ventilated place. Keep cool.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula	:	C_8H_8O
Molecular weight	:	120.15 g/mol
CAS-No.	:	98-86-2
EC-No.	:	202-708-7
Index-No.	:	606-042-00-1

Component	Classification	Concentration
acetophenone		
	Flam. Liq. 4; Acute Tox. 4; Eye Irrit. 2A; Aquatic Acute 3; H227, H302, H319, H402	<= 100 %

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For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

In case of eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Combustible.
Vapors are heavier than air and may spread along floors.
Forms explosive mixtures with air on intense heating.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters
In the event of fire, wear self-contained breathing apparatus.

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5.4 Further information

Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition.
Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb®).
Dispose of properly. Clean up affected area.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge.

Hygiene measures

Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Tightly closed.

Storage class

Storage class (TRGS 510): 10: Combustible liquids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
acetophenone	98-86-2	TWA	10 ppm	USA. ACGIH Threshold Limit Values (TLV)
		TWA	10 ppm	USA. Workplace Environmental Exposure Levels (WEEL)
		PEL	10 ppm 49 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

8.2 Exposure controls

Appropriate engineering controls
Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Full contact
Material: butyl-rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Butoject® (KCL 898)

Splash contact
Material: Latex gloves
Minimum layer thickness: 0.6 mm
Break through time: 30 min
Material tested:Lapren® (KCL 706 / Aldrich Z677558, Size M)

Body Protection
protective clothing

Respiratory protection
Recommended Filter type: Filter A-(P2)
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when vapours/aerosols are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387

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and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: clear, liquid Color: colorless
b)	Odor	pleasant
c)	Odor Threshold	0.002 ppm
d)	pH	No data available
e)	Melting point/freezing point	Melting point/freezing point: 20 °C (68 °F)
f)	Initial boiling point and boiling range	202 °C 396 °F at 1,013 hPa
g)	Flash point	82 °C (180 °F) - closed cup - DIN 51758
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 5.2 %(V) Lower explosion limit: 1.4 %(V)
k)	Vapor pressure	0.45 hPa at 25 °C (77 °F)
l)	Vapor density	4.15 - (Air = 1.0)
m)	Density	1.03 g/cm3 at 25 °C (77 °F)
	Relative density	1.0320 °C
n)	Water solubility	6.3 g/l at 25 °C (77 °F) - soluble
o)	Partition coefficient: n-octanol/water	log Pow: 1.61 at 25 °C (77 °F) - Bioaccumulation is not expected.
p)	Autoignition temperature	535 °C (995 °F) at 1,013 hPa
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	none

9.2 Other safety information

Surface tension	39.04 mN/m at 25 °C (77 °F)

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Relative vapor density	4.15 - (Air = 1.0)

SECTION 10: Stability and reactivity

10.1 Reactivity
Forms explosive mixtures with air on intense heating.
A range from approx. 15 Kelvin below the flash point is to be rated as critical.

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
Exothermic reaction with:
Strong oxidizing agents
strong alkalis
strong reducing agents

10.4 Conditions to avoid
Strong heating.

10.5 Incompatible materials
No data available

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 815 mg/kg
Remarks: (RTECS)
Inhalation: No data available
LD50 Dermal - Rat - male and female - 3,300 mg/kg
(OECD Test Guideline 402)

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation - 24 h
(OECD Test Guideline 404)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Irritating to eyes.
Remarks: (RTECS)
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Respiratory or skin sensitization
No data available

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Germ cell mutagenicity
Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative
Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Test system: Chinese hamster lung cells
Metabolic activation: Metabolic activation
Method: OECD Test Guideline 473
Result: positive
Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Test system: Chinese hamster lung cells
Metabolic activation: without metabolic activation
Method: OECD Test Guideline 473
Result: negative

Test Type: Micronucleus test
Species: Mouse
Cell type: Red blood cells (erythrocytes)
Application Route: Intraperitoneal injection
Method: OECD Test Guideline 474
Result: negative

Carcinogenicity

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

Repeated dose toxicity - Rat - male and female - Oral - 90 Days - NOAEL (No observed adverse effect level) - 250 mg/kg

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To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	flow-through test LC50 - Pimephales promelas (fathead minnow) - 162 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	static test LC50 - Daphnia magna (Water flea) - 528 mg/l - 48 h Remarks: (ECHA)
Toxicity to algae	static test ErC50 - Pseudokirchneriella subcapitata (green algae) - 86.4 mg/l - 72 h (OECD Test Guideline 201)
Toxicity to bacteria	static test IC50 - activated sludge - > 1,000 mg/l - 3 h (OECD Test Guideline 209)

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 14 d Result: 64.7 % - Readily biodegradable. (OECD Test Guideline 301C)

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

Discharge into the environment must be avoided.

Stability in water	- 56 d Remarks: reaction with hydroxyl radicals

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SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)
Not dangerous goods

IMDG
Not dangerous goods

IATA
UN number: 3334 Class: 9 Packing group: III
Proper shipping name: Aviation regulated liquid, n.o.s. (acetophenone)

SECTION 15: Regulatory information

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
acetophenone	98-86-2	5000	5000

SARA 304 Extremely Hazardous Substances Reportable Quantity
This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity
This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Fire Hazard
Acute Health Hazard

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

acetophenone 98-86-2 >= 90 - <= 100 %

US State Regulations

Massachusetts Right To Know
acetophenone 98-86-2

Pennsylvania Right To Know
acetophenone 98-86-2

Maine Chemicals of High Concern

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Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

The ingredients of this product are reported in the following inventories:

TSCA : All substances listed as active on the TSCA inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16: Other information

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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Version: 6.7 Revision Date: 09/09/2024 Print Date: 09/10/2024

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SAFETY DATA SHEET
Aluminum (pieces)

1. Identification

Product identifier

Product name Aluminum (pieces)

Internal identification Replaces M-1000-010

CAS number 7429-90-5

Recommended use of the chemical and restrictions on use

Application Exterior surface coating.

Uses advised against No specific uses advised against are identified.

Details of the supplier of the safety data sheet

Supplier Kurt J Lesker Company

Manufacturer Kurt J Lesker Company
1925 Route 51
Jefferson Hills, PA 15025
+1 412-387-9200

Kurt J Lesker Company LTD
United Kingdom
15-16 Burgess Road
Hastings, East Sussex, TN35 4NR
England
Customer Service: +44 (0) 1424 458100
msds@lesker.com

Emergency telephone number

Emergency telephone North America [USA, Canada, Mexico]: 1-866-519-4752
Mainland China: (+86) 4001 2001 74
Europe: {int'l call prefix}-1-760-476-3961
Asia Pacific: {int'l call prefix}-1-760-476-3960
Middle East & Africa: {int'l call prefix}-1-760-476-3959

2. Hazard(s) identification

Classification of the substance or mixture

Physical hazards Not Classified

Health hazards Not Classified

Environmental hazards Not Classified

Label elements

Hazard statements NC Not Classified

Other hazards

Aluminum (pieces)

This product does not contain any substances classified as PBT or vPvB. Based on available knowledge of this material, it has been determined to be non-hazardous and will not pose a risk to persons or the environment in its provided form. However, any cutting, welding, melting, grinding, or use for deposition will produce dust, fume, or particulates containing component elements of this material. Exposure to these components may present significant health hazards. Note: Fine particulate may be a combustible dust which, when dispersed in air, may present an explosion hazard.

3. Composition/information on ingredients

Mixtures

Aluminum (pieces) CAS number: 7429-90-5	**0 - 100%**

Classification
Not Classified

The full text for all hazard statements is displayed in Section 16.

4. First-aid measures

Description of first aid measures

General information If in doubt, get medical attention promptly. Show this Safety Data Sheet to the medical personnel.

Inhalation Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Loosen tight clothing such as collar, tie or belt. Get medical attention if symptoms are severe or persist.

Ingestion Rinse mouth thoroughly with water. Get medical advice/attention if you feel unwell. Do not induce vomiting unless under the direction of medical personnel.

Skin Contact Rinse with water.

Eye contact Rinse with water. Get medical attention if any discomfort continues.

Protection of first aiders First aid personnel should wear appropriate protective equipment during any rescue.

Most important symptoms and effects, both acute and delayed

General information The severity of the symptoms described will vary dependent on the concentration and the length of exposure.

Inhalation No specific symptoms known.

Ingestion No specific symptoms known.

Skin contact Prolonged contact may cause dryness of the skin.

Eye contact No specific symptoms known. May be slightly irritating to eyes.

Indication of immediate medical attention and special treatment needed

Notes for the doctor Treat symptomatically.

5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media The product is flammable. Extinguish with alcohol-resistant foam, carbon dioxide or dry powder. Use fire-extinguishing media suitable for the surrounding fire.

Unsuitable extinguishing media Do not use water, if avoidable.

Aluminum (pieces)

Special hazards arising from the substance or mixture

Specific hazards Reacts with water. Flammable solid. Dust may form explosive mixture with air. Fire-water run-off in sewers may create fire or explosion hazard.

Hazardous combustion products Thermal decomposition or combustion products may include the following substances: Harmful gases or vapors.

Advice for firefighters

Protective actions during firefighting Avoid breathing fire gases or vapors. Evacuate area. Control run-off water by containing and keeping it out of sewers and watercourses. If risk of water pollution occurs, notify appropriate authorities.

Special protective equipment for firefighters Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing. Standard Firefighter's clothing including helmets, protective boots and gloves will provide a basic level of protection for chemical incidents.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Wear protective clothing as described in Section 8 of this safety data sheet. No action shall be taken without appropriate training or involving any personal risk. Evacuate area. Provide adequate ventilation. No smoking, sparks, flames or other sources of ignition near spillage. Promptly remove any clothing that becomes contaminated.

Environmental precautions

Environmental precautions Avoid discharge into drains or watercourses or onto the ground.

Methods and material for containment and cleaning up

Methods for cleaning up Wear protective clothing as described in Section 8 of this safety data sheet. Clear up spills immediately and dispose of waste safely. Eliminate all ignition sources if safe to do so. No smoking, sparks, flames or other sources of ignition near spillage. Do not allow material to enter confined spaces, due to the risk of explosion. Collect spillage with a shovel and broom, or similar and reuse, if possible. Collect and place in suitable waste disposal containers and seal securely. Flush contaminated area with plenty of water. Wash thoroughly after dealing with a spillage. For waste disposal, see Section 13.

Reference to other sections For personal protection, see Section 8. See Section 11 for additional information on health hazards. See Section 12 for additional information on ecological hazards. For waste disposal, see Section 13.

7. Handling and storage

Precautions for safe handling

Usage precautions Read and follow manufacturer's recommendations. Wear protective clothing as described in Section 8 of this safety data sheet. Keep away from food, drink and animal feeding stuffs. Keep container tightly sealed when not in use. The product is flammable. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not handle until all safety precautions have been read and understood. Do not handle broken packages without protective equipment. Do not reuse empty containers.

Advice on general occupational hygiene Wash promptly if skin becomes contaminated. Take off contaminated clothing and wash before reuse. Wash contaminated clothing before reuse.

Conditions for safe storage, including any incompatibilities

Storage precautions Keep away from oxidizing materials, heat and flames. Avoid contact with water. Keep only in the original container. Keep container tightly closed, in a cool, well ventilated place. Keep containers upright. Protect containers from damage.

Aluminum (pieces)

Storage class Water-reactive storage.

Specific end uses(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.

8. Exposure Controls/personal protection

Control parameters

Occupational exposure limits

Aluminum (pieces)

Long-term exposure limit (8-hour TWA): OSHA 5 mg/m³ respirable fraction
as Al
Long-term exposure limit (8-hour TWA): OSHA 15 mg/m³ total dust
as Al
Long-term exposure limit (8-hour TWA): ACGIH 1 mg/m³ respirable fraction
A4
OSHA = Occupational Safety and Health Administration.
ACGIH = American Conference of Governmental Industrial Hygienists.
A4 = Not Classifiable as a Human Carcinogen.

Exposure controls

Protective equipment

Appropriate engineering controls Provide adequate ventilation. Observe any occupational exposure limits for the product or ingredients.

Eye/face protection Unless the assessment indicates a higher degree of protection is required, the following protection should be worn: Tight-fitting safety glasses.

Hand protection No specific hand protection recommended.

Other skin and body protection Wear appropriate clothing to prevent repeated or prolonged skin contact.

Hygiene measures Wash hands thoroughly after handling. Wash at the end of each work shift and before eating, smoking and using the toilet. Do not eat, drink or smoke when using this product.

Respiratory protection Ensure all respiratory protective equipment is suitable for its intended use and is NIOSH approved. Check that the respirator fits tightly and the filter is changed regularly. Gas and combination filter cartridges should comply with OSHA 1910.134. Full face mask respirators with replaceable filter cartridges should comply with OSHA 1910.134. Half mask and quarter mask respirators with replaceable filter cartridges should comply with OSHA 1910.134.

Environmental exposure controls Keep container tightly sealed when not in use.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Appearance Solid.

Color Silver.

Odor No characteristic odor.

Odor threshold Not applicable.

Aluminum (pieces)

pH	Not applicable.
Melting point	660°C
Initial boiling point and range	Not available.
Flash point	Not applicable.
Evaporation rate	Not applicable.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	Not applicable.
Vapor pressure	Not available.
Vapor density	Not available.
Relative density	2.70 @ 25°C
Bulk density	Not available.
Solubility(ies)	Insoluble in water.
Partition coefficient	Not applicable.
Auto-ignition temperature	Not applicable.
Decomposition Temperature	Not available.
Viscosity	Not applicable.
Molecular weight	26.98

10. Stability and reactivity

Reactivity	There are no known reactivity hazards associated with this product.
Stability	Stable at normal ambient temperatures and when used as recommended. Stable under the prescribed storage conditions.
Possibility of hazardous reactions	Reacts strongly with water. The following materials may react strongly with the product: Oxidizing agents.
Conditions to avoid	Avoid heat, flames and other sources of ignition. Static electricity and formation of sparks must be prevented.
Materials to avoid	Water. Oxidizing materials. Acids - oxidizing.
Hazardous decomposition products	Does not decompose when used and stored as recommended. Thermal decomposition or combustion products may include the following substances: Harmful gases or vapors.

11. Toxicological information

Information on toxicological effects

Acute toxicity - oral

Notes (oral LD_{50}) Based on available data the classification criteria are not met.

Acute toxicity - dermal

Notes (dermal LD_{50}) Based on available data the classification criteria are not met.

Acute toxicity - inhalation

Aluminum (pieces)

Notes (inhalation LC_{50}) Based on available data the classification criteria are not met.

Skin corrosion/irritation

Animal data Based on available data the classification criteria are not met.

Serious eye damage/irritation

Serious eye damage/irritation Based on available data the classification criteria are not met.

Respiratory sensitization

Respiratory sensitization Based on available data the classification criteria are not met.

Skin sensitization

Skin sensitization Based on available data the classification criteria are not met.

Germ cell mutagenicity

Genotoxicity - in vitro Based on available data the classification criteria are not met.

Carcinogenicity

Carcinogenicity Based on available data the classification criteria are not met.

IARC carcinogenicity None of the ingredients are listed or exempt.

Reproductive toxicity

Reproductive toxicity - fertility Based on available data the classification criteria are not met.

Reproductive toxicity - development Based on available data the classification criteria are not met.

Specific target organ toxicity - single exposure

STOT - single exposure Not classified as a specific target organ toxicant after a single exposure.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure Not classified as a specific target organ toxicant after repeated exposure.

Aspiration hazard

Aspiration hazard Not relevant. Solid.

General information The severity of the symptoms described will vary dependent on the concentration and the length of exposure.

Inhalation No specific symptoms known.

Ingestion No specific symptoms known.

Skin Contact Prolonged contact may cause dryness of the skin.

Eye contact No specific symptoms known.

Route of exposure Ingestion Inhalation Skin and/or eye contact

Target Organs No specific target organs known.

12. Ecological Information

Ecotoxicity Not regarded as dangerous for the environment. However, large or frequent spills may have hazardous effects on the environment.

Toxicity Based on available data the classification criteria are not met.

Persistence and degradability

Aluminum (pieces)

Persistence and degradability Reacts with water.

Bioaccumulative potential

Bio-Accumulative Potential No data available on bioaccumulation.

Partition coefficient Not applicable.

Mobility in soil

Mobility No data available.

Other adverse effects

Other adverse effects None known.

13. Disposal considerations

Waste treatment methods

General information The generation of waste should be minimized or avoided wherever possible. Reuse or recycle products wherever possible. This material and its container must be disposed of in a safe way. When handling waste, the safety precautions applying to handling of the product should be considered. Care should be taken when handling emptied containers that have not been thoroughly cleaned or rinsed out. Empty containers or liners may retain some product residues and hence be potentially hazardous.

Disposal methods Dispose of surplus products and those that cannot be recycled via a licensed waste disposal contractor. Waste, residues, empty containers, discarded work clothes and contaminated cleaning materials should be collected in designated containers, labeled with their contents. Incineration or landfill should only be considered when recycling is not feasible.

14. Transport information

General The product is not covered by international regulations on the transport of dangerous goods (IMDG, IATA, DOT).

UN Number

Not applicable.

UN proper shipping name

Not applicable.

Transport hazard class(es)

No transport warning sign required.

Transport labels

No transport warning sign required.

DOT transport labels

No transport warning sign required.

Packing group

Not applicable.

Environmental hazards

Environmentally Hazardous Substance

No.

Special precautions for user

Aluminum (pieces)

Based on available knowledge of this material, it has been determined to be non-hazardous and will not pose a risk to persons or the environment in its provided form. However, any cutting, welding, melting, grinding, or use for deposition will produce dust, fume, or particulates containing component elements of this material. Exposure to these components may present significant health hazards. Note: Fine particulate may be a combustible dust which, when dispersed in air, may present an explosion hazard.

DOT TIH Zone Not applicable.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

15. Regulatory information

US Federal Regulations

SARA Section 302 Extremely Hazardous Substances Tier II Threshold Planning Quantities
None of the ingredients are listed or exempt.

CERCLA/Superfund, Hazardous Substances/Reportable Quantities (EPA)
None of the ingredients are listed or exempt.

SARA Extremely Hazardous Substances EPCRA Reportable Quantities
None of the ingredients are listed or exempt.

SARA 313 Emission Reporting
None of the ingredients are listed or exempt.

CAA Accidental Release Prevention
None of the ingredients are listed or exempt.

FDA - Essential Chemical
None of the ingredients are listed or exempt.

FDA - Precursor Chemical
None of the ingredients are listed or exempt.

SARA (311/312) Hazard Categories
None of the ingredients are listed or exempt.

OSHA Highly Hazardous Chemicals
None of the ingredients are listed or exempt.

US State Regulations

California Proposition 65 Carcinogens and Reproductive Toxins
None of the ingredients are listed or exempt.

California Air Toxics "Hot Spots" (A-I)
None of the ingredients are listed or exempt.

California Air Toxics "Hot Spots" (A-II)
None of the ingredients are listed or exempt.

California Directors List of Hazardous Substances
None of the ingredients are listed or exempt.

Massachusetts "Right To Know" List
None of the ingredients are listed or exempt.

Aluminum (pieces)

Rhode Island "Right To Know" List
None of the ingredients are listed or exempt.

Minnesota "Right To Know" List
None of the ingredients are listed or exempt.

New Jersey "Right To Know" List
None of the ingredients are listed or exempt.

Pennsylvania "Right To Know" List
None of the ingredients are listed or exempt.

Inventories

US - TSCA
None of the ingredients are listed or exempt.

US - TSCA 12(b) Export Notification
None of the ingredients are listed or exempt.

16. Other information

Training advice	Only trained personnel should use this material.
Revision date	5/9/2018
Revision	7
Supersedes date	5/9/2018
SDS No.	4661

End of SDS

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.

Antimony

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision Date: 02/12/2014 Version: 1.0

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY

1.1. Product Identifier

Product Form: Substance

Product Name: Antimony

Synonyms: Stibium (Sb)

1.2. Intended Use of the Product No additional information available

1.3. Name, Address, and Telephone of the Responsible Party

Company

Atomized Products Group, Inc
3838 Miller Park Dr
Garland, TX 75042
T 972-272-9596
atomizedproductsgroup.com

1.4. Emergency Telephone Number

Emergency Number : 800-255-3924 (CHEMTEL)

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the Substance or Mixture

Classification (GHS-US)

Comb. Dust
Acute Tox. 3 (Oral) H301
Acute Tox. 4 (Inhalation:dust,mist) H332
Carc. 2 H351
Aquatic Acute 2 H401
Aquatic Chronic 2 H411

2.2. Label Elements

GHS-US Labeling

Hazard Pictograms (GHS-US) :

GHS06 GHS07 GHS08 GHS09

Signal Word (GHS-US) : Danger

Hazard Statements (GHS-US) : May form combustible dust concentrations in air
H301 - Toxic if swallowed
H332 - Harmful if inhaled
H351 - Suspected of causing cancer
H401 - Toxic to aquatic life
H411 - Toxic to aquatic life with long lasting effects

Precautionary Statements (GHS-US) : P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P261 - Avoid breathing dust.
P264 - Wash hands, forearms, and other exposed areas thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P271 - Use only outdoors or in a well-ventilated area.
P273 - Avoid release to the environment.
P280 - Wear protective gloves, protective clothing, eye protection, face protection, respiratory protection.
P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P308+P313 - If exposed or concerned: Get medical advice/attention.

P312 - Call a POISON CENTER/doctor/physician if you feel unwell.
P321 - Specific treatment (see section 4).
P330 - If swallowed, rinse mouth.
P391 - Collect spillage.
P405 - Store locked up.
P501 - Dispose of contents/container to local, regional, national, territorial, provincial, and international regulations.

2.3. Other Hazards

Other Hazards Not Contributing to the Classification: Exposure may aggravate those with pre-existing eye, skin, or respiratory conditions. May form combustible dust concentrations in air. Exposure may aggravate individuals with pre-existing skin, kidney, liver, and pulmonary disorders. On burning release of harmful/irritant gases/vapours (antimony oxides). Inhalation of dusts and fumes can cause metal fume fever. Symptoms can include a metallic or sweet taste in the mouth, sweating, shivering, headache, throat irritation, fever, chills, thirstiness, muscle aches, nausea, vomiting, weakness, fatigue, and shortness of breath.

2.4. Unknown Acute Toxicity (GHS-US)

No data available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance

Name : Antimony

Name	Product identifier	%	Classification (GHS-US)
Antimony	(CAS No) 7440-36-0	100	Comb. Dust Acute Tox. 3 (Oral), H301 Acute Tox. 4 (Inhalation), H332 Carc. 2, H351 Aquatic Acute 2, H401 Aquatic Chronic 2, H411

Full text of H-phrases: see section 16

3.2. Mixture

Not applicable

SECTION 4: FIRST AID MEASURES

4.1. Description of First Aid Measures

First-aid Measures General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid Measures After Inhalation: When symptoms occur: go into open air and ventilate suspected area. Obtain medical attention if breathing difficulty persists.

First-aid Measures After Skin Contact: Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Obtain medical attention if irritation persists.

First-aid Measures After Eye Contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if irritation persists.

First-aid Measures After Ingestion: Rinse mouth. Do not induce vomiting. Seek medical attention if a large amount is swallowed.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/Injuries: Suspected of causing cancer. Toxic if swallowed. Harmful if inhaled.

Symptoms/Injuries After Inhalation: Harmful if inhaled. Respiratory tract irritation.

Symptoms/Injuries After Skin Contact: Prolonged contact with large amounts of dust may cause mechanical irritation.

Symptoms/Injuries After Eye Contact: Prolonged contact with large amounts of dust may cause mechanical irritation.

Symptoms/Injuries After Ingestion: Toxic if swallowed. May cause nausea, vomiting, and diarrhea.

Chronic Symptoms: Prolonged exposure may cause effects in specific organs such as the liver, kidneys, blood, and nervous system.

4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

If exposed or concerned, get medical advice and attention.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing Media

Suitable Extinguishing Media: Use extinguishing media appropriate for surrounding fire.

Unsuitable Extinguishing Media: Do not use a heavy water stream. Use of heavy stream of water may spread fire.

5.2. Special Hazards Arising From the Substance or Mixture

Fire Hazard: Not considered flammable but may burn at high temperatures. Dust explosion hazard in air.

Explosion Hazard: Avoid dust clouds in combination with static electricity. Dust explosion hazard in air.

Reactivity: Hazardous reactions will not occur under normal conditions. Dust clouds can be explosive.

5.3. Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire.

Firefighting Instructions: Use water spray or fog for cooling exposed containers. In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Other information: Risk of dust explosion. Do not allow the product to be released into the environment. Do not allow run-off from fire fighting to enter drains or water courses.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Use special care to avoid static electric charges. Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Handle in accordance with good industrial hygiene and safety practice. Do not breathe dust. Avoid generating dust. Avoid all contact with skin, eyes, or clothing.

6.1.1. For Non-emergency Personnel

Protective Equipment: Use appropriate personal protection equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

6.1.2. For Emergency Responders

Protective Equipment: Equip cleanup crew with proper protection. Use appropriate personal protection equipment (PPE).

Emergency Procedures: Ventilate area.

6.2. Environmental Precautions

Prevent entry to sewers and public waters. Do not allow to enter drains or water courses.

6.3. Methods and Material for Containment and Cleaning Up

For Containment: Avoid generation of dust during clean-up of spills. Use only non-sparking tools.

Methods for Cleaning Up: Clear up spills immediately and dispose of waste safely. Avoid generation of dust during clean-up of spills. Use only non-sparking tools. Use explosion proof vacuum during cleanup, with appropriate filter, do not mix with other materials. Contact competent authorities after a spill.

6.4. Reference to Other Sections

See heading 8, Exposure Controls and Personal Protection.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for Safe Handling

Additional Hazards When Processed: Avoid dust production. Accumulation and dispersion of dust with an ignition source can cause a combustible dust explosion, keep dust levels to a minimum and follow applicable regulations. Do not pressurize, cut, or weld containers. . On burning: release of harmful/irritant gases/vapours e.g.: (antimony oxides).

Precautions for Safe Handling: Use only non-sparking tools. Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Handle in accordance with good industrial hygiene and safety procedures.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work. Do no eat, drink or smoke when using this product.

7.2. Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment. Use explosion-proof electrical, ventilating, and lighting equipment. Comply with applicable regulations.

Storage Conditions: Store in a dry, cool and well-ventilated place. Keep container closed when not in use. Keep/Store away from extremely high or low temperatures, ignition sources, incompatible materials.

Incompatible Products: Strong acids. Strong bases. Strong oxidizers.

7.3. Specific End Use(s)

No additional information available

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control Parameters

Antimony (7440-36-0)		
USA ACGIH	ACGIH TWA (mg/m³)	0.5 mg/m³
USA NIOSH	NIOSH REL (TWA) (mg/m³)	0.5 mg/m³

USA IDLH	US IDLH (mg/m³)	50 mg/m³
USA OSHA	OSHA PEL (TWA) (mg/m³)	0.5 mg/m³

8.2. Exposure Controls

Appropriate Engineering Controls : Ensure all national/local regulations are observed. Proper grounding procedures to avoid static electricity should be followed. Use explosion-proof equipment. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment : Gloves. Protective goggles. Respiratory protection of the dependent type. Protective clothing.

Materials for Protective Clothing : Chemically resistant materials and fabrics.

Hand Protection : Wear chemically resistant protective gloves.

Eye Protection : Chemical goggles or safety glasses.

Skin and Body Protection : Wear suitable protective clothing.

Respiratory Protection : Use NIOSH-approved air-purifying or supplied-air respirator where airborne concentrations of dust are expected to exceed exposure limits.

Thermal Hazard Protection : Wear suitable protective clothing.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on Basic Physical and Chemical Properties

Physical State : Solid

Odor : No data available

Odor Threshold : No data available

pH : No data available

Relative Evaporation Rate (butylacetate=1) : No data available

Melting Point : No data available

Freezing Point : No data available

Boiling Point : No data available

Flash Point : No data available

Auto-ignition Temperature : No data available

Decomposition Temperature : No data available

Flammability (solid, gas) : No data available

Vapor Pressure : No data available

Relative Vapor Density at 20 °C : No data available

Relative Density : No data available

Specific Gravity : No data available

Solubility : No data available

Log Pow : No data available

Log Kow : No data available

Viscosity, Kinematic : No data available

Viscosity, Dynamic : No data available

Explosive Properties : No data available

Oxidizing Properties : No data available

Explosive Limits : No data available

9.2. Other Information No additional information available

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity: Hazardous reactions will not occur under normal conditions. Dust clouds can be explosive.

10.2 Chemical Stability: Dust clouds can be explosive.

10.3 Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

10.4 Conditions to Avoid: Direct sunlight. Extremely high or low temperatures. Open flame. Ignition sources. Incompatible materials.

10.5 Incompatible Materials: Strong acids. Strong bases. Strong oxidizers. Halogenated compounds.

10.6 Hazardous Decomposition Products: Antimony and its oxides. Metal oxides. Inhalation of fumes may cause metal fume fever.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information On Toxicological Effects

Acute Toxicity: Toxic if swallowed. Harmful if inhaled.

Antimony	
ATE (Oral)	500.000 mg/kg body weight
ATE (Dust/Mist)	1.500 mg/l/4h

Antimony (7440-36-0)	
LD50 Oral Rat	100 mg/kg
ATE (Oral)	100.000 mg/kg body weight

Skin Corrosion/Irritation: Not classified

Serious Eye Damage/Irritation: Not classified

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Carcinogenicity: Suspected of causing cancer.

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): Not classified

Specific Target Organ Toxicity (Repeated Exposure): Not classified

Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: Harmful if inhaled. Respiratory tract irritation.

Symptoms/Injuries After Skin Contact: Prolonged contact with large amounts of dust may cause mechanical irritation.

Symptoms/Injuries After Eye Contact: Prolonged contact with large amounts of dust may cause mechanical irritation.

Symptoms/Injuries After Ingestion: Toxic if swallowed. May cause nausea, vomiting, and diarrhea.

Chronic Symptoms: Prolonged exposure may cause effects in specific organs such as the liver, kidneys, blood, and nervous system.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecology - General : Toxic to aquatic life with long lasting effects.

12.2. Persistence and Degradability

Antimony	
Persistence and Degradability	May cause long-term adverse effects in the environment.

12.3. Bioaccumulative Potential No additional information available

12.4. Mobility in Soil No additional information available

12.5. Other Adverse Effects

Other Information : Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste Disposal Recommendations: Dispose of waste material in accordance with all local, regional, national, and international regulations.

Additional Information: The materials contained within this product are hazardous to the environment, do not release into the environment.

SECTION 14: TRANSPORT INFORMATION

14.1 In Accordance with DOT

Proper Shipping Name : ANTIMONY POWDER
Hazard Class : 6.1
Identification Number : UN2871
Label Codes : 6.1
Packing Group : III
Marine Pollutant : Marine pollutant
ERG Number : 170

14.2 In Accordance with IMDG

Proper Shipping Name : ANTIMONY POWDER
Hazard Class : 6.1
Identification Number : UN2871
Packing Group : III
Label Codes : 6.1
EmS-No. (Fire) : F-A
EmS-No. (Spillage) : S-A
MFAG Number : 171

14.3 In Accordance with IATA

Proper Shipping Name : ANTIMONY POWDER
Packing Group : III
Identification Number : UN2871
Hazard Class : 6
Label Codes : 6.1
ERG Code (IATA) : 6L

SECTION 15: REGULATORY INFORMATION

15.1 US Federal Regulations

Antimony	
SARA Section 311/312 Hazard Classes	Delayed (chronic) health hazard Immediate (acute) health hazard

Antimony (7440-36-0)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Listed on SARA Section 313 (Specific toxic chemical listings)	
SARA Section 313 - Emission Reporting	1.0 %

15.2 US State Regulations

Antimony (7440-36-0)
U.S. - California - Priority Toxic Pollutants - Human Health Criteria
U.S. - California - Toxic Air Contaminant List (AB 1807, AB 2728)
U.S. - Colorado - Primary Drinking Water Regulations - Maximum Contaminant Level Goals (MCLGs)
U.S. - Colorado - Primary Drinking Water Regulations - Maximum Contaminant Levels (MCLs)
U.S. - Connecticut - Drinking Water Quality Standards - Maximum Contaminant Levels
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (30 min)
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (8 hr)
U.S. - Connecticut - Water Quality Standards - Consumption of Organisms Only
U.S. - Connecticut - Water Quality Standards - Consumption of Water and Organisms
U.S. - Connecticut - Water Quality Standards - Health Designations
U.S. - Delaware - Pollutant Discharge Requirements - Reportable Quantities
U.S. - Florida - Drinking Water Standards - Inorganic Contaminants - Maximum Contaminant Levels (MCLs)
U.S. - Georgia - Drinking Water - Maximum Contaminant Levels (MCLs)
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Emission Levels (ELs)
U.S. - Idaho - Occupational Exposure Limits - TWAs

U.S. - Illinois - Toxic Air Contaminants
U.S. - Louisiana - Reportable Quantity List for Pollutants
U.S. - Maine - Air Pollutants - Hazardous Air Pollutants
U.S. - Maryland - Surface Water Quality Standards - Consumption of Organisms Only
U.S. - Maryland - Surface Water Quality Standards - Consumption of Water and Organisms
U.S. - Massachusetts - Allowable Ambient Limits (AALs)
U.S. - Massachusetts - Allowable Threshold Concentrations (ATCs)
U.S. - Massachusetts - Drinking Water - Maximum Contaminant Levels (MCLs)
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 1
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 2
U.S. - Massachusetts - Oil & Hazardous Material List - Reportable Quantity
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 1
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 2
U.S. - Massachusetts - Right To Know List
U.S. - Massachusetts - Threshold Effects Exposure Limits (TELs)
U.S. - Massachusetts - Toxics Use Reduction Act
U.S. - Michigan - Occupational Exposure Limits - TWAs
U.S. - Michigan - Polluting Materials List
U.S. - Minnesota - Chemicals of High Concern
U.S. - Minnesota - Groundwater Health Risk Limits
U.S. - Minnesota - Hazardous Substance List
U.S. - Minnesota - Permissible Exposure Limits - TWAs
U.S. - Missouri - Drinking Water - Maximum Contaminant Levels (MCLs)
U.S. - Nebraska - Drinking Water - Maximum Contaminant Levels (MCLs)
U.S. - New Hampshire - Drinking Water - Maximum Contaminant Levels (MCLs)
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - 24-Hour
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - Annual
U.S. - New Jersey - Discharge Prevention - List of Hazardous Substances
U.S. - New Jersey - Environmental Hazardous Substances List
U.S. - New Jersey - Primary Drinking Water Standards - Maximum Contaminant Levels - MCLs
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New Jersey - Water Quality - Ground Water Quality Criteria
U.S. - New Jersey - Water Quality - Practical Quantitation Levels (PQLs)
U.S. - New York - Occupational Exposure Limits - TWAs
U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances
U.S. - North Dakota - Air Pollutants - Guideline Concentrations - 8-Hour
U.S. - North Dakota - Water Quality Standards - Human Health Value for Class III
U.S. - North Dakota - Water Quality Standards - Human Health Value for Classes I, IA, II
U.S. - Oregon - Permissible Exposure Limits - TWAs
U.S. - Pennsylvania - Drinking Water - Maximum Contaminant Levels (MCLs)
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Rhode Island - Air Toxics - Acceptable Ambient Levels - 24-Hour
U.S. - Rhode Island - Water Quality Standards - Acute Freshwater Aquatic Life Criteria
U.S. - Rhode Island - Water Quality Standards - Chronic Freshwater Aquatic Life Criteria
U.S. - Rhode Island - Water Quality Standards - Human Health Criteria for Consumption of Aquatic Organisms Only
U.S. - Rhode Island - Water Quality Standards - Human Health Criteria for Consumption of Water and Aquatic Organisms
U.S. - South Carolina - Maximum Contaminant Levels (MCLs)
U.S. - Tennessee - Occupational Exposure Limits - TWAs
U.S. - Texas - Drinking Water Standards - Maximum Contaminant Levels (MCLs)
U.S. - Texas - Effects Screening Levels - Long Term
U.S. - Texas - Effects Screening Levels - Short Term
U.S. - Utah - Drinking Water - Maximum Contaminant Levels (MCLs)
U.S. - Vermont - Hazardous Waste - Hazardous Constituents
U.S. - Vermont - Permissible Exposure Limits - TWAs
U.S. - Virginia - Water Quality Standards - Public Water Supply Effluent Limits
U.S. - Virginia - Water Quality Standards - Surface Waters Not Used for the Public Water Supply Effluent Limits

U.S. - Washington - Dangerous Waste - Dangerous Waste Constituents List
U.S. - Washington - Permissible Exposure Limits - STELs
U.S. - Washington - Permissible Exposure Limits - TWAs
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 25 Feet to Less Than 40 Feet
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 40 Feet to Less Than 75 Feet
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 75 Feet or Greater
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights Less Than 25 Feet

SECTION 16: OTHER INFORMATION

Revision date : 02/12/2014

Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

GHS Full Text Phrases:

Acute Tox. 3 (Oral)	Acute toxicity (oral) Category 3
Acute Tox. 4 (Inhalation)	Acute toxicity (inhalation) Category 4
Acute Tox. 4 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 4
Aquatic Acute 2	Hazardous to the aquatic environment - Acute Hazard Category 2
Aquatic Chronic 2	Hazardous to the aquatic environment - Chronic Hazard Category 2
Carc. 2	Carcinogenicity Category 2
Comb. Dust	Combustible Dust
	May form combustible dust concentrations in air
H301	Toxic if swallowed
H332	Harmful if inhaled
H351	Suspected of causing cancer
H401	Toxic to aquatic life
H411	Toxic to aquatic life with long lasting effects

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

SDS US (GHS HazCom) - US

SAFETY DATA SHEET

Version 5.3
Revision Date 09/11/2015
Print Date 05/11/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Aroclor 1248

Product Number : 48589
Brand : Supelco
Index-No. : 602-039-00-4

CAS-No. : 12672-29-6

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Specific target organ toxicity - repeated exposure (Category 2), H373
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Warning

Hazard statement(s)
H373 May cause damage to organs through prolonged or repeated exposure.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P273 Avoid release to the environment.
P314 Get medical advice/ attention if you feel unwell.
P391 Collect spillage.
P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

CAS-No. : 12672-29-6
Index-No. : 602-039-00-4

Hazardous components

Component	Classification	Concentration
Aroclor 1248		
	STOT RE 2; Aquatic Acute 1; Aquatic Chronic 1; H373, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Nature of decomposition products not known.

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): Non Combustible Liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Aroclor 1248	12672-29-6	TWA	0.001000 mg/m3	USA. NIOSH Recommended Exposure Limits
	Remarks	Potential Occupational Carcinogen		

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance Form: liquid

b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	No data available
f)	Initial boiling point and boiling range	No data available
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 11,000 mg/kg

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

Reproductive toxicity - Monkey - Oral
Maternal Effects: Menstrual cycle changes or disorders.

Reproductive toxicity - Monkey - Oral
Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).

Reproductive toxicity - Monkey - Oral
Effects on Fertility: Abortion.

Reproductive toxicity - Monkey - Oral
Effects on Newborn: Growth statistics (e.g., reduced weight gain). Effects on Newborn: Behavioral. Effects on Newborn: Other postnatal measures or effects.

No data available

Developmental Toxicity - Rabbit - Oral
Specific Developmental Abnormalities: Immune and reticuloendothelial system.

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
May cause damage to organs through prolonged or repeated exposure.
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

Nausea, Dizziness, Headache, muscle pain, muscle weakness, neck stiffness, trunk stiffness, stiffness of extremities, thick feeling in the tongue, Thirst

Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Lepomis macrochirus - 0.278 mg/l - 96.0 h
Toxicity to algae	Growth inhibition EC50 - Thalassiosira rotula - 0.02 mg/l - 44 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
Bioaccumulation: Pimephales promelas (fathead minnow) - 250 d - 3 µg/l

Bioconcentration factor (BCF): 120,000

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2315 Class: 9 Packing group: II
Proper shipping name: Polychlorinated biphenyls, liquid
Reportable Quantity (RQ): 1 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 2315 Class: 9 Packing group: II EMS-No: F-A, S-A
Proper shipping name: POLYCHLORINATED BIPHENYLS, LIQUID
Marine pollutant: yes

IATA
UN number: 2315 Class: 9 Packing group: II
Proper shipping name: Polychlorinated biphenyls, liquid

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Aroclor 1248	12672-29-6	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Aroclor 1248	12672-29-6	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Aroclor 1248	12672-29-6	1993-04-24

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer. Aroclor 1248	CAS-No. 12672-29-6	Revision Date 2008-08-01
WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm. Aroclor 1248	CAS-No. 12672-29-6	Revision Date 2008-08-01

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
STOT RE	Specific target organ toxicity - repeated exposure

HMIS Rating

Health hazard:	0
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	0
Fire Hazard:	0
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.3 Revision Date: 09/11/2015 Print Date: 05/11/2016

SAFETY DATA SHEET

Version 5.2
Revision Date 02/27/2015
Print Date 05/01/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Aroclor 1254

Product Number : 48586
Brand : Supelco
Index-No. : 602-039-00-4

CAS-No. : 11097-69-1

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 4), H302
Specific target organ toxicity - repeated exposure (Category 2), H373
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Warning

Hazard statement(s)
H302 Harmful if swallowed.
H373 May cause damage to organs through prolonged or repeated exposure.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.

P314	Get medical advice/ attention if you feel unwell.
P391	Collect spillage.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

CAS-No. : 11097-69-1
Index-No. : 602-039-00-4

Hazardous components

Component	Classification	Concentration
Aroclor 1254		
	Acute Tox. 4; STOT RE 2; Aquatic Acute 1; Aquatic Chronic 1; H302, H373, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Nature of decomposition products not known.

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): Non Combustible Liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Aroclor 1254	11097-69-1	TWA	0.5 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	Remarks	Skin designation		
		TWA	0.500000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Skin designation		
		TWA	0.5 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Liver damage Chloracne Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption		
		TWA	0.500000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Liver damage Chloracne Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption		
		TWA	0.5 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		Skin notation		
		TWA	0.001000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen See Appendix A		

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	No data available
f)	Initial boiling point and boiling range	No data available
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition	No data available

temperature

r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 1,010 mg/kg

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
Rat
Liver
Unscheduled DNA synthesis

Rat
Liver
DNA damage

Mouse
fibroblast
Morphological transformation.

Rat
Morphological transformation.

Rat
DNA damage

Rat
DNA damage

Carcinogenicity

Carcinogenicity - Rat - Oral
Tumorigenic:Equivocal tumorigenic agent by RTECS criteria. Gastrointestinal:Tumors.

Carcinogenicity - Rat - Oral
Tumorigenic:Carcinogenic by RTECS criteria. Liver:Tumors.

Carcinogenicity - Mouse - Skin
Tumorigenic:Equivocal tumorigenic agent by RTECS criteria. Skin and Appendages: Other: Tumors.
Tumorigenic:Tumors at site or application.

Carcinogenicity - Rat - Oral
Tumorigenic:Equivocal tumorigenic agent by RTECS criteria. Gastrointestinal:Tumors.

Carcinogenicity - Mouse - Oral
Tumorigenic:Neoplastic by RTECS criteria. Liver:Tumors.

Carcinogenicity - Mouse - Intraperitoneal
Tumorigenic:Equivocal tumorigenic agent by RTECS criteria. Tumorigenic Effects: Uterine tumors. Lungs, Thorax, or Respiration:Tumors.

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

Reproductive toxicity - Rabbit - Oral
Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).
Effects on Fertility: Abortion. Effects on Embryo or Fetus: Fetal death.

Reproductive toxicity - Rabbit - Oral
Effects on Newborn: Biochemical and metabolic.

Reproductive toxicity - Rat - Oral
Effects on Newborn: Biochemical and metabolic.

Reproductive toxicity - Rat - Oral
Effects on Newborn: Behavioral.

Reproductive toxicity - Rat - Oral
Effects on Newborn: Delayed effects.

Reproductive toxicity - Rat - Intraperitoneal
Maternal Effects: Other effects. Effects on Newborn: Biochemical and metabolic.

Reproductive toxicity - Mouse - Oral
Effects on Newborn: Behavioral.

Reproductive toxicity - Mammal - Oral
Effects on Fertility: Female fertility index (e.g., # females pregnant per # sperm positive females; # females pregnant per # females mated).

No data available

Developmental Toxicity - Rat - Oral

Specific Developmental Abnormalities: Hepatobiliary system.

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard
No data available

Additional Information
RTECS: Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Oncorhynchus mykiss (rainbow trout) - 0.22 µg/l - 96.0 h
Toxicity to algae	LC50 - Algae - 0.015 mg/l - 28 h

12.2 Persistence and degradability

12.3 Bioaccumulative potential

Bioaccumulation	Pimephales promelas (fathead minnow) - 8 Months - 1.8 µg/l
	Bioconcentration factor (BCF): 238,000

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2315 Class: 9 Packing group: II
Proper shipping name: Polychlorinated biphenyls, liquid
Reportable Quantity (RQ): 1 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 2315 Class: 9 Packing group: II EMS-No: F-A, S-A

Proper shipping name: POLYCHLORINATED BIPHENYLS, LIQUID
Marine pollutant: yes

IATA

UN number: 2315 Class: 9 Packing group: II
Proper shipping name: Polychlorinated biphenyls, liquid

15. REGULATORY INFORMATION

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Aroclor 1254	11097-69-1	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Aroclor 1254	11097-69-1	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Aroclor 1254	11097-69-1	1993-04-24

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer. Aroclor 1254	CAS-No. 11097-69-1	Revision Date 1990-06-30
WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm. Aroclor 1254	CAS-No. 11097-69-1	Revision Date 1990-06-30

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
H302	Harmful if swallowed.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
STOT RE	Specific target organ toxicity - repeated exposure

HMIS Rating

Health hazard:	1
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	1
Fire Hazard:	0
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.2 Revision Date: 02/27/2015 Print Date: 05/01/2016

SAFETY DATA SHEET

Version 5.3
Revision Date 06/25/2015
Print Date 05/11/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : AROCLOR 1260

Product Number : CRM48736
Brand : Supelco

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Carcinogenicity (Category 1B), H350

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H350 May cause cancer.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P405 Store locked up.
P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Hazardous components

Component		Classification	Concentration
Distillates (petroleum), hydrotreated middle			
CAS-No. EC-No. Index-No.	64742-46-7 265-148-2 649-221-00-X	Carc. 1B; H350	>= 90 - <= 100 %
Baseoil - unspecified			
CAS-No. EC-No. Index-No.	64742-53-6 265-156-6 649-466-00-2	Carc. 1B; H350	>= 30 - < 50 %
2,6-di-tert-Butyl-p-cresol			
CAS-No. EC-No.	128-37-0 204-881-4	Aquatic Acute 1; Aquatic Chronic 1; H410	>= 0.1 - < 1 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Nature of decomposition products not known.

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid inhalation of vapour or mist.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Distillates (petroleum), hydrotreated middle	64742-46-7	TWA	500.000000 ppm 2,000.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	Remarks	The value in mg/m3 is approximate.		

		TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	10.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	5 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		TWA	5 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	10 mg/m3	USA. NIOSH Recommended Exposure Limits
Baseoil - unspecified	64742-53-6	TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Not classifiable as a human carcinogen		
		TWA	5.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	10.000000 mg/m3	USA. NIOSH Recommended Exposure Limits

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	No data available
f)	Initial boiling point and boiling range	No data available
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

Strong oxidizing agents

10.6 Hazardous decomposition products

Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC:	3 - Group 3: Not classifiable as to its carcinogenicity to humans (2,6-di-tert-Butyl-p-cresol)
IARC:	3 - Group 3: Not classifiable as to its carcinogenicity to humans (Distillates (petroleum), hydrotreated middle)
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Nerves. - (Aroclor 1260)

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
Not dangerous goods

IMDG
Not dangerous goods

IATA
Not dangerous goods

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Distillates (petroleum), hydrotreated middle	64742-46-7	1989-08-11
Baseoil - unspecified	64742-53-6	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Distillates (petroleum), hydrotreated middle	64742-46-7	1989-08-11
Baseoil - unspecified	64742-53-6	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Distillates (petroleum), hydrotreated middle	64742-46-7	1989-08-11
Baseoil - unspecified	64742-53-6	1993-04-24

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
Aroclor 1260	11096-82-5	2008-08-01
Distillates (petroleum), hydrotreated middle	64742-46-7	2013-12-20

WARNING: This product contains a chemical known to the	CAS-No.	Revision Date

State of California to cause birth defects or other reproductive harm.	11096-82-5	2008-08-01
Aroclor 1260		

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
H350	May cause cancer.
H410	Very toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	0
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	0
Fire Hazard:	0
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.3 Revision Date: 06/25/2015 Print Date: 05/11/2016

AccuStandard, Inc.
125 Market St., New Haven, CT 06513 USA
Tel: 203-786-5290 Fax: 203-786-5287

SAFETY DATA SHEET

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

1.1 - Product Identifiers

Catalog Name: C-268S-M

Description: Aroclor 1268 in Methanol

1.2 - Relevant Identified Uses of the Substance or Mixture

Laboratory Chemical Reference Material

1.3 - Supplier Details

Company: AccuStandard, Inc.
125 Market St.
New Haven, CT 06513 USA

Telephone Number: 203-786-5290

Fax: 203-786-5287

Email: edocs@accustandard.com

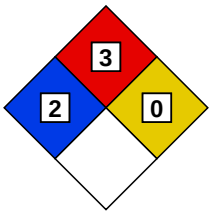
1.4 - Emergency Telephone Number

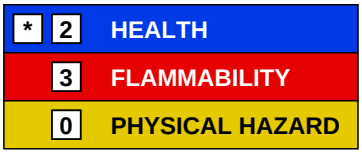
Emergency Phone #: AccuStandard, Inc.
1-203-502-7070 (USA)
+001-203-502-7070 (International)

24 hours / 7 days a week

SECTION 2 - HAZARDS IDENTIFICATION

2.1 - GHS Label Elements





Signal Word: Danger

Hazard Codes:

H225 - Highly Flammable (Flammable liquids, category 2)

H301 - Toxic if swallowed. (Acute toxicity, oral, category 3)

H311 - Toxic if absorbed through skin. (Acute toxicity, dermal, category 3)

H315 - Irritating to skin. (Skin corrosion/irritation, category 2)

H320 - Irritating to eyes. (Eye damage/irritation, category 2B)

H332 - Harmful if inhaled. (Acute toxicity, inhalation, category 4)

H336 - Overexposure may cause dizziness, nausea, muscle weakness, narcosis and respiratory failure.

H360 - California Proposition 65 Warning: This product contains a component (or components) that may cause birth defects or other reproductive harm in a quantity greater than or equal to 0.1%.

H370 - Causes damage to organs. (Specific target organ toxicity, single exposure, category 1)

Precautionary Codes:

SECTION 2 - HAZARDS IDENTIFICATION *- continued*

2.1 - GHS Label Elements *- continued*

P202 - This product should only by used by persons trained in the safe handling of hazardous chemicals.

P233 - Store in a tightly closed container. (P404)

P262 - Do not get in eyes, on skin or clothing.

P264 - Wash thoroughly after handling. Do not take internally. Eye wash and safety equipment should be readily available.

P280 - Protective gloves must be worn to prevent skin contact.

P284 - Respiratory Protection: If workplace exposure limit(s) of product or any component is exceeded (see TLV/PEL), or a risk assessment shows air-purifying respirators are appropriate, use of a NIOSH/MSHA approved air supplied respirator is advised. Use a full-face respirator with multi-purpose combination (US) or type ABEK (EN14387) respirator cartridges in absence of proper environmental control. Always use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Engineering and/or administrative controls should be implemented to reduce exposure.

P331 - Ingestion: Do NOT induce vomiting. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

P338 - Eye contact: Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers.

P360 - Skin contact: Immediately wash skin with soap and plenty of water. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

2.2 - Other Hazards

2.2.1 - Symptom of Exposure Health/Environment

Highly Flammable (Flammable liquids, category 2)

Causes damage to organs. (Specific target organ toxicity, single exposure, category 1)

After ingestion or inhalation, initial symptoms may be only that of mild intoxication, but may become severe after 12 or 18 hours.

POISON: May be fatal or cause blindness if swallowed.

Overexposure may cause dizziness, nausea, muscle weakness, narcosis and respiratory failure.

2.2.2 - Potential Health Effects

Irritating to eyes. (Eye damage/irritation, category 2B)

Irritating to skin. (Skin corrosion/irritation, category 2)

Toxic if absorbed through skin. (Acute toxicity, dermal, category 3)

Irritating to mucous membrane and upper respiratory system.

Harmful if inhaled. (Acute toxicity, inhalation, category 4)

Toxic if swallowed. (Acute toxicity, oral, category 3)

2.2.3 - Routes of Entry

Inhalation, ingestion or skin contact.

2.2.4 - Carcinogenicity

California Proposition 65 Warning: This product contains a component (or components) that may cause birth defects or other reproductive harm in a quantity greater than or equal to 0.1%.

California Proposition 65 Warning: This product contains a component (or components) that may cause cancer in a concentration less than 0.1%.

Contains one or more components that are classified (ACGIH, IARC, NTP, OSHA) as a possible cancer hazard in quantities less than 0.1%.

SECTION 3 - COMPOSITION / ANALYTES DATA

Description: Aroclor 1268 in Methanol

			ACGIH -TLV (mg/m³)			OSHA -PEL (mg/m³)		
Analyte	CAS #	% Concentration	TWA	STEL	Skin	TWA	STEL	Skin
Aroclor 1268	11100-14-4	0.004						
Methanol	67-56-1	99.996				260		

SECTION 4 - FIRST AID MEASURES

4.1 - First Aid Procedures - General

Get medical assistance for all cases of overexposure.

4.2 - Eye Contact

Eye contact: Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. (P338)

4.3 - Skin Contact

Skin contact: Immediately wash skin with soap and plenty of water. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse. (P360)

4.4 - Inhalation

Inhalation: Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention.

4.5 - Ingestion

Ingestion: Do NOT induce vomiting. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person. (P331)

SECTION 5 - FIRE FIGHTING MEASURES

5.1 - Flammable Properties

Dangerous fire and explosive hazard.

Containers can build up pressure if exposed to heat.

Vapors can travel to a source of ignition and flash back.

During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

5.2 - Extinguishing Media

Use alcohol foam, carbon dioxide, dry chemical, or water spray when fighting fires involving this material.

5.3 - Protection of Firefighters

As in any fire, wear self-contained breathing apparatus pressure demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

6.1 - Spill Response

Wear suitable protective equipment listed under Exposure Controls / Personal Protection. Eliminate any ignition sources until the area is determined to be free from explosion or fire hazards. Contain the release and eliminate its source, if this can be done without risk. Dispose as hazardous waste. Comply with Federal, State and local regulations.

SECTION 7 - HANDLING AND STORAGE

Store in a tightly closed container. (P404)

Store in a cool area away from ignition sources and oxidizers.

Sonicate before use.

Avoid breathing vapors or mists.

Use with adequate ventilation.

Do not get in eyes, on skin or clothing. (P262)

Avoid prolonged or repeated exposure.

This product should only by used by persons trained in the safe handling of hazardous chemicals. (P202)

SECTION 8 - EXPOSURE CONTROLS

8.1 - Engineering Controls/PPE

Wash thoroughly after handling. Do not take internally. Eye wash and safety equipment should be readily available. (P264)

8.2 - General Hygene Considerations

Respiratory Protection: If workplace exposure limit(s) of product or any component is exceeded (see TLV/PEL), or a risk assessment shows air-purifying respirators are appropriate, use of a NIOSH/MSHA approved air supplied respirator is advised. Use a full-face respirator with multi-purpose combination (US) or type ABEK (EN14387) respirator cartridges in absence of proper environmental control. Always use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Engineering and/or administrative controls should be implemented to reduce exposure.

Material should be handled or transferred in an approved fume hood or with adequate ventilation.

Protective gloves must be worn to prevent skin contact. (P280)

(Chloroprene, natural rubber, nitrile, or equivalent)

Use eye protection tested and approved under the appropriate government standards such as NIOSH (US) or EN 166 (EU).

All recommendations are advisory only and must be evaluated by an industrial hygienist and/or safety officer familiar with the specific situation of anticipated use, such as concentration and amount of the substance in the workplace. Any recommendation should not be construed as offering an approval for any specific use of the product.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Clear liquid

Odor: N/A

Odor Threshold: N/A

pH: N/A

Melting Point: -93.9 °C

Boiling Point: 65 °C

Flash Point: 52 °F (11 °C) (tcc)

Evaporation Rate (Butyl Acetate=1): 5.9

Flammability Class: N/A

Lower Flammability Level: 6.7

Upper Flammability Level: 36.5

Vapor Pressure: 97 mmHg (20 °C)

Vapor Density (Air = 1): 1.1 g/L

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES *- continued*

Specific Gravity: 0.791 g/cm3

Solubility in Water: Very soluble

Partition Coefficient: log Pow: -0.77

Autoignition Temperature: 385 °C

Decomposition Temperature: N/A

Viscosity: N/A

VOC Content: N/A

Percent Volatile: 99.9+

SECTION 10 - STABILITY AND REACTIVITY

Stability: Stable

Materials to Avoid: Acids
Oxidizers

Hazardous Decomposition: Oxides of carbon; Formaldehyde

Hazardous Polymerization: Will not occur

Condition to Avoid: Heat; Contact with ignition sources

SECTION 11 - TOXICOLOGICAL INFORMATION

Human Health Toxicity

See section 2 for specific toxicological information for the ingredients of this product.

LD50 (Oral): Human - 143 mg/kg; Rat - 1500 mg/kg

LD50 (Dermal) : Rabbit - >2000 mg/kg

LC50 (Inhalation): Rat - >20 mg/L

WARNING: This product contains chemical(s) known to the state of California to cause cancer and to cause birth defects or other reproductive harm.

No other information related to the toxicological properties of this product is available at this time.

SECTION 12 - ECOLOGICAL INFORMATION

Environmental Toxicity

By complying with sections 6 and 7 there should be no release to the environment.

LC50 (Fish): >1000 mg/L 96H

EC50 (Aquatic Invertebrate): >1000 mg/L 48H

BCF: 1.0

Hydrolyzes readily on contact with water. Readily biodegradable.

No other information related to the ecological properties of this product is available at this time.

SECTION 13 - DISPOSAL CONSIDERATIONS

Recycle or incinerate at any EPA approved facility or dispose in compliance with Federal, State and local regulations. Empty containers must be triple-rinsed prior to disposal.

SECTION 14 - TRANSPORT INFORMATION

Transportation Information (DOT/IATA)

UN Number: UN1230

Class: 3

Packing Group: II

Proper Shipping Name: Methanol

Poison by Inhalation: No

Marine Pollutant: No

SECTION 15 - REGULATORY INFORMATION

WARNING: This product contains chemical(s) known to the state of California to cause cancer and to cause birth defects or other reproductive harm.

This product contains a compound or compounds subject to EU Regulation (EC) No 1907/2006 (REACH) on Annex XIV, Annex XVII, and/or Article 59. Refer to the below table for details.

This product is subject to SARA section 313 reporting requirements.

All components are listed on the TSCA Inventory.

For laboratory, research and development use only. Not for manufacturing or commercial purposes.

In addition to federal and state regulations, local regulations may apply. Check with your local regulatory authorities.

			REACH (1907/2006)		
Analyte	CAS #	% Concentration	Annex XIV	Annex XVII	Article 59
Methanol	67-56-1	99.996		X	

SECTION 16 - OTHER INFORMATION

This document has been designed to meet the requirements of OSHA, ANSI, GHS and CHIPs regulations. Chemicals are classified using the Globally Harmonized System for Classification and Labeling of Chemicals and CLP Regulation (EC) No. 1272/2008.

The statements contained herein are offered for informational purposes only and are based on technical data that we believe to be accurate. The manufacturer will not assume any liability for the accuracy and completeness of this information. Final determination of the suitability of the material is the responsibility of the user. Although certain hazards are described herein, the user should not presume that these are the only hazards that exist. Since conditions and manner of use are outside of the manufacturers control, we make

NO WARRANTY OF MERCHANTABILITY, EXPRESSED OR IMPLIED, AND ASSUME NO LIABILITY RESULTING FROM ITS USE.

Legend : N/A = Not Available ND = Not Determined NR = Not Regulated

Alteration of any information contained herein without written permission from the manufacturer is strictly prohibited.

HMIS/NFPA HAZARD INDEX

0 - Minimal
1 - Slight
2 - Moderate
3 - Serious
4 - Severe

* - Additional Hazard

GHS HAZARD INDEX

Category 1 - Most Severe
Category 5 - Least Severe

**** End of Document ****

Fisher Scientific

Part of Thermo Fisher Scientific

SAFETY DATA SHEET

Creation Date 01-May-2012 **Revision Date** 23-Jan-2015 **Revision Number** 2

1. Identification

Product Name **Benzoic acid**

Cat No. : **A63-500; A65-500; A68-30**

Synonyms Benzenecarboxylic acid; Benzenemethanoic acid; Phenylcarboxylic acid; Phenylformic acid; Benzeneformic acid; Carboxybenzene

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number
CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin Corrosion/irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 1
Specific target organ toxicity - (repeated exposure)	Category 1
Target Organs - Lungs.	

Label Elements

Signal Word
Danger

Hazard Statements
Causes skin irritation
Causes serious eye damage
Causes damage to organs through prolonged or repeated exposure

Precautionary Statements
Prevention
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Do not breathe dust/fume/gas/mist/vapors/spray
Do not eat, drink or smoke when using this product
Response
Get medical attention/advice if you feel unwell
Skin
IF ON SKIN: Wash with plenty of soap and water
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash before reuse
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Immediately call a POISON CENTER or doctor/physician
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
May form combustible dust concentrations in air

3. Composition / information on ingredients

Component	CAS-No	Weight %
Benzoic acid	65-85-0	>95

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.

Inhalation Remove from exposure, lie down. Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Obtain medical attention.

Ingestion Do not induce vomiting. Obtain medical attention.

Most important symptoms/effects Causes eye burns. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons.

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray. Carbon dioxide (CO_2). Dry chemical. chemical foam.

Unsuitable Extinguishing Media No information available

Flash Point 121 °C / 249.8 °F
Method - No information available

Autoignition Temperature Not applicable 570 °C / 1058 °F
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Dust can form an explosive mixture in air.

Hazardous Combustion Products
Carbon monoxide (CO) Carbon dioxide (CO_2)
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
3	1	0	N/A

6. Accidental release measures

Personal Precautions Use personal protective equipment. Ensure adequate ventilation.
Environmental Precautions See Section 12 for additional ecological information.

Methods for Containment and Clean Up Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation.

7. Handling and storage

Handling Avoid contact with skin and eyes. Avoid ingestion and inhalation. Do not breathe dust.

Storage Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Keep away from heat and sources of ignition.

8. Exposure controls / personal protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Solid
Appearance	Off-white
Odor	aromatic
Odor Threshold	No information available
pH	2.5-3.5 2.9 g/l water
Melting Point/Range	121 - 123 °C / 249.8 - 253.4 °F
Boiling Point/Range	249 °C / 480.2 °F @ 760 mmHg
Flash Point	121 °C / 249.8 °F

Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	1.3 hPa @ 96 °C
Vapor Density	Not applicable
Relative Density	No information available
Solubility	soluble
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	Not applicable 570 °C / 1058 °F
Decomposition Temperature	No information available
Viscosity	Not applicable
Molecular Formula	C7 H6 O2
Molecular Weight	122.12

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products. Avoid dust formation.

Incompatible Materials Strong acids, Strong bases, Strong oxidizing agents, Strong reducing agents, Metals

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions Aqueous solution, May react with metals and lead to the formation of flammable hydrogen gas.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Benzoic acid	1700 mg/kg (Rat) 2565 mg/kg (Rat)	Not listed	26 mg/m³ (Rat) 1 h

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Irritating to eyes, respiratory system and skin

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Benzoic acid	65-85-0	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects Not mutagenic in AMES Test

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure Lungs

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available
Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information.

12. Ecological information

Ecotoxicity

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Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Benzoic acid	5 mg/L EC50 = 3 h	180 mg/L LC50 96 h	EC50 = 16.85 mg/L 30 min EC50 = 16.9 mg/L 15 min	300 mg/L EC50 = 24 h 860 mg/L EC50 = 48 h

Persistence and Degradability Soluble in water Persistence is unlikely based on information available.
Bioaccumulation/ Accumulation No information available.

Mobility Is not likely mobile in the environment due its low water solubility. Will likely be mobile in the environment due to its water solubility.

Component	log Pow
Benzoic acid	1.93

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT Not regulated
TDG Not regulated
IATA Not regulated
IMDG/IMO Not regulated

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Benzoic acid	X	X	-	200-618-2	-		X	X	X	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313 Not applicable

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Benzoic acid	X	5000 lb	-	-

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Benzoic acid	5000 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Benzoic acid	X	X	X	-	-

U.S. Department of Transportation

Reportable Quantity (RQ):	N
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

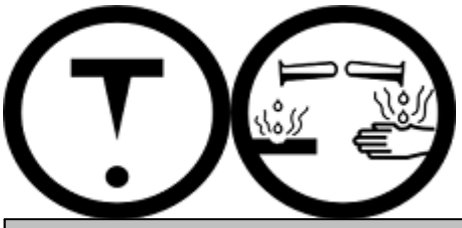
U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class E Corrosive material
D2A Very toxic materials



16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 01-May-2012
Revision Date 23-Jan-2015
Print Date 23-Jan-2015
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS

SAFETY DATA SHEET

Version 5.4
Revision Date 01/02/2015
Print Date 02/18/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Benzyl butyl phthalate

Product Number : 308501
Brand : Aldrich
Index-No. : 607-430-00-3

CAS-No. : 85-68-7

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Reproductive toxicity (Category 1B), H360
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H360 May damage fertility or the unborn child.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P273 Avoid release to the environment.
P281 Use personal protective equipment as required.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P391 Collect spillage.
P405 Store locked up.

P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	$C_{19}H_{20}O_4$
Molecular weight	:	312.36 g/mol
CAS-No.	:	85-68-7
EC-No.	:	201-622-7
Index-No.	:	607-430-00-3

Hazardous components

Component	Classification	Concentration
Benzyl butyl phthalate Included in the Candidate List of Substances of Very High Concern (SVHC) according to Regulation (EC) No. 1907/2006 (REACH)		
	Repr. 1B; Aquatic Acute 1; Aquatic Chronic 1; H360, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid inhalation of vapour or mist.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 480 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

Splash contact
Material: Nature latex/chloroprene
Minimum layer thickness: 0.6 mm
Break through time: 60 min

Material tested:Lapren® (KCL 706 / Aldrich Z677558, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/freezing point: < -34.99 °C (< -30.98 °F)
f)	Initial boiling point and boiling range	370 °C (698 °F)
g)	Flash point	113.0 °C (235.4 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	19.2 hPa (14.4 mmHg) at 250.0 °C (482.0 °F) 0.3 hPa (0.2 mmHg) at 150.0 °C (302.0 °F)
l)	Vapour density	No data available
m)	Relative density	1.1 g/cm3 at 25 °C (77 °F)
n)	Water solubility	0.00269 g/l at 25 °C (77 °F) - OECD Test Guideline 105 - slightly soluble
o)	Partition coefficient: n-octanol/water	log Pow: 4.91 at 20 °C (68 °F)
p)	Auto-ignition temperature	232.0 °C (449.6 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available

t) Oxidizing properties No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents, Strong bases

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - male and female - 2,330 mg/kg
(OECD Test Guideline 401)

Inhalation: No data available

LD50 Dermal - Rabbit - > 10,000 mg/kg

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
- Guinea pig
Result: Does not cause skin sensitisation.

Germ cell mutagenicity
Ames test
S. typhimurium
Result: negative

Carcinogenicity

This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

IARC:	3 - Group 3: Not classifiable as to its carcinogenicity to humans (Benzyl butyl phthalate)
ACGIH:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a

carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
Presumed human reproductive toxicant

Overexposure may cause reproductive disorder(s) based on tests with laboratory animals.

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information

Repeated dose toxicity - Rat - male - Oral - No observed adverse effect level - 550 mg/kg
RTECS: TH9990000

May cause endocrine disruption.

pancreas -

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Lepomis macrochirus (Bluegill) - 1.7 mg/l - 96.0 h
	NOEC - Oncorhynchus mykiss (rainbow trout) - 0.48 mg/l - 96.0 h
	flow-through test LC50 - Pimephales promelas (fathead minnow) - 2.1 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	static test LC50 - Daphnia magna (Water flea) - 1.8 mg/l - 48 h
Toxicity to algae	Growth inhibition EC50 - Desmodesmus subspicatus (green algae) - 0.31 mg/l - 72 h (OECD Test Guideline 201)

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 14 d Result: 81 % - Readily biodegradable

12.3 Bioaccumulative potential

Bioaccumulation	Lepomis macrochirus (Bluegill) - 21 d - 0.00973 mg/l
	Bioconcentration factor (BCF): 663

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

Avoid release to the environment.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3082 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, liquid, n.o.s. (Benzyl butyl phthalate)
Reportable Quantity (RQ): 100 lbs
Marine pollutant:yes
Poison Inhalation Hazard: No

IMDG
UN number: 3082 Class: 9 Packing group: III EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Benzyl butyl phthalate)
Marine pollutant:yes

IATA
UN number: 3082 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, liquid, n.o.s. (Benzyl butyl phthalate)

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Benzyl butyl phthalate	85-68-7	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Benzyl butyl phthalate	85-68-7	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Benzyl butyl phthalate	85-68-7	1993-04-24

California Prop. 65 Components

	CAS-No.	Revision Date
WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm. Benzyl butyl phthalate	85-68-7	2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
H360	May damage fertility or the unborn child.

H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
Repr.	Reproductive toxicity

HMIS Rating

Health hazard:	0
Chronic Health Hazard:	*
Flammability:	1
Physical Hazard	0

NFPA Rating

Health hazard:	1
Fire Hazard:	1
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.4 Revision Date: 01/02/2015 Print Date: 02/18/2016

SAFETY DATA SHEET

Version 5.11
Revision Date 06/18/2015
Print Date 02/11/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Bis(2-ethylhexyl) phthalate

Product Number : 80030
Brand : Sigma-Aldrich
Index-No. : 607-317-00-9

CAS-No. : 117-81-7

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Reproductive toxicity (Category 1B), H360

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H360 May damage fertility or the unborn child.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P281 Use personal protective equipment as required.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P405 Store locked up.
P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Endocrine disrupting chemical(s)

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	'Dioctyl' phthalate Phthalic acid bis(2-ethylhexyl ester) DEHP
Formula	:	$C_{24}H_{38}O_4$
Molecular weight	:	390.56 g/mol
CAS-No.	:	117-81-7
EC-No.	:	204-211-0
Index-No.	:	607-317-00-9
Registration number	:	01-2119484611-38-XXXX

Hazardous components

Component	Classification	Concentration
bis(2-Ethylhexyl) phthalate Included in the Candidate List of Substances of Very High Concern (SVHC) according to Regulation (EC) No. 1907/2006 (REACH)		
	Repr. 1B; H360	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
bis(2-Ethylhexyl) phthalate	117-81-7	TWA	5.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Lower Respiratory Tract irritation Confirmed animal carcinogen with unknown relevance to humans		
		TWA	5.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen See Appendix A		
		ST	10.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen See Appendix A		
		TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.2 mm
Break through time: 480 min
Material tested:Dermatril® P (KCL 743 / Aldrich Z677388, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 230 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	-50.0 °C (-58.0 °F)
f)	Initial boiling point and boiling range	386 °C (727 °F) - lit.
g)	Flash point	207.0 °C (404.6 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Lower explosion limit: 0.3 %(V)
k)	Vapour pressure	1.6 hPa (1.2 mmHg) at 93.0 °C (199.4 °F)
l)	Vapour density	No data available
m)	Relative density	0.985 g/cm3 at 20 °C (68 °F)
n)	Water solubility	insoluble

o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	390.0 °C (734.0 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 30,000 mg/kg

Inhalation: No data available

LD50 Dermal - Rabbit - 25,000 mg/kg

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Mild skin irritation - 24 h

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Mild eye irritation - 24 h

Respiratory or skin sensitisation
Maximisation Test (GPMT) - Guinea pig
Result: Does not cause skin sensitisation.
(OECD Test Guideline 406)

Germ cell mutagenicity
No data available

Carcinogenicity

This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

IARC: 2B - Group 2B: Possibly carcinogenic to humans (bis(2-Ethylhexyl) phthalate)

NTP: Reasonably anticipated to be a human carcinogen (bis(2-Ethylhexyl) phthalate)

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
May cause congenital malformation in the fetus.
Presumed human reproductive toxicant

May cause reproductive disorders.

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: TI0350000

Effects due to ingestion may include:, Gastrointestinal disturbance

Kidney -

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - > 0.67 mg/l - 96 h
	LC50 - Oncorhynchus mykiss (rainbow trout) - > 0.32 mg/l - 96 h
	LC50 - Cyprinodon variegatus (sheepshead minnow) - > 0.17 mg/l - 96 h
	LC50 - Lepomis macrochirus (Bluegill) - > 0.20 mg/l - 96 h
	NOEC - other fish - > 0.3 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	Immobilization EC50 - Daphnia magna (Water flea) - > 0.16 mg/l - 48 h

12.2 Persistence and degradability

Biodegradability	Result: - Readily biodegradable (OECD Test Guideline 301)

12.3 Bioaccumulative potential

Bioaccumulation	Oncorhynchus mykiss (rainbow trout) - 100 d - 0.014 mg/l Bioconcentration factor (BCF): 113 Remarks: Does not bioaccumulate.

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3082 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, liquid, n.o.s. (bis(2-Ethylhexyl) phthalate)
Reportable Quantity (RQ): 100 lbs

Poison Inhalation Hazard: No

IMDG
Not dangerous goods

IATA
Not dangerous goods

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
bis(2-Ethylhexyl) phthalate	117-81-7	2007-07-01

SARA 311/312 Hazards
Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
bis(2-Ethylhexyl) phthalate	117-81-7	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
bis(2-Ethylhexyl) phthalate	117-81-7	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
bis(2-Ethylhexyl) phthalate	117-81-7	2007-07-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer. bis(2-Ethylhexyl) phthalate	CAS-No. 117-81-7	Revision Date 2009-02-01
WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm. bis(2-Ethylhexyl) phthalate	CAS-No. 117-81-7	Revision Date 2009-02-01

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

H360	May damage fertility or the unborn child.
Repr.	Reproductive toxicity

HMIS Rating

Health hazard:	0
Chronic Health Hazard:	*
Flammability:	1
Physical Hazard	0

NFPA Rating

Health hazard:	0
Fire Hazard:	1
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.11 Revision Date: 06/18/2015 Print Date: 02/11/2016

SECTION 1: Identification of the substance/mixture and of the company/ undertaking

1.1 Product identifier

Calcium metal, granular (102780)

Calcium metal, granular ; CAS No. : 7440-70-2 ; EC No. : 231-179-5 ; Index No. : 020-001-00-X ; REACH No. : 01-2119516038-45-XXXX

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses

For manufacturing, processing, laboratory or repacking use only.

Uses advised against

Uses other than those recommended.

1.3 Details of the supplier of the safety data sheet

Supplier (manufacturer/importer/only representative/downstream user/distributor)

DC Fine Chemicals Ltd

Street : 88 Hill Top

Postal code/City : NW11 6DY London United Kingdom

Telephone : +44 (0)20 7586 6800

Telefax : +44 (0)20 7504 1701

Information contact : info@dcfinechemicals.com

1.4 Emergency telephone number

(Only available during office hours; Monday-Friday; 08:00-18:00)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [CLP]

Water-react. 2 ; H261 - Substances or mixtures which, in contact with water, emit flammable gases : Category 2 ; In contact with water releases flammable gases.

2.2 Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms

Flame (GHS02)

Signal word

DANGER

Hazard statements

H261 In contact with water releases flammable gases.

Precautionary statements

P223	Do not allow contact with water.
P231+P232	Handle and store contents under inert gas. Protect from moisture.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P302+P335+P334	IF ON SKIN: Brush off loose particles from skin. Immerse in cool water [or wrap in wet bandages].
P370+P378	In case of fire: Use ... to extinguish.
P402+P404	Store in a dry place. Store in a closed container.

2.3 Other hazards

None

SECTION 3: Composition/information on ingredients

3.1 Substances

Substance name : Calcium metal, granular

Index No. : 020-001-00-X

EC No. : 231-179-5

REACH No. : 01-2119516038-45-XXXX

CAS No. : 7440-70-2

Purity : 100 % [mass]

SECTION 4: First aid measures

4.1 Description of first aid measures

Remove contaminated, saturated clothing immediately. After contact with skin, wash immediately with plenty of water and soap. After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an ophthalmologist immediately. Remove victim out of the danger area. When in doubt or if symptoms are observed, get medical advice.

4.2 Most important symptoms and effects, both acute and delayed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person or a person with cramps.

4.3 Indication of any immediate medical attention and special treatment needed

In case of doubt or when symptoms of feeling unwell persist, get medical attention. Never administer anything orally to persons who are unconscious.

SECTION 5: Firefighting measures

The product is Highly inflammable, it can cause or considerably worsen a fire, the necessary prevention measures should be taken and risks avoided. In case of fire, the following measures are recommended:

5.1 Extinguishing media

Suitable extinguishing media

Extinguisher powder or CO2. In case of more serious fires, also alcohol-resistant foam and water spray.

Unsuitable extinguishing media

Do not use a direct stream of water to extinguish. In the presence of electrical voltage, you cannot use water or foam as extinguishing media.

5.2 Special hazards arising from the substance or mixture

In case of fire may be liberated: Pyrolysis products, toxic

5.3 Advice for firefighters

Wear a self-contained breathing apparatus and chemical protective clothing. Do not inhale explosion and combustion gases. In case of fire: Wear self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Wear a self-contained breathing apparatus and chemical protective clothing.

For emergency responders

Eliminate possible ignition points and ventilate the area. No smoking. Avoid breathing fumes.For exposure control and individual protection measures, see section 8.

6.2 Environmental precautions

Do not allow to enter into surface water or drains. In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities. Retain contaminated washing water and dispose it.

6.3 Methods and material for containment and cleaning up

For containment

Collect in closed and suitable containers for disposal.

For cleaning up

The contaminated area should be cleaned up immediately with: Water Soak up inert absorbent and dispose as waste requiring special attention. Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents). Avoid dust formation. Clear spills immediately.

6.4 Reference to other sections

Reference to other sections Disposal: see section 13 Personal protection equipment: see section 8

SECTION 7: Handling and storage

7.1 Precautions for safe handling

In case of insufficient ventilation and/or through use, explosive/highly flammable mixtures may develop.

Protective measures

When using do not eat, drink, smoke, sniff. Wear personal protection equipment (refer to section 8).

Measures to prevent aerosol and dust generation

Vapours can form explosive mixtures with air. Take precautionary measures against static discharges. Use only in well-ventilated areas. Do not breathe gas/fumes/vapour/spray. Do not breathe dust.

Environmental precautions

Use appropriate container to avoid environmental contamination.

Specific requirements or handling rules

Handle and open container with care.

Advices on general occupational hygiene

Take care for general good hygiene and housekeeping.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions

Storage temperature :
Keep in a cool, well-ventilated place. Keep away from sources of ignition - No smoking.

Requirements for storage rooms and vessels

Only use containers specifically approved for the substance/product.

Hints on joint storage

Store at least 3 metres apart from: Chemicals/products that react together readily Protect against Humidity. UV-radiation/sunlight

Storage class (TRGS 510) : 4.3

7.3 Specific end use(s)

None

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

None

8.2 Exposure controls

Only wear fitting, comfortable and clean protective clothing.

Personal protection equipment

Eye/face protection

Eye glasses with side protection Face protection shield EN 166

Skin protection

Hand protection

Tested protective gloves must be worn EN ISO 374

Body protection

For the protection against direct skin contact, body protective clothing is essential (in addition to the usual working clothes). Wear anti-static footwear and clothing Wash contaminated clothing prior to re-use.

Respiratory protection

If technical exhaust or ventilation measures are not possible or insufficient, respiratory protection must be worn.

Particle filter device (EN 143).

Thermal hazards

No special measures are necessary.

Environmental exposure controls

No information available.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance : solid

Safety characteristics

Melting point/freezing point :	(1013 hPa)	850	°C	
Initial boiling point and boiling range :	(1013 hPa)	1175	°C	
Decomposition temperature :	(1013 hPa)	No data available		
Flash point :		No data available		
Auto-ignition temperature :		No data available		
Lower explosion limit :		No data available		
Upper explosion limit :		No data available		
Vapour pressure :	(50 °C)	No data available		
Density :	(20 °C)	No data available		
Solvent separation test :	(20 °C)	not applicable		
Water solubility :	(20 °C)	4	g/l	
Fat solubility :	(20 °C)	No data available.		
pH :		14		
log P O/W :		No data available		
Flow time :	(20 °C)	No data available		DIN-cup 4 mm
Viscosity :	(20 °C)	No data available		
Relative vapour density :	(20 °C)	No data available		
Evaporation rate :		No data available		
Flammable solids :	No data available.			
Flammable gases :	No data available.			
Explosive properties :	No data available.			

9.2 Other information

None

SECTION 10: Stability and reactivity

10.1 Reactivity

The product does not present hazards by their reactivity.

10.2 Chemical stability

The product is chemically stable under recommended conditions of storage, use and temperature. Safe handling: see

section 7

10.3 Possibility of hazardous reactions
The product does not present possibility of hazardous reactions.

10.4 Conditions to avoid
Avoid any improper handling.

10.5 Incompatible materials
Keep away from oxidising agents and from highly alkaline or acidic materials in order to prevent exothermic reactions.

10.6 Hazardous decomposition products
In case of fire may be liberated: Hazardous combustion products

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008
Acute toxicity
No information available.
Corrosion
Skin corrosion/irritation
No information available.
Serious eye damage/eye irritation
No information available.
Respiratory or skin sensitisation
No information available.
CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)
Carcinogenicity
No information available.
Germ cell mutagenicity
No information available.
Reproductive toxicity
No information available.
STOT-single exposure
No information available.
STOT-repeated exposure
No information available.
Aspiration hazard
No information available.

11.2 Information on other hazards
No information available.

SECTION 12: Ecological information

12.1 Toxicity
Aquatic toxicity
Acute (short-term) toxicity to crustacea

Parameter :	EC50 (Calcium metal, granular ; CAS No. : 7440-70-2)
Species :	Daphnia magna (Big water flea)
Evaluation parameter :	Acute (short-term) toxicity to crustacea
Effective dose :	330 mg/l
Exposure time :	48 hour(s)

12.2 Persistence and degradability
No information available.

12.3 Bioaccumulative potential
No information available.

12.4 Mobility in soil
No information available.

12.5 Results of PBT and vPvB assessment
This substance does not meet the PBT/vPvB criteria of REACH, Annex XIII.

12.6 Endocrine disrupting properties
No information available.

12.7 Other adverse effects
No information available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods
The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process. Do not dump into sewers or waterways. Waste and empty containers must be handled and eliminated according to current, local/national legislation. Follow the provisions of Directive 2008/98/EC regarding waste management.

Product/Packaging disposal
Waste treatment options
Recycle according to official regulations. Evidence for disposal must be provided.

Appropriate disposal / Product
Dispose of waste according to applicable legislation.

Appropriate disposal / Package
Non-contaminated packages must be recycled or disposed of. Contaminated packages must be completely emptied and can be re-used following proper cleaning. Packing which cannot be properly cleaned must be disposed of. Handle contaminated packages in the same way as the substance itself.

SECTION 14: Transport information

14.1 UN number
UN 1401

14.2 UN proper shipping name
Land transport (ADR/RID)
CALCIUM

Sea transport (IMDG)
CALCIUM

Air transport (ICAO-TI / IATA-DGR)

CALCIUM

14.3 Transport hazard class(es)

Land transport (ADR/RID)

Class(es) :	4.3
Classification code :	W2
Hazard identification number (Kemler No.) :	423
Tunnel restriction code :	D/E
Special provisions :	LQ 500 g · E 2
Hazard label(s) :	4.3

Sea transport (IMDG)

Class(es) :	4.3
EmS-No. :	F-G / S-O
Special provisions :	LQ 500 g · E 2 · IMDG-Code segregation group 26 · IMDG-Code segregation group 35
Hazard label(s) :	4.3

Air transport (ICAO-TI / IATA-DGR)

Class(es) :	4.3
Special provisions :	E 2
Hazard label(s) :	4.3

14.4 Packing group

II

14.5 Environmental hazards

Land transport (ADR/RID) : No
Sea transport (IMDG) : No
Air transport (ICAO-TI / IATA-DGR) : No

14.6 Special precautions for user

Hazard label(s) :

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

No information available.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH) Classification according to Regulation (EC) No 1272/2008 [CLP] according to Regulation (EU) No. 2020/878

EU legislation

Authorisations and/or restrictions on use

Restrictions on use

Regulation (EC) No. 1907/2006 (REACH), Annex XVII (restrictions)

Use restriction according to REACH annex XVII, no. : 3

National regulations
Water hazard class
Class : nwg (Non-hazardous to water)

15.2 Chemical Safety Assessment
No information available.

SECTION 16: Other information

16.1 Indication of changes
None

16.2 Abbreviations and acronyms

ADR:	European Agreement concerning the International Carriage of Dangerous Goods by Road
ASTM:	ASTM International, originally known as American Society for Testing and Materials (ASTM)
EINECS:	European Inventory of Existing Commercial Chemical Substances
EC50:	Effective Concentration 50 (Maximum Effective Concentration for 0% of Individuals)
LC50:	Lethal Concentration 50 (Lethal Concentration for 50% of Individuals)
IC50:	Inhibitor Concentration 50 (Inhibitory Concentration for 50% of Individuals)
NOEL:	No Observed Effect Level (Maximum dose without effect)
DNEL:	Derived No Effect Level (Derived no-effect dose)
DMEL:	Derived Minimum Effect Level (Derived dose of minimal effect)
CLP:	Classification, Labelling and Packaging
CSR:	Chemical Safety Report
LD50:	Lethal Dose 50 (Lethal Dose for 50% of Individuals)
IATA:	International Air Transport Association
ICAO:	International Civil Aviation Organization
Codice IMDG:	International Maritime Dangerous Goods code
PBT:	Persistent, bioaccumulative and toxic
RID:	Regulations concerning the international rail transport of Dangerous Goods
STEL:	Short term exposure limit
TLV:	Threshold limit value
TWA:	Time Weighted Average
UE:	European Union
vPvB:	Very persistent very bioaccumulative
N.D.:	Uvailable
N.A.:	Not applicable
VwVwS.:	Text of Administrative Regulation on the Classification of Substances hazardous to waters into Water Hazard Classes

16.3 Key literature references and sources for data
None

16.4 Relevant H- and EUH-phrases (Number and full text)
H261 In contact with water releases flammable gases.

16.5 Training advice
None

16.6 Additional information
None

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

SAFETY DATA SHEET

Version 5.6
Revision Date 12/10/2015
Print Date 02/09/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Carbon disulfide

Product Number : 180173
Brand : Sigma-Aldrich
Index-No. : 006-003-00-3

CAS-No. : 75-15-0

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 2), H225
Acute toxicity, Inhalation (Category 4), H332
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Reproductive toxicity (Category 2), H361
Specific target organ toxicity - repeated exposure, Inhalation (Category 1), H372
Acute aquatic toxicity (Category 2), H401

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)

H225	Highly flammable liquid and vapour.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H361	Suspected of damaging fertility or the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure if inhaled.

H401	Toxic to aquatic life.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	CS_2
Molecular weight	:	76.14 g/mol
CAS-No.	:	75-15-0
EC-No.	:	200-843-6
Index-No.	:	006-003-00-3

Hazardous components

Component	Classification	Concentration
Carbon disulphide		
	Flam. Liq. 2; Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2A; Repr. 2; STOT RE 1; Aquatic Acute 2; H225, H315, H319, H332, H361, H372, H401	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Sulphur oxides
Flash back possible over considerable distance., Container explosion may occur under fire conditions., Vapours may form explosive mixture with air., May explode when heated.

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Use explosion-proof equipment.Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Refrigerate before opening.
Storage class (TRGS 510): Flammable liquids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Carbon disulphide	75-15-0	TWA	1 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Peripheral Nervous System impairment Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen Danger of cutaneous absorption		
		TWA	1.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Peripheral Nervous System impairment Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen Danger of cutaneous absorption		
		TWA	20.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.3-1968		
		CEIL	30.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.3-1968		
		Peak	100.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.3-1968		
		TWA	1.000000 ppm 3.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential for dermal absorption		
		ST	10.000000 ppm 30.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential for dermal absorption		
		See Table Z-2		
		TWA	20 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.3-1968		
		CEIL	30 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.3-1968		

		Peak	100 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.3-1968		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Carbon disulphide	75-15-0	2-Thiothiazolidine-4-carboxylix acid (TTCA)	0.5000 mg/g	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift (As soon as possible after exposure ceases)			

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid Colour: colourless
b)	Odour	Stench.
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -112 °C (-170 °F) - lit.
f)	Initial boiling point and boiling range	46 °C (115 °F) - lit.
g)	Flash point	-30 °C (-22 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 50 %(V) Lower explosion limit: 1.3 %(V)
k)	Vapour pressure	394.956 hPa (296.241 mmHg) at 20 °C (68 °F) 1,342.711 hPa (1,007.116 mmHg) at 55 °C (131 °F)
l)	Vapour density	2.63 - (Air = 1.0)
m)	Relative density	1.266 g/mL at 25 °C (77 °F)
n)	Water solubility	2.9 g/l at 20 °C (68 °F) - OECD Test Guideline 105
o)	Partition coefficient: n-octanol/water	log Pow: 2.7 at 25 °C (77 °F)
p)	Auto-ignition temperature	97 - 107 °C (207 - 225 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

Surface tension	71.9 mN/m at 19.5 °C (67.1 °F)
Relative vapour density	2.63 - (Air = 1.0)

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Alkali metals, Zinc, Amines, Azides, Oxidizing agents

10.6 Hazardous decomposition products

Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - female - > 2,000 mg/kg
(OECD Test Guideline 423)

LC50 Inhalation - Rat - male and female - 4 h - 10.35 mg/l
(OECD Test Guideline 403)

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
- Mouse
Result: Does not cause skin sensitisation.
(OECD Test Guideline 429)

Germ cell mutagenicity
Laboratory experiments have shown mutagenic effects.

Ames test
Salmonella typhimurium
Result: negative

Carcinogenicity

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
Suspected human reproductive toxicant

May cause reproductive disorders.

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: FF6650000

May cause convulsions.

Liver - Irregularities - Based on Human Evidence
Liver - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Poecilia reticulata (guppy) - 4 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	Immobilization EC50 - Daphnia magna (Water flea) - 2.1 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	Growth inhibition EC50 - Chlorella pyrenoidosa - 21 mg/l - 96 h (OECD Test Guideline 201)

12.2 Persistence and degradability

Biodegradability: aerobic - Exposure time 28 d
Result: > 80 % - Readily biodegradable
(OECD Test Guideline 301D)

12.3 Bioaccumulative potential

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life.

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1131 Class: 3 (6.1) Packing group: I
Proper shipping name: Carbon disulfide
Reportable Quantity (RQ): 100 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 1131 Class: 3 (6.1) Packing group: I EMS-No: F-E, S-D
Proper shipping name: CARBON DISULPHIDE

IATA
UN number: 1131 Class: 3 (6.1)
Proper shipping name: Carbon disulphide
IATA Passenger: Not permitted for transport
IATA Cargo: Not permitted for transport

15. REGULATORY INFORMATION

SARA 302 Components

The following components are subject to reporting levels established by SARA Title III, Section 302:

	CAS-No.	Revision Date
Carbon disulphide	75-15-0	2007-07-01

SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Carbon disulphide	75-15-0	2007-07-01

SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Carbon disulphide	75-15-0	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Carbon disulphide	75-15-0	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Carbon disulphide	75-15-0	2007-07-01

California Prop. 65 Components

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

	CAS-No.	Revision Date
Carbon disulphide	75-15-0	2008-06-17

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H361	Suspected of damaging fertility or the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure if inhaled.
H401	Toxic to aquatic life.
Repr.	Reproductive toxicity

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.6 Revision Date: 12/10/2015 Print Date: 02/09/2016

SAFETY DATA SHEET

Version 6.12
Revision Date 09/08/2024
Print Date 09/09/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Cobalt

Product Number : 266647
Brand : Aldrich
Index-No. : 027-001-00-9
CAS-No. : 7440-48-4

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable solids (Category 1), H228
Eye irritation (Category 2A), H319
Respiratory sensitization (Category 1), H334

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Skin sensitization (Category 1), H317
Germ cell mutagenicity (Category 2), H341
Carcinogenicity (Category 1B), H350
Reproductive toxicity (Category 1B), H360
Long-term (chronic) aquatic hazard (Category 4), H413

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal Word: Danger

Hazard Statements

H228	Flammable solid.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H341	Suspected of causing genetic defects.
H350	May cause cancer.
H360	May damage fertility or the unborn child.
H413	May cause long lasting harmful effects to aquatic life.

Precautionary Statements

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P261	Avoid breathing dust.
P264	Wash skin thoroughly after handling.
P272	Contaminated work clothing must not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P285	In case of inadequate ventilation wear respiratory protection.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P341	IF INHALED: If breathing is difficult, remove person to fresh air and keep comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P333 + P313	If skin irritation or rash occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P342 + P311	If experiencing respiratory symptoms: Call a POISON CENTER/ doctor.
P363	Wash contaminated clothing before reuse.

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P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula	:	Co
Molecular weight	:	58.93 g/mol
CAS-No.	:	7440-48-4
EC-No.	:	231-158-0
Index-No.	:	027-001-00-9

Component	Classification	Concentration
Cobalt		
	Flam. Sol. 1; Eye Irrit. 2A; Resp. Sens. 1; Skin Sens. 1; Muta. 2; Carc. 1B; Repr. 1B; Aquatic Chronic 4; H228, H319, H334, H317, H341, H350, H360, H413	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

In case of eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

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4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Cobalt/cobalt oxides
Not combustible.
Ambient fire may liberate hazardous vapours.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Avoid generation and inhalation of dusts in all circumstances. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections
For disposal see section 13.

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SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture.

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorized persons.

Air sensitive. Handle and store under inert gas.

Storage class
Storage class (TRGS 510): 4.1B: Flammable solid hazardous materials

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Cobalt	7440-48-4	TWA	0.05 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	0.05 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	0.1 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		PEL	0.02 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		TWA	0.005 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Respiratory sensitization Suspected human carcinogen		

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		TWA	0.02 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Dermal Sensitization Respiratory sensitization Confirmed animal carcinogen with unknown relevance to humans		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Cobalt	7440-48-4	Cobalt	15 µg/l	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift at end of workweek			
		Cobalt		Urine	ACGIH - Biological Exposure Indices (BEI)
		End of shift at end of workweek			

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
Handle with impervious gloves.

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

Body Protection
Flame retardant antistatic protective clothing.

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Respiratory protection
Recommended Filter type: Filter type P3
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when dusts are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains. Risk of explosion.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: powder
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	No data available
f)	Initial boiling point and boiling range	2,900 °C 5,252 °F - lit.
g)	Flash point	()Not applicable
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	The substance or mixture is a flammable solid with the category 1.
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Density	8.9 g/mL at 25 °C (77 °F) - lit.
	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	log Pow: 5.0
p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available

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r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	none

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
no information available

10.5 Incompatible materials
Oxidizing agents, Mineral acidsAcetylene, Hydrazinium nitrate, Material readily reacts with acids generating flammable and/or explosive hydrogen gas.

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 6,171 mg/kg
Remarks: Behavioral:Somnolence (general depressed activity).
Behavioral:Ataxia.
Diarrhea
Inhalation: No data available
Dermal: No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Causes serious eye irritation.
(OECD Test Guideline 405)

Respiratory or skin sensitization
May cause allergic respiratory and skin reactions

Germ cell mutagenicity

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Suspected of causing genetic defects.

Carcinogenicity
Presumed to have carcinogenic potential for humans

IARC: 2A - Group 2A: Probably carcinogenic to humans (Cobalt)

2A - Group 2A: Probably carcinogenic to humans (Cobalt)

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
May damage fertility.

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

RTECS: GF8750000
Kidney injury may occur., Damage to the eyes., Lung irritation, Throat., Rash, Vomiting, Diarrhea
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	LC50 - Danio rerio (zebra fish) - 100.01 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - > 100 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	static test ErC50 - Pseudokirchneriella subcapitata (green algae) - 0.270 mg/l - 70 h (OECD Test Guideline 201)

12.2 Persistence and degradability
The methods for determining biodegradability are not applicable to inorganic substances.

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

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12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)

UN number: 3089 Class: 4.1 Packing group: II
Proper shipping name: Metal powders, flammable, n.o.s.
Reportable Quantity (RQ):
Poison Inhalation Hazard: No

IMDG

UN number: 3089 Class: 4.1 Packing group: II EMS-No: F-G, S-G
Proper shipping name: METAL POWDER, FLAMMABLE, N.O.S.

IATA

UN number: 3089 Class: 4.1 Packing group: II
Proper shipping name: Metal powder, flammable, n.o.s.

SECTION 15: Regulatory information

CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

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SARA 311/312 Hazards : Fire Hazard
Acute Health Hazard
Chronic Health Hazard

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

Cobalt	7440-48-4	>= 90 - <= 100 %

US State Regulations

Massachusetts Right To Know

Cobalt	7440-48-4

Pennsylvania Right To Know

Cobalt	7440-48-4

Maine Chemicals of High Concern

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Cobalt	7440-48-4

Washington Chemicals of High Concern

Cobalt	7440-48-4

California Prop. 65

WARNING: This product can expose you to chemicals including Cobalt, which is/are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

The ingredients of this product are reported in the following inventories:

TSCA : All substances listed as active on the TSCA inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16: Other information

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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Version: 6.12 Revision Date: 09/08/2024 Print Date: 09/09/2024

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SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Version 7.5
Revision Date 04.03.2024
Print Date 16.09.2024
GENERIC EU MSDS - NO COUNTRY SPECIFIC DATA - NO OEL DATA

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name	:	Cumene
Product Number	:	C87657
Brand	:	Aldrich
Index-No.	:	601-024-00-X
REACH No.	:	A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.
CAS-No.	:	98-82-8

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses	:	Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company	:	Sigma-Aldrich Inc. 3050 SPRUCE ST ST. LOUIS MO 63103 UNITED STATES
Telephone	:	+1 314 771-5765
Fax	:	+1 800 325-5052

1.4 Emergency telephone

Emergency Phone #	:	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Flammable liquids, (Category 3)	H226: Flammable liquid and vapor.
Carcinogenicity, (Category 1B)	H350: May cause cancer.

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Specific target organ toxicity - single exposure, (Category 3), Respiratory system	H335: May cause respiratory irritation.
Aspiration hazard, (Category 1)	H304: May be fatal if swallowed and enters airways.
Long-term (chronic) aquatic hazard, (Category 2)	H411: Toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Pictogram

Signal Word	Danger
Hazard Statements	
H226	Flammable liquid and vapor.
H304	May be fatal if swallowed and enters airways.
H335	May cause respiratory irritation.
H350	May cause cancer.
H411	Toxic to aquatic life with long lasting effects.
Precautionary Statements	
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233	Keep container tightly closed.
P273	Avoid release to the environment.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P331	Do NOT induce vomiting.
Supplemental Hazard Statements	none

Reduced Labeling (<= 125 ml)

Pictogram

Signal Word	Danger
Hazard Statements	
H350	May cause cancer.
H304	May be fatal if swallowed and enters airways.
Precautionary Statements	
P202	Do not handle until all safety precautions have been read and understood.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P331	Do NOT induce vomiting.

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Supplemental Hazard Statements none

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information:
The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.
Toxicological information:
The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.
May form explosive peroxides.

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms : Isopropylbenzene

Formula : C_9H_{12}
Molecular weight : 120,19 g/mol
CAS-No. : 98-82-8
EC-No. : 202-704-5
Index-No. : 601-024-00-X

Component		Classification	Concentration
cumene			
CAS-No. EC-No. Index-No.	98-82-8 202-704-5 601-024-00-X	Flam. Liq. 3; Carc. 1B; STOT SE 3; Asp. Tox. 1; Aquatic Chronic 2; H226, H350, H335, H304, H411	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

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In case of eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: caution if victim vomits. Risk of aspiration! Keep airways free. Pulmonary failure possible after aspiration of vomit. Call a physician immediately.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Carbon dioxide (CO2) Foam Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Combustible.
Vapors are heavier than air and may spread along floors.
Forms explosive mixtures with air at elevated temperatures.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition.
Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

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6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorized persons.

Store under inert gas.

Storage class
Storage class (TRGS 510): 3: Flammable liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

8.2 Exposure controls

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please

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contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Full contact
Material: Viton®
Minimum layer thickness: 0,7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0,4 mm
Break through time: 10 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

Body Protection
Flame retardant antistatic protective clothing.

Respiratory protection
Recommended Filter type: Filter A (acc. to DIN 3181) for vapours of organic compounds

The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Control of environmental exposure
Do not let product enter drains. Risk of explosion.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Physical state	liquid, clear
b)	Color	colorless
c)	Odor	aromatic
d)	Melting point/freezing point	Melting point/range: -96 °C - lit.
e)	Initial boiling point and boiling range	152 - 154 °C - lit.
f)	Flammability (solid, gas)	No data available
g)	Upper/lower flammability or explosive limits	Upper explosion limit: 6,0 %(V) Lower explosion limit: 0,9 %(V)
h)	Flash point	31,0 °C - closed cup

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i)	Autoignition temperature	425,0 °C
j)	Decomposition temperature	No data available
k)	pH	Not applicable
l)	Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: 0,79 mPa.s at 20 °C
m)	Water solubility	ca.0,05 g/l at 25 °C - slightly soluble
n)	Partition coefficient: n-octanol/water	log Pow: 3,55 at 23 °C - Bioaccumulation is not expected.
o)	Vapor pressure	11 hPa at 20,0 °C
p)	Density	0,864 g/mL at 25 °C - lit.
	Relative density	No data available
q)	Relative vapor density	No data available
r)	Particle characteristics	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	none

9.2 Other safety information

Surface tension	27,69 mN/m at 25 °C

SECTION 10: Stability and reactivity

10.1 Reactivity

Vapor/air-mixtures are explosive at intense warming.

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

Heating.

10.5 Incompatible materials

No data available

10.6 Hazardous decomposition products

In the event of fire: see section 5

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SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Symptoms: gastric pain, Vomiting
Symptoms: mucosal irritations, Cough, Shortness of breath, Headache, Nausea, Vomiting,
Possible damages:, damage of respiratory tract
Dermal: No data available

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation
(OECD Test Guideline 404)
Remarks: Drying-out effect resulting in rough and chapped skin.

Serious eye damage/eye irritation
Eyes - Rabbit
Result: No eye irritation - 72 h
(OECD Test Guideline 405)

Respiratory or skin sensitization
Maximization Test - Guinea pig
Result: negative
(OECD Test Guideline 406)

Germ cell mutagenicity
Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative
Test Type: Ames test
Test system: S. typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
Test Type: In vitro mammalian cell gene mutation test
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative
Test Type: unscheduled DNA synthesis assay
Test system: rat hepatocytes
Metabolic activation: without metabolic activation
Method: OECD Test Guideline 482
Result: negative

Test Type: Micronucleus test
Species: Mouse
Cell type: Red blood cells (erythrocytes)
Application Route: inhalation (gas)
Method: OECD Test Guideline 474
Result: negative

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Test Type: Micronucleus test
Species: Rat
Cell type: Bone marrow
Application Route: Intraperitoneal
Method: OECD Test Guideline 474
Result: Positive results were obtained in some in vivo tests.

Carcinogenicity
Presumed to have carcinogenic potential for humans

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
Inhalation - May cause respiratory irritation. - Respiratory Tract
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
Aspiration may cause pulmonary edema and pneumonitis.

11.2 Additional Information

Endocrine disrupting properties

Product:

Assessment	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

RTECS: GR8575000
narcosis, Central nervous system depression, Dermatitis, Gastrointestinal disturbance, Damage to the lungs., Liver injury may occur., Kidney injury may occur.
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

After uptake of large quantities:

somnolence
Dizziness
narcosis

Effect potentiated by: ethanol

Handle in accordance with good industrial hygiene and safety practice.

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SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	flow-through test LC50 - Cyprinodon variegatus (sheepshead minnow) - 4,7 mg/l - 96 h (US-EPA)
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - 2,14 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	static test ErC50 - Desmodesmus subspicatus (green algae) - 2,01 mg/l - 72 h (OECD Test Guideline 201)
Toxicity to bacteria	static test EC50 - activated sludge - > 2.000 mg/l - 3 h (OECD Test Guideline 209)
Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity)	semi-static test NOEC - Daphnia magna (Water flea) - 0,35 mg/l - 21 d (OECD Test Guideline 211)

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 20 d Result: 70 % - Readily biodegradable. Remarks: (ECHA)

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

Discharge into the environment must be avoided.

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SECTION 13: Disposal considerations

13.1 Waste treatment methods

No data available

SECTION 14: Transport information

14.1 UN number

ADR/RID: 1918 IMDG: 1918 IATA: 1918

14.2 UN proper shipping name

ADR/RID: ISOPROPYLBENZENE
IMDG: ISOPROPYLBENZENE
IATA: Isopropylbenzene

14.3 Transport hazard class(es)

ADR/RID: 3 IMDG: 3 IATA: 3

14.4 Packaging group

ADR/RID: III IMDG: III IATA: III

14.5 Environmental hazards

ADR/RID: yes IMDG Marine pollutant: yes IATA: no

14.6 Special precautions for user

Tunnel restriction code : (D/E)

Further information : No data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

Authorisations and/or restrictions on use

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII) : cumene

National legislation

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

E2 ENVIRONMENTAL HAZARDS

P5c FLAMMABLE LIQUIDS

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Other regulations
Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.

Take note of Dir 94/33/EC on the protection of young people at work.

15.2 Chemical Safety Assessment
For this product a chemical safety assessment was not carried out

SECTION 16: Other information

Full text of H-Statements

H226	Flammable liquid and vapor.
H304	May be fatal if swallowed and enters airways.
H335	May cause respiratory irritation.
H350	May cause cancer.
H411	Toxic to aquatic life with long lasting effects.

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Full text of other abbreviations

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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SAFETY DATA SHEET

Version 3.11
Revision Date 03/03/2015
Print Date 05/01/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Dibutyl phthalate

Product Number : 152439
Brand : Aldrich
Index-No. : 607-318-00-4

CAS-No. : 84-74-2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Reproductive toxicity (Category 1B), H360
Acute aquatic toxicity (Category 1), H400

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H360 May damage fertility or the unborn child.
H400 Very toxic to aquatic life.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P273 Avoid release to the environment.
P281 Use personal protective equipment as required.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P391 Collect spillage.
P405 Store locked up.
P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	n-Butyl phthalate Phthalic acid dibutyl ester DBP
Formula	:	$C_{16}H_{22}O_4$
Molecular weight	:	278.34 g/mol
CAS-No.	:	84-74-2
EC-No.	:	201-557-4
Index-No.	:	607-318-00-4
Registration number	:	01-2119493042-44-XXXX

Hazardous components

Component	Classification	Concentration
Dibutyl phthalate Included in the Candidate List of Substances of Very High Concern (SVHC) according to Regulation (EC) No. 1907/2006 (REACH)		
	Repr. 1B; Aquatic Acute 1; H360, H400	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid inhalation of vapour or mist.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Dibutyl phthalate	84-74-2	TWA	5.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Upper Respiratory Tract irritation Eye irritation Testicular damage		
		TWA	5 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Eye irritation Testicular damage		
		TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5.000000 mg/m3	USA. NIOSH Recommended Exposure Limits

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 480 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

Splash contact
Material: Nature latex/chloroprene
Minimum layer thickness: 0.6 mm
Break through time: 120 min
Material tested:Lapren® (KCL 706 / Aldrich Z677558, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid, clear Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -35 °C (-31 °F) - lit.
f)	Initial boiling point and boiling range	340 °C (644 °F) - lit.
g)	Flash point	171.0 °C (339.8 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower	Lower explosion limit: 0.47 %(V)

	flammability or explosive limits	
k)	Vapour pressure	1.3 hPa (1.0 mmHg) at 147.0 °C (296.6 °F)
l)	Vapour density	No data available
m)	Relative density	1.043 g/cm3 at 25 °C (77 °F)
n)	Water solubility	0.0114 g/l at 25 °C (77 °F) - OECD Test Guideline 105 - slightly soluble
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	402.0 °C (755.6 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	18.8 mm2/s at 20 °C (68 °F) -
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents, Nitrates, Bases, acids, Chlorine

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 8,000 mg/kg

LC50 Inhalation - Rat - 4,250 mg/m3

LD50 Dermal - Rabbit - > 20,860 mg/kg

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation
(OECD Test Guideline 404)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: No eye irritation
(OECD Test Guideline 405)

Respiratory or skin sensitisation
Maximisation Test (GPMT) - Guinea pig
Result: Does not cause skin sensitisation.
(OECD Test Guideline 406)

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
Presumed human reproductive toxicant

Overexposure may cause reproductive disorder(s) based on tests with laboratory animals.

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: TI0875000

Nausea, Dizziness, Headache, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Central nervous system -

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 0.85 mg/l - 96.0 h
	NOEC - Pimephales promelas (fathead minnow) - 0.32 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	LC50 - Daphnia magna (Water flea) - 3.7 mg/l - 48 h

12.2 Persistence and degradability

Biodegradability	Result: 81 % - Readily biodegradable (C.4-C of the COUNCIL REGULATION (EC) No 440/2008)

12.3 Bioaccumulative potential

Bioaccumulation	Pimephales promelas (fathead minnow) - 11 d - 0.0348 mg/l Bioconcentration factor (BCF): 2,165 Remarks: Does not bioaccumulate.

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life.

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN number: 3082 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, liquid, n.o.s. (Dibutyl phthalate)
Reportable Quantity (RQ): 10 lbs
Marine pollutant:yes
Poison Inhalation Hazard: No

IMDG

UN number: 3082 Class: 9 Packing group: III EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Dibutyl phthalate)
Marine pollutant:yes

IATA

UN number: 3082 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, liquid, n.o.s. (Dibutyl phthalate)

15. REGULATORY INFORMATION

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Dibutyl phthalate	84-74-2	2007-07-01

SARA 311/312 Hazards

Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Dibutyl phthalate	84-74-2	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Dibutyl phthalate	84-74-2	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Dibutyl phthalate	84-74-2	2007-07-01

California Prop. 65 Components

	CAS-No.	Revision Date
WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.	84-74-2	2008-06-17
Dibutyl phthalate		

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
H360	May damage fertility or the unborn child.
H400	Very toxic to aquatic life.
Repr.	Reproductive toxicity

HMIS Rating

Health hazard:	1
Chronic Health Hazard:	*
Flammability:	1
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	1
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 3.11 Revision Date: 03/03/2015 Print Date: 05/01/2016

SAFETY DATA SHEET

Halocarbon R-12 (Dichlorodifluoromethane)

Section 1. Identification

GHS product identifier : Halocarbon R-12 (Dichlorodifluoromethane)

Chemical name : dichlorodifluoromethane

Other means of identification : ASPEN R-12, Methane, dichlorodifluoro-; Refrigerant 12; Propellant 12; Halon 122; Genetron 12; Freon 12; Fluorocarbon 12; Difluorodichloromethane; DICHLORODIFLUOROMETHANE (FC 12); CFC-12

Product use : Synthetic/Analytical chemistry.

Synonym : ASPEN R-12, Methane, dichlorodifluoro-; Refrigerant 12; Propellant 12; Halon 122; Genetron 12; Freon 12; Fluorocarbon 12; Difluorodichloromethane; DICHLORODIFLUOROMETHANE (FC 12); CFC-12

SDS # : 001018

Supplier's details : Airgas USA, LLC and its affiliates
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283
1-610-687-5253

Emergency telephone number (with hours of operation) : 1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : GASES UNDER PRESSURE - Liquefied gas
HAZARDOUS TO THE OZONE LAYER - Category 1

GHS label elements

Hazard pictograms :

Signal word : Warning

Hazard statements : Contains gas under pressure; may explode if heated.
May cause frostbite.
May displace oxygen and cause rapid suffocation.
Harms public health and the environment by destroying ozone in the upper atmosphere.

Precautionary statements

General : Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction. Always keep container in upright position.

Prevention : Use and store only outdoors or in a well ventilated place.

Response : Not applicable.

Storage : Protect from sunlight. Protect from sunlight when ambient temperature exceeds 52°C/125°F. Store in a well-ventilated place.

Disposal : Refer to manufacturer/supplier for information on recovery/recycling.

Powered by IHS

Section 2. Hazards identification

Hazards not otherwise classified : Liquid can cause burns similar to frostbite.

Section 3. Composition/information on ingredients

Substance/mixture : Substance

Chemical name : dichlorodifluoromethane

Other means of identification : ASPEN R-12, Methane, dichlorodifluoro-; Refrigerant 12; Propellant 12; Halon 122; Genetron 12; Freon 12; Fluorocarbon 12; Difluorodichloromethane; DICHLORODIFLUOROMETHANE (FC 12); CFC-12

CAS number/other identifiers

CAS number : 75-71-8

Product code : 001018

Ingredient name	%	CAS number
Methane, dichlorodifluoro-	100	75-71-8

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. In case of contact with liquid, warm frozen tissues slowly with lukewarm water and get medical attention. Do not rub affected area. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if adverse health effects persist or are severe. Ingestion of liquid can cause burns similar to frostbite. If frostbite occurs, get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. As this product rapidly becomes a gas when released, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Liquid can cause burns similar to frostbite.

Inhalation : Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

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Section 4. First aid measures

Skin contact : Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite.

Frostbite : Try to warm up the frozen tissues and seek medical attention.

Ingestion : Ingestion of liquid can cause burns similar to frostbite.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
frostbite

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:
frostbite

Ingestion : Adverse symptoms may include the following:
frostbite

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : Contains gas under pressure. In a fire or if heated, a pressure increase will occur and the container may burst or explode.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
halogenated compounds
carbonyl halides

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. For incidents involving large quantities, thermally insulated undergarments and thick textile or leather gloves should be worn.

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Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). May be harmful to the environment if released in large quantities.

Methods and materials for containment and cleaning up

Small spill : Immediately contact emergency personnel. Stop leak if without risk.

Large spill : Immediately contact emergency personnel. Stop leak if without risk. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Do not get in eyes or on skin or clothing. Avoid breathing gas. Avoid release to the environment. Refer to special instructions/safety data sheet. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Keep container tightly closed and sealed until ready for use. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F).

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

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Section 8. Exposure controls/personal protection

Ingredient name	Exposure limits
Methane, dichlorodifluoro-	**ACGIH TLV (United States, 3/2012).** TWA: 4950 mg/m³ 8 hours. TWA: 1000 ppm 8 hours. **NIOSH REL (United States, 1/2013).** TWA: 4950 mg/m³ 10 hours. TWA: 1000 ppm 10 hours. **OSHA PEL (United States, 6/2010).** TWA: 4950 mg/m³ 8 hours. TWA: 1000 ppm 8 hours. **OSHA PEL 1989 (United States, 3/1989).** TWA: 4950 mg/m³ 8 hours. TWA: 1000 ppm 8 hours.

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. If contact with the liquid is possible, insulated gloves suitable for low temperatures should be worn. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

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Section 9. Physical and chemical properties

Appearance

Physical state : Gas. [Liquefied gas]

Color : Colorless.

Molecular weight : 120.91 g/mole

Molecular formula : C-Cl2-F2

Boiling/condensation point : -29.8°C (-21.6°F)

Melting/freezing point : -158°C (-252.4°F)

Critical temperature : 111.85°C (233.3°F)

Odor : Characteristic.

Odor threshold : Not available.

pH : Not available.

Flash point : [Product does not sustain combustion.]

Burning time : Not applicable.

Burning rate : Not applicable.

Evaporation rate : Not available.

Flammability (solid, gas) : Not available.

Lower and upper explosive (flammable) limits : Not available.

Vapor pressure : 84.9 (psia)

Vapor density : 4.2 (Air = 1)

Specific Volume (ft^3/lb) : 3.1746

Gas Density (lb/ft^3) : 0.315

Relative density : Not applicable.

Solubility : Not available.

Solubility in water : 0.3 g/l

Partition coefficient: n-octanol/water : 2.16

Auto-ignition temperature : Not available.

Decomposition temperature : Not available.

SADT : Not available.

Viscosity : Not applicable.

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

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Section 10. Stability and reactivity

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Liquid can cause burns similar to frostbite.

Inhalation : Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Skin contact : Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite.

Ingestion : Ingestion of liquid can cause burns similar to frostbite.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
frostbite

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:
frostbite

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Section 11. Toxicological information

Ingestion : Adverse symptoms may include the following:
frostbite

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
Methane, dichlorodifluoro-	2.16	6.17	low

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

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Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty Airgas-owned pressure vessels should be returned to Airgas. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

United States - RCRA Toxic hazardous waste "U" List

Ingredient	CAS #	Status	Reference number
Dichlorodifluoromethane; Methane, dichlorodifluoro-	75-71-8	Listed	U075

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1028	UN1028	UN1028	UN1028	UN1028
UN proper shipping name	DICHLORODIFLUOROMETHANE OR REFRIGERANT GAS R 12	DICHLORODIFLUOROMETHANE; OR REFRIGERANT GAS R 12	DICHLORODIFLUOROMETHANE OR REFRIGERANT GAS R 12	DICHLORODIFLUOROMETHANE (REFRIGERANT GAS R 12)	DICHLORODIFLUOROMETHANE
Transport hazard class(es)	2.2	2.2	2.2	2.2	2.2
Packing group	-	-	-	-	-
Environment	No.	No.	No.	No.	No.
Additional information	**Reportable quantity** 5000 lbs / 2270 kg Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements. **Limited quantity** Yes. **Packaging instruction** **Passenger aircraft** Quantity limitation: 75 kg **Cargo aircraft** Quantity limitation: 150 kg **Special provisions** T50	**Explosive Limit and Limited Quantity Index** 0.125 **Passenger Carrying Road or Rail Index** 75	-	-	**Passenger and Cargo Aircraft** Quantity limitation: 75 kg **Cargo Aircraft Only** Quantity limitation: 150 kg

"Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product."

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Section 14. Transport information

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined

TSCA 12(b) annual export notification: dichlorodifluoromethane

United States inventory (TSCA 8b): This material is listed or exempted.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Sudden release of pressure

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Methane, dichlorodifluoro-	100	No.	Yes.	No.	No.	No.

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	dichlorodifluoromethane	75-71-8	100
Supplier notification	dichlorodifluoromethane	75-71-8	100

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Massachusetts : This material is listed.

New York : This material is listed.

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Section 15. Regulatory information

New Jersey : This material is listed.

Pennsylvania : This material is listed.

Canada inventory : This material is listed or exempted.

International regulations

International lists : **Australia inventory (AICS)**: This material is listed or exempted.
China inventory (IECSC): This material is listed or exempted.
Japan inventory: This material is listed or exempted.
Korea inventory: This material is listed or exempted.
Malaysia Inventory (EHS Register): Not determined.
New Zealand Inventory of Chemicals (NZIoC): This material is listed or exempted.
Philippines inventory (PICCS): This material is listed or exempted.
Taiwan inventory (CSNN): Not determined.

Chemical Weapons Convention List Schedule I Chemicals : Not listed

Chemical Weapons Convention List Schedule II Chemicals : Not listed

Chemical Weapons Convention List Schedule III Chemicals : Not listed

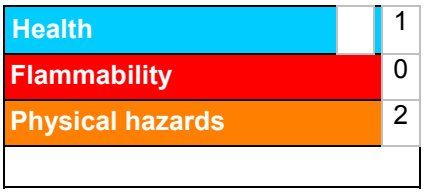
Canada

WHMIS (Canada) : Class A: Compressed gas.
CEPA Toxic substances: This material is listed.
Canadian ARET: This material is not listed.
Canadian NPRI: This material is listed.
Alberta Designated Substances: This material is not listed.
Ontario Designated Substances: This material is not listed.
Quebec Designated Substances: This material is not listed.

Section 16. Other information

Canada Label requirements : Class A: Compressed gas.

Hazardous Material Information System (U.S.A.)



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)

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Section 16. Other information

Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

History

Date of printing : 5/21/2015.

Date of issue/Date of revision : 5/21/2015.

Date of previous issue : 5/21/2015.

Version : 2

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United NationsACGIH – American Conference of Governmental Industrial Hygienists
AIHA – American Industrial Hygiene Association
CAS – Chemical Abstract Services
CEPA – Canadian Environmental Protection Act
CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act (EPA)
CFR – United States Code of Federal Regulations
CPR – Controlled Products Regulations
DSL – Domestic Substances List
GWP – Global Warming Potential
IARC – International Agency for Research on Cancer
ICAO – International Civil Aviation Organisation
Inh – Inhalation
LC – Lethal concentration
LD – Lethal dosage
NDSL – Non-Domestic Substances List
NIOSH – National Institute for Occupational Safety and Health
TDG – Canadian Transportation of Dangerous Goods Act and Regulations
TLV – Threshold Limit Value
TSCA – Toxic Substances Control Act
WEEL – Workplace Environmental Exposure Level
WHMIS – Canadian Workplace Hazardous Material Information System

References : Not available.

Indicates information that has changed from previously issued version.

Other special considerations : WARNING: Contains (Dichlorodifluoromethane), a substance which harms the public health and environment by destroying ozone in the upper atmosphere.

Notice to reader

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Section 16. Other information

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

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Safety Data Sheet - Version 5.0

Preparation Date 9/15/2015
Latest Revision Date (If Revised)
SDS Expiry Date 9/13/2018

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product Identifier

Chemical Name γ-Chlordane

Catalogue # C327040

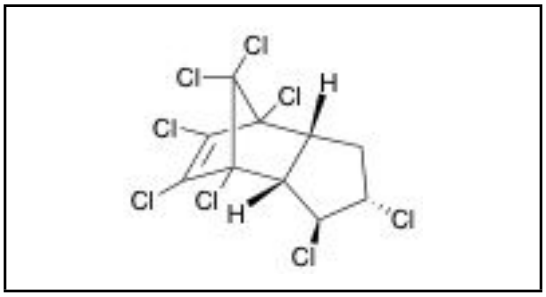
1.2 Relevant Identified Uses of the Substance or Mixture and Uses Advised Against

Product Uses To be used only for scientific research and development. Not for use in humans or animals.

1.3 Details of the Supplier of the Safety Data Sheet

Company Toronto Research Chemicals
2 Brisbane Road
Toronto, ON M3J 2J8
CANADA

Telephone +14166659696
FAX +14166654439
Email orders@trc-canada.com



1.4 Emergency Telephone Number

Emergency# +14166659696 between 0800-1700 (GMT-5)

2. HAZARDS IDENTIFICATION

WHMIS Classification (Canada)

D2A Very Toxic Material Causing Other Toxic Effects
Carcinogen

WHMIS Symbols (Canada)

2.1/2.2 Classification of the Substance or Mixture and Label Elements

GHS Hazards Classification (According to EU Regulation 1272/2008 and US OSHA 1910.1200)

Acute Toxicity, Oral (Category 4)
Carcinogenicity (Category 2)
Hazardous to the Aquatic Environment, Acute Hazard (Category 1)

EU Classification (According to EU Regulation 67/548/EEC)

Harmful if swallowed. May cause cancer. Very toxic to aquatic organisms.

EU Risk and Safety Statements (According to EU Regulation 67/548/EEC)

Hazard Statements	Hazard Codes
Harmful	Xn
Environmental Hazard	N

Risk Codes and Phrases

R22	Harmful if swallowed.
R45	May cause cancer.
R50	Very toxic to aquatic organisms.

Safety Precaution Codes and Phrases

S61	Avoid release to the environment. Refer to special instructions.

S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

GHS Hazards Identification (According to EU Regulation 1272/2008 and US OSHA 1910.1200)

Signal Word Warning

GHS Hazard Statements

H302	Harmful if swallowed.
H351	Suspected of causing cancer.
H400	Very toxic to aquatic life.

GHS Precautionary Statements

P273	Avoid release to the environment.
P281	Use personal protective equipment as required.

2.3 Unclassified Hazards/Hazards Not Otherwise Classified

No data available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Molecular Formula: $C_{10}H_6Cl_8$ **Molecular Weight:** 409.78

CAS Registry #: 5103-74-2 **EC#:** 225-826-0

Synonyms

(1R,2R,3aS,4S,7R,7aS)-rel-1,2,4,5,6,7,8,8-Octachloro-2,3,3a,4,7,7a-hexahydro-,4,7-methano-1H-indene; (1α,2β,3aα,4β,7β,7aα)-1,2,4,5,6,7,8,8-Octachloro-2,3,3a,4,7,7a-hexahydro-4,7-methano-1H-indene; 1β,2α,4α,5,6,7α,8,8-Octachloro-3aβ,4,7,7aβ-tetrahydro4,7-methanoindan; (±)-trans-Chlordane; trans-Chlordan; trans -1,2,4,5,6,7,8,8-Octachloro-3a,4,7,7a-tetrahydro-4,7-endo-methanoindan; trans-Chlordan; trans-Chlordane; β-Chlordan; β-Chlordane;

3.2 Mixtures

Not a mixture.

4. FIRST AID MEASURES

4.1 Description of First Aid Measures

General Advice

If medical attention is required, show this safety data sheet to the doctor.

If Inhaled

If inhaled, move person to fresh air. If not breathing, give artificial respiration and consult a physician.

In Case of Skin Contact

Wash affected area with soap and water. Consult a physician if any exposure symptoms are observed.

In Case of Eye Contact

Immediately rinse eyes with plenty of water for at least 15 minutes. Consult a physician.

If Swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Do NOT induce vomiting unless advised to do so by a physician or Poison Control Center. Seek medical attention.

4.2 Most Important Symptoms and Effects, Both Acute and Delayed

The most important known symptoms and effects are described in the labeling (see section 2.2) and/or in section 11.

4.3 Indication of any Immediate Medical Attention and Special Treatment Needed

No data available.

5. FIREFIGHTING MEASURES

5.1 Extinguishing Media

Conditions of flammability
Not flammable or combustible.

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.2 Special Hazards Arising from the Substance or Mixture
Carbon oxides, Hydrogen chloride

5.3 Advice for Firefighters
Wear self contained breathing apparatus for fire fighting if necessary.

5.4 Further Information
No data available.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Method and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place.
Keep in a dry place.

Storage conditions: No Data Available

7.3 Specific End Uses
For scientific research and development only. Not for use in humans or animals.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control Parameters
Contains no components with established occupational exposure limits.

8.2 Exposure Controls

Appropriate Engineering Controls
A laboratory fumehood or other appropriate form of local exhaust ventilation should be used to avoid exposure.

Personal Protective Equipment
All recommendations below are advisory in nature and a risk assessment should be performed by the employer/end user prior to use of this product. The type of protective equipment must be selected based on the amount and concentration of the dangerous material being used in the workplace.

Eye/Face Protection
Safety goggles or face shield. All equipment should have been tested and approved under appropriate standards, such as NIOSH (US), CSA (Canada), or EN 166 (EU).

Skin Protection
Gloves should be used when handling this material. Gloves are to be inspected prior to use. Contaminated gloves are to be removed using proper glove removal technique so that the outer surface of the glove does not contact bare skin. Dispose of contaminated gloves after use in compliance with good laboratory practices and local requirements.

Gloves used for incidental exposures (splash protection) should be designated as “chemical resistant” by EU standard EN 374 with the resistance codes corresponding to the anticipated use of the material. Unrated gloves are not recommended.
Suggested gloves: AnsellPro Sol-Vex nitrile gloves style 37-175, 15 mil thickness.
Penetration time has not been determined.

Gloves used for prolonged direct exposure (immersion) should be designated “chemical resistant” as per EN 734 with the resistance codes corresponding to the anticipated use of the material.
Suggested gloves: AnsellPro Viton/Butyl gloves style 38-612, 4/8 mil thickness.
Penetration time has not been determined.

These recommendations may not apply if the material is mixed with any other chemical, or dissolved into a solution. A risk assessment must be performed to ensure the gloves will still offer acceptable protection.

Body Protection
Fire resistant (Nomex) coveralls or chemical-resistant bodysuit (laminated Tychem SL or equivalent).

Respiratory Protection
Recommended respirators are NIOSH-approved N100 or CEN-approved FFP3 particulate respirators. These are to be only used as a backup to local exhaust ventilation or other engineering controls. If the respirator is the only means of protection, a full-face supplied air respirator must be used.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Basic Physical and Chemical Properties

A) Appearance
No Data Available

B) Odour
odourless

C) Odour Threshold
No data available.

D) pH
No data available.

E) Melting Point/Freezing Point
No Data Available

F) Initial Boiling Point/Boiling Range
No data available.

G) Flash point
No data available.

H) Evaporation Rate
No data available.

I) Flammability (Solid/Gas)
No data available.

J) Upper/Lower Flammability/Explosive Limits
No data available.

K) Vapour Pressure
No data available.

L) Vapour Density
No data available.

M) Relative Density
1.590 g/cm3

N) Solubility
No Data Available

O) Partition Coefficient: n-octanol/water
No data available.

P) Auto-Ignition Temperature
No data available.

Q) Decomposition Temperature
No data available.

R) Viscosity
No data available.

S) Explosive Properties
No data available.

T) Oxidizing Properties
No data available.

9.2 Other Information
no data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available.

10.2 Chemical Stability
Stable under recommended storage conditions.

10.3 Possibility of Hazardous Reactions
No data available.

10.4 Conditions to Avoid
No data available.

10.5 Incompatible Materials

Strong oxidizing agents.

10.6 Hazardous Decomposition Products

Other decomposition products: No data available. In the event of fire: see section 5.

11. TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological Effects

A) Acute Toxicity

Oral LD50: Mouse - 275 mg/kg

Rat - 1,100 mg/kg

Inhalation LC50: No data available.

Dermal LD50: No data available.

B) Skin Corrosion/Irritation

No data available

C) Serious Eye Damage/Irritation

No data available

D) Respiratory or Skin Sensitization

No data available

E) Germ Cell Mutagenicity

No data available

F) Carcinogenicity

Evidence of a carcinogenic effect.

This compound has been designated by the IARC as Group 2B: Possibly carcinogenic to humans.

G) Reproductive Toxicity/Teratogenicity

No data available

H) Single Target Organ Toxicity - Single Exposure

No data available

I) Single Target Organ Toxicity - Repeated Exposure

No data available

J) Aspiration Hazard

No data available

K) Potential Health Effects and Routes of Exposure

Inhalation

May be harmful if inhaled. May cause respiratory tract irritation.

Ingestion

Harmful if swallowed.

Skin

Harmful if absorbed through skin. May cause skin irritation.

Eyes

May cause eye irritation.

L) Signs and Symptoms of Exposure

The most important known symptoms and effects are described in the labeling (see section 2.2) and/or in section 11.

To the best of our knowledge, the chemical, physical, and toxicological properties of this material have not been thoroughly investigated.

M) Additional Information

RTECS: PC0365000

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish:

LC50 - Lepomis macrochirus - 0.05 mg/l - 96 h

12.2 Persistance and Degradability

No data available.

12.3 Bioaccumulative Potential

No data available.

12.4 Mobility in Soil

No data available.

12.5 Results of PBT and vPvB Assessment

No data available.

12.6 Other Adverse Effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods

A) Product

Product may be burned in an incinerator equipped with afterburner and scrubber. Excess and expired materials are to be offered to a licensed hazardous material disposal company. Ensure that all Federal and Local regulations regarding the disposal and destruction of this material are followed.

B) Contaminated Packaging

Dispose of as above.

C) Other Considerations

Product is not to be disposed of in sanitary sewers, storm sewers, or landfills.

14. TRANSPORT INFORMATION

14.1 UN Number

DOT (US): UN3077 IATA: UN3077 IMDG: UN3077 ADR/RID: UN3077

14.2 UN Proper Shipping Name

DOT (US)/IATA:
Environmentally hazardous substances, solid, n.o.s. (trans-Chlordane)
IMDG/ARD/RID:
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (trans-Chlordane)

14.3 Transport Hazard Class(es)

DOT (US): 9 IATA: 9 IMDG: 9 ADR/RID: 9

14.4 Packing Group

DOT (US): III IATA: III IMDG: III ADR/RID: III

14.5 Environmental Hazards

DOT (US): None IATA: None IMDG: Marine pollutant ADR/RID: None

14.6 Special Precautions for User

None

15. REGULATORY INFORMATION

This safety data sheet complies with the requirements of WHMIS (Canada), OSHA 1910.1200 (US), and EU Regulation EC No. 1907/2006 (European Union).

15.1 Safety, Health and Environmental Regulations/Legislation Specific for the Substance or Mixture

A) Canada

DSL/NDSL Status: This product is not listed on the Canadian DSL/NDSL.

B) United States

TSCA Status: This product is not listed on the US EPA TSCA.

C) European Union

ECHA Status: This product is not registered with the EU ECHA.

15.2 Chemical Safety Assessment

No data available

16. OTHER INFORMATION

16.1 Revision History

Original Publication Date: 9/15/2015

16.2 List of Abbreviations

LD50	Median lethal dose of a substance required to kill 50% of a test population.
LC50	Medial lethal concentration of a substance required to kill 50% of a test population.
LDLo	Lowest known lethal dose
TDLo	Lowest known toxic dose
IARC	International Agency for Research on Cancer
NTP	National Toxicology Program
RTECS	Registry of Toxic Effects of Chemical Substances

16.3 Further Information

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believed to be correct to the best of our knowledge, but is to be only used as a guide. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Please take all due care when handling this product.

SAFETY DATA SHEET

Version 5.7
Revision Date 11/03/2015
Print Date 02/18/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Heptane

Product Number : 246654
Brand : Sigma-Aldrich
Index-No. : 601-008-00-2

CAS-No. : 142-82-5

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 2), H225
Skin irritation (Category 2), H315
Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336
Aspiration hazard (Category 1), H304
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H225 Highly flammable liquid and vapour.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H336 May cause drowsiness or dizziness.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ eye protection/ face protection.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P312	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P331	Do NOT induce vomiting.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	C_7H_{16}
Molecular weight	:	100.20 g/mol
CAS-No.	:	142-82-5
EC-No.	:	205-563-8
Index-No.	:	601-008-00-2
Registration number	:	01-2119457603-38-XXXX

Hazardous components

Component	Classification	Concentration
Heptane		
	Flam. Liq. 2; Skin Irrit. 2; STOT SE 3; Asp. Tox. 1; Aquatic Acute 1; Aquatic Chronic 1; H225, H304, H315, H336, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Flash back possible over considerable distance.

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion.Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Use explosion-proof equipment.Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Store under inert gas. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): Flammable liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Heptane	142-82-5	TWA	85.000000 ppm 350.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		C	440.000000 ppm 1,800.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
	Remarks	15 minute ceiling value		
		TWA	500.000000 ppm 2,000.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		
		TWA	400.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation		
		STEL	500.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation		
		TWA	400.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation		
		STEL	500.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation		
		TWA	400 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation		
		STEL	500 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation		

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 480 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.2 mm
Break through time: 65 min
Material tested:Dermatril® P (KCL 743 / Aldrich Z677388, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -91 °C (-132 °F)
f)	Initial boiling point and boiling range	98 °C (208 °F)
g)	Flash point	-3.99 °C (24.82 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 7 %(V) Lower explosion limit: 1.1 %(V)
k)	Vapour pressure	110.7 hPa (83.0 mmHg) at 37.7 °C (99.9 °F) 53.3 hPa (40.0 mmHg) at 20.0 °C (68.0 °F)
l)	Vapour density	No data available

m)	Relative density	0.684 g/mL at 25 °C (77 °F)
n)	Water solubility	insoluble
o)	Partition coefficient: n-octanol/water	log Pow: > 3.000
p)	Auto-ignition temperature	223.0 °C (433.4 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

LC50 Inhalation - Rat - 4 h - 103,000 mg/m3

Inhalation: Irritating to respiratory system.

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
Eyes - Rabbit
Result: No eye irritation
(OECD Test Guideline 405)

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
May cause drowsiness or dizziness.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
May be fatal if swallowed and enters airways.

Additional Information
RTECS: MI7700000

Prolonged or repeated exposure to skin causes defatting and dermatitis., Central nervous system depression, narcosis, Damage to the lungs.

Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Carassius auratus (goldfish) - 4 mg/l - 24.0 h
	LC50 - Tilapia mossambica - 375 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 1.50 mg/l - 48 h

12.2 Persistence and degradability

Ratio BOD/ThBOD	3.5 %

12.3 Bioaccumulative potential
Indication of bioaccumulation.

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

Do not empty into drains. Avoid release to the environment.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1206 Class: 3 Packing group: II
Proper shipping name: Heptanes
Reportable Quantity (RQ):
Marine pollutant:yes
Poison Inhalation Hazard: No

IMDG
UN number: 1206 Class: 3 Packing group: II EMS-No: F-E, S-D
Proper shipping name: HEPTANES
Marine pollutant:yes

IATA
UN number: 1206 Class: 3 Packing group: II
Proper shipping name: Heptanes

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Heptane	142-82-5	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Heptane	142-82-5	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Heptane	142-82-5	1993-04-24

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity

Asp. Tox.	Aspiration hazard
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H336	May cause drowsiness or dizziness.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
Skin Irrit.	Skin irritation

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.7 Revision Date: 11/03/2015 Print Date: 02/18/2016

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Version 6.8
Revision Date 30.05.2024
Print Date 16.09.2024
GENERIC EU MSDS - NO COUNTRY SPECIFIC DATA - NO OEL DATA

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name	:	Iron
Product Number	:	12310
Brand	:	Aldrich
REACH No.	:	01-2119462838-24-XXXX
CAS-No.	:	7439-89-6

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses	:	Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company	:	Sigma-Aldrich Inc. 3050 SPRUCE ST ST. LOUIS MO 63103 UNITED STATES
Telephone	:	+1 314 771-5765
Fax	:	+1 800 325-5052

1.4 Emergency telephone

Emergency Phone #	:	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Flammable solids, (Category 1)	H228: Flammable solid.
Self-heating substances and mixtures, (Category 1)	H251: Self-heating; may catch fire.

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

The life science business of Merck operates as MilliporeSigma in the US and Canada

Pictogram	
Signal Word	Danger
Hazard Statements	
H228	Flammable solid.
H251	Self-heating; may catch fire.
Precautionary Statements	
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P235	Keep cool.
P240	Ground and bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
Supplemental Hazard Statements	none

Reduced Labeling (<= 125 ml)

Pictogram	
Signal Word	Danger
Hazard Statements	
H251	Self-heating; may catch fire.
Precautionary Statements	
P235	Keep cool.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
Supplemental Hazard Statements	none

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information:
The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.
Toxicological information:
The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

The life science business of Merck operates as MilliporeSigma in the US and Canada

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula	:	Fe
Molecular weight	:	55,85 g/mol
CAS-No.	:	7439-89-6
EC-No.	:	231-096-4

No components need to be disclosed according to the applicable regulations.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

In case of eye contact
After eye contact: rinse out with plenty of water. Remove contact lenses.

If swallowed
After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Iron oxides
Combustible.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters

In the event of fire, wear self-contained breathing apparatus.

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5.4 Further information
Suppress (knock down) gases/vapors/mists with a water spray jet.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up
Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge.

Hygiene measures
Change contaminated clothing. Wash hands after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Keep away from heat and sources of ignition.

Storage class
Storage class (TRGS 510): 4.2: Pyrophoric and self-heating hazardous materials

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

8.2 Exposure controls

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Body Protection
Flame retardant antistatic protective clothing.

Respiratory protection
required when dusts are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.
Recommended Filter type: Filter type P1

The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Control of environmental exposure
Do not let product enter drains. Risk of explosion.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Physical state	powder
b)	Color	light gray
c)	Odor	odorless
d)	Melting point/freezing point	Melting point/range: 1.538 °C at 1.023 hPa
e)	Initial boiling point and boiling range	2.861 °C at 1.013 hPa
f)	Flammability (solid, gas)	The substance or mixture is a flammable solid with the category 1.
g)	Upper/lower flammability or explosive limits	No data available
h)	Flash point	Not applicable
i)	Autoignition temperature	The substance or mixture is classified as self heating with the category 1.

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j)	Decomposition temperature	No data available
k)	pH	Not applicable
l)	Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: No data available
m)	Water solubility	insoluble
n)	Partition coefficient: n-octanol/water	Not applicable for inorganic substances
o)	Vapor pressure	Not applicable
p)	Density	7,87 g/cm3 at 20 °C
	Relative density	7,87 at 20 °C
q)	Relative vapor density	
r)	Particle characteristics	No data available
s)	Explosive properties	Not classified as explosive.
t)	Oxidizing properties	The substance or mixture is not classified as oxidizing.

9.2 Other safety information

Dust explosion class St1

SECTION 10: Stability and reactivity

10.1 Reactivity

Self-heating; may catch fire.
The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

no information available

10.5 Incompatible materials

Strong acids

10.6 Hazardous decomposition products

In the event of fire: see section 5

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SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 7.500 mg/kg
Remarks: (Lit.)
Inhalation: No data available
Dermal: No data available

Skin corrosion/irritation
Remarks: No skin irritation

Serious eye damage/eye irritation
Eyes - Rabbit
Result: No eye irritation
(OECD Test Guideline 405)
Remarks: (Lit.)

Respiratory or skin sensitization
Did not cause sensitization on laboratory animals.

Germ cell mutagenicity
Test system: S. typhimurium
Method: OECD Test Guideline 471
Result: Not mutagenic in Ames Test.
Remarks: (Lit.)

Carcinogenicity
No data available

Reproductive toxicity
Did not show teratogenic effects in animal experiments.
Animal testing did not show any effects on fertility.

Specific target organ toxicity - single exposure
The substance or mixture is not classified as specific target organ toxicant, single exposure.

Specific target organ toxicity - repeated exposure
The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard
No data available

11.2 Additional Information

Endocrine disrupting properties

Product:

Assessment	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

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SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	static test	- Morone saxatilis - 13,6 mg/l - 96 h

12.2 Persistence and degradability
Not applicable

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Endocrine disrupting properties
Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods
No data available

SECTION 14: Transport information

14.1 UN number
ADR/RID: 3178 IMDG: 3178 IATA: 3178

14.2 UN proper shipping name
ADR/RID: FLAMMABLE SOLID, INORGANIC, N.O.S. (Iron Powder,)
IMDG: FLAMMABLE SOLID, INORGANIC, N.O.S. (Iron Powder,)
IATA: Flammable solid, inorganic, n.o.s. (Iron Powder,)

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14.3 Transport hazard class(es)

ADR/RID: 4.1	IMDG: 4.1	IATA: 4.1

14.4 Packaging group

ADR/RID: III	IMDG: III	IATA: III

14.5 Environmental hazards

ADR/RID: no	IMDG Marine pollutant: no	IATA: no

14.6 Special precautions for user

Tunnel restriction code : (E)

Further information : No data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

Other regulations

Take note of Dir 94/33/EC on the protection of young people at work.

15.2 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out

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SECTION 16: Other information

Full text of other abbreviations

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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SAFETY DATA SHEET

Version 6.6
Revision Date 09/06/2024
Print Date 09/07/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Magnesium

Product Number : 266302
Brand : Sigma-Aldrich
Index-No. : 012-002-00-9
CAS-No. : 7439-95-4

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable solids (Category 1), H228
Self-heating chemicals (Category 1), H251
Chemicals which, in contact with water, emit flammable gases (Category 2), H261

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For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal Word	Danger

Hazard Statements

H228	Flammable solid.
H251	Self-heating; may catch fire.
H261	In contact with water releases flammable gas.

Precautionary Statements

P210	Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P223	Do not allow contact with water.
P231 + P232	Handle under inert gas. Protect from moisture.
P235 + P410	Keep cool. Protect from sunlight.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P280	Wear protective gloves/ eye protection/ face protection.
P335 + P334	Brush off loose particles from skin. Immerse in cool water/ wrap in wet bandages.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P402 + P404	Store in a dry place. Store in a closed container.
P403 + P235	Store in a well-ventilated place. Keep cool.
P407	Maintain air gap between stacks/ pallets.
P420	Store away from other materials.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Combustible dust

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula	:	Mg
Molecular weight	:	24.31 g/mol
CAS-No.	:	7439-95-4
EC-No.	:	231-104-6
Index-No.	:	012-002-00-9

No components need to be disclosed according to the applicable regulations.

For the full text of the H-Statements mentioned in this Section, see Section 16.

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SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

In case of eye contact
After eye contact: rinse out with plenty of water. Remove contact lenses.

If swallowed
After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Special powder against metal fire Cover with dry sand or cement.

Unsuitable extinguishing media
Foam Water

5.2 Special hazards arising from the substance or mixture

Magnesium oxide
Not combustible.
May not get in touch with: Water
Ambient fire may liberate hazardous vapours.

5.3 Advice for firefighters

In the event of fire, wear self-contained breathing apparatus.

5.4 Further information

none

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SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up

Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Keep workplace dry. Do not allow product to come into contact with water.

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge.

Hygiene measures
Change contaminated clothing. Wash hands after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Keep away from heat and sources of ignition.
Never allow product to get in contact with water during storage.

Storage class
Storage class (TRGS 510): 4.2: Pyrophoric and self-heating hazardous materials

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters
Contains no substances with occupational exposure limit values.

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8.2 Exposure controls

Appropriate engineering controls
Change contaminated clothing. Wash hands after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Flame retardant antistatic protective clothing.

Respiratory protection
Recommended Filter type: Filter type P1
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when dusts are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains. Risk of explosion.

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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: chips
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/ range: 648 °C (1198 °F) - lit.
f)	Initial boiling point and boiling range	1,090 °C 1,994 °F - lit.
g)	Flash point	()No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	May form combustible dust concentrations in air.
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	1 hPa at 621 °C (1150 °F)
l)	Vapor density	No data available
m)	Density	1.74 g/mL at 25 °C (77 °F) - lit.
	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Autoignition temperature	The substance or mixture is classified as self heating with the category 1.
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	none

9.2 Other safety information

No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

Self-heating; may catch fire.

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10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
Risk of ignition or formation of inflammable gases or vapours with:
Oxidizing agents
alkalines
Halogenated hydrocarbon
halogens
Alcohols
nitrates
acids
Water

10.4 Conditions to avoid
Exposure to moisture. Exposure to air.
Moisture.

10.5 Incompatible materials
No data available

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Oral: No data available
Inhalation: No data available
Dermal: No data available

Skin corrosion/irritation
Remarks: No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

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Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, chills, Fever, fatigue, muscle pain, joint pain, rash, Anorexia.
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Liver - Irregularities - Based on Human Evidence

Liver - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties
No data available

12.7 Other adverse effects
No data available

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SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)
UN number: 1869 Class: 4.1 Packing group: III
Proper shipping name: Magnesium
Reportable Quantity (RQ):
Poison Inhalation Hazard: No

IMDG
UN number: 1869 Class: 4.1 Packing group: III EMS-No: F-G, S-G
Proper shipping name: MAGNESIUM

IATA
UN number: 1869 Class: 4.1 Packing group: III
Proper shipping name: Magnesium

SECTION 15: Regulatory information

CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards	:	Fire Hazard Reactivity Hazard Chronic Health Hazard
SARA 313	:	This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

US State Regulations

Massachusetts Right To Know

No components are subject to the Massachusetts Right to Know Act.

Maine Chemicals of High Concern

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Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

The ingredients of this product are reported in the following inventories:

TSCA : All substances listed as active on the TSCA inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16: Other information

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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Version: 6.6 Revision Date: 09/06/2024 Print Date: 09/07/2024

The life science business of Merck KGaA, Darmstadt, Germany
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SAFETY DATA SHEET

Version 5.5
Revision Date 06/02/2016
Print Date 06/21/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : *m*-Xylene

Product Number : 95670
Brand : Sigma-Aldrich
Index-No. : 601-022-00-9

CAS-No. : 108-38-3

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 3), H226
Acute toxicity, Dermal (Category 4), H312
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Aspiration hazard (Category 1), H304
Acute aquatic toxicity (Category 3), H402
Chronic aquatic toxicity (Category 3), H412

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H226 Flammable liquid and vapour.
H304 May be fatal if swallowed and enters airways.
H312 Harmful in contact with skin.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.

H412	Harmful to aquatic life with long lasting effects.

Precautionary statement(s)

P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ eye protection/ face protection.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P312	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P331	Do NOT induce vomiting.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	1,3-Dimethylbenzene
Formula	:	C_8H_{10}
Molecular weight	:	106.17 g/mol
CAS-No.	:	108-38-3
EC-No.	:	203-576-3
Index-No.	:	601-022-00-9

Hazardous components

Component	Classification	Concentration
m-Xylene		
	Flam. Liq. 3; Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2A; STOT SE 3; Asp. Tox. 1; Aquatic Acute 3; Aquatic Chronic 3; H226, H304, H312, H315, H319, H335, H412	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): Flammable liquids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
m-Xylene	108-38-3	TWA	100.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Eye & Upper Respiratory Tract irritation Central Nervous System impairment Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		STEL	150.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Eye & Upper Respiratory Tract irritation Central Nervous System impairment Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		TWA	100.000000 ppm 435.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	150.000000 ppm 655.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	100.000000 ppm 435.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		
		TWA	100.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		STEL	150.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section)		

		Not classifiable as a human carcinogen		
		TWA	100 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		STEL	150 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		TWA	100 ppm 435 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
m-Xylene	108-38-3	Methylhippuric acids	1.5g/g creatinine	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift (As soon as possible after exposure ceases)			
		Methylhippuric acids	1,500.0000 mg/g	Urine	ACGIH - Biological Exposure Indices (BEI)
		End of shift (As soon as possible after exposure ceases)			

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 30 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -48 °C (-54 °F) - lit.
f)	Initial boiling point and boiling range	138 - 139 °C (280 - 282 °F) - lit.
g)	Flash point	25.0 °C (77.0 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 7 %(V) Lower explosion limit: 1.1 %(V)
k)	Vapour pressure	8.0 hPa (6.0 mmHg) at 20.0 °C (68.0 °F) 21.3 hPa (16.0 mmHg) at 37.7 °C (99.9 °F)
l)	Vapour density	No data available
m)	Relative density	0.868 g/mL at 25 °C (77 °F)
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	log Pow: 3.2 at 20 °C (68 °F)
p)	Auto-ignition temperature	465.0 °C (869.0 °F) 528.0 °C (982.4 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available

t) Oxidizing properties No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - male - 6,602 mg/kg
(OECD Test Guideline 401)

LC50 Inhalation - Rat - male - 4 h - 6700 ppm
(Directive 67/548/EEC, Annex V, B.2.)

LD50 Dermal - Rabbit - male - 12,126 mg/kg

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Skin irritation - 24 h

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Severe eye irritation - 24 h

Respiratory or skin sensitisation
- Mouse
Result: Does not cause skin sensitisation.
(OECD Test Guideline 429)

Germ cell mutagenicity
No data available

Carcinogenicity

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (m-Xylene)

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

Overexposure may cause reproductive disorder(s) based on tests with laboratory animals.

Specific target organ toxicity - single exposure
Inhalation - May cause respiratory irritation.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
May be fatal if swallowed and enters airways.

Additional Information
RTECS: ZE2275000

Liver injury may occur., Kidney injury may occur., Blood disorders, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, narcosis, Lung irritation, chest pain, pulmonary edema, Central nervous system depression, Dermatitis, Gastrointestinal disturbance

Kidney -

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	mortality LC50 - Fish - 11.23 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	Remarks: No data available
Toxicity to algae	Remarks: No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
Due to the distribution coefficient n-octanol/water, accumulation in organisms is not expected.

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life with long lasting effects.

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1307 Class: 3 Packing group: III
Proper shipping name: Xylenes
Reportable Quantity (RQ): 1000 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 1307 Class: 3 Packing group: III EMS-No: F-E, S-D
Proper shipping name: XYLENES

IATA
UN number: 1307 Class: 3 Packing group: III
Proper shipping name: Xylenes

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
m-Xylene	108-38-3	2007-07-01

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
m-Xylene	108-38-3	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
m-Xylene	108-38-3	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
m-Xylene	108-38-3	2007-07-01

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Asp. Tox.	Aspiration hazard
Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
H226	Flammable liquid and vapour.

H304	May be fatal if swallowed and enters airways.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.5 Revision Date: 06/02/2016 Print Date: 06/21/2016

SAFETY DATA SHEET

Creation Date 26-Oct-2009 **Revision Date** 02-Apr-2014 **Revision Number** 1

1. Identification

Product Name **n-Hexane**

Cat No. : **AC326920000; AC326920010; AC326920025; AC326921000; AC326922500**

Synonyms Hex

Recommended Use Laboratory chemicals

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Entity / Business Name
Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 /
Europe call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 /
Europe: +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 /
Europe:001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 2
Skin Corrosion/irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Reproductive Toxicity	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system, Central nervous system (CNS).	
Specific target organ toxicity - (repeated exposure)	Category 1
Target Organs - Liver, Heart, Blood.	
Aspiration Toxicity	Category 1

Label Elements

Signal Word
Danger

Hazard Statements
Highly flammable liquid and vapor

May be fatal if swallowed and enters airways
Causes skin irritation
Causes serious eye irritation
May cause respiratory irritation
May cause drowsiness or dizziness
Suspected of damaging fertility
Causes damage to organs through prolonged or repeated exposure

Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Wear eye/face protection
Do not breathe dust/fume/gas/mist/vapors/spray
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Keep cool
Response
IF exposed or concerned: Get medical attention/advice
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Skin
If skin irritation occurs: Get medical advice/attention
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention.
Ingestion
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
Do NOT induce vomiting
Fire
In case of fire: Use CO2, dry chemical, or foam for extinction
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)
Toxic to aquatic life with long lasting effects

3. Composition / information on ingredients

Haz/Non-haz

Component	CAS-No	Weight %
Hexane	110-54-3	>95

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.

Inhalation Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Obtain medical attention. Aspiration into lungs can produce severe lung damage.

Ingestion Do not induce vomiting. Call a physician or Poison Control Center immediately. If vomiting occurs, lean victim forward to reduce the risk of aspiration.

Most important symptoms/effects Breathing difficulties. . Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.

Notes to Physician Treat symptomatically.

5. Fire-fighting measures

Suitable Extinguishing Media CO_2, dry chemical, dry sand, alcohol-resistant foam. Cool closed containers exposed to fire with water spray.

Unsuitable Extinguishing Media Water may be ineffective, This material is lighter than water and insoluble in water. The fire could easily be spread by the use of water in an area where the water cannot be contained.

Flash Point -22°C / -7.6°F

Method - No information available

Autoignition Temperature 223°C / 433.4°F

Explosion Limits

Upper 7.5 vol %

Lower 1.1 vol %

Sensitivity to Mechanical Impact No information available

Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical

Flammable. Risk of ignition. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated.

Hazardous Combustion Products Carbon monoxide (CO), Carbon dioxide (CO_2).

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health	Flammability	Instability	Physical hazards
2	3	0	N/A

6. Accidental release measures

Personal Precautions Use personal protective equipment. Ensure adequate ventilation. Evacuate personnel to safe areas. Remove all sources of ignition. Take precautionary measures against static discharges.

Environmental Precautions Do not flush into surface water or sanitary sewer system. Avoid release to the environment. Collect spillage.

Methods for Containment and Clean Up Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Take precautionary measures against static discharges.

7. Handling and storage

Handling Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Do not breathe vapors or spray mist. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Use explosion-proof equipment. Take precautionary measures against static discharges. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Flammables area.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Hexane	TWA: 50 ppm Skin	(Vacated) TWA: 50 ppm (Vacated) TWA: 180 mg/m^3 TWA: 500 ppm TWA: 1800 mg/m^3	IDLH: 1100 ppm TWA: 50 ppm TWA: 180 mg/m^3

Component	Quebec	Mexico OEL (TWA)	Ontario TWAEV
Hexane	TWA: 50 ppm TWA: 176 mg/m^3 Skin	TWA: 50 ppm TWA: 176 mg/m^3	TWA: 50 ppm Skin

Legend
ACGIH *- American Conference of Governmental Hygienists*
OSHA *- Occupational Safety and Health Administration*
NIOSH IDLH: *The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health*

Engineering Measures Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof electrical/ventilating/lighting/equipment.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice

9. Physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	Petroleum distillates
Odor Threshold	No information available.
pH	No information available.
Melting Point/Range	-95°C / -139°F
Boiling Point/Range	69°C / 156.2°F@ 760 mmHg
Flash Point	-22°C / -7.6°F
Evaporation Rate	No information available.
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	7.5 vol %
Lower	1.1 vol %
Vapor Pressure	160 mbar @ 20 °C
Vapor Density	2.97
Relative Density	0.659
Solubility	Insoluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	223°C / 433.4°F
Decomposition temperature	No information available.
Viscosity	0.31 mPa s at 20 °C
Molecular Formula	C6 H14
Molecular Weight	86.18

10. Stability and reactivity

Reactive Hazard None known, based on information available.

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products. Heat, flames and sparks. Exposure to light. Keep away from open flames, hot surfaces and sources of ignition.

Incompatible Materials Strong oxidizing agents, Halogens

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization Hazardous polymerization does not occur

Hazardous Reactions None under normal processing

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Hexane	25 g/kg (Rat)	3000 mg/kg (Rabbit)	48000 ppm (Rat) 4 h

Toxicologically Synergistic Products No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Irritating to eyes and skin

Sensitization No information available.

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Hexane	110-54-3	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects Mutagenic effects have occurred in experimental animals.

Reproductive Effects Experiments have shown reproductive toxicity effects on laboratory animals.

Developmental Effects Developmental effects have occurred in experimental animals.

Teratogenicity Teratogenic effects have occurred in experimental animals..

STOT - single exposure Respiratory system, Central nervous system (CNS).

STOT - repeated exposure Liver, Heart, Blood.

Aspiration hazard No information available.

Symptoms / effects, both acute and delayed Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.

Endocrine Disruptor Information No information available

Other Adverse Effects Tumorigenic effects have been reported in experimental animals.. See actual entry in RTECS for complete information.

12. Ecological information

Ecotoxicity

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Hexane	Not listed	2.1 - 2.98 mg/L LC50 96 h	Not listed	EC50: 3.87 mg/L/48h

Persistence and Degradability Persistence is unlikely, based on information available.

Bioaccumulation/ Accumulation No information available

Mobility Will likely be mobile in the environment due to its volatility.

Component	log Pow
Hexane	4.11

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No	UN1208
Proper Shipping Name	Hexanes
Hazard Class	3
Packing Group	II

TDG

UN-No	UN1208
Proper Shipping Name	HEXANES
Hazard Class	3
Packing Group	II

IATA

UN-No	UN1208
Proper Shipping Name	Hexanes
Hazard Class	3
Packing Group	II

IMDG/IMO

UN-No	UN1208
Proper Shipping Name	Hexanes
Hazard Class	3
Packing Group	II

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Hexane	X	X	-	203-777-6	-		X	X	X	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Hexane	110-54-3	>95	1.0

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	Yes
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act Not applicable

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Hexane	X		-

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Hexane	5000 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals.

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Hexane	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ):	Y
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

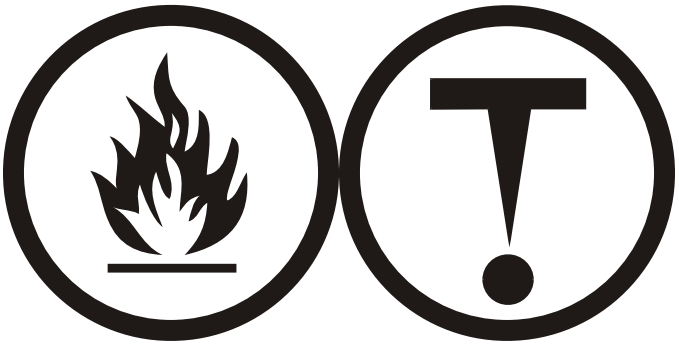
U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade Serious risk, Grade 3

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class B2 Flammable liquid
D2A Very toxic materials



16. Other information

Prepared By	Regulatory Affairs Thermo Fisher Scientific Email: EMSDS.RA@thermofisher.com
Creation Date	26-Oct-2009
Revision Date	02-Apr-2014
Print Date	02-Apr-2014
Revision Summary	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS

SAFETY DATA SHEET

Version 5.5
Revision Date 06/02/2016
Print Date 06/21/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : *o*-Xylene

Product Number : 95660
Brand : Sigma-Aldrich
Index-No. : 601-022-00-9

CAS-No. : 95-47-6

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 3), H226
Acute toxicity, Inhalation (Category 4), H332
Acute toxicity, Dermal (Category 4), H312
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Aspiration hazard (Category 1), H304
Acute aquatic toxicity (Category 3), H402
Chronic aquatic toxicity (Category 3), H412

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)

H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H312 + H332	Harmful in contact with skin or if inhaled
H315	Causes skin irritation.
H319	Causes serious eye irritation.

H335	May cause respiratory irritation.
H412	Harmful to aquatic life with long lasting effects.

Precautionary statement(s)

P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P331	Do NOT induce vomiting.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	1,2-Dimethylbenzene
Formula	:	C_8H_{10}
Molecular weight	:	106.17 g/mol
CAS-No.	:	95-47-6
EC-No.	:	202-422-2
Index-No.	:	601-022-00-9

Hazardous components

Component	Classification	Concentration
o-Xylene		
	Flam. Liq. 3; Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2A; STOT SE 3; Asp. Tox. 1; Aquatic Acute 3; Aquatic Chronic 3; H226, H304, H312 + H332, H315, H319, H335, H412	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): Flammable liquids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
o-Xylene	95-47-6	TWA	100.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Eye & Upper Respiratory Tract irritation Central Nervous System impairment Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		STEL	150.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Eye & Upper Respiratory Tract irritation Central Nervous System impairment Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		TWA	100.000000 ppm 435.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	100.000000 ppm 435.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	150.000000 ppm 655.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	100.000000 ppm 435.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		
		TWA	100.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		STEL	150.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment		

		Upper Respiratory Tract irritation Eye irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		TWA	100 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		STEL	150 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		TWA	100 ppm 435 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
o-Xylene	95-47-6	Methylhippuric acids	1,500.0000 mg/g	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift (As soon as possible after exposure ceases)			
		Methylhippuric acids	1.5g/g creatinine	Urine	ACGIH - Biological Exposure Indices (BEI)
		End of shift (As soon as possible after exposure ceases)			

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: Nitrile rubber

Minimum layer thickness: 0.4 mm
Break through time: 30 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -26 - -23 °C (-15 - -9 °F) - lit.
f)	Initial boiling point and boiling range	143 - 145 °C (289 - 293 °F) - lit.
g)	Flash point	31.0 °C (87.8 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 6.7 %(V) Lower explosion limit: 0.9 %(V)
k)	Vapour pressure	21.3 hPa (16.0 mmHg) at 37.7 °C (99.9 °F)
l)	Vapour density	No data available
m)	Relative density	0.879 g/mL at 20 °C (68 °F)
n)	Water solubility	0.1705 g/l at 25 °C (77 °F) - partly soluble
o)	Partition coefficient: n-octanol/water	log Pow: 3.12 at 20 °C (68 °F)
p)	Auto-ignition temperature	464.0 °C (867.2 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available

s) Explosive properties No data available

t) Oxidizing properties No data available

9.2 Other safety information

Surface tension 29.8 mN/m at 25.0 °C (77.0 °F)

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Oxidizing agents

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

LC50 Inhalation - Rat - male - 6 h - 18,800 mg/m3

Dermal: No data available

LD50 Intraperitoneal - Mouse - 1,364 mg/kg

Skin corrosion/irritation
Skin - Rabbit
Result: Irritating to skin. - 24 h

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
- Mouse
Result: Does not cause skin sensitisation.
(OECD Test Guideline 429)

Germ cell mutagenicity
Ames test
Salmonella typhimurium
Result: negative

Carcinogenicity

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (o-Xylene)

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
May be fatal if swallowed and enters airways.

Additional Information
RTECS: ZE2450000

narcosis, Lung irritation, chest pain, pulmonary edema, Central nervous system depression, Dermatitis, Gastrointestinal disturbance, Liver injury may occur., Kidney injury may occur., Blood disorders

Nerves. -

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Lepomis macrochirus (Bluegill) - 16.10 mg/l - 96 h

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 28 d Result: 69.67 % - Not readily biodegradable. (OECD Test Guideline 301F) Remarks: The 10 day time window criterion is not fulfilled.

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Contact a licensed professional waste disposal service to dispose of this material. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1307 Class: 3 Packing group: III
Proper shipping name: Xylenes
Reportable Quantity (RQ): 100 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 1307 Class: 3 Packing group: III EMS-No: F-E, S-D
Proper shipping name: XYLENES

IATA
UN number: 1307 Class: 3 Packing group: III
Proper shipping name: Xylenes

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
o-Xylene	95-47-6	2007-07-01

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
o-Xylene	95-47-6	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
o-Xylene	95-47-6	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
o-Xylene	95-47-6	2007-07-01

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Asp. Tox.	Aspiration hazard
Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H312	Harmful in contact with skin.

H312 + H332	Harmful in contact with skin or if inhaled
H315	Causes skin irritation.
H319	Causes serious eye irritation.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.5 Revision Date: 06/02/2016 Print Date: 06/21/2016

SAFETY DATA SHEET

Version 4.5
Revision Date 07/08/2014
Print Date 10/12/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : 4-Ethyltoluene

Product Number : E49800
Brand : Aldrich

CAS-No. : 622-96-8

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 3), H226
Aspiration hazard (Category 1), H304

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H226 Flammable liquid and vapour.
H304 May be fatal if swallowed and enters airways.

Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.

P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P331	Do NOT induce vomiting.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula : C_9H_{12}
Molecular Weight : 120.19 g/mol
CAS-No. : 622-96-8
EC-No. : 210-761-2

Hazardous components

Component	Classification	Concentration
4-Ethyltoluene		
	Flam. Liq. 3; Asp. Tox. 1; H226, H304	-

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
no data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self contained breathing apparatus for fire fighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm

Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: clear, liquid Colour: light yellow
b)	Odour	no data available
c)	Odour Threshold	no data available
d)	pH	no data available
e)	Melting point/freezing point	no data available
f)	Initial boiling point and boiling range	162 °C (324 °F) - lit.
g)	Flash point	43 °C (109 °F) - closed cup
h)	Evapouration rate	no data available
i)	Flammability (solid, gas)	no data available
j)	Upper/lower flammability or explosive limits	no data available
k)	Vapour pressure	no data available
l)	Vapour density	no data available
m)	Relative density	0.861 g/cm3 at 25 °C (77 °F)
n)	Water solubility	no data available
o)	Partition coefficient: n-octanol/water	no data available
p)	Auto-ignition temperature	no data available
q)	Decomposition temperature	no data available
r)	Viscosity	no data available
s)	Explosive properties	no data available

t) Oxidizing properties no data available

9.2 Other safety information
no data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
no data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
no data available

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - no data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - rat - 4,850 mg/kg
Remarks: Behavioral:Convulsions or effect on seizure threshold. Behavioral:Ataxia.

Inhalation: no data available

Dermal: no data available

no data available

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
no data available

Respiratory or skin sensitisation
no data available

Germ cell mutagenicity

mouse
Sister chromatid exchange

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
no data available

Reproductive toxicity - rat - Oral
Maternal Effects: Other effects. Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).

no data available

Specific target organ toxicity - single exposure
no data available

Specific target organ toxicity - repeated exposure
no data available

Aspiration hazard
The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

Additional Information
RTECS: XT2550000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity
no data available

12.2 Persistence and degradability
no data available

12.3 Bioaccumulative potential
no data available

12.4 Mobility in soil
no data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

no data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3295 Class: 3 Packing group: III
Proper shipping name: Hydrocarbons, liquid, n.o.s.
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN number: 3295 Class: 3 Packing group: III EMS-No: F-E, S-D
Proper shipping name: HYDROCARBONS, LIQUID, N.O.S.
Marine pollutant: No

IATA

UN number: 3295 Class: 3 Packing group: III
Proper shipping name: Hydrocarbons, liquid, n.o.s.

15. REGULATORY INFORMATION

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Fire Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
4-Ethyltoluene	622-96-8	

New Jersey Right To Know Components

	CAS-No.	Revision Date
4-Ethyltoluene	622-96-8	

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Asp. Tox.	Aspiration hazard
Flam. Liq.	Flammable liquids
H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.

HMIS Rating

Health hazard:	1
Chronic Health Hazard:	
Flammability:	2
Physical Hazard	0

NFPA Rating

Health hazard:	0
Fire Hazard:	2
Reactivity Hazard:	0

Further information
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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Toronto Research Chemicals
products for innovative research

Safety Data Sheet - Version 5.0

Preparation Date 8/24/2016

Latest Revision Date (If Revised)

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product Identifier

Chemical Name Perfluorodecane Sulfonic Acid

Catalogue # P286540

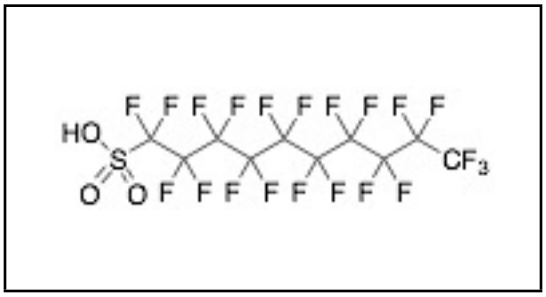
1.2 Relevant Identified Uses of the Substance or Mixture and Uses Advised Against

Product Uses To be used only for scientific research and development. Not for use in humans or animals.

1.3 Details of the Supplier of the Safety Data Sheet

Company Toronto Research Chemicals
2 Brisbane Road
Toronto, ON M3J 2J8
CANADA

Telephone +14166659696
FAX +14166654439
Email orders@trc-canada.com



1.4 Emergency Telephone Number

Emergency# +1(416) 665-9696 between 0800-1700 (GMT-5)

2. HAZARDS IDENTIFICATION

WHMIS Classification (Canada)

D2B Toxic Material Causing Other Toxic Effects
Moderate Skin/Eye/Respiratory Tract Irritant

WHMIS Symbols (Canada)

2.1/2.2 Classification of the Substance or Mixture and Label Elements

GHS Hazards Classification (According to EU Regulation 1272/2008 and US OSHA 1910.1200)

Skin Irritation (Category 2)
Serious Eye Irritation (Category 2A)
Specific Target Organ Toxicity, Single Exposure; Respiratory Tract Irritation (Category 3)

GHS Hazards Identification (According to EU Regulation 1272/2008 and US OSHA 1910.1200)

Signal Word Warning

GHS Hazard Statements

H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

GHS Precautionary Statements

P261	Avoid breathing dust/fume/gas/mist/vapours/spray
P280	Wear protective gloves/protective clothing/eye protection/face protection.

P305/P351/P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

2.3 Unclassified Hazards/Hazards Not Otherwise Classified

No data available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Molecular Formula: $C_{10}HF_{21}O_3S$ **Molecular Weight:** 600.14

CAS Registry #: 335-77-3 **EC#:**

Synonyms

1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-Heneicosafluoro-1-decanesulfonic Acid
1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-Henicosafluorodecane-1-sulfonate

3.2 Mixtures

Not a mixture.

4. FIRST AID MEASURES

4.1 Description of First Aid Measures

General Advice
If medical attention is required, show this safety data sheet to the doctor.

If Inhaled
If inhaled, move person to fresh air. If not breathing, give artificial respiration and consult a physician.

In Case of Skin Contact
Wash affected area with soap and water. Consult a physician if any exposure symptoms are observed.

In Case of Eye Contact
Immediately rinse eyes with plenty of water for at least 15 minutes. Consult a physician.

If Swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Do NOT induce vomiting unless advised to do so by a physician or Poison Control Center. Seek medical attention.

4.2 Most Important Symptoms and Effects, Both Acute and Delayed

The most important known symptoms and effects are described in the labeling (see section 2.2) and/or section 11.

4.3 Indication of any Immediate Medical Attention and Special Treatment Needed

No data available.

5. FIREFIGHTING MEASURES

5.1 Extinguishing Media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special Hazards Arising from the Substance or Mixture

Carbon oxides, Sulfur oxides, Sodium oxides, Hydrogen fluoride

5.3 Advice for Firefighters

Wear self contained breathing apparatus for fire fighting if necessary.

5.4 Further Information

No data available.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Method and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place.
Keep in a dry place.

Storage conditions: Hygroscopic, -20°C Freezer, Under inert atmosphere

7.3 Specific End Uses

For scientific research and development only. Not for use in humans or animals.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control Parameters

Contains no components with established occupational exposure limits.

8.2 Exposure Controls

Appropriate Engineering Controls
A laboratory fumehood or other appropriate form of local exhaust ventilation should be used to avoid exposure.

Personal Protective Equipment
All recommendations below are advisory in nature and a risk assessment should be performed by the employer/end user prior to use of this product. The type of protective equipment must be selected based on the amount and concentration of the dangerous material being used in the workplace.

Eye/Face Protection
Safety goggles or face shield. All equipment should have been tested and approved under appropriate standards, such as NIOSH (US), CSA (Canada), or EN 166 (EU).

Skin Protection
Gloves should be used when handling this material. Gloves are to be inspected prior to use. Contaminated gloves are to be removed using proper glove removal technique so that the outer surface of the glove does not contact bare skin. Dispose of contaminated gloves after use in compliance with good laboratory practices and local requirements.

Gloves used for incidental exposures (splash protection) should be designated as “chemical resistant” by EU standard EN 374 with the resistance codes corresponding to the anticipated use of the material. Unrated gloves are not recommended.
Suggested gloves: AnsellPro Sol-Vex nitrile gloves style 37-175, 15 mil thickness.
Penetration time has not been determined.

Gloves used for prolonged direct exposure (immersion) should be designated “chemical resistant” as per EN 734 with the resistance codes corresponding to the anticipated use of the material.
Suggested gloves: AnsellPro Viton/Butyl gloves style 38-612, 4/8 mil thickness.
Penetration time has not been determined.

These recommendations may not apply if the material is mixed with any other chemical, or dissolved into a solution. A risk assessment must be performed to ensure the gloves will still offer acceptable protection.

Body Protection
Fire resistant (Nomex) lab coat or coveralls.

Respiratory Protection
Recommended respirators are NIOSH-approved N100 or CEN-approved FFP3 particulate respirators. These are to be only used as a backup to local exhaust ventilation or other engineering controls. If the respirator is the only means of protection, a full-face supplied air respirator must be used.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Basic Physical and Chemical Properties

A) Appearance **B) Odour**

Very Dark Brown Solid

C) Odour Threshold
No data available

D) pH
No data available

E) Melting Point/Freezing Point
No data available

F) Initial Boiling Point/Boiling Range
No data available

G) Flash point
No data available

H) Evaporation Rate
No data available

I) Flammability (Solid/Gas)
No data available

J) Upper/Lower Flammability/Explosive Limits
No data available

K) Vapour Pressure
No data available

L) Vapour Density
No data available

M) Relative Density
No data available

N) Solubility
Acetone (Slightly), DMSO (Slightly), Methanol (Slightly)

O) Partition Coefficient: n-octanol/water
No data available

P) Auto-Ignition Temperature
No data available

Q) Decomposition Temperature
No data available

R) Viscosity
No data available

S) Explosive Properties
No data available

T) Oxidizing Properties
No data available

9.2 Other Information
no data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available.

10.2 Chemical Stability
Stable under recommended storage conditions.

10.3 Possibility of Hazardous Reactions
No data available.

10.4 Conditions to Avoid
No data available.

10.5 Incompatible Materials
Strong oxidizing agents.

10.6 Hazardous Decomposition Products
In the event of fire: See section 5. **Other decomposition products:** No data available.

11. TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological Effects

A) Acute Toxicity
Oral LD50: No data available.
Dermal LD50: No data available.
Inhalation LC50: No data available.

B) Skin Corrosion/Irritation
Moderate skin irritant.

C) Serious Eye Damage/Irritation
Moderate eye irritant.

D) Respiratory or Skin Sensitization
No data available

E) Germ Cell Mutagenicity
No data available

F) Carcinogenicity
No data available

G) Reproductive Toxicity/Teratogenicity
No data available

H) Single Target Organ Toxicity - Single Exposure

Moderate respiratory tract irritation.

I) Single Target Organ Toxicity - Repeated Exposure

No data available

J) Aspiration Hazard

No data available

K) Potential Health Effects and Routes of Exposure

Inhalation

May be harmful if inhaled. Causes respiratory tract irritation.

Ingestion

May be harmful if swallowed.

Skin

May be harmful if absorbed through skin. Causes skin irritation.

Eyes

Causes eye irritation.

L) Signs and Symptoms of Exposure

The most important known symptoms and effects are described in the labeling (see section 2.2) and/or section 11.

To the best of our knowledge, the chemical, physical, and toxicological properties of this material have not been thoroughly investigated.

M) Additional Information

RTECS: Not available.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

No data available.

12.2 Persistance and Degradability

No data available.

12.3 Bioaccumulative Potential

No data available.

12.4 Mobility in Soil

No data available.

12.5 Results of PBT and vPvB Assessment

No data available.

12.6 Other Adverse Effects

No data available.

13. DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods

A) Product

Product may be burned in an incinerator equipped with afterburner and scrubber. Excess and expired materials are to be offered to a licensed hazardous material disposal company. Ensure that all Federal and Local regulations regarding the disposal and destruction of this material are followed.

B) Contaminated Packaging

Dispose of as above.

C) Other Considerations

Product is not to be disposed of in sanitary sewers, storm sewers, or landfills.

14. TRANSPORT INFORMATION

14.1 UN Number

DOT (US): N/A IATA: N/A IMDG: N/A ADR/RID: N/A

14.2 UN Proper Shipping Name

DOT (US)/IATA:

Not dangerous goods

IMDG/ARD/RID:

Not dangerous goods

14.3 Transport Hazard Class(es)

DOT (US): N/A IATA: N/A IMDG: N/A ADR/RID: N/A

14.4 Packing Group

DOT (US): N/A IATA: N/A IMDG: N/A ADR/RID: N/A

14.5 Environmental Hazards

DOT (US): None IATA: None IMDG: None ADR/RID: None

14.6 Special Precautions for User

None

15. REGULATORY INFORMATION

This safety data sheet complies with the requirements of WHMIS (Canada), OSHA 1910.1200 (US), and EU Regulation EC No. 1907/2006 (European Union).

15.1 Safety, Health and Environmental Regulations/Legislation Specific for the Substance or Mixture

A) Canada

DSL/NDSL Status: This product is not listed on the Canadian DSL/NDSL.

B) United States

TSCA Status: This product is not listed on the US EPA TSCA.

C) European Union

ECHA Status: This product is not registered with the EU ECHA.

15.2 Chemical Safety Assessment

No data available

16. OTHER INFORMATION

16.1 Revision History

Original Publication Date: 8/24/2016

16.2 List of Abbreviations

LD50	Median lethal dose of a substance required to kill 50% of a test population.
LC50	Medial lethal concentration of a substance required to kill 50% of a test population.
LDLo	Lowest known lethal dose
TDLo	Lowest known toxic dose
IARC	International Agency for Research on Cancer
NTP	National Toxicology Program
RTECS	Registry of Toxic Effects of Chemical Substances

16.3 Further Information

Copyright 2015. Toronto Research Chemicals Inc. Copies may be made for internal use only. The above information is believed to be correct to the best of our knowledge, but is to be only used as a guide. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Please take all due care when handling this product.

TCI AMERICA

Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
	Corrosive to eyes and skin on contact. **Toxic compound, do not ingest or inhale. Avoid all contact with this material.** **Environmental hazard.** **This material is toxic to aquatic organisms and may cause long term adverse effects to the aquatic environment.** **POSSIBLE MUTAGEN. MINIMIZE EXPOSURE.**	

Section I. Chemical Product and Company Identification

Chemical Name: **Heptadecafluorooctanesulfonic Acid**

Catalog Number	H0781
Synonym	Perfluorooctanesulfonic Acid
Chemical Formula	$C_8HF_{17}O_3S$
CAS Number	1763-23-1

Supplier: TCI America
9211 N. Harborgate St.
Portland OR
1-800-423-8616

In case of Emergency Call: **Chemtrec®**
(800) 424-9300 (U.S.)
(703) 527-3887 (International)

Section II. Composition and Information on Ingredients

Chemical Name	CAS Number	Percent (%)	TLV/PEL	Toxicology Data
Heptadecafluorooctanesulfonic Acid	1763-23-1	Min. 98.0 (T)	This compound is classified as a possible mutagen. There is no acceptable exposure limit for a mutagen.	Rat LD_{50} (oral) 154 mg/kg

Section III. Hazards Identification

Acute Health Effects

Corrosive to skin, eyes, and respiratory system. Liquid or spray mist may produce tissue damage, particularly in mucous membranes of the eyes, mouth and respiratory tract. Skin contact may produce burns. Eye contact can result in corneal damage or blindness. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Corrosive materials may cause serious injury if ingested.
Toxic if ingested or inhaled. Avoid prolonged contact with this material. Overexposure may result in serious illness or death. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.

Chronic Health Effects

CARCINOGENIC EFFECTS : Not available.
MUTAGENIC EFFECTS : Not available.
TERATOGENIC EFFECTS : Not available.
DEVELOPMENTAL TOXICITY: Reproductive effects.
Rat TDLo Oral 50 mg/kg, female 19-20 days of pregnancy
TOXIC EFFECTS:
Effects on Newborn - Viability index
Effects on Newborn - Other neonatal measures or effects
Effects on Newborn - Growth statistics
Rat TDLo Oral 100 mg/kg, female 19-20 days of pregnancy
TOXIC EFFECTS:
Effects on Newborn - Stillbirth
Rat TDLo Unreported 50 mg/kg, female 19-20 days of pregnancy
TOXIC EFFECTS:
Specific Developmental Abnormalities - Respiratory system
Effects on Newborn - Live birth index
Repeated exposure of the eyes to a low level of dust can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section IV. First Aid Measures

Eye Contact

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.

Skin Contact

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Inhalation

If the victim is not breathing, perform mouth-to-mouth resuscitation. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, oxygen can be administered. Seek medical attention if respiration problems do not improve.

Ingestion

DO NOT INDUCE VOMITING. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive.

Continued on Next Page **Emergency phone number (800) 424-9300**

Section V. Fire and Explosion Data

Flammability	May be combustible at high temperature.	Auto-Ignition	Not available.
Flash Points	Not available.	Flammable Limits	Not available.
Combustion Products	These products are toxic carbon oxides (CO, CO_2), halogenated compounds, sulfur oxides (SO_x). WARNING: Highly toxic HF gas is produced during combustion.		
Fire Hazards	Not available.		
Explosion Hazards	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.		
Fire Fighting Media and Instructions	SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. DO NOT use water jet. Consult with local fire authorities before attempting large scale fire-fighting operations.		

Section VI. Accidental Release Measures

Spill Cleanup Instructions	Corrosive material. Toxic material. Environmentally hazardous material. Possibly mutagenic material. Stop leak if without risk. DO NOT get water inside container. DO NOT touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all sources of ignition. Consult federal, state, and/or local authorities for assistance on disposal.

Section VII. Handling and Storage

Handling and Storage Information	CORROSIVE. TOXIC. ENVIRONMENTAL HAZARD. POSSIBLE MUTAGEN. Keep locked up. Keep container dry. Keep away from heat. Mechanical exhaust required. When not in use, tightly seal the container and store in a dry, cool place. Avoid excessive heat and light. DO NOT ingest. Do not breathe dust. Never add water to this product. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label. Treat symptomatically and supportively. Always store away from incompatible compounds such as oxidizing agents, alkalis (bases).

Section VIII. Exposure Controls/Personal Protection

Engineering Controls	Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
Personal Protection	Face shield. Lab coat. Dust respirator. Boots. Gloves. A MSHA/NIOSH approved respirator must be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.
Exposure Limits	This compound is classified as a possible mutagen. There is no acceptable exposure limit for a mutagen.

Section IX. Physical and Chemical Properties

Physical state @ 20°C	Solid. (White crystal ~ powder.)	Solubility	Soluble in water.
Specific Gravity	Not available.		
Molecular Weight	500.13	Partition Coefficient	Not available.
Boiling Point	260°C (500°F)	Vapor Pressure	0.3 Pa (@ 25°C)
Melting Point	90°C (194°F)	Vapor Density	Not available.
Refractive Index	Not available.	Volatility	Not available.
Critical Temperature	Not available.	Odor	Not available.
Viscosity	Not available.	Taste	Not available.

Section X. Stability and Reactivity Data

Stability	This material is stable if stored under proper conditions. (See Section VII for instructions)
Conditions of Instability	Avoid excessive heat and light.
Incompatibilities	Reactive with oxidizing agents, alkalis (bases).

Continued on Next Page

Printed 1/6/2010.

Section XI. Toxicological Information

RTECS Number	RG9701600
Routes of Exposure	Eye Contact. Ingestion. Inhalation. Skin contact.
Toxicity Data	Rat LD_{50} (oral) 154 mg/kg
Chronic Toxic Effects	**CARCINOGENIC EFFECTS** : Not available. **MUTAGENIC EFFECTS** : Not available. **TERATOGENIC EFFECTS** : Not available. **DEVELOPMENTAL TOXICITY**: Reproductive effects. Rat TDLo Oral 50 mg/kg, female 19-20 days of pregnancy TOXIC EFFECTS: Effects on Newborn - Viability index Effects on Newborn - Other neonatal measures or effects Effects on Newborn - Growth statistics Rat TDLo Oral 100 mg/kg, female 19-20 days of pregnancy TOXIC EFFECTS: Effects on Newborn - Stillbirth Rat TDLo Unreported 50 mg/kg, female 19-20 days of pregnancy TOXIC EFFECTS: Specific Developmental Abnormalities - Respiratory system Effects on Newborn - Live birth index Repeated exposure of the eyes to a low level of dust can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.
Acute Toxic Effects	Corrosive to skin, eyes, and respiratory system. Liquid or spray mist may produce tissue damage, particularly in mucous membranes of the eyes, mouth and respiratory tract. Skin contact may produce burns. Eye contact can result in corneal damage or blindness. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Corrosive materials may cause serious injury if ingested. Toxic if ingested or inhaled. Avoid prolonged contact with this material. Overexposure may result in serious illness or death. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.

Section XII. Ecological Information

Ecotoxicity	Not available.
Environmental Fate	Perfluorooctane sulfonic acid's production and use as a precursor for fluorinated surfactants has resulted in its release to the environment through various waste streams. If released to air, an estimated vapor pressure of 2.0X10-3 mm Hg at 25 deg C indicates perfluorooctane sulfonic acid will exist solely as a vapor in the ambient atmosphere. Vapor-phase perfluorooctane sulfonic acid will be degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 110 days. If released to soil, perfluorooctane sulfonic acid is expected to have no mobility based upon an estimated Koc of 100,000. Perfluorooctane sulfonic acid is essentially nonvolatile. Perfluoro compound recalcitrance can be attributed to the stability conferred by fluorine substitutes and the absence of structures susceptible to electrophilic or nucleophilic attack. Perfluorooctane sulfonic acid reached 0% of its theoretical BOD in four weeks using an activated sludge inoculum in the manometric respirometry test. If released into water, perfluorooctane sulfonic acid is expected to adsorb to suspended solids and sediment based upon the estimated Koc. Volatilization from water surfaces is not expected to be an important fate process as the compound is essentially nonvolatile; an estimated volatilization half-life for a model pond is 3 years if adsorption is considered. An estimated BCF of 56 suggests the potential for bioconcentration in aquatic organisms is moderate. Monitoring studies however would suggest that this compound is highly bioaccumulative. As a class, fluorinated organic compounds are resistant to hydrolysis. Occupational exposure to perfluorooctane sulfonic acid may occur through inhalation and dermal contact with this compound at workplaces where perfluorooctane sulfonic acid is produced or used. Monitoring data indicate that the general population may be exposed to perfluorooctane sulfonic acid via ingestion of contaminated fish and drinking water, and dermal contact with this compound and other products containing perfluorooctane sulfonic acid.

Section XIII. Disposal Considerations

Waste Disposal	Recycle to process, if possible. Consult your local regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state and local regulations when disposing of the substance.

Section XIV. Transport Information

DOT Classification	DOT CLASS 8: Corrosive material DOT CLASS 6.1: Toxic material
PIN Number	UN2923
Proper Shipping Name	Corrosive solid, toxic, n.o.s.
Packing Group (PG)	II
DOT Pictograms	

Continued on Next Page Emergency phone number (800) 424-9300

Section XV. Other Regulatory Information and Pictograms

TSCA Chemical Inventory (EPA)	This compound is **ON** the EPA Toxic Substances Control Act (TSCA) inventory list.
WHMIS Classification (Canada)	CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS E: Corrosive solid. On NDSL.
EINECS Number (EEC)	217-179-8
EEC Risk Statements	R23/24/25- Toxic by inhalation, in contact with skin and if swallowed. R34- Causes burns. R46- May cause heritable genetic damage. R47- May cause birth defects. R51- Toxic to aquatic organisms. R53- May cause long-term adverse effects in the aquatic environment.
Japanese Regulatory Data	ENCS No. 2-1595

Section XVI. Other Information

Version 1.0
Validated on 1/6/2010.
Printed 1/6/2010.

Notice to Reader

TCI laboratory chemicals are for research purposes only and are NOT intended for use as drugs, food additives, households, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our MSDS sheets are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated MSDS sheets for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, facial mask, fume hood). For proper handling and disposal, always comply with federal, state, and local regulations.

SAFETY DATA SHEET

Version 3.10
Revision Date 03/03/2015
Print Date 02/07/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Potassium

Product Number : 244864
Brand : Aldrich

CAS-No. : 7440-09-7

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Substances and mixtures, which in contact with water, emit flammable gases (Category 1), H260
Skin corrosion (Category 1A), H314
Serious eye damage (Category 1), H318
Carcinogenicity (Category 1A), H350

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)

H260	In contact with water releases flammable gases which may ignite spontaneously.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H350	May cause cancer.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P223	Keep away from any possible contact with water, because of violent reaction and possible flash fire.

P231 + P232	Handle under inert gas. Protect from moisture.
P260	Do not breathe dust or mist.
P264	Wash skin thoroughly after handling.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P281	Use personal protective equipment as required.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P310	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P335 + P334	Brush off loose particles from skin. Immerse in cool water/ wrap in wet bandages.
P363	Wash contaminated clothing before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P402 + P404	Store in a dry place. Store in a closed container.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Reacts violently with water.
May form explosive peroxides.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Formula : K
Molecular weight : 39.10 g/mol

Hazardous components

Component		Classification	Concentration
Potassium			
CAS-No. EC-No. Index-No.	7440-09-7 231-119-8 019-001-00-2	Water-react. 1; Skin Corr. 1A; Eye Dam. 1; H260, H314	>= 90 - <= 100 %
Paraffin oils			
CAS-No. EC-No.	8012-95-1 232-384-2	Carc. 1A; H350	>= 1 - < 5 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.Continue rinsing eyes during transport to hospital.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Dry powder

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Potassium oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Do not flush with water. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.Keep away from sources of ignition - No smoking.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Never allow product to get in contact with water during storage.

Handle and store under inert gas.
Storage class (TRGS 510): Hazardous materials, which set free flammable gases upon contact with water

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Paraffin oils	8012-95-1	STEL	10.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	10.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Upper Respiratory Tract irritation 2014 Adoption Not classifiable as a human carcinogen		
		Upper Respiratory Tract irritation 2014 Adoption Exposure by all routes should be carefully controlled to levels as low as possible. Suspected human carcinogen		
		TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Upper Respiratory Tract irritation Exposure by all routes should be carefully controlled to levels as low as possible. Suspected human carcinogen		
		TWA	5.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Not classifiable as a human carcinogen		
		TWA	5.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	10.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Upper Respiratory Tract irritation Exposure by all routes should be carefully controlled to levels as low as possible. Suspected human carcinogen		

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: Fragments Colour: grey
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 64 °C (147 °F)
f)	Initial boiling point and boiling range	774 °C (1,425 °F) at 1,013 hPa (760 mmHg)
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower	No data available

	flammability or explosive limits	
k)	Vapour pressure	0.12 hPa (0.09 mmHg) at 260 °C (500 °F)
l)	Vapour density	No data available
m)	Relative density	0.860 g/cm3
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Reacts violently with water.

10.4 Conditions to avoid
Exposure to moisture

10.5 Incompatible materials
Oxidizing agents, Strong oxidizing agents, Carbon oxides, Reacts violently with water., Reacts with water to generate Hydrogen gas.

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: 1 - Group 1: Carcinogenic to humans (Paraffin oils)

NTP: Known to be human carcinogenThe reference note has been added by TD based on the background information of the NTP. (Paraffin oils)

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN number: 2257 Class: 4.3 Packing group: I
Proper shipping name: Potassium
Reportable Quantity (RQ):

Poison Inhalation Hazard: No

IMDG
UN number: 2257 Class: 4.3 Packing group: I EMS-No: F-G, S-N
Proper shipping name: POTASSIUM

IATA
UN number: 2257 Class: 4.3 Packing group: I
Proper shipping name: Potassium
IATA Passenger: Not permitted for transport

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Reactivity Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Potassium	7440-09-7	1993-04-24
Paraffin oils	8012-95-1	2007-03-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Potassium	7440-09-7	1993-04-24
Paraffin oils	8012-95-1	2007-03-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Potassium	7440-09-7	1993-04-24
Paraffin oils	8012-95-1	2007-03-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
Paraffin oils	8012-95-1	1987-02-27

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Carc.	Carcinogenicity
Eye Dam.	Serious eye damage
H260	In contact with water releases flammable gases which may ignite spontaneously.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H350	May cause cancer.
Skin Corr.	Skin corrosion
Water-react.	Substances and mixtures, which in contact with water, emit flammable gases

HMIS Rating
Health hazard: 3

Chronic Health Hazard:	*
Flammability:	4
Physical Hazard	2

NFPA Rating

Health hazard:	3
Fire Hazard:	4
Reactivity Hazard:	2
Special hazard.I:	W

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 3.10 Revision Date: 03/03/2015 Print Date: 02/07/2016

SAFETY DATA SHEET

Version 3.9
Revision Date 05/23/2016
Print Date 06/21/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : *p*-Xylene

Product Number : 95680
Brand : Sigma-Aldrich
Index-No. : 601-022-00-9

CAS-No. : 106-42-3

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 3), H226
Acute toxicity, Inhalation (Category 4), H332
Acute toxicity, Dermal (Category 4), H312
Skin irritation (Category 2), H315
Acute aquatic toxicity (Category 2), H401

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Warning

Hazard statement(s)
H226 Flammable liquid and vapour.
H312 + H332 Harmful in contact with skin or if inhaled
H315 Causes skin irritation.
H401 Toxic to aquatic life.

Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.

P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P312	Call a POISON CENTER/doctor if you feel unwell.
P322	Specific measures (see supplemental first aid instructions on this label).
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P403 + P235	Store in a well-ventilated place. Keep cool.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	1,4-Dimethylbenzene
Formula	:	C_8H_{10}
Molecular weight	:	106.17 g/mol
CAS-No.	:	106-42-3
EC-No.	:	203-396-5
Index-No.	:	601-022-00-9

Hazardous components

Component	Classification	Concentration
p-Xylene		
	Flam. Liq. 3; Acute Tox. 4; Skin Irrit. 2; Aquatic Acute 2; H226, H312 + H332, H315, H401	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
p-Xylene	106-42-3	TWA	100.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Eye & Upper Respiratory Tract irritation		

		Central Nervous System impairment Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		STEL	150.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Eye & Upper Respiratory Tract irritation Central Nervous System impairment Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		ST	150.000000 ppm 655.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	100.000000 ppm 435.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	100.000000 ppm 435.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		
		TWA	100.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		STEL	150.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		TWA	100 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		STEL	150 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		

		TWA	100 ppm 435 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
p-Xylene	106-42-3	Methylhippuric acids	1.5g/g creatinine	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift (As soon as possible after exposure ceases)			
		Methylhippuric acids	1,500.0000 mg/g	Urine	ACGIH - Biological Exposure Indices (BEI)
		End of shift (As soon as possible after exposure ceases)			

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 30 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid, clear Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	13.0 °C (55.4 °F)
f)	Initial boiling point and boiling range	137.0 - 138.0 °C (278.6 - 280.4 °F)
g)	Flash point	25.0 °C (77.0 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 7 %(V) Lower explosion limit: 1.1 %(V)
k)	Vapour pressure	21.3 hPa (16.0 mmHg) at 37.7 °C (99.9 °F) 12.0 hPa (9.0 mmHg) at 20.0 °C (68.0 °F)
l)	Vapour density	No data available
m)	Relative density	0.86 g/cm3
n)	Water solubility	0.2 g/l
o)	Partition coefficient: n-octanol/water	log Pow: 3.15
p)	Auto-ignition temperature	529.0 °C (984.2 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

Surface tension	28.3 mN/m at 20.0 °C (68.0 °F)

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 5,000 mg/kg

LD50 Oral - Rat - male - 3,523 mg/kg

LC50 Inhalation - Rat - 4 h - 4550 ppm
Remarks: Lungs, Thorax, or Respiration:Chronic pulmonary edema. Liver:Other changes. Blood:Changes in cell count (unspecified).

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Moderate skin irritation - 4 h

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC:	3 - Group 3: Not classifiable as to its carcinogenicity to humans (p-Xylene)
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

May cause reproductive disorders.

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: ZE2625000

narcosis, Lung irritation, chest pain, pulmonary edema, Central nervous system depression, Gastrointestinal disturbance, Liver injury may occur., Kidney injury may occur., Blood disorders

Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Oncorhynchus mykiss (rainbow trout) - 2.60 mg/l - 96 h
	LC50 - Carassius auratus (goldfish) - 18.00 mg/l - 24 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 35.50 - 63.10 mg/l - 48 h
Toxicity to algae	EC50 - Pseudokirchneriella subcapitata (green algae) - 3.20 - 4.40 mg/l - 72 h

12.2 Persistence and degradability

Biodegradability Result: 87.8 % - Readily biodegradable

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN number: 1307 Class: 3 Packing group: III
Proper shipping name: Xylenes
Reportable Quantity (RQ): 100 lbs

Poison Inhalation Hazard: No

IMDG

UN number: 1307 Class: 3 Packing group: III EMS-No: F-E, S-D
Proper shipping name: XYLENES

IATA

UN number: 1307 Class: 3 Packing group: III
Proper shipping name: Xylenes

15. REGULATORY INFORMATION

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
p-Xylene	106-42-3	2007-07-01

SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Flam. Liq.	Flammable liquids
H226	Flammable liquid and vapour.
H312	Harmful in contact with skin.
H312 + H332	Harmful in contact with skin or if inhaled
H315	Causes skin irritation.
H332	Harmful if inhaled.

HMIS Rating

Health hazard:	1
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	1
Fire Hazard:	3
Reactivity Hazard:	0

Further information
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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 3.9 Revision Date: 05/23/2016 Print Date: 06/21/2016

SAFETY DATA SHEET

Version 4.11
Revision Date 03/05/2015
Print Date 02/07/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Sodium

Product Number : 483745
Brand : Aldrich

CAS-No. : 7440-23-5

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Substances and mixtures, which in contact with water, emit flammable gases (Category 1), H260
Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318
Carcinogenicity (Category 1A), H350

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)

H260	In contact with water releases flammable gases which may ignite spontaneously.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H350	May cause cancer.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P223	Keep away from any possible contact with water, because of violent reaction and possible flash fire.

P231 + P232	Handle under inert gas. Protect from moisture.
P260	Do not breathe dust or mist.
P264	Wash skin thoroughly after handling.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P281	Use personal protective equipment as required.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P310	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P335 + P334	Brush off loose particles from skin. Immerse in cool water/ wrap in wet bandages.
P363	Wash contaminated clothing before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P402 + P404	Store in a dry place. Store in a closed container.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Reacts violently with water.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Formula : Na
Molecular weight : 22.99 g/mol

Hazardous components

Component		Classification	Concentration
Sodium			
CAS-No. EC-No. Index-No.	7440-23-5 231-132-9 011-001-00-0	Water-react. 1; Skin Corr. 1B; Eye Dam. 1; H260, H314	>= 90 - <= 100 %
Paraffin oils			
CAS-No. EC-No.	8012-95-1 232-384-2	Carc. 1A; H350	>= 90 - <= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.Continue rinsing eyes during transport to hospital.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Dry powder

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Do not flush with water. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.Keep away from sources of ignition - No smoking.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Never allow product to get in contact with water during storage.

Handle and store under inert gas. Air sensitive.
Storage class (TRGS 510): Hazardous materials, which set free flammable gases upon contact with water

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Paraffin oils	8012-95-1	STEL	10.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	10.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Upper Respiratory Tract irritation 2014 Adoption Not classifiable as a human carcinogen		
		Upper Respiratory Tract irritation 2014 Adoption Exposure by all routes should be carefully controlled to levels as low as possible. Suspected human carcinogen		
		TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Upper Respiratory Tract irritation Exposure by all routes should be carefully controlled to levels as low as possible. Suspected human carcinogen		
		TWA	5.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Not classifiable as a human carcinogen		
		TWA	5.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	10.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Upper Respiratory Tract irritation Exposure by all routes should be carefully controlled to levels as low as possible. Suspected human carcinogen		

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: Pieces
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 97.8 °C (208.0 °F) - lit.
f)	Initial boiling point and boiling range	883 °C (1,621 °F) - lit.
g)	Flash point	82 °C (180 °F)
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	0.97 g/cm3

n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Reacts violently with water.

10.4 Conditions to avoid
Air Do not allow water to enter container.
Exposure to moisture

10.5 Incompatible materials
Oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: 1 - Group 1: Carcinogenic to humans (Paraffin oils)

NTP: Known to be human carcinogenThe reference note has been added by TD based on the background information of the NTP. (Paraffin oils)

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

burning sensation, Cough, wheezing, laryngitis, Shortness of breath, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., Aspiration may lead to:, lipid pneumonia, Effects due to ingestion may include:, laxative effect, Gastrointestinal disturbance, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1428 Class: 4.3 Packing group: I
Proper shipping name: Sodium
Reportable Quantity (RQ): 10 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 1428 Class: 4.3 Packing group: I EMS-No: F-G, S-N
Proper shipping name: SODIUM

IATA
UN number: 1428 Class: 4.3 Packing group: I
Proper shipping name: Sodium
IATA Passenger: Not permitted for transport

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Reactivity Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Sodium	7440-23-5	1993-04-24
Paraffin oils	8012-95-1	2007-03-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Sodium	7440-23-5	1993-04-24
Paraffin oils	8012-95-1	2007-03-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Sodium	7440-23-5	1993-04-24
Paraffin oils	8012-95-1	2007-03-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
Paraffin oils	8012-95-1	1987-02-27

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Carc.	Carcinogenicity
Eye Dam.	Serious eye damage
H260	In contact with water releases flammable gases which may ignite spontaneously.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H350	May cause cancer.
Skin Corr.	Skin corrosion
Water-react.	Substances and mixtures, which in contact with water, emit flammable gases

HMIS Rating

Health hazard:	3
Chronic Health Hazard:	*
Flammability:	4
Physical Hazard	2

NFPA Rating

Health hazard:	3
Fire Hazard:	4
Reactivity Hazard:	2
Special hazard.I:	W

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.11 Revision Date: 03/05/2015 Print Date: 02/07/2016

SAFETY DATA SHEET

Version 3.14
Revision Date 12/02/2015
Print Date 02/18/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Styrene

Product Number : 240869
Brand : Aldrich
Index-No. : 601-026-00-0

CAS-No. : 100-42-5

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 3), H226
Acute toxicity, Inhalation (Category 4), H332
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Carcinogenicity (Category 2), H351
Reproductive toxicity (Category 2), H361
Specific target organ toxicity - repeated exposure (Category 1), H372
Acute aquatic toxicity (Category 2), H401

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H226 Flammable liquid and vapour.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H351 Suspected of causing cancer.
H361 Suspected of damaging fertility or the unborn child.

H372	Causes damage to organs through prolonged or repeated exposure.
H401	Toxic to aquatic life.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Lachrymator.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	Phenylethylene Vinylbenzene
Formula	:	$C_8H_8C_8H_8$
Molecular weight	:	104.15 g/mol
CAS-No.	:	100-42-5
EC-No.	:	202-851-5
Index-No.	:	601-026-00-0

Hazardous components

Component	Classification	Concentration
Styrene		
	Flam. Liq. 3; Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2A; Carc. 2; Repr. 2; STOT RE 1; Aquatic Acute 2; H226, H315, H319, H332, H351, H361, H372, H401	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Container explosion may occur under fire conditions., Vapours may form explosive mixture with air.

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Recommended storage temperature 2 - 8 °C

Light sensitive.
Storage class (TRGS 510): Flammable liquids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Styrene	100-42-5	TWA	50.000000 ppm 215.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	100.000000 ppm 425.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
	Remarks	See Table Z-2		
		TWA	100.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.15-1969		
		CEIL	200.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.15-1969		
		Peak	600.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.15-1969		
		TWA	20.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Peripheral neuropathy Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		STEL	40.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Peripheral neuropathy Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		TWA	100 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.15-1969		

		CEIL	200 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.15-1969		
		Peak	600 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.15-1969		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Styrene	100-42-5	Mandelic acid plus phenylglyoxylic acid	400mg/g Creatinine	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift (As soon as possible after exposure ceases)			
		Styrene	0.2000 mg/l	In venous blood	ACGIH - Biological Exposure Indices (BEI)
		End of shift (As soon as possible after exposure ceases)			
		Mandelic acid plus phenylglyoxylic acid	400mg/g Creatinine	Urine	ACGIH - Biological Exposure Indices (BEI)
		End of shift (As soon as possible after exposure ceases)			
		Styrene	40 µg/l	Urine	ACGIH - Biological Exposure Indices (BEI)
		End of shift (As soon as possible after exposure ceases)			

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 32 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid, clear Colour: colourless
b)	Odour	sweet
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -31 °C (-24 °F) - lit.
f)	Initial boiling point and boiling range	145 - 146 °C (293 - 295 °F) - lit.
g)	Flash point	32.0 °C (89.6 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 8.9 %(V) Lower explosion limit: 1.1 %(V)
k)	Vapour pressure	6 hPa (5 mmHg) at 20 °C (68 °F)
l)	Vapour density	3.6
m)	Relative density	0.906 g/cm3 at 25 °C (77 °F)
n)	Water solubility	0.05 g/l at 25 °C (77 °F) - slightly soluble
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	490.0 °C (914.0 °F) 480.0 °C (896.0 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

Relative vapour density	3.6

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.
Test for peroxide formation before distillation or evaporation. Test for peroxide formation or discard after 1 year.
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.Vapours may form explosive mixture with air.

10.4 Conditions to avoid
May polymerize on exposure to light.
Heat, flames and sparks.

10.5 Incompatible materials
Oxidizing agents, Copper

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - > 6,000 mg/kg

LC50 Inhalation - Rat - 4 h - 12,000 mg/m3

LD50 Dermal - Rat - male and female - > 2,000 mg/kg

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Skin irritation
(OECD Test Guideline 404)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Eye irritation - 24 h

Respiratory or skin sensitisation
Maximisation Test (GPMT) - Guinea pig
Does not cause skin sensitisation.
(OECD Test Guideline 406)

Germ cell mutagenicity
Laboratory experiments have shown mutagenic effects.

Carcinogenicity

This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

IARC:	2B - Group 2B: Possibly carcinogenic to humans (Styrene)
NTP:	Reasonably anticipated to be a human carcinogen (Styrene)
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
Suspected of damaging the unborn child. Suspected human reproductive toxicant

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard
No data available

Additional Information
RTECS: WL3675000

Dermatitis, Central nervous system depression, Nausea, Dizziness, Headache, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Endocrine system. -

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	NOEC - Pimephales promelas (fathead minnow) - 4 mg/l - 96 h
	LC50 - Pimephales promelas (fathead minnow) - 32 mg/l - 96 h
	LOEC - Pimephales promelas (fathead minnow) - 7.6 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 4.7 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	IC50 - Pseudokirchneriella subcapitata (green algae) - 1.4 mg/l - 72 h

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 28 d Result: > 60 % - Readily biodegradable

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life.

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2055 Class: 3 Packing group: III
Proper shipping name: Styrene monomer, stabilized
Reportable Quantity (RQ): 1000 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 2055 Class: 3 Packing group: III EMS-No: F-E, S-D
Proper shipping name: STYRENE MONOMER, STABILIZED

IATA
UN number: 2055 Class: 3 Packing group: III
Proper shipping name: Styrene monomer, stabilized

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Styrene	100-42-5	2007-07-01

SARA 311/312 Hazards
Fire Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Styrene	100-42-5	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Styrene	100-42-5	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Styrene	100-42-5	2007-07-01

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Carc.	Carcinogenicity
Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
H226	Flammable liquid and vapour.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H351	Suspected of causing cancer.
H361	Suspected of damaging fertility or the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure.
H401	Toxic to aquatic life.

HMIS Rating

Health hazard:	1
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 3.14 Revision Date: 12/02/2015 Print Date: 02/18/2016

SAFETY DATA SHEET

Version 6.12
Revision Date 09/07/2024
Print Date 09/08/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : *tert*-Butanol

Product Number : 471712
Brand : Sigma-Aldrich
Index-No. : 603-005-00-1
CAS-No. : 75-65-0

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 2), H225
Acute toxicity, Inhalation (Category 4), H332
Eye irritation (Category 2A), H319

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Specific target organ toxicity - single exposure (Category 3), Respiratory system, Central nervous system, H335, H336

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal Word Danger

Hazard Statements

H225	Highly flammable liquid and vapor.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.

Precautionary Statements

P210	Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing mist or vapors.
P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/ eye protection/ face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms : 2-Methyl-2-propanol

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Trimethyl carbinol
tert-Butyl alcohol

Formula	:	$C_4H_{10}O$
Molecular weight	:	74.12 g/mol
CAS-No.	:	75-65-0
EC-No.	:	200-889-7
Index-No.	:	603-005-00-1

Component	Classification	Concentration
tert-Butanol		
	Flam. Liq. 2; Acute Tox. 4; Eye Irrit. 2A; STOT SE 3; H225, H332, H319, H335, H336 Concentration limits: 20 %: STOT SE 3, H335;	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

In case of eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Carbon dioxide (CO2) Foam Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Carbon oxides
Flash back possible over considerable distance.
Combustible.
Pay attention to flashback.
Vapors are heavier than air and may spread along floors.
Development of hazardous combustion gases or vapours possible in the event of fire.
Forms explosive mixtures with air at ambient temperatures.

5.3 Advice for firefighters

In the event of fire, wear self-contained breathing apparatus.

5.4 Further information

In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion.Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition.
Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb®).
Dispose of properly. Clean up affected area.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge.

Hygiene measures
Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.

Storage class
Storage class (TRGS 510): 3: Flammable liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
tert-Butanol	75-65-0	TWA	100 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Not classifiable as a human carcinogen		
		TWA	100 ppm 300 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	150 ppm 450 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	100 ppm 300 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		STEL	150 ppm 450 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		PEL	100 ppm 300 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

8.2 Exposure controls

Appropriate engineering controls
Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.

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Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 480 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Splash contact
Material: Chloroprene
Minimum layer thickness: 0.65 mm
Break through time: 240 min
Material tested:KCL 720 Camapren®

Body Protection
Flame retardant antistatic protective clothing.

Respiratory protection
Recommended Filter type: Filter A (acc. to DIN 3181) for vapours of organic compounds
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when vapours/aerosols are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains. Risk of explosion.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid
b)	Odor	camphor-like
c)	Odor Threshold	ca.71 ppm

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d)	pH	at 20 °C (68 °F)neutral
e)	Melting point/freezing point	Melting point/ range: 23 - 26 °C (73 - 79 °F)
f)	Initial boiling point and boiling range	83 °C 181 °F
g)	Flash point	15 °C (59 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 8.0 %(V) Lower explosion limit: 2.3 %(V)
k)	Vapor pressure	40.7 hPa at 20 °C (68 °F)
l)	Vapor density	2.56
m)	Density	0.775 g/mL at 25 °C (77 °F)
	Relative density	No data available
n)	Water solubility	soluble
o)	Partition coefficient: n-octanol/water	log Pow: 0.30 - Bioaccumulation is not expected.
p)	Autoignition temperature	470 °C (878 °F) at 1,013 hPa - see user defined free text
q)	Decomposition temperature	No data available
r)	Viscosity	5.72 mm2/s at 25 °C (77 °F) - OECD Test Guideline 114 - 2.23 mm2/s at 45 °C (113 °F) - OECD Test Guideline 114 -
s)	Explosive properties	No data available
t)	Oxidizing properties	none

9.2 Other safety information

Surface tension	69.8 mN/m at 1.09g/l at 21 °C (70 °F) - OECD Test Guideline 115
Dissociation constant	19.2 at 20 °C (68 °F)
Relative vapor density	2.56

SECTION 10: Stability and reactivity

10.1 Reactivity

Vapors may form explosive mixture with air.

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10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
Violent reactions possible with:
Alkali metals
Alkaline earth metals
Strong acids
Aluminum
Strong oxidizing agents

10.4 Conditions to avoid
Warming.

10.5 Incompatible materials
No data available

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - male and female - 3,046 mg/kg
(US-EPA)
Acute toxicity estimate Inhalation - 4 h - 11.1 mg/l - vapor

(Expert judgment)
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
LD50 Dermal - Rabbit - male and female - > 2,000 mg/kg
(US-EPA)

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation - 24 h
(Draize Test)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Causes serious eye irritation.
(US-EPA)

Respiratory or skin sensitization
Maximization Test - Guinea pig
Result: negative
(OECD Test Guideline 406)

Germ cell mutagenicity
Test Type: In vitro mammalian cell gene mutation test
Test system: Mouse lymphoma test
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476

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Result: negative
Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative
Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
Test Type: sister chromatid exchange assay
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 479
Result: negative

Test Type: Micronucleus test
Species: Mouse
Cell type: Red blood cells (erythrocytes)
Application Route: Oral
Method: OECD Test Guideline 474
Result: negative

Carcinogenicity

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
Inhalation - May cause respiratory irritation. - Respiratory system
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
Inhalation - May cause drowsiness or dizziness. - Nervous system

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

RTECS: EO1925000
drying, cracking of the skin, Skin irritation
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Liver - Irregularities - Based on Human Evidence

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Liver - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	flow-through test LC50 - Pimephales promelas (fathead minnow) - > 961 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - 933 mg/l - 48 h (Directive 67/548/EEC, Annex V, C.2.)
Toxicity to algae	static test ErC50 - Pseudokirchneriella subcapitata (green algae) - > 976 mg/l - 72 h (OECD Test Guideline 201)
Toxicity to bacteria	static test EC50 - Pseudomonas putida - > 10,000 mg/l - 16 h (DIN 38 412 Part 8)
	static test EC10 - Pseudomonas putida - 6,900 mg/l - 16 h (DIN 38 412 Part 8)
Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity)	semi-static test EC50 - Daphnia magna (Water flea) - > 100 mg/l - 21 d (OECD Test Guideline 211)
	semi-static test NOEC - Daphnia magna (Water flea) - 100 mg/l - 21 d (OECD Test Guideline 211)

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 56 d Result: 66 % - Inherently biodegradable. Remarks: (ECHA)

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

No data available

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SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)
UN number: 1120 Class: 3 Packing group: II
Proper shipping name: Butanols
Reportable Quantity (RQ):
Poison Inhalation Hazard: No

IMDG
UN number: 1120 Class: 3 Packing group: II EMS-No: F-E, S-D
Proper shipping name: BUTANOLS

IATA
UN number: 1120 Class: 3 Packing group: II
Proper shipping name: Butanols

SECTION 15: Regulatory information

CERCLA Reportable Quantity
This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity
This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity
This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Fire Hazard
Acute Health Hazard
Chronic Health Hazard

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

tert-Butanol	75-65-0	>= 90 - <= 100 %

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US State Regulations

Massachusetts Right To Know

tert-Butanol	75-65-0

Pennsylvania Right To Know

tert-Butanol	75-65-0

Maine Chemicals of High Concern

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

The ingredients of this product are reported in the following inventories:

TSCA : All substances listed as active on the TSCA inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16: Other information

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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Version: 6.12 Revision Date: 09/07/2024 Print Date: 09/08/2024

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SAFETY DATA SHEET

Version 4.11
Revision Date 10/29/2015
Print Date 03/03/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Tetrahydrofuran

Product Number : 401757
Brand : Sigma-Aldrich
Index-No. : 603-025-00-0

CAS-No. : 109-99-9

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 2), H225
Acute toxicity, Oral (Category 4), H302
Eye irritation (Category 2A), H319
Carcinogenicity (Category 2), H351
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H225 Highly flammable liquid and vapour.
H302 Harmful if swallowed.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H351 Suspected of causing cancer.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and

	understood.
P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

May form explosive peroxides.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	THF
Formula	:	C_4H_8O
Molecular weight	:	72.11 g/mol
CAS-No.	:	109-99-9
EC-No.	:	203-726-8
Index-No.	:	603-025-00-0
Registration number	:	01-2119444314-46-XXXX

Hazardous components

Component	Classification	Concentration
Tetrahydrofuran		
	Flam. Liq. 2; Acute Tox. 4; Eye Irrit. 2A; Carc. 2; STOT SE 3; H225, H302, H319, H335, H351	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Use explosion-proof equipment.Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Dry residue is explosive. Store under inert gas. Test for peroxide formation periodically and before distillation.
Storage class (TRGS 510): Flammable liquids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Tetrahydrofuran	109-99-9	TWA	50.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Central Nervous System impairment Upper Respiratory Tract irritation Kidney damage Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption		
		STEL	100.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Kidney damage Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption		
		TWA	200.000000 ppm 590.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	250.000000 ppm 735.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	200.000000 ppm 590.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Tetrahydrofuran	109-99-9	Tetrahydrofuran	2.0000 mg/l	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift (As soon as possible after exposure ceases)			

Derived No Effect Level (DNEL)

Application Area	Exposure routes	Health effect	Value
Workers	Skin contact	Long-term systemic effects	25mg/kg BW/d
Consumers	Skin contact	Long-term systemic effects	15mg/kg BW/d
Workers	Inhalation	Long-term local effects	150 mg/m3
Workers	Inhalation	Long-term systemic effects	150 mg/m3
Consumers	Inhalation	Long-term systemic effects	62 mg/m3
Consumers	Inhalation	Acute local effects	150 mg/m3
Consumers	Inhalation	Acute systemic effects	150 mg/m3

Predicted No Effect Concentration (PNEC)

Compartment	Value
Soil	2.13 mg/kg
Marine water	0.432 mg/l
Fresh water	4.32 mg/l
Marine sediment	2.33 mg/kg
Fresh water sediment	23.3 mg/kg
Onsite sewage treatment plant	4.6 mg/l

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Splash contact
Material: butyl-rubber
Minimum layer thickness: 0.3 mm
Break through time: 18 min
Material tested:Butoject® (KCL 897 / Aldrich Z677647, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid, clear Colour: colourless
b)	Odour	ether-like
c)	Odour Threshold	No data available
d)	pH	ca.7
e)	Melting point/freezing	Melting point/range: -108.44 °C (-163.19 °F) at 1,013.25 hPa (760.00

	point	mmHg)
f)	Initial boiling point and boiling range	65.0 - 67.0 °C (149.0 - 152.6 °F) at 1,013.25 hPa (760.00 mmHg)
g)	Flash point	-17.0 °C (1.4 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 11.8 %(V) Lower explosion limit: 1.8 %(V)
k)	Vapour pressure	170 hPa (128 mmHg) at 20.0 °C (68.0 °F)
l)	Vapour density	ca.2.5 at 25 °C (77 °F) - (Air = 1.0)
m)	Relative density	0.89 g/cm3
n)	Water solubility	soluble
o)	Partition coefficient: n-octanol/water	log Pow: 0.46
p)	Auto-ignition temperature	215 °C (419 °F) at 1,013 hPa (760 mmHg)
q)	Decomposition temperature	No data available
r)	Viscosity	0.518 mm2/s at 25 °C (77 °F) - 0.403 mm2/s at 50 °C (122 °F) -
s)	Explosive properties	Not explosive, In use may form flammable/explosive vapour-air mixture.
t)	Oxidizing properties	The substance or mixture is not classified as oxidizing.

9.2 Other safety information

Relative vapour density	ca.2.5 at 25 °C (77 °F) - (Air = 1.0)

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.
Test for peroxide formation before distillation or evaporation. Test for peroxide formation or discard after 1 year.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Strong oxidizing agents, Acids

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 1,650 mg/kg

LC50 Inhalation - Rat - 6 h - 14.7 mg/l
Remarks: Material may be irritating to mucous membranes and upper respiratory tract.

LD50 Dermal - Rat - > 2,000 mg/kg

No data available

Skin corrosion/irritation
Based on available data, the classification criteria are not met.

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Risk of serious damage to eyes.
(Draize Test)

Respiratory or skin sensitisation
Based on available data, the classification criteria are not met.

Germ cell mutagenicity
In vivo tests did not show mutagenic effects

Ames test
S. typhimurium
Result: negative

Carcinogenicity

Suspected human carcinogens

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No toxicity to reproduction

Specific target organ toxicity - single exposure
May cause drowsiness or dizziness. - Nervous system
May cause respiratory irritation.

Specific target organ toxicity - repeated exposure
The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard
No aspiration toxicity classification

Additional Information
RTECS: LU5950000

Central nervous system depression, Cough, chest pain, Difficulty in breathing, Exposure to high airborne concentrations can cause anesthetic effects.

Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 2,160 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 382 mg/l - 24 h
Toxicity to algae	Growth inhibition IC50 - Algae - 3,700 mg/l - 192 h

12.2 Persistence and degradability

Biodegradability

(OECD Test Guideline 301)

Remarks: According to the results of tests of biodegradability this product is not readily biodegradable.

12.3 Bioaccumulative potential

No bioaccumulation is to be expected (log Pow <= 4).

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN number: 2056 Class: 3 Packing group: II

Proper shipping name: Tetrahydrofuran

Reportable Quantity (RQ): 1000 lbs

Poison Inhalation Hazard: No

IMDG

UN number: 2056 Class: 3 Packing group: II EMS-No: F-E, S-D

Proper shipping name: TETRAHYDROFURAN

IATA

UN number: 2056 Class: 3 Packing group: II

Proper shipping name: Tetrahydrofuran

15. REGULATORY INFORMATION

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Tetrahydrofuran	109-99-9	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Tetrahydrofuran	109-99-9	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Tetrahydrofuran	109-99-9	1993-04-24

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Carc.	Carcinogenicity
Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H302	Harmful if swallowed.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H351	Suspected of causing cancer.
STOT SE	Specific target organ toxicity - single exposure

HMIS Rating

Health hazard:	1
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.11 Revision Date: 10/29/2015 Print Date: 03/03/2016

Thallium

SAFETY DATA SHEET

1 PRODUCT AND SUPPLIER IDENTIFICATION

Product Name: Thallium Solid

Formula: Tl

Supplier: ESPI Metals
1050 Benson Way
Ashland, OR 97520

Telephone: 800-638-2581

Fax: 541-488-8313

Email: sales@espimetals.com

Emergency: Infotrac 800-535-5053 (US) or 352-323-3500 (24 hour)

Recommended Uses: Scientific Research

2 HAZARDS IDENTIFICATION

GHS Classification (29 CFR 1910.1200): Acute toxicity - oral, category 2.

GHS Label Elements:

Signal Word: Danger

Hazard Statements: H300 Fatal if swallowed.

Precautionary Statements: P264 Wash hands thoroughly after handling, P270 Do not eat, drink or smoke when using this product, P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician, P330 Rinse mouth, P405 Store locked up, P501 Dispose of contents/container in accordance with local, state or federal regulations.

3 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient: Thallium

CAS#: 7440-28-0

%: 100

EC#: 231-138-1

4 FIRST AID MEASURES

General Measures: Emergency responders should take care to avoid secondary exposure to thallium if it is present. Wear appropriate protective equipment.

INHALATION: Remove to fresh air, keep warm and quiet, give oxygen if breathing is difficult. Seek immediate medical attention. If mouth-to-mouth is necessary always use a barrier or bag-valve-mask device.

INGESTION: Rinse mouth with water. Do not induce vomiting. Seek immediate medical attention. Never induce vomiting or give anything by mouth to an unconscious person.

SKIN: Remove contaminated clothing, wash affected area with soap and water taking care not to break the skin and to cover all open wounds. Seek medical attention. Contaminated clothing should be safely contained and properly disposed of.

EYES: Flush eyes with lukewarm water, including under upper and lower eyelids, for at least 15 minutes. Seek medical attention immediately.

Most Important Symptoms/Effects, Acute and Delayed: Symptoms are usually delayed and include gastrointestinal distress and neurological symptoms. See section 11 for more information.

Indication of Immediate Medical Attention and Special Treatment: No other information available.

5 FIREFIGHTING MEASURES

Extinguishing Media: Use extinguishing media suitable for surrounding materials and type of fire.

Unsuitable Extinguishing Media: No further information available.

Specific Hazards Arising from the Material: Under fire conditions, thallium may release highly toxic fumes or gases.

Special Protective Equipment and Precautions for Firefighters: Full face, self-contained breathing apparatus and full protective clothing.

6 ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures: Wear appropriate respiratory and protective equipment specified in section 8. Isolate spill area and provide ventilation. Avoid breathing dust or fume. Avoid contact with skin and eyes. Eliminate all sources of ignition.

Methods and Materials for Containment and Cleaning Up: Scoop up or vacuum with a system utilizing a HEPA filtration system and place in properly labeled sealed containers. Special precautions must be taken when changing filters on HEPA vacuum cleaners used to clean up hazardous materials. Avoid creating dusts. Avoid contamination of air and water.

Environmental Precautions: Do not allow to enter drains or to be released to the environment.

7 HANDLING AND STORAGE

Precautions for Safe Handling: Wear appropriate respiratory and protective equipment specified in section 8. Only trained personnel should work with this product. Handle in a well-ventilated area. Avoid exposure to high temperature. Avoid breathing fumes. Avoid contact with skin and eyes. Wash thoroughly before eating or smoking.

Conditions for Safe Storage, Including Any Incompatibilities: Store under dry, inert gas such as argon, or can also be stored under deaerated water. Store in sealed unbreakable containers; the original labeled shipping container when possible. Store in an area that is cool, dry and temperature-controlled, away from direct sunlight, heat and ignition sources or where freezing is possible. Do not store together with acids, halogens or oxidizers. See section 10 for more information on incompatible materials.

8 EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Limits: Thallium (Soluble compounds, as Tl)

OSHA/PEL: 0.1 mg/m^3

ACGIH/TLV: 0.02 mg/m^3(inhalable)

Appropriate Engineering Controls: Handle in an enclosed, controlled process under dry argon. Whenever possible the use of local exhaust ventilation, process enclosure or other engineering controls is the preferred method of controlling exposure to meet established occupational exposure limits. Use good housekeeping and sanitation practices. Do not use tobacco or food in work area. Wash thoroughly before eating or smoking. Clothing worn in areas of exposure to thallium dust or vapor should be restricted to the workplace and stored in special lockers.

Individual Protection Measures, Such as Personal Protective Equipment:

Respiratory Protection: When potential exposures are above the occupational limits, approved respirators must be used.

Eye Protection: Splash goggles or safety glasses.

Skin Protection: Wear impermeable gloves, protective work clothing as necessary.

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance:

Form: Rod

Color: Gray metallic

Odor: Odorless

Odor Threshold: Not determined

pH: N/A

Melting Point: 303.5 ^{o}C

Boiling Point: 1457±10 ^{o}C

Flash Point: N/A

Evaporation Rate: N/A

Flammability: No data

Upper Flammable Limit: No data

Lower Flammable Limit: No data

Vapor Pressure: 1 mm Hg @ 825 ^{o}C

Vapor Density: N/A

Relative Density (Specific Gravity): 11.85 g/cc

Solubility in H_2O: Insoluble

Partition Coefficient (n-octanol/water): Not determined

Autoignition Temperature: No data

Decomposition Temperature: No data

Viscosity: N/A

10 STABILITY AND REACTIVITY

Reactivity: No data

Chemical Stability: Stable under recommended storage conditions.

Possibility of Hazardous Reactions: High temperatures will generate toxic thallium oxide fumes.

Conditions to Avoid: Avoid high temperatures, reacts slowly with moist air.

Incompatible Materials: Oxidizing agents, strong acids, halogens, air and moisture.

Hazardous Decomposition Products: Thallium oxide fume.

11 TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Inhalation, skin and eyes.

Symptoms of Exposure: Abdominal pain and vomiting, extreme pain in the extremities, lethargy, hair loss.

Acute and Chronic Effects: Almost all of the available information refers to ingestion of thallium compounds, largely due to accidental ingestion, intentional poisoning and suicide attempts. Adverse reactions are dose dependent and occur in 3 stages. Massive doses may cause gastrointestinal distress (nausea, vomiting and abdominal pain) within 30 minutes but symptoms are usually delayed for 8 hours or longer. Gastrointestinal symptoms from smaller doses may

be delayed 24-48 hours. This is followed by neurological effects 2-5 days or even longer after ingestion, although it may occur as early as 12 hours after massive exposure. Other effects include hair loss, severe pain in the extremities, lethargy, ataxia, back pain, abnormal reflexes, neuropathy, muscle weakness, mental abnormalities, tremors, abnormal vision, headache, coma, convulsion, and death. There was no information available for exposure to thallium metal specifically rather than thallium compounds, and little conclusive information regarding exposure via inhalation.

Acute Toxicity: No data

Carcinogenicity: **NTP**: Not identified as carcinogenic **IARC**: Not identified as carcinogenic

To the best of our knowledge the chemical, physical and toxicological characteristics of the substance are not fully known.

12 ECOLOGICAL INFORMATION

Ecotoxicity: LC50 - Cyprinodon variegatus (sheepshead minnow) - 21.0 mg/l - 96.0 h

Persistence and Degradability: No data

Bioaccumulative Potential: No data

Mobility in Soil: No data

Other Adverse Effects: Do not allow material to be released to the environment. No further relevant information available.

13 DISPOSAL CONSIDERATIONS

Waste Disposal Method:

Product: Dispose of in accordance with Federal, State and Local regulations.

Packaging: Dispose of in accordance with Federal, State and Local regulations.

14 TRANSPORT INFORMATION

UN Number: UN3288

UN Proper Shipping Name: Toxic solid, inorganic, n.o.s. (Thallium)

Transport Hazard Class: 6.1

Packing Group: II

Marine Pollutant: Yes

15 REGULATORY INFORMATION

TSCA Listed: All components are listed.

Regulation (EC) No 1272/2008 (CLP): Acute toxicity - oral, category 2, Hazardous to the aquatic environment - acute hazard, category 3, Hazardous to the aquatic environment - chronic hazard, category 3.

Canada WHMIS Classification (CPR, SOR/88-66): Acute toxicity.

HMIS Ratings: **Health**: 3 **Flammability**: 0 **Physical**: 0

NFPA Ratings: **Health**: 3 **Flammability**: 0 **Instability**: 0

Chemical Safety Assessment: A chemical safety assessment has not been carried out.

16 OTHER INFORMATION

The information contained in this document is based on the state of our knowledge at the time of publication and is believed to be correct, but does not purport to be all inclusive and shall be used only as a guide. ESPI Metals makes no representation, warranty, or guarantee of any kind with respect to the information contained in this document or any use of the product based on this information. ESPI Metals shall not be held liable for any damages resulting from handling or from contact with the above product. Users should satisfy themselves that they have all current data relevant to their particular use.

Prepared by: ESPI Metals

Revised/Reviewed: July 2015

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Version 6.2
Revision Date 23.06.2020
Print Date 19.06.2021
GENERIC EU MSDS - NO COUNTRY SPECIFIC DATA - NO OEL DATA

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name	:	trans-Chlordane
Product Number	:	ERC-004
Brand	:	Cerilliant
REACH No.	:	A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.
CAS-No.	:	5103-74-2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses	:	Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company	:	Sigma-Aldrich Inc. 3050 SPRUCE ST ST. LOUIS MO 63103 UNITED STATES
Telephone	:	+1 314 771-5765
Fax	:	+1 800 325-5052

1.4 Emergency telephone

Emergency Phone #	:	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Inhalation (Category 4), H332
Carcinogenicity (Category 2), H351
Short-term (acute) aquatic hazard (Category 1), H400
Long-term (chronic) aquatic hazard (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

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Pictogram	
Signal word	Danger
Hazard statement(s)	
H301	Toxic if swallowed.
H332	Harmful if inhaled.
H351	Suspected of causing cancer.
H410	Very toxic to aquatic life with long lasting effects.
Precautionary statement(s)	
P201	Obtain special instructions before use.
P273	Avoid release to the environment.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
Supplemental Hazard Statements	none

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1 Substances

Molecular weight	:	409,78 g/mol
CAS-No.	:	5103-74-2
EC-No.	:	225-826-0

Component	Classification	Concentration
trans-Chlordane		
	Acute Tox. 3; Acute Tox. 4; Carc. 2; Aquatic Acute 1; Aquatic Chronic 1; H301, H332, H351, H400, H410 M-Factor - Aquatic Acute: 10	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice

Consult a physician. Show this material safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

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In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen chloride gas

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

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7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Store in cool place.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: crystalline Color: white
b)	Odor	odorless

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c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	No data available
f)	Initial boiling point and boiling range	No data available
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Relative density	1,590 g/cm3
n)	Water solubility	insoluble
o)	Partition coefficient: n-octanol/water	No data available
p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available

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Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 200 mg/kg
LD50 Oral - Mouse - 145 mg/kg
Inhalation: (Regulation (EC) No 1272/2008, Annex VI)

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity

Carcinogenicity
Suspected of causing cancer.

IARC: 2B - Group 2B: Possibly carcinogenic to humans (trans-Chlordane)

Reproductive toxicity

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	LC50 - Oncorhynchus mykiss (rainbow trout) - 0,044 mg/l - 96,0 h Remarks: (in analogy to similar products)
	LOEC - Pimephales promelas (fathead minnow) - 0,025 mg/l - 48,0 h Remarks: (in analogy to similar products)

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Toxicity to daphnia and other aquatic invertebrates	LOEC - Daphnia magna (Water flea) - 0,07 mg/l - 48 h Remarks: (in analogy to similar products)
	LC50 - Daphnia magna (Water flea) - 0,0984 mg/l - 48 h Remarks: (in analogy to similar products)

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects
Very toxic to aquatic life with long lasting effects.
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Waste material must be disposed of in accordance with the Directive on waste 2008/98/EC as well as other national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

Contaminated packaging
Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number
ADR/RID: 3077 IMDG: 3077 IATA: 3077

14.2 UN proper shipping name
ADR/RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (trans-Chlordane)
IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (trans-Chlordane)
IATA: Environmentally hazardous substance, solid, n.o.s. (trans-Chlordane)

14.3 Transport hazard class(es)
ADR/RID: 9 IMDG: 9 IATA: 9

14.4 Packaging group
ADR/RID: III IMDG: III IATA: III

14.5 Environmental hazards
ADR/RID: yes IMDG Marine pollutant: yes IATA: yes

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14.6 Special precautions for user

No data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.2 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

H301	Toxic if swallowed.
H332	Harmful if inhaled.
H351	Suspected of causing cancer.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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SAFETY DATA SHEET

Version 4.6
Revision Date 03/02/2015
Print Date 02/18/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Trichloroethylene

Product Number : 251402
Brand : Sigma-Aldrich
Index-No. : 602-027-00-9

CAS-No. : 79-01-6

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Germ cell mutagenicity (Category 2), H341
Carcinogenicity (Category 1B), H350
Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336
Acute aquatic toxicity (Category 3), H402
Chronic aquatic toxicity (Category 3), H412

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.
H341 Suspected of causing genetic defects.
H350 May cause cancer.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear eye protection/ face protection.
P280	Wear protective gloves.
P281	Use personal protective equipment as required.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P312	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	TCE Trichloroethene
Formula	:	C_2HCl_3
Molecular weight	:	131.39 g/mol
CAS-No.	:	79-01-6
EC-No.	:	201-167-4
Index-No.	:	602-027-00-9

Hazardous components

Component	Classification	Concentration
Trichloroethylene Included in the Candidate List of Substances of Very High Concern (SVHC) according to Regulation (EC) No. 1907/2006 (REACH)		
	Skin Irrit. 2; Eye Irrit. 2A; Muta. 2; Carc. 1B; STOT SE 3; Aquatic Acute 3; Aquatic Chronic 3; H315, H319, H336, H341, H350, H412	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen chloride gas

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Light sensitive. Handle and store under inert gas.
Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Trichloroethylene	79-01-6	TWA	10.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Central Nervous System impairment cognitive decrement Renal toxicity Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Suspected human carcinogen		
		STEL	25.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment cognitive decrement Renal toxicity Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Suspected human carcinogen		
		Potential Occupational Carcinogen See Appendix C See Appendix A		
		See Table Z-2		
		TWA	100.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.19-1967		
		CEIL	200.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.19-1967		
		Peak	300.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.19-1967		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Trichloroethylene	79-01-6	Trichloroacetic acid	15.0000 mg/l	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift at end of workweek			
		Trichloroethanol	0.5000 mg/l	In blood	ACGIH - Biological Exposure Indices (BEI)
		End of shift at end of workweek			
		Trichloroethylene		In blood	ACGIH - Biological Exposure Indices (BEI)
		End of shift at end of workweek			
		Trichloroethylene		In end-exhaled air	ACGIH - Biological Exposure Indices (BEI)
		End of shift at end of workweek			

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid, clear Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -84.8 °C (-120.6 °F) - lit.
f)	Initial boiling point and boiling range	86.7 °C (188.1 °F) - lit.
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower	Upper explosion limit: 10.5 %(V)

	flammability or explosive limits	Lower explosion limit: 8 %(V)
k)	Vapour pressure	81.3 hPa (61.0 mmHg) at 20.0 °C (68.0 °F)
l)	Vapour density	No data available
m)	Relative density	1.463 g/mL at 25 °C (77 °F)
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	log Pow: 2.29log Pow: 5
p)	Auto-ignition temperature	410.0 °C (770.0 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Oxidizing agents, Strong bases, Magnesium

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 4,920 mg/kg

LC50 Inhalation - Mouse - 4 h - 8450 ppm

LD50 Dermal - Rabbit - > 20,000 mg/kg

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Severe skin irritation - 24 h

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Eye irritation - 24 h

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
Laboratory experiments have shown mutagenic effects.
In vitro tests showed mutagenic effects

Carcinogenicity

This product is or contains a component that has been reported to be probably carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.

Possible human carcinogen

IARC:	1 - Group 1: Carcinogenic to humans (Trichloroethylene)
NTP:	Reasonably anticipated to be a human carcinogen (Trichloroethylene)
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: KX4550000

burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, Exposure to and/or consumption of alcohol may increase toxic effects., Gastrointestinal disturbance, Kidney injury may occur., narcosis
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 41 mg/l - 96.0 h
	LOEC - other fish - 11 mg/l - 10.0 d
	NOEC - Oryzias latipes - 40 mg/l - 10.0 d
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 18.00 mg/l - 48 h
Toxicity to algae	IC50 - Pseudokirchneriella subcapitata (green algae) - 175.00 mg/l - 96 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
Does not bioaccumulate.

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life with long lasting effects.

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1710 Class: 6.1 Packing group: III
Proper shipping name: Trichloroethylene
Reportable Quantity (RQ): 100 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 1710 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: TRICHLOROETHYLENE

IATA
UN number: 1710 Class: 6.1 Packing group: III
Proper shipping name: Trichloroethylene

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Trichloroethylene	79-01-6	2007-07-01

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Trichloroethylene	79-01-6	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Trichloroethylene	79-01-6	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Trichloroethylene	79-01-6	2007-07-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer. Trichloroethylene	CAS-No. 79-01-6	Revision Date 2011-09-01
WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.	CAS-No. 79-01-6	Revision Date 2011-09-01

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
Eye Irrit.	Eye irritation
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.
H341	Suspected of causing genetic defects.
H350	May cause cancer.
H402	Harmful to aquatic life.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	0
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.6 Revision Date: 03/02/2015 Print Date: 02/18/2016

SAFETY DATA SHEET

Version 4.17
Revision Date 03/03/2015
Print Date 02/19/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Trichlorofluoromethane

Product Number : 254991
Brand : Aldrich

CAS-No. : 75-69-4

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Dermal (Category 4), H312

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Warning

Hazard statement(s)
H312 Harmful in contact with skin.

Precautionary statement(s)
P280 Wear protective gloves/ protective clothing.
P302 + P352 + P312 IF ON SKIN: Wash with plenty of soap and water. Call a POISON CENTER or doctor/ physician if you feel unwell.
P363 Wash contaminated clothing before reuse.
P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms : Fluorotrichloromethane
CFC-11

Formula	:	CCl_3F CCl_3F
Molecular weight	:	137.37 g/mol
CAS-No.	:	75-69-4
EC-No.	:	200-892-3

Hazardous components

Component	Classification	Concentration
Trichlorofluoromethane		
	Acute Tox. 4; H312	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen chloride gas, Hydrogen fluoride

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation.
For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

Recommended storage temperature 2 - 8 °C

Contents under pressure.
Storage class (TRGS 510): Non Combustible Liquids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Trichlorofluoromethane	75-69-4	C	1,000.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Cardiac sensitization Not classifiable as a human carcinogen		
		C	1,000.000000 ppm 5,600.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	1,000.000000 ppm 5,600.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 480 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.2 mm
Break through time: 30 min

Material tested:Dermatril® P (KCL 743 / Aldrich Z677388, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid, clear Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	-110.99 - -109.99 °C (-167.78 - -165.98 °F)
f)	Initial boiling point and boiling range	23.7 °C (74.7 °F) - lit.
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	885.7 hPa (664.3 mmHg) at 20.0 °C (68.0 °F) 2,701.2 hPa (2,026.1 mmHg) at 55.0 °C (131.0 °F)
l)	Vapour density	No data available
m)	Relative density	1.494 g/cm3 at 25 °C (77 °F)
n)	Water solubility	1 g/l
o)	Partition coefficient: n-octanol/water	log Pow: 2.53
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available

t) Oxidizing properties No data available

9.2 Other safety information

Surface tension 18.0 mN/m at 25.0 °C (77.0 °F)

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents, Sodium/sodium oxides, Potassium, Magnesium, Aluminum, Zinc

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - > 15,000 mg/kg

LC50 Inhalation - Rat - 0.3 h - 130000 ppm
Remarks: Behavioral:Tremor. Behavioral:Convulsions or effect on seizure threshold. Respiratory disorder

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: PB6125000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated., Nausea, Dizziness, Headache, Vomiting, Diarrhoea, Abdominal pain, Weakness, Unconsciousness

Liver -

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3082 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, liquid, n.o.s. (Trichlorofluoromethane)
Reportable Quantity (RQ): 5000 lbs

Poison Inhalation Hazard: No

IMDG
Not dangerous goods

IATA
Not dangerous goods

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Trichlorofluoromethane	75-69-4	2007-07-01

SARA 311/312 Hazards
Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Trichlorofluoromethane	75-69-4	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Trichlorofluoromethane	75-69-4	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Trichlorofluoromethane	75-69-4	2007-07-01

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
H312	Harmful in contact with skin.

HMIS Rating

Health hazard:	1
Chronic Health Hazard:	
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	1
Fire Hazard:	0
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.17 Revision Date: 03/03/2015 Print Date: 02/19/2016

SAFETY DATA SHEET

Version 5.8
Revision Date 03/13/2015
Print Date 01/29/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Vanadium(V) oxide

Product Number : 204854
Brand : Aldrich
Index-No. : 023-001-00-8

CAS-No. : 1314-62-1

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 4), H302
Acute toxicity, Inhalation (Category 4), H332
Serious eye damage (Category 1), H318
Germ cell mutagenicity (Category 2), H341
Reproductive toxicity (Category 2), H361
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Specific target organ toxicity - repeated exposure (Category 1), H372
Acute aquatic toxicity (Category 2), H401
Chronic aquatic toxicity (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H302 + H332 Harmful if swallowed or if inhaled
H318 Causes serious eye damage.
H335 May cause respiratory irritation.
H341 Suspected of causing genetic defects.
H361 Suspected of damaging fertility or the unborn child.
H372 Causes damage to organs through prolonged or repeated exposure.

H411	Toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	O_5V_2
Molecular weight	:	181.88 g/mol
CAS-No.	:	1314-62-1
EC-No.	:	215-239-8
Index-No.	:	023-001-00-8

Hazardous components

Component	Classification	Concentration
Vanadium pentoxide		
	Acute Tox. 4; Eye Dam. 1; Muta. 2; Repr. 2; STOT SE 3; STOT RE 1; Aquatic Acute 2; Aquatic Chronic 2; H302 + H332, H318, H335, H341, H361, H372, H411	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Vanadium/vanadium oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Vanadium pentoxide	1314-62-1	C	0.100000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		C	0.500000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	Remarks	Ceiling limit is to be determined from breathing-zone air samples.		
		TWA	0.050000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Lower Respiratory Tract irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Confirmed animal carcinogen with unknown relevance to humans		
		TWA	0.05 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Lower Respiratory Tract irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Confirmed animal carcinogen with unknown relevance to humans		
		C	0.050000 mg/m3	USA. NIOSH Recommended Exposure Limits
		15 minute ceiling value		
		C	0.050000 mg/m3	USA. NIOSH Recommended Exposure Limits
		15 minute ceiling value		
		C	0.100000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Ceiling limit is to be determined from breathing-zone air samples.		
		C	0.500000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Ceiling limit is to be determined from breathing-zone air samples.		
		C	0.050000 mg/m3	USA. NIOSH Recommended Exposure Limits
		15 minute ceiling value		
		C	0.050000 mg/m3	USA. NIOSH Recommended Exposure Limits
		15 minute ceiling value		
		C	0.050000 mg/m3	USA. NIOSH Recommended Exposure Limits
		15 minute ceiling value		
		C	0.050000 mg/m3	USA. NIOSH Recommended Exposure Limits
		15 minute ceiling value		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Vanadium pentoxide	1314-62-1	Vanadium	0.0500 mg/g	In urine	
	Remarks	End of shift at end of workweek			

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 690 °C (1,274 °F) - lit.
f)	Initial boiling point and boiling range	No data available
g)	Flash point	Not applicable

h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	3.35 g/mL at 25 °C (77 °F)
n)	Water solubility	904 g/l at 20 °C (68 °F) - OECD Test Guideline 105
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	The substance or mixture is not classified as oxidizing.

9.2 Other safety information

Solubility in other solvents	Ethanol - insoluble

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong acids

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
Harmful if swallowed. Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

LC50 Inhalation - Rat - female - 4 h - 2.21 mg/l
(OECD Test Guideline 403)

LC50 Dermal - Rat - > 2,500 mg/kg
(OECD Test Guideline 402)

No data available

Skin corrosion/irritation
Skin - in vitro assay
Result: No skin irritation

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Risk of serious damage to eyes.
(OECD Test Guideline 405)

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
Laboratory experiments have shown mutagenic effects.
In vitro tests showed mutagenic effects

Carcinogenicity

No data available

IARC:	2B - Group 2B: Possibly carcinogenic to humans (Vanadium pentoxide)
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
Possible risk of congenital malformation in the fetus.
Suspected human reproductive toxicant

No data available

Specific target organ toxicity - single exposure
May cause respiratory irritation.
Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Specific target organ toxicity - repeated exposure
Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard
No data available

Additional Information
RTECS: Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Oncorhynchus mykiss (rainbow trout) - 5.2 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	LC50 - Daphnia magna (Water flea) - 1.52 mg/l - 48 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
Toxic to aquatic life with long lasting effects.
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2862 Class: 6.1 Packing group: III
Proper shipping name: Vanadium pentoxide
Reportable Quantity (RQ): 1000 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 2862 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: VANADIUM PENTOXIDE
Marine pollutant:yes

IATA
UN number: 2862 Class: 6.1 Packing group: III
Proper shipping name: Vanadium pentoxide

15. REGULATORY INFORMATION

SARA 302 Components
The following components are subject to reporting levels established by SARA Title III, Section 302:

	CAS-No.	Revision Date
Vanadium pentoxide	1314-62-1	2007-07-01

SARA 313 Components

	CAS-No.	Revision Date
Vanadium pentoxide	1314-62-1	2007-07-01

The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Vanadium pentoxide	1314-62-1	2007-07-01

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Vanadium pentoxide	1314-62-1	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Vanadium pentoxide	1314-62-1	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Vanadium pentoxide	1314-62-1	2007-07-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
Vanadium pentoxide	1314-62-1	2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Eye Dam.	Serious eye damage
H302	Harmful if swallowed.
H302 + H332	Harmful if swallowed or if inhaled
H318	Causes serious eye damage.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H341	Suspected of causing genetic defects.
H361	Suspected of damaging fertility or the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure.
H401	Toxic to aquatic life.

HMIS Rating

Health hazard:	4
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	3
Fire Hazard:	0
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.8 Revision Date: 03/13/2015 Print Date: 01/29/2016

ATTACHMENT F

JOBSITE SAFETY INSPECTION CHECKLIST

Jobsite Safety Inspection Checklist

Date: _____ **Inspected By:** _____

Location: _____ **Project #:** _____

Check one of the following: **A:** Acceptable **NA**: Not Applicable **D**: Deficiency

	A	NA	D	Remark
1. HASP available onsite for inspection?				
2. Health & Safety Compliance agreement (in HASP) appropriately signed by Langan employees and contractors?				
3. Hospital route map with directions posted on site?				
4. Emergency Notification List posted on site?				
5. First Aid kit available and properly stocked?				
6. Personnel trained in CPR/First Aid on site?				
7. MSDSs readily available, and all workers knowledgeable about the specific chemicals and compounds to which they may be exposed?				
8 Appropriate PPE being worn by Langan employees and contractors?				
9. Project site safe practices ("Standing Orders") posted?				
10. Project staff have 40-hr./8-hr./Supervisor HAZWOPER training?				
11. Project staff medically cleared to work in hazardous waste sites and fit-tested to wear respirators, if needed?				
12. Respiratory protection readily available?				
13. Health & Safety Incident Report forms available?				
14. Air monitoring instruments calibrated daily, and results recorded on the Daily Instrument Calibration check sheet?				
15. Air monitoring readings recorded on the air monitoring data sheet/field logbook?				
16. Subcontract workers have received 40-hr./8-hr./Spvsr. HAZWOPER training, as appropriate?				
17. Subcontract workers medically cleared to work on site, and fit-tested for respirator wear?				
18. Subcontract workers have respirators readily available?				
19. Mark outs of underground utilities done prior to initiating any subsurface activities?				
20. Decontamination procedures being followed as outlined in HASP?				
21. Are tools in good condition and properly used?				
22. Drilling performed in areas free from underground objects including utilities?				

23. Adequate size/type fire extinguisher supplied?				
24. Equipment at least 20 feet from overhead powerlines?				
25. Evidence that drilling operator is responsible for the safety of his rig.				
26. Trench sides shored, layer back, or boxed?				
27. Underground utilities located, and authorities contacted before digging?				
28. Ladders in trench (25-foot spacing)?				
29. Excavated material placed more than 2 feet away from excavation edge?				
30. Public protected from exposure to open excavation?				
31. People entering the excavation regarding it as a permit-required confined space and following appropriate procedures?				
32. Confined space entry permit is completed and posted?				
33. All persons knowledgeable about the conditions and characteristics of the confined space?				
34. All persons engaged in confined space operations have been trained in safe entry and rescue (non-entry)?				
35. Full body harnesses, lifelines, and hoisting apparatus available for rescue needs?				
36. Attendant and/or supervisor certified in basic first aid and CPR?				
37. Confined space atmosphere checked before entry and continuously while the work is going on?				
38. Results of confined space atmosphere testing recorded?				
39. Evidence of coordination with off-site rescue services to perform entry rescue, if needed?				
40. Are extension cords rated for this work being used and are they properly maintained?				
41. Are GFCIs provided and being used?				

Unsafe Acts: _____

_____

_____

_____

Notes: _____

_____

_____

_____

ATTACHMENT G

JOB SAFETY ANALYSIS FORM

LANGAN	**Job Safety Analysis (JSA)** **Health and Safety**
JSA TITLE: **JSA NUMBER:**	**DATE CREATED:** **CREATED BY**: **REVISION DATE:** **REVISED BY:**

Langan employees must review and revise the Job Safety Analysis (JSA) as needed to address the any site-specific hazards not identified. Employees must provide their signatures on the last page of the JSA indicating they have review the JSA and are aware the potential hazards associated with this work and will follow the provided preventive or corrective measures.

PERSONAL PROTECTIVE EQUIPMENT REQUIRED: (PPE): ■ Required ☒ As Needed		
☐ Steel-toed boots	☐ Nitrile gloves	☐ Dermal Protection (Specify)
☐ Long-sleeved shirt	☐ Leather/ Cut-resistant gloves	☐ High visibility vest/clothing
☐ Safety glasses	☐ Face Shield	☐ Hard hat
ADDITIONAL PERSONAL PROTECTIVE EQUIPMENT NEEDED (Provide specific type(s) or descriptions)		
☐ Air Monitoring:	☐ Respirators:	☐ Other:
☐ Dermal Protection:	☐ Cartridges:	☐ Other:

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE OR CORRECTIVE ACTION
1.	1. 2.	1a. 1b. 2a. 2b.
2.	1.	1
Additional items identified in the field.		
Additional Items.		

If additional items are identified during daily work activities, please notify all relevant personnel about the change and document on this JSA.

LANGAN	Job Safety Analysis (JSA) Health and Safety
JSA Title: COVID-19 Awareness – Site Work **JSA Number: JSA046-00**	
A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last-Minute Risk Assessment.	

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Boots	☐ Long Sleeves	☐ Safety Vest (Class 2)	☐ Hard Hat	☐ Hearing Protection
☐ Safety Glasses	☐ Safety Goggles	☐ Face Shield	☐ Nitrile Gloves	☐ PVC Gloves
☐ Leather Gloves	☐ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☐ Traffic Cones/Signs	☐ Life Vest/Jacket	
☒ Other: Alcohol-based hand sanitizer, disinfectant wipes/spray				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
1. All Activities	1. Transmittal/exposure of COVID-19	1. Ask yourself and your managers – is this work essential? Can this be done remotely? 2. Stay home if sick or showing symptoms of COVID-19 (e.g., fever, cough, etc.). 3. Carry nitrile gloves, alcohol-based hand sanitizer, face coverings and disinfectant wipes/spray during field work. 4. Check federal, state, and/or local travel restrictions **prior** to travel. Many states, counties, and cities are passing strict "shelter-in-place" or business restrictions in response to COVID-19. 5. Immediately notify Beverly Williams or Rory Johnston (Supervisor if employee chooses) if you display symptoms of COVID-19. Symptoms include fever (over 100.4 F), cough, and shortness of breath. 6. Notify Beverly Williams or Rory Johnston, Supervisor and Coronavirus Task Force if you had close contact with an individual who tested positive or displayed symptoms of COVID-19. 7. Do not touch your face, to the extent possible. 8. Wear face coverings when around other worker to minimize spread of COVID-19. (May be required in certain states or locations.)

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
		9. Practice social distancing, maintaining at least 6 feet of distance between yourself and others. Avoid gatherings of more than 10 people. Limit, to the extent possible, contact with public items/objects. 10. Clean your hands frequently with soap and water for at least 20 seconds especially after you have been in a public place, or after blowing your nose, coughing, sneezing, or using the rest room. 11. If soap and water are not readily available, use a hand sanitizer that contains at least 60% alcohol. Cover all surfaces of your hands and rub them together until they feel dry. 12. Cover your mouth and nose with a tissue when you cough or sneeze or use the inside of your elbow. 13. Clean and disinfect frequently touched surfaces daily, for example, cell phones, computer equipment, headsets, tables, doorknobs, light switches, countertops, handles, desks, toilets, faucets, and sinks.
2. Travel to Jobsite	1. Transmittal/exposure of COVID-19 between passengers 2. Transmittal/exposure of COVID-19 from previous occupants (rental and fleet vehicles) 3. Transmittal/exposure of COVID-19 while refueling	1. Limit the number of occupants to each vehicle to 2 people. Employees should sit as far away from each other as possible. 2. Disinfect high “hand-traffic” areas of the vehicle: Door handles, steering wheel, turn signal and control rods, dashboard controls, seatbelts, armrests, etc. To the extent possible, do not use recycled air for heat/AC and travel with the windows open. 3. Use hand sanitizer before and after pumping gas and only return to the inside of the vehicle after refueling is complete. 4. Wear nitrile gloves if available or disinfect the keypad, pump handle, and fuel grade button prior to use. 5. Recommend face coverings are worn to minimize spread of COVID-19.
3. Conduct Tailgate Safety Meeting & Complete H&S Paperwork	1. Transmittal/exposure of COVID-19 between meeting participants	1. Practice social distancing, maintaining at least 6 feet of distance between yourself and others. 2. Recommend face coverings are worn when around other workers to minimize spread of COVID-19, 3. Hold meetings outside and keep in mind wind direction. To the extent possible, remain crosswind from other people. 4. Designate a single person to maintain sign-in sheets/permits throughout the day to limit the passing of pens/clipboards between people. 5. Each person should complete their own JSA, even if they are completing similar tasks as others in order to limit the passing of paper/pens/clipboards between people. 6. Include COVID-19 topics and prevention measures in safety meetings.
4. Conduct Site Work	1. Transmittal/exposure of COVID-19 between site workers and public.	1. Practice social distancing maintaining 6 feet of distance between yourself and others. 2. Recommend face coverings are worn when around other workers to minimize spread of COVID-19, 3. To the extent possible, do not interact with the public. If it is necessary, politely explain you are practicing social distance and request they stay at least 6 feet away and they do not attempt to pass objects to you. 4. Wear nitrile gloves during site work underneath the appropriate gloves for your task. Utilize appropriate decontamination procedures, securely bag all waste (including nitrile gloves) generated during site work and dispose of.

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
		5. Do not share tools. Each person should be equipped with the tools to complete their task or tasks should be divided to remove the need to share tools. If tools must be shared, surfaces should be disinfected. 6. Clean and disinfect surfaces of rental tools and equipment upon receipt. To the extent possible rent equipment from Langan's internal equipment reservation center, where cleaning/disinfecting procedures can be verified.
5. Use of Construction Trailers	1. Transmittal/exposure of COVID-19 between site workers and others.	1. Avoid use of shared trailers, if possible. Minimize trailer use to essential personnel. 2. Practice social distancing; maintaining 6 feet of distance between yourself and others in trailer. 3. Clean and disinfect areas including desks, phones, chairs, and other common areas, before and after use.
6. Purchasing Food from a Restaurant	1. Transmittal/exposure of COVID-19 from other customers, staff, surfaces.	1. To the extent possible, bring your own food. 2. If you must visit a restaurant, call ahead for take-out or "contactless delivery." Do not dine in. When picking up food, follow guidelines for Job Step #8: Purchasing Supplies at Retail/Shipping Centers. 3. Wash hands before and after eating.
7. Smoking Cigarettes	1. Transmittal/exposure of COVID-19 by touching mouth with hands	1. Cigarette smokers are at greater risk of complications arising from COVID-19. Nicotine patches/lozenges/gum, smoking cessation programs, and prescription medications may aid in "kicking the habit" if you decide to quit. 2. Wash hands thoroughly before and after smoking. 3. Discard cigarette butts properly. Do not light cigarettes from others and do not give cigarettes to others.
8. Hotel Stay	1. Transmittal/exposure of COVID-19 from previous occupants, hotel staff, common areas.	1. Verify the hotel chain/brand has modified cleaning procedures to reflect risk of COVID-19. Most hotel companies have issued statements on their websites and in email blasts reflecting these new procedures. 2. Use the front door, and not peripheral entrances. Front doors of hotels are usually automatic. 3. Request ground floor room to avoid elevator use and a room that has not be utilized in 48-72 hours. 4. If elevator use is required, do not directly touch elevator buttons with your hands. Do not ride elevators with other people, to the extent possible. 5. Bring disinfecting wipes or sanitizing spray. Upon arrival, disinfect high "hand-traffic" areas of the hotel room: Door handles, light switches, shower/sink faucet handles, TV remote, curtain/blind handles. Clean these surfaces daily. 6. Place the "Do Not Disturb" Sign on your door to prevent people (housekeeping) from entering your room. 7. Avoid common spaces and hotel sponsored events where crowds will be present. 8. Confirm hotel cleaning procedures have been modified to address COVID-19. Confirm no COVID-19 cases have occurred in hotel
9. Purchasing Supplies at Retail/Shipping Centers	1. Transmittal/exposure of COVID-19 from other customers, staff, surfaces.	1. Plan your travel to limit the need to visit retail/shipping centers. 2. Practice social distancing, maintaining at least 6 feet of distance between yourself and others. If the store is too crowded/small, consider visiting another store or returning at a different time. 3. Avoid high "hand-traffic" items/areas like door handles (i.e. use your shoulder, hip/butt, or open with a disposable napkin/paper towel), credit cards terminals (i.e. use Apple/Android pay if available), shopping carts/baskets (i.e. bring your own shopping

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
		bags), counter tops (i.e. ask clerk if you can hold the items while they are scanned) and bulk/buffet items (i.e. just avoid them). 4. Disinfect your hands before and after visiting a retail/shipping center.

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Health and Safety

JSA Title: **Environmental Sampling**
JSA Number: **JSA021-01**

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last-Minute Risk Assessment.

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☐ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☐ Face Shield	☒ Nitrile Gloves	☐ PVC Gloves
☐ Leather Gloves	☐ Cut Resist. Gloves	☐ Fall Protection	☒ Fire Resistant Clothing	☐ Rubber Boots
☒ Insect/Animal Repellent	☒ Ivy Blocker/Cleaner	☐ Traffic Cones/Signs	☐ Life Vest/Jacket	
☒ Other: Tyvek Sleeves				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
1. Drive to sample location	1. Rough/Off Road terrain	1. Pay attention to road conditions such as road erosion, unprotected embankments, and soft road conditions.
2. Sample Collection (Walking)	1. Slip/Trips/Falls 2. Back strains 3. Wildlife (Insects, Stray animals, rodents) 4. Poisonous vegetation	1. Minimize distance to sample area/ Plan route and check surface prior to carrying heavy equipment/ Locate safest access point/ Follow good housekeeping procedures/ Mark significant below grade hazards (holes, trenches) with spray paint or cones/ Wear foot protection with ankle support and gripping soles. 2. Use proper lifting techniques/ Use wheeled transport/ Obtain assistance where and when needed/ Consider load weight when evaluating what is safe and unsafe to carry. 3. Be aware of surroundings for the presence of wildlife. Do not approach stray animals. Carry and use animal repellant when needed/ Use bug spray when needed. 4. Keep skin covered/ Identify and avoid poisonous vegetation/ Clean areas after contact with suspected vegetation.
3. Sample Collection (Water)	1. Drowning Hazards 2. Chemical burns (when adding acid preservative to sample) 3. Back Strains 4. Ergonomic issues 5. Slip/Trips/Falls	1. Use buddy system/ Wear flotation vest if water is deeper than 2 feet or swift moving/ Select working area with stable footing. Do not attempt to cross or stand in swift moving water. 2. Wear proper PPE (Nitrile gloves, Tyvek Sleeves) 3. Use proper lifting techniques/ Use wheeled transport/ Obtain assistance where and when needed/ Consider load weight when evaluating what is safe or unsafe to carry. 4. When possible, avoid bending over for long periods of time/ Use a small stool for sitting or knee pad for kneeling.

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
		5. Minimize distance to sample area/ Plan route and check surface prior to carrying heavy equipment/ Locate safest access point/ Follow good housekeeping procedures/ Mark significant below grade hazards (holes, trenches) with spray paint or cones/ Wear foot protection with ankle support and gripping soles/ Avoid standing water or slippery terrain.
4. All activities	1. Slips/ Trips/ Falls 2. Hand injuries, cuts, or lacerations during manual handling of materials 3. Foot injuries 4. Back injuries 5. Traffic 6. Wildlife: Stray dogs, Mice/rats, Vectors (i.e., mosquitoes, bees, etc.) 7. High Noise levels 8. Overhead hazards 9. Heat Stress/ Cold Stress 10. Eye Injuries	1. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards 2. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery, or dirty objects before handling / Wear leather/ cut-resistant gloves 3. Wear Langan approved safety shoes 4. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible 5. Wear high visibility clothing & vest / Use cones or signs to designate work area 6. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed 7. Wear hearing protection 8. Wear hard hat / Avoid areas where overhead hazards exist. 9. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress 10. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Health and Safety

JSA Title: **Subsurface Investigation**
JSA Number: **JSA030-01**

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last-Minute Risk Assessment.

S – *Stop,* what has changed?
T – *Think* about the task
E – *Evaluate* potential hazards
P – *Plan* safe approach
S - *Start* task / *Stop* & regroup

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☒ Safety Goggles	☐ Face Shield	☐ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☒ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☐ Traffic Cones/Signs	☐ Life Vest/Jacket	
☒ Other: Dielectric Overshoes, Sun Block				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
5. Transport equipment to work area	2. Back/strain 3. Slip/Trip/Falls 4. Traffic 5. Cuts/abrasions/contusions from equipment 6. Accidents due to vehicle operations	1. Use proper lifting techniques/Use wheeled transport 2. Minimize distance to work area/unobstructed path to work area/follow good housekeeping procedures 3. Wear proper PPE (high visibility vest or clothing) 4. Wear proper PPE (leather gloves, long sleeves, Langan approved safety shoes) 5. Observe posted speed limits/ Wear seat belts at all times
6. Traffic	1. Hit by moving vehicle	1. Use traffic cones and signage/ Use High visibility traffic vests and clothing/ Caution tape when working near active roadways.
7. Field Work (drilling, resistivity testing, and inspection)	1. Biological Hazards: insects, rats, snakes, poisonous plants, and other animals 2. Heat stress/injuries 3. Cold Stress/injuries 4. High Energy Transmission Lines 5. Underground Utilities 6. Electrical (soil resistivity testing)	1. Inspect work area to identify biological hazards. Wear light colored long sleeve shirt and long pants/ Use insect repellant as necessary/ Beware of tall grass, bushes, woods, and other areas where ticks may live/ Avoid leaving garbage on site to prevent attracting animals/ Identify and avoid contact with poisonous plants/Beware of rats, snakes, or stray animals. 2. Wear proper clothing (light colored)/ drink plenty of water/ take regular breaks/use sun block. 3. Wear proper clothing/ dress in layers/ take regular breaks. 4. Avoid direct contact with high energy transmission lines/ position equipment at least 15 feet or as required by PSE&G from the transmission lines/ wear proper PPE (dielectric overshoes 15 kV minimum rating).

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
		5. Call one-call service before performing intrusive field work/ Review utility mark-outs and available utility drawings (with respect to proposed work locations)/ Follow Underground Utility Guidelines 6. See AGI Sting R1 operating manual for specific concerns during operating instrument
8. All activities	1. Slips/ Trips/ Falls 2. Hand injuries, cuts, or lacerations during manual handling of materials 3. Foot injuries 4. Back injuries 5. Traffic 6. Wildlife: Stray dogs, Mice/rats, Vectors (i.e., mosquitoes, bees, etc.) 7. High Noise levels 8. Overhead hazards 9. Heat Stress/ Cold Stress 10. Eye Injuries	7. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards. 8. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery, or dirty objects before handling / Wear leather/ cut-resistant gloves. 9. Wear Langan approved safety shoes. 10. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible. 11. Wear high visibility clothing & vest / Use cones or signs to designate work area. 12. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed. 13. Wear proper hearing protection. 14. Wear hard hat / Avoid areas where overhead hazards exist. 15. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress. 16. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	**Sign Name**	**Date**
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Health and Safety

JSA Title: **Field Sampling**
JSA Number: **JSA022-01**

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last-Minute Risk Assessment.

S – ***Stop,*** *what has changed?*
T – ***Think*** *about the task*
E – ***Evaluate*** *potential hazards*
P – ***Plan*** *safe approach*
S - ***Start*** *task /* ***Stop*** *& regroup*

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☐ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☐ Face Shield	☒ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☐ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☒ Traffic Cones/Signs	☐ Life Vest/Jacket	
☐ Other:				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
9. Unpack/Transport equipment to work area.	7. Back Strains 8. Slip/Trips/Falls 9. Cuts/Abrasions from equipment 10. Contusions from dropped equipment	6. Use proper lifting techniques/Use wheeled transport. 7. Minimize distance to work area/Unobstructed path to work area/follow good housekeeping procedures. Mark slip/trip/fall hazards with orange safety cones. 8. Wear proper PPE (leather gloves, long sleeves). 9. Wear proper PPE (Langan approved safety shoes).
10. Initial Site Arrival-Site Assessment	5. Traffic	5. Situational awareness (be alert of your surroundings). Secure area from through traffic.
11. Surface Water Sampling	6. Contaminated media. Skin/eye contact with biological agents and/or chemicals.	6. Wear appropriate PPE (Safety glasses, appropriate gloves). Review (M)SDS for all chemicals being.
12. Sampling from bridges	1. Struck by vehicles	1. Wear appropriate PPE (Safety Vest). Use buddy system and orange safety cones.
13. Icing of Samples/ Transporting coolers/equipment from work area.	11. Back Strains 12. Slips/Trips/Falls 13. Cuts/Abrasions from equipment 14. Pinch/Crushing Hazards.	17. Drain coolers of water. Use proper lifting techniques. Use wheeled transport. 18. Have unobstructed path from work area. Aware of surroundings. 19. Wear proper PPE (Leather gloves, long sleeves) 20. Wear proper PPE (Leather gloves, long sleeves)
14. Site Departure	1. Contaminated PPE/Vehicle	1. Contaminated PPE should be disposed of on-site. Remove boots and soiled clothing for secure storage in trunk. Wash hands promptly.

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
15. All activities	1. Slips/ Trips/ Falls 2. Hand injuries, cuts, or lacerations during manual handling of materials 3. Foot injuries 4. Back injuries 15. Traffic 16. Wildlife: Stray dogs, Mice/rats, Vectors (i.e., mosquitoes, bees, etc.) 17. High Noise levels 18. Overhead hazards 19. Heat Stress/ Cold Stress 20. Eye Injuries	1. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards 2. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery, or dirty objects before handling / Wear leather/ cut-resistant gloves 3. Wear Langan approved safety shoes 4. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible 21. Wear high visibility clothing & vest / Use cones or signs to designate work area. 22. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed. 23. Wear hearing protection 24. Wear hard hat / Avoid areas where overhead hazards exist. 25. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress. 26. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN	Job Safety Analysis (JSA) Health and Safety
JSA Title: Equipment Transportation and Set-up **JSA Number:** JSA012-01 **A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last-Minute Risk Assessment.**	 **S** – ***Stop,*** *what has changed?* **T** – ***Think*** *about the task* **E** – ***Evaluate*** *potential hazards* **P** – ***Plan*** *safe approach* **S** - ***Start*** *task /* ***Stop*** *& regroup*

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☐ Face Shield	☐ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☐ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☐ Traffic Cones/Signs	☐ Life Vest/Jacket	
☐ Other:				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
16. Transport equipment to work area	11. Back Strain 12. Slips/ Trips/ Falls 13. Traffic 14. Cuts/abrasions from equipment 15. Contusions from dropped equipment	1. Use proper lifting techniques / Use wheeled transport. 2. Minimize distance to work area / Have unobstructed path to work area / Follow good housekeeping procedures. 3. Wear proper PPE (high visibility vest or clothing) 4. Wear proper PPE (leather gloves, long sleeves) 5. Wear proper PPE (safety shoes)
17. Moving equipment to its planned location	6. Pinch Hazard 7. Slips/ Trips/ Falls	1. Wear proper PPE (leather gloves) 2. Be aware of potential trip hazards / Practice good housekeeping procedures / Mark significant below-grade hazards (i.e., holes, trenches) with safety cones or spray paint
18. Equipment Set-up	7. Pinch Hazard 8. Cuts/abrasions to knuckles/hands. 9. Back Strain	1. Wear proper PPE (leather gloves) 2. Wear proper PPE (leather gloves) 3. Use proper lifting techniques / Use wheeled transport
19. All activities	21. Slips/ Trips/ Falls 22. Hand injuries, cuts, or lacerations during manual handling of materials 23. Foot injuries 24. Back injuries 25. Traffic 26. Wildlife: Stray dogs, Mice/rats, Vectors (i.e., mosquitoes, bees, etc.)	27. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards. 28. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery, or dirty objects before handling / Wear leather/ cut-resistant gloves. 29. Wear Langan approved safety shoes.

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
4. All activities (cont'd)	27. High Noise levels 28. Overhead hazards 29. Heat Stress/ Cold Stress 30. Eye Injuries	30. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible. 31. Wear high visibility clothing & vest / Use cones or signs to designate work area. 32. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed. 33. Wear hearing protection 34. Wear hard hat / Avoid areas where overhead hazards exist. 35. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress. 36. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Health and Safety

JSA Title: 55-gallon Drum Sampling
JSA Number: JSA043-01

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last-Minute Risk Assessment.

S – Stop, *what has changed?*
T – Think *about the task*
E – Evaluate *potential hazards*
P – Plan *safe approach*
S - Start *task /* **Stop** *&* *regroup*

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☐ Hearing Protection
☒ Safety Glasses	☒ Safety Goggles	☒ Face Shield	☒ Nitrile Gloves	☒ PVC Gloves
☒ Leather Gloves	☐ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☐ Traffic Cones/Signs	☐ Life Vest/Jacket	
☒ Other: All Drums are required to be labeled. Langan employees do not open or move undocumented drums or unlabeled drums without proper project manager authorization.				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
20. Unpack/Transport equipment to work area.	16. Back Strains 17. Slip/Trips/Falls 18. Cuts/Abrasions from equipment 4. Contusions from dropped equipment	10. Use proper lifting techniques/Use wheeled transport. 11. Minimize distance to work area/Unobstructed path to work area/follow good housekeeping procedures. Mark slip/trip/fall hazards with orange safety cones. 12. Wear proper PPE (leather gloves, long sleeves). 4. Wear proper PPE (Langan approved safety shoes).
21. Open Drums	1. Hand Injuries, cuts or lacerations when untightening drum locking bolt, removing drum lid strap, or removing lid. 2. Pressure from drums.	1. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery, or dirty objects before handling / Wear leather/ cut-resistant gloves. Use non-metallic mallet and non-sparking tools/wrenches. 2. Open drum slowly to relieve pressure. Wear proper PPE: face shield and goggles; correct gloves; and over garments.
22. Collecting Soil/Fluid Sample	8. Irritation to eye from vapor, soil dust, or splashing. 9. Irritation to exposed skin	6. Wear proper eye protection including safety glasses/ face shield/googles and when necessary, splash guard. If dust or vapor phase is present, wear appropriate safety breathing gear (1/2 mask or full face mask with correct filter) 7. Wear proper skin protection including nitrile gloves.
23. Closing Drums	1. Hand Injuries, cuts or lacerations when untightening drum locking bolt, removing drum lid strap, or removing lid.	7. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery, or dirty objects before handling / Wear leather/ cut-resistant gloves. Use non-metallic mallet and non-sparking tools/wrenches.

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
24.Moving Drums	2. Hand Injuries, cuts or lacerations when untightening drum locking bolt, removing drum lid strap, or removing lid. 3. Back Strains	2. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery, or dirty objects before handling / Wear leather/ cut-resistant gloves. Use non-metallic mallet and non-sparking tools/wrenches. 3. Use proper lifting techniques/Use wheeled transport.
25. All activities	31. Slips/ Trips/ Falls 32. Hand injuries, cuts, or lacerations during manual handling of materials 33. Foot injuries 34. Back injuries 35. Traffic 36. Wildlife: Stray dogs, Mice/rats, Vectors (i.e., mosquitoes, bees, etc.) 37. High Noise levels 38. Overhead hazards 39. Heat Stress/ Cold Stress 40. Eye Injuries	37. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards. 38. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery, or dirty objects before handling / Wear leather/ cut-resistant gloves. 39. Wear Langan approved safety shoes. 40. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible. 41. Wear high visibility clothing & vest / Use cones or signs to designate work area. 42. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed. 43. Wear hearing protection 44. Wear hard hat / Avoid areas where overhead hazards exist. 45. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress. 46. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Health and Safety

JSA Title: Direct-Push Soil Borings
JSA Number: JSA004-01

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last-Minute Risk Assessment.

S – Stop, *what has changed?*
T – Think *about the task*
E – Evaluate *potential hazards*
P – Plan *safe approach*
S - Start *task /* **Stop** *&* *regroup*

PERSONAL PROTECTIVE EQUIPMENT REQUIRED:				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☐ Face Shield	☒ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☒ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☐ Traffic Cones/Signs	☐ Life Vest/Jacket	
☒ Other: Half-face respirator, dust cartridges, PID (if applicable)				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
26. Move equipment to work site	19. Back strain when lifting equipment. 20. Slips/ Trips/ Falls while moving equipment. 21. Traffic (if applicable) 22. Pinched fingers or running over toes during GeoProbe set-up. 23. Overturn drilling rig while transporting to loading dock on flat-bed tow truck	13. Use proper lifting technique (use legs for bending and lifting and not the back)/ Use wheeled transport for heavy equipment / Get assistance when handling loads greater than 50 lbs. / Minimize distance to vehicle 14. Use proper lifting technique (use legs for bending and lifting and not the back) / Use wheeled transport for heavy equipment / Get assistance when handling loads greater than 50 lbs. / Minimize distance to vehicle / Have unobstructed path to vehicle or collection point / Do not lift/walk with boxes that are heavy/difficult to lift 15. Wear high visibility safety vests or clothing / Exercise caution 16. Wear proper PPE (cut-resistant gloves) / Stay alert, be aware of geoprobe rig at all times 17. Drill rig should be parked in center of flat-bed tow truck / Emergency brake shall be used at all times during transport on the flat-bed truck/ All unnecessary personnel should stay away from the flat-bed truck during moving activities
27. Calibration of monitoring equipment	10. Skin or eye contact with calibration chemicals 11. Pinch fingers in monitoring equipment	8. Wear proper PPE (safety glasses/ goggles) 9. Wear proper PPE (leather gloves)
28. Set-up GeoProbe rig	10. Geoprobe rig movement	8. All field personnel should stay clear of the GeoProbe rig while moving / Use a spotter when backing up the GeoProbe
29. Advance GeoProbe rods below ground surface to desired depth	4. Underground utilities 5. High noise levels	4. Clean all subsurface soil borings to a minimum of 5 feet below grade. 5. Wear proper PPE (hearing protection)
30. Remove and open acetate liner.	41. Pinched fingers while removing macrocore.	1. Wear proper PPE (nitrile gloves, cut-resistant or leather gloves 2. Wear proper PPE (cut-resistant or leather gloves)

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
5. Remove and open acetate liner (cont'd)	42. Cuts/lacerations when cutting acetate liner open. 43. Exposure to hazardous vapors 44. Skin contacts with contaminated soil	3. Do not place face over acetate liner when opening / Monitor hazardous vapors in air with PID / Upgrade PPE as necessary based on levels contained in the Health and Safety Plan 4. Wear proper PPE (nitrile gloves)
31. Sample Collections a) Monitor parameters. b) Prepare sample containers and labels	1. Contact with potentially contaminated soil. 2. Lacerations from broken sample bottles 3. Back strain while transporting full coolers. 4. Internal exposure to contaminants and metals through inhalation of dust 5. Slips/ Trips/ Falls	1. Use monitoring devices / Wear proper PPE (safety glasses, nitrile gloves) 2. Do not over-tighten bottle caps / Handle bottles safely to prevent breakage. 6. Use proper lifting techniques / Do not lift heavy loads without assistance. 7. Avoid creating dust / If necessary, wear a half mask respirator with applicable dust cartridge / Inspect respirator for damage and cleanliness prior to use / Clean respirator after each use and store in a clean, secure location. 8. Be alert / Follow good housekeeping procedures
32. Remove excess soil from acetate liner and place in 55-gallon drum (IF NOT PERFORMED BY LANGAN, REMOVE!)	1. Cuts/lacerations from acetate liner 2. Pinched fingers/hand while opening/closing drum. 3. Skin contacts with contaminated soil 4. Soil debris in eyes	1. Wear proper PPE (cut-resistant or leather gloves) 2. Wear proper PPE (cut-resistant or leather gloves) 3. Wear proper PPE (nitrile gloves) 4. Wear proper PPE (safety glasses)

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
8. Transport drums to central staging location (IF NOT PERFORMED BY LANGAN, REMOVE!)	1. Back, arm or shoulder strain from moving drums. 2. Pinch fingers/hand in drum cart when moving drums. 3. Pinch fingers/hand when operating lift-gate on vehicle. 4. Contact with potentially contaminated groundwater when moving improperly sealed drums. 5. Slips when moving drums. 6. Drop drum on feet/toes	47. Use drum cart for moving drums / Use proper lifting techniques / Do not lift heavy loads without assistance. 48. Wear proper PPE (cut-resistant or leather gloves) 49. Wear proper PPE (cut-resistant or leather gloves) 50. Wear proper PPE (nitrile gloves underneath work gloves) 51. Follow good housekeeping procedures / Ensure route to move drum and storage space is free from obstructions. 52. Wear proper PPE (safety shoes) / Work in a safe manner to prevent dropped drum
9. All activities 9. All activities (cont'd)	1. Slips/ Trips/ Falls 2. Hand injuries, cuts, or lacerations during manual handling of materials 3. Foot injuries 4. Back injuries 5. Traffic 6. Wildlife: Stray dogs, Mice/rats, Vectors (i.e., mosquitoes, bees, etc.) 7. High Noise levels 8. Overhead hazards 9. Heat Stress/ Cold Stress 10. Eye Injuries	1. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards. 2. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery, or dirty objects before handling / Wear leather/ cut-resistant gloves. 3. Wear Langan approved safety shoes. 4. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible. 5. Wear high visibility clothing & vest / Use cones or signs to designate work area. 6. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed. 7. Wear hearing protection 8. Wear hard hat / Avoid areas where overhead hazards exist. 9. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress. 10. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date

Prepared by:		
Reviewed by:		

LANGAN	Job Safety Analysis (JSA) Health and Safety
JSA Title: Geophysical Investigation **JSA Number:** JSA023-01 **A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last-Minute Risk Assessment.**	 **S – Stop,** *what has changed?* **T – Think** *about the task* **E – Evaluate** *potential hazards* **P – Plan** *safe approach* **S - Start** *task /* **Stop** *& regroup*

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☐ Face Shield	☒ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☒ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☐ Traffic Cones/Signs	☐ Life Vest/Jacket	
☐ Other:				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
33. Transport equipment to work area	24. Back/strain 25. Slip/Trip/Falls 26. Traffic 27. Cuts/abrasions/contusions from equipment	18. Use proper lifting techniques/Use wheeled transport 19. Minimize distance to work area/unobstructed path to work area/follow good housekeeping procedures 20. Wear proper PPE (high visibility vest or clothing) 21. Wear proper PPE (leather gloves, long sleeves, Langan approved safety shoes)
34. Supervision of subcontractor and all other activities	12. Slip/Trips/Falls 13. Hand injuries 14. Foot injuries 15. Back injuries/Strains 16. Traffic 17. Wildlife a. Wildlife b. Mice/rats c. Vectors (i.e., mosquitoes, bees, etc.) 7. Heat/Cold Stress	10. Be aware of potential trip hazards/follow good housekeeping procedures/mark significant below-grade hazards (i.e., holes, trenches, wires, ropes) with safety cones or spray paint. 11. Wear proper PPE (leather gloves)/watch wear you place your hands/inspect material or equipment for jagged, rough, or slippery surfaces/ watch for pinch points/ wipe off slippery, wet, or dirty items prior to handling. 12. Wear proper PPE (Langan approved safety shoes)/ Be aware of uneven terrain) 13. Use proper lifting techniques/ Buddy system when lifting/ use wheeled transport. 14. Wear proper PPE (high-visibility shirts and vests)/ use cones if appropriate/ notify equipment operators of work area. 15. Be aware of surroundings at all times for the presence of wildlife. a. Do not approach stray animals. b. Carry animal repellant/ use if situation arises. c. Use bug spray when needed. 7. Wear proper attire for weather conditions (sunscreen, protective clothing in

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
		sunlight or layer clothing in cold weather)/ drink plenty of fluids/ take regular breaks.
35. All activities	45. Slips/ Trips/ Falls 46. Hand injuries, cuts, or lacerations during manual handling of materials 47. Foot injuries 48. Back injuries 49. Traffic 50. Wildlife: Stray dogs, Mice/rats, Vectors (i.e., mosquitoes, bees, etc.) 51. High Noise levels 52. Overhead hazards 53. Heat Stress/ Cold Stress 54. Eye Injuries	53. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards. 54. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery, or dirty objects before handling / Wear leather/ cut-resistant gloves. 55. Wear Langan approved safety shoes. 56. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible. 57. Wear high visibility clothing & vest / Use cones or signs to designate work area. 58. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed. 59. Wear proper hearing protection. 60. Wear hard hat / Avoid areas where overhead hazards exist. 61. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress. 62. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN	Job Safety Analysis (JSA) Health and Safety
JSA Title: Groundwater Sampling **JSA Number:** JSA008-01 **A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last-Minute Risk Assessment.**	 S – *Stop*, what has changed? T – *Think* about the task E – *Evaluate* potential hazards P – *Plan* safe approach S - *Start* task / *Stop* & regroup

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☐ Face Shield	☒ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☐ Cut Resist. Gloves	☒ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☐ Traffic Cones/Signs	☐ Life Vest/Jacket	
☒ Other: Tyvek sleeves, Dermal Protection, PID				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
36. Transport equipment to work area	1. Back Strain 2. Slips/ Trips/ Falls 3. Traffic 4. Cuts/abrasions from equipment 5. Contusions from dropped equipment	1. Use proper lifting techniques / Use wheeled transport. 2. Minimize distance to work area / Have unobstructed path to work area / Follow good housekeeping procedures. 3. Wear proper PPE (high visibility vest or clothing) 4. Wear proper PPE (leather gloves, long sleeves) 5. Wear proper PPE (safety shoes)
37. Remove well cover	18. Scrape knuckles/hand 19. Strain wrist/bruise palm 20. Pinch fingers or hand	3. Wear proper PPE (leather gloves) 4. Using a hammer, tap the end of the wrench to loosen grip of bolts. 5. Wear proper PPE (leather gloves)
38. Remove well cap and lock	11. Well can pops from pressure. 12. Exposure to hazardous substances through inhalation or dermal exposure 13. Scrape knuckles/hand 14. Strain write/bruise palm	5. Remove cap slowly to relieve pressure / Do not place face over well when opening / Wear proper PPE (safety glasses) 6. Use direct air monitoring/reading instrument (i.e., PID) / Be familiar with and follow actions prescribed in the HASP / Wear proper PPE (nitrile gloves) 7. Wear proper PPE (leather gloves) 8. Using hammer, tap the end of the wrench to loosen grip
39. Measure head-space vapor levels	1. Exposure to hazardous substances through inhalation	1. Do not place face over well when collecting measurement
40. Remove dedicated tubing (if necessary)	1. Exposure to hazardous substances through inhalation or dermal exposure 2. Tubing swings around after removal	1. Wear proper PPE (nitrile gloves, Tyvek sleeves) 2. Wear proper PPE (safety glasses)
41. Set-up plastic sheeting for work site around the well	1. Lacerations when cutting plastic sheeting.	1. Use scissors to cut plastic sheeting / Cut motions should always be away from body and body parts

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
42. Measure depth to water	1. Exposure to hazardous substances through inhalation or dermal exposure 2. Pinch fingers or hand in water level instrument	1. Wear proper PPE (nitrile gloves) 2. Wear proper PPE (leather gloves)
43. Calibrate monitoring equipment	1. Skin or eye contact with calibration chemicals 2. Pinch fingers or hand in monitoring equipment	1. Wear proper PPE (safety glasses, nitrile gloves) 2. Wear proper PPE (leather gloves) / Avoid pinch points
44. Install sampling pump in well	1. Hand injuries during installation of pump 2. Lacerations when cutting tubing. 3. Back strain during installation of pump 4. Physical hazards associated with manual lifting of heavy equipment. 5. Back strain from starting generator. 6. Burns from hot exhaust from generator. 7. Electrical shock from improper use of generator and pump 8. Contaminated water spray from loose connections	1. Wear proper PPE (leather gloves, nitrile gloves) 2. Use safety tubing cutter. 3. Use proper lifting techniques. 4. Use proper lifting techniques / Use wheeled transport for heavy equipment. 5. Use arm when starting generator / Do not over-strain if generator does not start. 6. Do not touch generator near exhaust / Use proper handle to carry / Allow generator to cool down before moving. 7. Properly plug in pump to generator / Do not allow the pump or generator to contact water / Check for breaks in the cord. 8. Check all tubing connections to ensure they are tight and secure

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
10. Purge water	1. Contact with potentially contaminated groundwater. 2. Back strain from lifting buckets of water 3. Tripping potential on sample discharge lines and pump electric lines	1. Wear proper PPE (safety glasses, nitrile gloves) 2. Use proper lifting techniques / Use wheeled transport. 3. Organize discharge of electric line to keep out of way as much as possible / Mark potential tripping hazards with caution tape or safety cones
11. Sample water collection	1. Contact with potentially contaminated groundwater through dermal exposure. 2. Contact with and burns from acid used for sample preservation. 3. Tripping potential on sample discharge lines and pump electric lines 4. Lacerations from broken sample bottles 5. Back strain when transporting coolers full of collected samples. 6. Slips/ Trips/ Falls	1. Wear proper PPE (safety glasses, nitrile gloves) 2. Wear proper PPE (safety glasses, nitrile gloves) / Ensure sample bottle lids are secure before use and after sample collection. 3. Organize line to keep out of the way as much as possible / Mark potential tripping hazards with caution tape or safety cones. 4. Do not over-tighten bottle caps / Handle bottles safely to prevent breakage / Wrap glass bottles in bubble wrap, if possible 5. Use proper lifting techniques / Use wheeled transport / Seek assistance if coolers weight exceeds 50lbs. / Minimize distance to vehicle. 6. Have unobstructed path to vehicle or collection point / Follow good housekeeping procedures / Do not lift/walk with coolers that are too heavy/difficult to lift
12. Remove pump and pack up equipment	1. Back strain when removing pump or lifting heavy equipment	1. Use proper lifting technique / Use wheeled transport for heavy equipment
13. Replace well cap and lock	1. Scrape fingers/hand 2. Strain wrist/bruise palm	1. Wear proper PPE (leather gloves) 2. Using hammer, tap the end of the well cap to tighten grip
14. Replace well cover	1. Scrape knuckles/hand 2. Strain write/bruise palm. 3. Pinch fingers or hand	1. Wear proper PPE (leather gloves) 2. Using hammer, tap the end of the wrench to tighten the grip of the bolts. 3. Wear proper PPE (leather gloves)
15. Transport drums to disposal staging location	1. Back, arm or shoulder strain from moving drums. 2. Pinch hazard 3. Contact with potentially contaminated groundwater when moving improperly sealed drums. 4. Slips/ Trips/ Falls when moving drum. 5. Drop drum on feet/toes	1. Use drum cart for moving drums / Use proper lifting techniques / Obtain assistance, if needed 2. Wear proper PPE (leather gloves) 3. Wear proper PPE (nitrile gloves under leather gloves) / Properly seal drum to prevent leak. 4. Ensure route to move drum to storage space is dry and free from obstructions. 5. Wear proper PPE (safety shoes)
16. Place used PPE in designated disposal drum	1. Pressure build-up inside drum 2. Pinch hazard	1. Remove cap from bung hole in drum to relieve pressure. 2. Wear proper PPE (leather gloves)
17. Decontaminate equipment	1. Splashing water/soap from decontamination 2. Contact with potentially contaminated groundwater through dermal exposure. 3. Electrical shock from broken electric cords	1. Wear proper PPE (safety glasses) 2. Wear proper PPE (safety glasses, dermal protection) 3. Properly plug in pump to generator / Do not allow the pump or generator to contact water / Check for breaks in the cord
18. All activities	55. Slips/ Trips/ Falls 56. Hand injuries, cuts, or lacerations during manual handling of materials 57. Foot injuries 58. Back injuries 59. Traffic 60. Wildlife: Stray dogs, Mice/rats, Vectors (i.e., mosquitoes, bees, etc.)	63. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards. 64. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery, or dirty objects before handling / Wear leather/ cut-resistant gloves. 65. Wear Langan approved safety shoes.

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
	61. High Noise levels 62. Overhead hazards 63. Heat Stress/ Cold Stress 64. Eye Injuries	66. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible. 67. Wear high visibility clothing & vest / Use cones or signs to designate work area. 68. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed. 69. Wear hearing protection 70. Wear hard hat / Avoid areas where overhead hazards exist. 71. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress. 72. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN	Job Safety Analysis (JSA) Health and Safety
JSA Title: Well Installation **JSA Number: JSA019-01**	 **S – Stop,** *what has changed?* **T – Think** *about the task* **E – Evaluate** *potential hazards* **P – Plan** *safe approach* **S - Start** *task /* **Stop** *& regroup*
A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last-Minute Risk Assessment.	

PERSONAL PROTECTIVE EQUIPMENT REQUIRED:				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☐ Face Shield	☒ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☐ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☐ Traffic Cones/Signs	☐ Life Vest/Jacket	
☒ Other: PID, Tyvek sleeves				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
45. Move equipment to work site	28. Back strain when lifting equipment. 29. Slips/ Trips/ Falls while moving equipment. 30. Traffic (if applicable) 31. Pinched fingers or running over toes during GeoProbe set-up. 32. Overturn drilling rig while transporting to loading dock on flat-bed tow truck	22. Use proper lifting technique (use legs for bending and lifting and not the back)/ Use wheeled transport for heavy equipment / Get assistance when handling loads greater than 50 lbs. / Minimize distance to vehicle 23. Use proper lifting technique (use legs for bending and lifting and not the back) / Use wheeled transport for heavy equipment / Get assistance when handling loads greater than 50 lbs. / Minimize distance to vehicle / Have unobstructed path to vehicle or collection point / Do not lift/walk with boxes that are heavy/difficult to lift 24. Wear high visibility safety vests or clothing / Exercise caution 25. Wear proper PPE (cut-resistant gloves) / Stay alert, be aware of geoprobe rig at all times 26. Drill rig should be parked in center of flat-bed tow truck / Emergency brake shall be used at all times during transport on the flat-bed truck/ All unnecessary personnel should stay away from the flat-bed truck during moving activities
46. Calibration of monitoring equipment	21. Skin or eye contact with calibration chemicals 22. Pinch fingers in monitoring equipment	16. Wear proper PPE (safety glasses/ goggles) 17. Wear proper PPE (leather gloves)
18. Set-up GeoProbe rig	15. Geoprobe rig movement	9. All field personnel should stay clear of the GeoProbe rig while moving / Use a spotter when backing up the GeoProbe
19. Advance GeoProbe rods below ground surface to desired depth	6. Underground utilities 7. High noise levels	9. Clean all subsurface soil borings to a minimum of 5 feet below grade. 10. Wear proper PPE (hearing protection)

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
20. Remove and open acetate liner. 5. Remove and open acetate liner (cont'd)	65. Pinched fingers while removing macrocore. 66. Cuts/lacerations when cutting acetate liner open. 67. Exposure to hazardous vapors 68. Skin contacts with contaminated soil	5. Wear proper PPE (nitrile gloves, cut-resistant or leather gloves 6. Wear proper PPE (cut-resistant or leather gloves) 7. Do not place face over acetate liner when opening / Monitor hazardous vapors in air with PID / Upgrade PPE as necessary based on levels contained in the Health and Safety Plan 8. Wear proper PPE (nitrile gloves)
6. Remove excess soil from acetate liner and place in 55-gallon drum (IF NOT PERFORMED BY LANGAN, REMOVE!)	5. Cuts/lacerations from acetate liner 6. Pinched fingers/hand while opening/closing drum. 7. Skin contacts with contaminated soil 8. Soil debris in eyes	5. Wear proper PPE (cut-resistant or leather gloves) 6. Wear proper PPE (cut-resistant or leather gloves) 7. Wear proper PPE (nitrile gloves) 8. Wear proper PPE (safety glasses)
7. Attach hollow-stem augers to the GeoProbe rig; Advance augers and attach. additional augers until desired depth is reached	1. Strain wrist/bruise palm 2. Pinched fingers 3. Back Strain 4. Clothing entanglement 5. Carbon monoxide poisoning 6. Bruise toes/foot 7. High noise levels 8. Skin contacts with contaminated soil	1. Wear proper PPE (cut-resistant or leather gloves) 2. Wear proper PPE (cut-resistant or leather gloves) 3. Use proper lifting techniques. 4. Wear proper work attire(no loose clothing/strings) 5. Properly ventilate work area 6. Wear proper PPE (safety shoes) 7. Wear proper PPE (hearing protection) 8. Wear proper PPE (Tyvek sleeves, nitrile gloves)
8. Install monitoring well	1. Pinched fingers 2. Lacerations/abrasions 3. Back Strain	1. Wear proper PPE (cut-resistant or leather gloves) 2. Wear proper PPE (cut-resistant or leather gloves) 3. Use proper lifting techniques
9. Tremie-grout annulus space above bentonite seal	1. Back strain 2. Pinched fingers	1. Use proper lifting techniques. 2. Wear proper PPE (cut-resistant or leather gloves)
10. Install flush-mount monitoring well pad	1. Splashed concrete. 2. Pinched fingers 3. Cuts/lacerations	1. Wear proper PPE (safety glasses) 2. Wear proper PPE (cut-resistant or leather gloves) 3. Wear proper PPE (cut-resistant or leather gloves)
11. Decontaminate equipment	1. Splashing water/soap 2. Contact with potentially contaminated groundwater/soil through dermal exposure. 3. Electrical shock from broken electric cords	1. Wear proper PPE (safety glasses) 2. Wear proper PPE (safety glasses, dermal protection) 3. Properly plug in pump to generator / Do not allow the pump or generator to contact water / Check for breaks in the cord
12. Transport drums to central staging location (IF NOT PERFORMED BY LANGAN, REMOVE!)	7. Back, arm or shoulder strain from moving drums. 8. Pinch fingers/hand in drum cart when moving drums. 9. Pinch fingers/hand when operating lift-gate on vehicle. 10. Contact with potentially contaminated groundwater when moving improperly sealed drums. 11. Slips when moving drums. 12. Drop drum on feet/toes	73. Use drum cart for moving drums / Use proper lifting techniques / Do not lift heavy loads without assistance. 74. Wear proper PPE (cut-resistant or leather gloves) 75. Wear proper PPE (cut-resistant or leather gloves) 76. Wear proper PPE (nitrile gloves underneath work gloves) 77. Follow good housekeeping procedures / Ensure route to move drum and storage space is free from obstructions. 78. Wear proper PPE (safety shoes) / Work in a safe manner to prevent dropped drum

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
13. All activities 13. All activities (cont'd)	11. Slips/ Trips/ Falls 12. Hand injuries, cuts, or lacerations during manual handling of materials 13. Foot injuries 14. Back injuries 15. Traffic 16. Wildlife: Stray dogs, Mice/rats, Vectors (i.e., mosquitoes, bees, etc.) 17. High Noise levels 18. Overhead hazards 19. Heat Stress/ Cold Stress 20. Eye Injuries	11. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards. 12. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery, or dirty objects before handling / Wear leather/ cut-resistant gloves. 13. Wear Langan approved safety shoes. 14. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible. 15. Wear high visibility clothing & vest / Use cones or signs to designate work area. 16. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed. 17. Wear hearing protection 18. Wear hard hat / Avoid areas where overhead hazards exist. 19. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress. 20. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Health and Safety

JSA Title: **Monitoring Well Development**
JSA Number: **JSA026-01**

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last-Minute Risk Assessment.

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☐ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☒ Face Shield	☒ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☒ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☐ Traffic Cones/Signs	☐ Life Vest/Jacket	
☒ Other: Tyvek Sleeves				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
47. Transport equipment to work area	33. Back Strains 34. Slips/Trips/Falls 35. Traffic 36. Cuts/Abrasions/Contusions from equipment	27. Use proper lifting techniques/ Use wheeled transport/ use buddy system when lifting equipment. 28. Minimize distance from work area/ unobstructed path to collection points and vehicle/ Follow good housekeeping procedures. 29. Wear high-visibility vest or clothing/Exercise caution/ Use traffic cones or signage if needed. 30. Wear proper PPE (leather gloves, long sleeves, Langan approved safety shoes).
48. Measure depth of water	23. Exposure to hazardous substances 24. Pinched fingers	21. Wear proper PPE (Nitrile gloves, Safety glasses/Face shield). 22. Wear proper PPE (cut-resistant gloves).
49. Install Tremie pipe in the monitoring well and connect to water source.	16. Hand injuries during installation (pinched fingers/hands). 17. Back strain from holding Tremie pipe. 18. High pressure water spray.	10. Wear proper PPE (Nitrile gloves/cut-resistant gloves). 11. Use proper lifting techniques/ Use two personnel when lowering pump greater than 80 feet. 12. Ensure all those connections are tight and secure/ Use proper PPE (face shield and safety glasses).
50. Install pump in to well. a. Connect pump to sample tubing. b. Lower pump to desired depth in well. c. Connect sample tubing to flow cell. d. Connect pump to power source	8. Hand injuries during pump installation and sample tubing cutting. 9. Back strain 10. Electric shock 11. Exhaust gases from generator 12. Burns from hot equipment	11. Wear proper PPE when installing pump and cutting sample tubing (Nitrile and cut-resistant gloves)/ Use tubing cutter. 12. Proper lifting techniques/ Two personnel when installing pump at depths greater than 80 feet/ Use buddy when lifting heavy loads (pump, generator)/Use wheeled transport. 13. Ensure equipment is (LO/TO: locked out/tagged out) prior to preforming any electrical connections/ Inspect wires for frays or cuts/Ensure generator is properly grounded prior to starting.

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
(generator) e. Turn on power source (generator)		14. Position generator so that exhaust is flowing away from work area. 15. Do not touch exhaust or any hot part of generator/ Allow equipment time to cool down prior to carrying/ Use proper PPE (long sleeves, leather gloves)
51. Develop monitoring well. a. Jet water into well using Tremie pipe. b. Turn pump on and adjust to desired flow rate. c. Surge pump up and down well to remove sediment from screen. d. Containerize all purge water from well.	69. Hand injuries 70. Face injuries 71. Contaminated spray from water	79. Wear proper PPE (cut-resistant gloves and nitrile gloves). 80. Wear proper PPE (face shield and safety glasses)/do not stand over well opening. 81. Wear proper PPE (Face shield and safety goggles)/Tyvek over garments/ Ensure all connections are secure and tight/ Tubing outlet is contained in an overflow container.
52. Drum staging area.	1. Back, Arm, and shoulder strain. 2. Pinch points 3. Cross contamination 4. Slip/Trips/Falls	1. Use proper lifting techniques/ Use drum carts when moving drums/ use buddy system for moving of drums if needed/Move drums shortest distance needed. 2. Keep fingers and feet away from pinch points/ Use proper PPE (cut-resistant gloves, Langan approved safety shoes) 3. Use proper PPE (Nitrile gloves, Tyvek sleeves) 4. Ensure pathway is clear prior to moving equipment/ Mark all hazards/ Use additional person as a spotter if needed.
53. Equipment pack-up	1. Back Strains 2. Slips/Trips/Falls 3. Traffic 4. Cuts/Abrasions/Contusions from equipment.	1. Use proper lifting techniques/ Use wheeled transport/ use buddy system when lifting equipment. 2. Minimize distance from work area/ Unobstructed path to collection points and vehicle/ Follow good housekeeping procedures. 3. Wear high-visibility vest or clothing/Exercise caution/ Use traffic cones or signage if needed. 82. Wear proper PPE (leather gloves, long sleeves, Langan approved safety shoes).
54. All activities	1. Slips/ Trips/ Falls 2. Hand injuries, cuts, or lacerations during manual handling of materials 3. Foot injuries 72. Back injuries 73. Traffic 74. Wildlife: Stray dogs, Mice/rats, Vectors (i.e., mosquitoes, bees, etc.) 75. High Noise levels 76. Overhead hazards 77. Heat Stress/ Cold Stress 78. Eye Injuries	1. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards 2. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery, or dirty objects before handling / Wear leather/ cut-resistant gloves 3. Wear Langan approved safety shoes 4. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible 5. Wear high visibility clothing & vest / Use cones or signs to designate work area 6. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed 7. Wear hearing protection 8. Wear hard hat / Avoid areas where overhead hazards exist. 9. Wear proper attire for weather conditions (sunscreen or protective clothing

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
		in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress 10. Wear safety glasses.
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Health and Safety

JSA Title: **Groundwater/Product Purging/Sampling with Bailer**
JSA Number: **JSA053**

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last-Minute Risk Assessment.

S – ***Stop,*** *what has changed?*

T – ***Think*** *about the task*

E – ***Evaluate*** *potential hazards*

P – ***Plan*** *safe approach*

S - ***Start*** *task /* ***Stop*** *& regroup*

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☒ Safety Goggles	☒ Face Shield	☒ Nitrile Gloves	☒ PVC Gloves
☒ Leather Gloves	☐ Cut Resist. Gloves	☐ Fall Protection	☒ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☒ Traffic Cones/Signs	☐ Life Vest/Jacket	
☒ Other: Tyvek sleeves, Dermal Protection, PID, absorbent pads				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
55. Transport equipment to work area	6. Back Strain 7. Slips/ Trips/ Falls 8. Traffic 9. Cuts/abrasions from equipment 10. Contusions from dropped equipment	6. Use proper lifting techniques / Use wheeled transport. 7. Minimize distance to work area / Have unobstructed path to work area / Follow good housekeeping procedures. 8. Wear proper PPE (high visibility vest or clothing) 9. Wear proper PPE (leather gloves, long sleeves) 10. Wear proper PPE (safety shoes)
56. Remove well cover	25. Scrape knuckles/hand 26. Strain wrist/bruise plan 27. Pinch fingers or hand	6. Wear proper PPE (leather gloves) 7. Using a hammer, tap the end of the wrench to loosen grip of bolts. 8. Wear proper PPE (leather gloves)
57. Remove well cap and lock	19. Well can pops from pressure. 20. Exposure to hazardous substances through inhalation or dermal exposure 21. Scrape knuckles/hand 22. Pinch points 23. Strain write/bruise palm	9. Remove cap slowly to relieve pressure / Do not place face over well when opening / Wear proper PPE (safety glasses, face shield, hand protection) 10. Use direct air monitoring/reading instrument (i.e., PID) / Be familiar with and follow actions prescribed in the HASP / Wear proper PPE (nitrile gloves) 11. Wear proper PPE (leather gloves) 12. Using hammer, tap the end of the wrench to loosen grip
58. Measure head-space vapor levels	2. Exposure to hazardous substances through inhalation	2. Do not place face over well when collecting measurement
59. Set-up plastic sheeting/absorbent pads	2. Lacerations when cutting plastic sheeting/absorbent pads.	2. Use scissors to cut plastic sheeting/absorbent pads / Cut motions should always be away from body and body parts

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
for work site around the well		
60. Lower Bailer sleeve into well	7. Repetitive motion injury (pulled arm/back muscles) 8. Dehydration	7. Take breaks while lowering bailer into well/ Use a mechanical device to lower bailer into well/ Rotate employees (take turns conducting the manual labor portion) 8. Take breaks and drink water.

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
7. Purge/Sample water/product collection	1. Contact with potentially contaminated groundwater or product through dermal exposure 2. Contact with and burns from acid used for sample preservation 9. Tripping potential on sampling lanyard 10. Lacerations from broken sample bottles 11. Back strain when transporting coolers full of collected samples. 12. Slips/ Trips/ Falls	1. Wear proper PPE (safety glasses, nitrile gloves, safety shield, Tyvek) 2. Ensure sample bottle lids are secure before use and after sample collection 3. Organize lanyard to keep out of the way as much as possible / Mark potential tripping hazards with caution tape or safety cones 9. Do not over-tighten bottle caps / Handle bottles safely to prevent breakage / Wrap glass bottles in bubble wrap, if possible 10. Use proper lifting techniques / Use wheeled transport / Seek assistance if coolers weight exceeds 50lbs. / Minimize distance to vehicle. 11. Have unobstructed path to vehicle or collection point / Follow good housekeeping procedures / Do not lift/walk with coolers that are too heavy/difficult to lift
8. Retrieval of bailer	9. Repetitive motion injury (pulled arm/back muscles) 10. Dehydration	9. Take breaks while retrieving bailer out of the well/ Use a mechanical device to raise bailer out of well/ Rotate employees (take turns conducting the manual labor portion) 10. Take breaks and drink water.
9. Pack-up equipment	2. Back strain when removing or lifting heavy equipment	2. Use proper lifting technique / Use wheeled transport for heavy equipment
10. Replace well cap and lock	3. Scrape fingers/hand 4. Strain wrist/bruise palm	3. Wear proper PPE (leather gloves) 4. Using hammer, tap the end of the well cap to tighten grip
11. Replace well cover	4. Scrape knuckles/hand 5. Strain write/bruise palm. 6. Pinch fingers or hand	4. Wear proper PPE (leather gloves) 5. Using hammer, tap the end of the wrench to tighten the grip of the bolts. 6. Wear proper PPE (leather gloves)
12. Place used PPE in designated disposal drum	3. Pressure build-up inside drum 4. Pinch hazard	3. Remove cap from bung hole in drum to relieve pressure. 4. Wear proper PPE (leather gloves) 5. Product drums may require additional spill protection/electrical grounding, check local regulations
13. Decontaminate equipment	4. Splashing water/soap from decontamination 5. Contact with potentially contaminated groundwater through dermal exposure.	4. Wear proper PPE (safety glasses) 5. Wear proper PPE (safety glasses, dermal protection)

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
14. All activities	79. Slips/ Trips/ Falls 80. Hand injuries, cuts, or lacerations during manual handling of materials 81. Foot injuries 82. Back injuries 83. Traffic 84. Wildlife: Stray dogs, Mice/rats, Vectors (i.e., mosquitoes, bees, etc.) 85. High Noise levels 86. Overhead hazards 87. Heat Stress/ Cold Stress 88. Eye Injuries	83. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards. 84. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery, or dirty objects before handling / Wear leather/ cut-resistant gloves. 85. Wear Langan approved safety shoes. 86. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible. 87. Wear high visibility clothing & vest / Use cones or signs to designate work area. 88. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed. 89. Wear hearing protection 90. Wear hard hat / Avoid areas where overhead hazards exist. 91. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress. 92. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	**Sign Name**	**Date**
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Health and Safety

JSA Title: **Sub-slab soil gas temporary point installation and sampling**
JSA Number: **JSA037-01**

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last-Minute Risk Assessment.

S – *Stop,* what has changed?
T – *Think* about the task
E – *Evaluate* potential hazards
P – *Plan* safe approach
S - *Start* task / *Stop* & regroup

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☐ Hearing Protection
☒ Safety Glasses	☒ Safety Goggles	☐ Face Shield	☒ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☐ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☒ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☒ Traffic Cones/Signs	☐ Life Vest/Jacket	
☒ Other: Tyvek Sleeves				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
61. Transport equipment to work site	37. Back injuries 38. Slips/Trips/Falls 39. Traffic 40. Hand injuries	31. Use proper lifting techniques/ Use wheeled transport/ Get assistance when need with moving equipment/ Minimize distance from vehicle 32. Minimize distance from vehicle/ Have unobstructed pathway to vehicle and collection points/ Mark tripping hazards with spray paint, cones, or caution tape/ Observe good housekeeping procedures. 33. Wear proper PPE (High Visibility vest and clothing)/ Exercise caution (stay alert-stay alive) 34. Wear proper PPE (leather gloves)/ Keep finger and hands clear of pinch points.
62.Mark area for drilling	28.Slips/Trips/Falls	23. Minimize distance from vehicle/ Have unobstructed pathway to vehicle and collection points/ Mark tripping hazards with spray paint, cones, or caution tape/ Observe good housekeeping procedures
63.Drill sampling points with hammer drill	24. Eye injuries 25. Dust exposure 26. Hand injuries 27. Catch items (clothing) 28. Electric shock 29. Chemical atmosphere hazard (vapor) 30. Slips/Trips/Falls	13. Wear proper PPE (safety glasses) 14. Wear proper PPE (dust mask) 15. Wear proper PPE (leather gloves)/ Keep hands and fingers out of pinch points/ Avoid drill catching on ground and twisting wrist or hand/ Release drill grip if drill becomes caught/ Ensure drill is unplugged prior to inserting bit. 16. Tie up or tuck-in all loose clothing/ Maintain distance from drill. 17. Inspect power cable for cuts or nicks before use/ Use GFCI outlet on power cord/ Do not use in wet conditions. 18. Monitor air, vapors with Photo-ionization detector (PID)

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
		19. Minimize distance from vehicle/ Have unobstructed pathway to vehicle and collection points/ Mark tripping hazards with spray paint, cones, or caution tape/ Observe good housekeeping procedures
64. Measure vapor content and depth to bottom of hole	1. Chemical atmosphere hazard (vapors)	1. Monitor air, vapors with Photo-ionization detector (PID)/ Keep face away from opening of hole while collecting measurements
65. Set-up of shroud and sampling canister system	1. Hand injuries 2. Chemical atmosphere hazard (vapors) 3. Slips/Trips/Falls	1. Wear proper PPE (leather gloves, nitrile gloves)/ Keep fingers away from pinch points when installing pump/ Do not use open blades, use tubing cutter 2. Monitor air, vapors with Photo-ionization detector (PID)/ Keep face away from opening of hole while collecting measurements 3. Minimize distance from vehicle/ Have unobstructed pathway to vehicle and collection points/ Mark tripping hazards with spray paint, cones, or caution tape/ Observe good housekeeping procedures
66. Purge soil gas	1. Chemical atmosphere hazard (vapors)	1. Monitor air, vapors with Photo-ionization detector (PID)/ Keep face away from exhaust port of pump
67. Sample collection (opening and closing valves)	1. Hand injuries	1. Wear proper PPE (leather gloves)/ Keep fingers away from pinch points
68. Sealing sampling holes	1. Back injuries 2. Concrete dust 3. Eye injuries	1. Use proper lifting techniques for lifting of cement bags 2. Wear proper PPE (dust mask) 3. Wear proper PPE (safety glasses)
69. All activities	89. Slips/ Trips/ Falls 90. Hand injuries, cuts, or lacerations during manual handling of materials 91. Foot injuries 92. Back injuries 93. Traffic 94. Wildlife: Stray animals, Mice/rats, Vectors (i.e., mosquitoes, bees, etc.) 95. High Noise levels 96. Overhead hazards 97. Heat or cold injuries 98. Eye Injuries	93. Be aware of potential trip hazards/ Follow good housekeeping procedures/ Mark significant hazards. 94. Inspect for jagged/sharp edges, and rough or slippery surfaces/ Keep fingers away from pinch points/ Wipe off greasy, wet, slippery, or dirty objects before handling/ Wear leather/ cut-resistant gloves. Wear proper PPE (Langan approved safety shoes) 95. Use proper lifting techniques/ Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift/ Obtain assistance when possible. 96. Wear high visibility clothing & vest/ Use cones or signs to designate work area. 97. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray animals/ Carry and use animal repellant when needed/ Use bug spray when needed. 98. Wear hearing protection 99. Wear hard hat/ Avoid areas where overhead hazards exist. 100. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather)/ Drink plenty of fluids to avoid dehydration/ Takes breaks as necessary to avoid heat/cold stress. 101. Wear safety glasses

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Health and Safety

JSA Title: Indoor Air Sampling
JSA Number: JSA007-01

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last-Minute Risk Assessment.

S – Stop, *what has changed?*
T – Think *about the task*
E – Evaluate *potential hazards*
P – Plan *safe approach*
S - Start *task /* **Stop** *& regroup*

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☐ Face Shield	☒ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☐ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☒ Traffic Cones/Signs	☐ Life Vest/Jacket	
☒ Other: PID, Respiratory Protection (if necessary)				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
70. Building walkthrough and background contaminant removal	41. Slips / Trips/ Falls 42. Exposure to substances/vapors during removal	6. Be aware of potential trip hazards / Follow good housekeeping procedures / Mark significant below-grade hazards (i.e., holes, trenches) with safety cones or spray paint. 7. Monitor indoor air concentrations with a PID / Wear proper PPE (nitrile gloves) / Wear proper respiratory protection if necessary
71. Transport equipment to work area	11. Back Strain 12. Slips/ Trips/ Falls 13. Traffic 14. Cuts/abrasions from equipment 15. Contusions from dropped equipment	11. Use proper lifting techniques / Use wheeled transport. 12. Minimize distance to work area / Have unobstructed path to work area / Follow good housekeeping procedures. 13. Wear proper PPE (high visibility vest or clothing) 14. Wear proper PPE (leather gloves, long sleeves) 15. Wear proper PPE (safety shoes)
72. Mark out areas for indoor air sampling	29. Slips/ Trips/ Falls	9. Be aware of potential trip hazards / Follow good housekeeping procedures / Mark significant below-grade hazards (i.e., holes, trenches) with safety cones or spray paint
73. Set-up canisters and begin indoor air sampling	31. Dropping crates or canisters 32. Pinch hazard	13. Exercise caution when moving crates and canisters / Use proper housekeeping of materials during sample events / Do not carry too many items at one time / Perform several trips, if necessary 14. Wear proper PPE (leather gloves)
74. Sample collection	3. Dropping crates or canisters 4. Pinched fingers from opening valves	3. Exercise caution when moving crates and canisters / Use proper housekeeping of materials during sample events / Do not carry too many items at one time / Perform several trips, if necessary 4. Wear proper PPE (leather gloves) / Keep fingers away from pinch points
75. Pack up equipment	3. Back strain	3. Use proper lifting techniques / Use wheeled transport.

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
	4. Slips/ Trips/ Falls 5. Traffic	4. Be aware of potential trip hazards / Follow good housekeeping procedures / Minimize distance to vehicle. 5. Wear proper PPE (safety vest)
76. All activities	99. Slips/ Trips/ Falls 100. Hand injuries, cuts, or lacerations during manual handling of materials 101. Foot injuries 102. Back injuries 103. Traffic 104. Wildlife: Stray dogs, Mice/rats, Vectors (i.e., mosquitoes, bees, etc.) 105. High Noise levels 106. Overhead hazards 107. Heat Stress/ Cold Stress 108. Eye Injuries	102. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards. 103. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery, or dirty objects before handling / Wear leather/ cut-resistant gloves. 104. Wear Langan approved safety shoes. 105. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible. 106. Wear high visibility clothing & vest / Use cones or signs to designate work area. 107. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed. 108. Wear hearing protection 109. Wear hard hat / Avoid areas where overhead hazards exist. 110. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress. 111. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Health and Safety

JSA Title: Hammer Drill
JSA Number: JSA049

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last-Minute Risk Assessment.

S – ***Stop,*** *what has changed?*
T – ***Think*** *about the task*
E – ***Evaluate*** *potential hazards*
P – ***Plan*** *safe approach*
S - ***Start*** *task /* ***Stop*** *& regroup*

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☒ Face Shield	☒ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☐ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☒ Traffic Cones/Signs	☐ Life Vest/Jacket	
☐ Other:				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
77.Transport equipment to work area	43.Back Strain 44.Slips/ Trips/ Falls 45.Traffic 46.Cuts/abrasions from equipment 47.Contusions from dropped equipment	8. Use proper lifting techniques / Use wheeled transport. 9. Minimize distance to work area / Have unobstructed path to work area / Follow good housekeeping procedures. 10. Wear proper PPE (high visibility vest or clothing) 11. Wear proper PPE (leather gloves, long sleeves) 12. Wear proper PPE (safety shoes)
78.Electrical Connection	30.Inspect electrical cord to drill. 31.Inspect hammer drill. 32.Inspect extension cord. 33.Test GFCI	10. Check the plug, ensure all connections are in place, check cord for frayed sections. If plug or cord are worn, do not use equipment until repaired. 11. Inspect chuck for proper grasping and holding of bit, check that plastic housing is not cracked or missing pieces. Do not use if chuck does not work properly or housing is compromised. 12. Inspect extension cord, if worn or stripped pull from service and replace 13. Test GFCI, replace if GFCI fails
79.Drill Bit	1. Inspect drill bit	1. Replace if worn. 2. Wear proper PPE (leather gloves) when installing and removing drill bit. 3. Ensure equipment is unplugged from electrical power when removing and installing drill bit.
80.Use of Hammer Drill	1. Hazards associated with using hammer drill, flying objects, heavy equipment, ground level hazards and dust. 2. Slips/ Trips/ Falls 3. Hazards associated drilling into concrete slab	1. Maintain a safe distance from other site operations / Wear proper PPE (hard hat, safety glasses, safety shoes, safety vest, ear protection and leather gloves) 2. Be aware of potential trip hazards / Follow good housekeeping procedures / Mark extension cord pathway with safety cones. 3. Do not push hammer drill during use.

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
81. All activities 4. All activities (cont'd)	109. Slips/ Trips/ Falls 110. Hand injuries, cuts, or lacerations during manual handling of materials 111. Foot injuries 112. Back injuries 113. Traffic 114. Wildlife: Stray dogs, Mice/rats, Vectors (i.e., mosquitoes, bees, etc.) 115. High Noise levels 116. Overhead hazards 117. Heat Stress/ Cold Stress 118. Eye Injuries	112. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards. 113. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery, or dirty objects before handling / Wear leather/ cut-resistant gloves. 114. Wear Langan approved safety shoes. 115. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible. 116. Wear high visibility clothing & vest / Use cones or signs to designate work area. 117. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed. 118. Wear hearing protection 119. Wear hard hat / Avoid areas where overhead hazards exist. 120. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress. 121. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	**Sign Name**	**Date**
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Health and Safety

JSA Title: **Test Pits**
JSA Number: **JSA016-01**

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last Minute Risk Assessment.

S – Stop, *what has changed?*
T – ***Think*** *about the task*
E – *Evaluate* *potential hazards*
P – *Plan* *safe approach*
S - *Start* *task / **Stop** & regroup*

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☐ Face Shield	☐ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☐ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☐ Traffic Cones/Signs	☐ Life Vest/Jacket	
☐ Other:				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
82. Transport equipment to work area	48. Back Strain 49. Slips/ Trips/ Falls 50. Traffic 51. Cuts/abrasions from equipment 52. Contusions from dropped equipment	13. Use proper lifting techniques / Use wheeled transport 14. Minimize distance to work area / Have unobstructed path to work area / Follow good housekeeping procedures 15. Wear proper PPE (high visibility vest or clothing) 16. Wear proper PPE (leather gloves, long sleeves) 17. Wear proper PPE (safety shoes)
83. Digging Test Pit	34. Back Strain 35. Unstable walls of excavation	14. Observe proper digging technique. Ensure spoil pile and equipment are at least 2 feet from edge of excavation. 15. Excavate test pit in a stepped manor.
84. All activities	119. Slips/ Trips/ Falls 120. Hand injuries, cuts, or lacerations during manual handling of materials 121. Foot injuries 122. Back injuries 123. Traffic 124. Wildlife: Stray dogs, Mice/rats, Vectors (i.e. mosquitoes, bees, etc.) 125. High Noise levels 126. Overhead hazards 127. Heat Stress/ Cold Stress 128. Eye Injuries	122. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards 123. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery or dirty objects before handling / Wear leather/ cut-resistant gloves 124. Wear Langan approved safety shoes 125. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible 126. Wear high visibility clothing & vest / Use cones or signs to designate work area 127. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed.

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
3. All activities (cont'd)		128. Wear hearing protection 129. Wear hard hat / Avoid areas where overhead hazards exist. 130. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress. 131. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

ATTACHMENT H

TAILGATE SAFETY BRIEFING FORM

LANGAN TAILGATE SAFETY BRIEFING

Date:_____ Time: _____

Leader:_____ Location:_____

Work Task:

_____

_____

SAFETY TOPICS (*provide some detail of discussion points*)

Chemical Exposure Hazards and Control:_____

_____

Physical Hazards and Control: _____

Air Monitoring: _____

PPE: _____

_____

Communications:_____

Safe Work Practices: _____

_____

Emergency Response: _____

Hospital/Medical Center Location: _____

Phone Nos.: _____

Other: _____

FOR FOLLOW-UP (the issues, responsibilities, due dates, etc.**)**

_____

_____

_____

ATTENDEES

PRINT NAME	COMPANY	SIGNATURE

APPENDIX D

QUALITY ASSURANCE PLAN

QUALITY ASSURANCE PROJECT PLAN

ST. JOSEPH APARTMENTS
484 EAST 178th STREET
BRONX, NEW YORK

Prepared For:

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80 Maiden Lane, 13th Floor
New York, New York 10038

Prepared By:

Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.
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February 20, 2025
Langan Project No. 170852601

LANGAN

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1.0 PROJECT DESCRIPTION

1.1 INTRODUCTION

This Quality Assurance Project Plan (QAPP) is for the about 40,102 square feet (approximately 0.92 acres) in area, located in the Tremont neighborhood of Bronx, New York and identified as Block 3043, Lot 10. Lots 10, 16, 22, and 23 were combined to form Lot 10 in January 2024. The site is bound by East 178th Street to the north, Bathgate Avenue to the east, a daycare facility (Block 3043 Lot 30) and a mixed-use commercial/residential building (Block 3043 Lot 8) to the south, and Washington Avenue to the west.

A review of historical data revealed that the site was located in a densely developed urban area, characterized by commercial and industrial uses, as early as 1896. Historical records indicate that the site was improved with an early iteration of "St. Joseph's Academy" on the southern part of the site, a mixed-use building on the northwestern part of the site, and two dwellings on the northeastern part of the site. By 1901, a church structure with a basement for an auditorium, meeting hall, cafeteria, gym, and school counseling was constructed along with another rendition of the academy/convent. A rectory was added as well in 1950. By 1981, the mixed-use commercial and residential buildings were demolished. The dwellings were demolished by 2012, and the church and remaining buildings were demolished in 2019 for redevelopment of the site.

This QAPP specifies analytical methods to be used to ensure that data collected during the Remedial Investigation (RI) is precise, accurate, representative, comparable, complete, and meets the sensitivity requirements of the project.

1.2 PROJECT OBJECTIVES

The objective of the scope of work is to investigate and characterize the nature and extent of environmental impacts at the site and to provide sufficient information to evaluate remedial alternatives and threats to human health and the environment, as required per the BCP.

1.3 SCOPE OF WORK

The scope of work covered in this QAPP is detailed in the Remedial Investigation Work Plan (RIWP). In general, the RIWP proposes soil boring installation and sampling, test pit advancement and surficial soil sampling, groundwater monitoring well installation and sampling, and soil vapor sampling. A dust, odor, and vapor control and monitoring plan will be implemented during ground intrusive activities. The following investigation activities will be performed as part of the RIWP:

- Advance a minimum of nine soil borings to a minimum depth of 14 feet bgs.
- Advance five test pits to a maximum depth of 6 inches bgs.

- Collect a minimum of two samples minimum from each soil boring and one surficial soil sample from each test pit for a total of 21 soil samples (plus quality assurance/quality control [QA/QC] samples) for laboratory analysis.
- Install and develop a minimum of six permanent groundwater monitoring wells.
- Collect one groundwater sample from each monitoring well (plus QA/QC samples) for laboratory analysis, which will include emerging contaminants (PFAS and 1,4-dioxane) per NYSDEC BCP requirements.
- Survey and gauge monitoring wells to establish groundwater elevations and evaluate flow direction.
- Install eight soil vapor points (three on-site and five on-site) to at least 2 feet above the groundwater table.
- Collect one sample from each point, one duplicate sample for QA/QC purposes, and one ambient air sample for laboratory analysis for VOCs by USEPA Method TO-15.
- Implementation of a community air monitoring plan (CAMP)

The proposed sample location plan is included as Figure 6 in the RIWP.

2.0 DATA QUALITY OBJECTIVES AND PROCESS

Data Quality Objectives (DQOs) are qualitative and quantitative statements to help ensure that data of known and appropriate quality are obtained during the project. The quality of the data must be sufficient to fulfill the overall objective of the RI. The overall objective is to investigate and characterize the nature and extent of environmental impacts at and emanating from the site and to provide sufficient information to evaluate remedial alternatives, as required. The RIWP specifies the intended use of the data, the required constituents of interest, limits of detection, level of data assessment, and data deliverables. All data shall be defined as definitive data.

The DQO process is an iterative process where various options for implementing a project are explored, dissected, and recombined. The feasibility and costs of various options are estimated, and then the most advantageous option is selected and developed into project work plans that will be implemented.

DQOs for sampling activities are determined by evaluating five factors:

- Data needs and uses: The types of data required and how the data will be used after it is obtained.
- Parameters of Interest: The types of chemical or physical parameters required for the intended use.
- Level of Concern: Levels of constituents, which may require remedial actions or further investigations, based on comparison to Title 6 of the Official Compilation of New York Codes, Rules and Regulations Part 375 NYSDEC Unrestricted Use Soil Cleanup Objectives for soil samples and to the New York State Department of Health (NYSDOH) "Guidance for Evaluating Soil Vapor Intrusion in the State of New York" (October 2006, with updates February 2024) for soil vapor samples.
- Required Analytical Level: The level of data quality, data precision, and QA/QC documentation required for chemical analysis.
- Required Detection Limits: The detection limits necessary based on the above information.

The investigation will be evaluated using the DQO process on an individual, task-specific basis. DQOs and the required level of review will be determined during this process.

3.0 PROJECT ORGANIZATION

Langan will arrange data analysis and reporting tasks related to the site sampling. The analytical services will be performed by an Environmental Laboratory Approval Program (ELAP)-certified laboratory. Data validation services will be performed by approved data validation contractor(s).

The required sampling will be conducted by Langan; the analytical services will be performed by Alpha Analytical, Inc. of Westborough, Massachusetts NYSDOH ELAP certification number 11148). Data validation services will be performed by Joseph Conboy of Langan.

Resumes for Langan personnel can be found in Attachment A; key contacts for this project are as follows:

Langan Project Manager:	Paul McMahon, PE Telephone: (212) 479-5451 Kimberly Nagatko, GIT Telephone: (212) 479-5635
Langan Field Team Leader:	Gabriella DeGennaro Telephone: (212) 479-5604
Langan Health & Safety Officer:	Tony Moffa, CHMM Telephone: (215) 491-6500
Langan Quality Assurance Manager:	Michael Burke, PG, CHMM Telephone: (212) 479-5413
Langan Data Validator:	Joseph Conboy Telephone: (609) 282-8055
Laboratory Representative:	Alpha Analytical, Inc. Ben Rao Telephone: (201) 812-2633

4.0 QUALITY ASSURANCE OBJECTIVES FOR COLLECTION OF DATA

The overall quality assurance objective is to develop and implement procedures for sampling, laboratory analysis, field measurements, and reporting that will provide data of sufficient quality to evaluate the engineering controls on the site. The sample set, chemical analysis results, and interpretations must be based on data that meet or exceed quality assurance objectives established for the site. Quality assurance objectives are usually expressed in terms of precision, accuracy or bias, representativeness, completeness, comparability, and sensitivity of analysis. Variances from the quality assurance objectives at any stage of the investigation will result in the implementation of appropriate corrective measures and an assessment of the impact of corrective measures on the usability of the data.

4.1 PRECISION

Precision is a measure of the degree to which two or more measurements are in agreement. Field precision is assessed through the collection and measurement of field duplicates. Laboratory precision and sample heterogeneity also contribute to the uncertainty of field duplicate measurements. This uncertainty is taken into account during the data assessment process. The following field duplicate precision criteria will be applied:

Aqueous and Canister Air Samples

- Results greater than 5 times the laboratory reporting limit (RL) must have a relative percent difference (RPD) $\leq 30\%$.
- Results less than 5 times the RL must have an absolute difference $\leq \pm$RL.

Soil Samples

- Results greater than 5 times the laboratory RL must have a RPD $\leq 50\%$.
- Results less than 5 times the RL must have an absolute difference $\leq 2\times \pm$RL.

Soil Vapor Samples

- Results greater than 5 times the laboratory RL must have a RPD $\leq 50\%$.
- Results less than 5 times the RL must have an absolute difference $\leq 2\times \pm$RL.

RLs and method detection limits (MDL) are provided in Attachment B.

Laboratory precision is assessed through the analysis of matrix spike/matrix spike duplicates (MS/MSD), laboratory control sample/laboratory control sample duplicates (LCS/LCSD) and subsequent calculation of RPD. For outliers, if additional sample volume is present, the MS/MSD

should be reanalyzed and the RPD recomputed. If additional volume is not present, an evaluation will be performed to determine the extent of potential matrix interference.

4.2 ACCURACY

Accuracy is the measurement of the reproducibility of the sampling and analytical methodology. It should be noted that precise data may not be accurate data. For the purpose of this QAPP, bias is defined as the constant or systematic distortion of a measurement process, which manifests itself as a persistent positive or negative deviation from the known or true value. This may be due to (but not limited to) improper sample collection, sample matrix, poorly calibrated analytical or sampling equipment, or limitations or errors in analytical methods and techniques.

Accuracy in the field is assessed through the use of field and trip blanks and through compliance to all sample handling, preservation, and holding time requirements. All field and trip blanks should be non-detect when analyzed by the laboratory. Any contaminant detected in an associated field blank will be evaluated against laboratory blanks (preparation or method) and evaluated against field samples collected on the same day to determine potential for bias.

Laboratory accuracy is assessed by evaluating the percent recoveries of MS/MSD samples, LCS/LCSD, surrogate compound recoveries, internal standard area counts, initial and continuing calibrations, and the results of method, initial and continuing calibration blanks. MS/MSD, LCS/LCSD, and surrogate percent recoveries will be compared to either method-specific control limits or laboratory-derived control limits. Sample volume permitting, samples displaying outliers should be reanalyzed. All associated method blanks should be non-detect when analyzed by the laboratory.

4.3 REPRESENTATIVENESS

Representativeness expresses the degree to which data accurately and precisely represents a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition within a defined spatial and/or temporal boundary. Representativeness is dependent upon the adequate design of the sampling program and will be satisfied by ensuring that the scope of work is followed and that specified sampling and analysis techniques are used. This is performed by following applicable standard operating procedures (SOPs) and this QAPP. All field technicians will be given copies of appropriate documents prior to sampling events and are required to read, understand, and follow each document as it pertains to the tasks at hand.

Representativeness in the laboratory is ensured by compliance with nationally-recognized analytical methods, meeting sample holding times, and maintaining sample integrity while the samples are in the laboratory's possession. This is performed by following all applicable analytical

methods, laboratory-issued SOPs, the laboratory's Quality Assurance Manual, and this QAPP. The laboratory is required to be properly certified and accredited.

4.4 COMPLETENESS

Laboratory completeness is the ratio of total number of samples analyzed and verified as acceptable compared to the number of samples submitted to the fixed-base laboratory for analysis, expressed as a percent. Three measures of completeness are defined:

- Sampling completeness, defined as the number of valid samples collected relative to the number of samples planned for collection;
- Analytical completeness, defined as the number of valid sample measurements relative to the number of valid samples collected; and
- Overall completeness, defined as the number of valid sample measurements relative to the number of samples planned for collection.

Soil, groundwater and soil vapor data will meet a 90% completeness criterion. If the criterion is not met, sample results will be evaluated for trends in rejected and unusable data. The effect of unusable data required for a determination of compliance will also be evaluated.

4.5 COMPARABILITY

Comparability is an expression of the confidence with which one data set can be compared to another. Comparability is dependent upon the proper design of the sampling program and will be satisfied by ensuring that the sampling plan is followed and that sampling is performed according to the SOPs or other project-specific procedures. Analytical data will be comparable when similar sampling and analytical methods are used as documented in the QAPP. Comparability will be controlled by requiring the use of specific nationally-recognized analytical methods and requiring consistent method performance criteria. Comparability is also dependent on similar quality assurance objectives. Previously collected data will be evaluated to determine whether they may be combined with contemporary data sets.

4.6 SENSITIVITY

Sensitivity is the ability of the instrument or method to detect target analytes at the levels of interest. The project manager will select, with input from the laboratory and quality assurance personnel, sampling and analytical procedures that achieve the required levels of detection and quality control acceptance limits that meet established performance criteria. Concurrently, the project manager will select the level of data assessment to ensure that only data meeting the project DQOs are used in decision-making.

Field equipment will be used that can achieve the required levels of detection for analytical measurements in the field. In addition, the field sampling staff will collect and submit full volumes of samples as required by the laboratory for analysis, whenever possible. Full volume aliquots will help ensure achievement of the required limits of detection and allow for reanalysis if necessary.

Analytical methods and quality assurance parameters associated with the sampling program are presented in Attachment C. The frequency of associated field blanks, trip blanks and duplicate samples will be based on the recommendations listed in DER-10, and as described in Section 5.3.

Site-specific MS and MSD samples will be prepared and analyzed by the analytical laboratory by spiking an aliquot of submitted sample volume with analytes of interest. A MS/MSD analysis will be analyzed at a rate of 1 out of every 20 samples, or one per analytical batch. MS/MSD samples are only required for soil and groundwater samples.

5.0 SAMPLE COLLECTION AND FIELD DATA ACQUISITION PROCEDURES

Soil and groundwater sampling will be conducted in accordance with the established NYSDEC protocols contained in DER-10/Technical Guidance for Site Investigation and Remediation (May 2010). Soil vapor sampling will be conducted in accordance with NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2006, with updates February 2024). The following sections describe procedures to be followed for specific tasks.

5.1 FIELD DOCUMENTATION PROCEDURES

Field documentation procedures will include summarizing field data in field books and proper sample labeling. These procedures are described in the following sections.

5.1.1 Field Data and Notes

Field notebooks contain the documentary evidence regarding procedures conducted by field personnel. Hard cover, bound field notebooks will be used because of their compact size, durability, and secure page binding. The pages of the notebook will not be removed.

Entries will be made in waterproof, permanent blue or black ink. No erasures will be allowed. If an incorrect entry is made, the information will be crossed out with a single strike mark and the change initialed and dated by the team member making the change. Each entry will be dated. Entries will be legible and contain accurate and complete documentation of the individual or sampling team's activities or observations made. The level of detail will be sufficient to explain and reconstruct the activity conducted. Each entry will be signed by the person(s) making the entry.

The following types of information will be provided for each sampling task, as appropriate:

- Project name and number
- Reasons for being on-site or taking the sample(s)
- Date and time of activity
- Sample identification number(s)
- Geographical location of sampling points with references to the site, other facilities or a map coordinate system; sketches will be made in the field logbook when appropriate
- Physical location of sampling locations such as depth below ground surface

- Description of the method of sampling including procedures followed, equipment used and any departure from the specified procedures
- Description of the sample including physical characteristics, odor, etc.
- Readings obtained from health and safety equipment
- Weather conditions at the time of sampling and previous meteorological events that may affect the representative nature of a sample
- Photographic information including a brief description of what was photographed, the date and time, the compass direction of the picture and the number of the picture on the camera
- Other pertinent observations such as the presence of other persons on the site, actions by others that may affect performance of site tasks, etc.
- Names of sampling personnel and signature of persons making entries

Field records will also be collected on field data sheets including boring logs, which will be used for geologic and drilling data during soil boring activities. Field data sheets will include the project-specific number and stored in the field project files when not in use. At the completion of the field activities, the field data sheets will be maintained in the central project file.

5.1.2 Sample Labeling

Each sample collected will be assigned a unique identification number and abbreviation in accordance with the sample nomenclature guidance provided in the following table and the Standard Operating Procedure provided in Attachment D.

Sample Nomenclature Summary	
AA	Ambient Air
DUP	Field Duplicate
EB	Environmental Boring
LB	Langan Boring
SB	Soil Boring
FB	Field Blank
MW	Monitoring Well
SV	Soil Vapor
TB	Trip Blank
(#-#)	Depth Interval
MMDDYY	Date of Sampling

Each sample container will have a sample label affixed to the outside with the date and time of sample collection and project name. In addition, the label will contain the sample identification number, analysis required and chemical preservatives added, if any. All documentation will be completed in waterproof ink.

5.2 EQUIPMENT CALIBRATION AND PREVENTATIVE MAINTENANCE

A PID will be used during the sampling activities to evaluate work zone action levels, screen soil samples, and collect monitoring well headspace readings. Field calibration and/or field checking of the PID will be the responsibility of the field team leader and the Site Health & Safety Officer, and will be accomplished by following the procedures outlined in the operating manual for the instrument. At a minimum, field calibration and/or field equipment checking will be performed once daily, prior to use. Field calibration will be documented in the field notebook. Entries made into the logbook regarding the status of field equipment will include the following information:

- Date and time of calibration
- Type of equipment serviced and identification number (such as serial number)
- Reference standard used for calibration
- Calibration and/or maintenance procedure used
- Other pertinent information

A water quality meter (Horiba U-52 or similar) will be used during purging of groundwater to measure pH, specific conductance, temperature, dissolved oxygen, turbidity and oxidation-reduction-potential (ORP), every five minutes, or, depending on pump flow rate, after at least one full volume of the water quality meter flow through cell has passed through. A portable turbidity meter (LaMotte or similar) may also be used to measure turbidity. Water-quality meters should be calibrated and the results documented before use each day using standardized field calibration procedures and calibration checks.

Equipment that fails calibration or becomes inoperable during use will be removed from service and segregated to prevent inadvertent utilization. The equipment will be properly tagged to indicate that it is out of calibration. Such equipment will be repaired and recalibrated to the manufacturer's specifications by qualified personnel. Equipment that cannot be repaired will be replaced.

Off-site calibration and maintenance of field instruments will be conducted as appropriate throughout the duration of project activities. All field instrumentation, sampling equipment and accessories will be maintained in accordance with the manufacturer's recommendations and

specifications and established field equipment practice. Off-site calibration and maintenance will be performed by qualified personnel. A logbook will be kept to document that established calibration and maintenance procedures have been followed. Documentation will include both scheduled and unscheduled maintenance.

5.3 SAMPLE COLLECTION

Soil Samples

Soil samples will be visually classified and field screened using a PID to assess potential impacts from VOCs and for health and safety monitoring. Soil samples collected for analysis of VOCs will be collected using either En Core® or Terra Core® sampling equipment. For analysis of non-volatile parameters, samples will be homogenized and placed into glass jars. Samples will be collected with unused sterile sampling scoops or spoons and homogenized in unused sterile polyethylene zipper bags. After collection, all sample jars will be capped and securely tightened, and placed in iced coolers and maintained at 4°C ±2°C until they are transferred to the laboratory for analysis, in accordance with the procedures outlined in Sections 5.4 and 5.6. Analysis and/or extraction and digestion of collected soil samples will meet the holding times required for each analyte as specified in Attachment C. In addition, analysis of collected soil samples will meet all quality assurance criteria set forth by this QAPP and DER-10.

Groundwater Samples

Groundwater sampling will be conducted using low-flow sampling procedures following USEPA guidance ("Low Stress [low flow] Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells", EQASOP-GW4, dated September 19, 2017).

During purging, field parameters should be measured, including: water level drawdown, purge rate, pH, specific conductance, temperature, dissolved oxygen, turbidity and oxidation-reduction-potential (ORP), every five minutes using a water quality meter (YSI 6820 or similar) and a depth-to-water interface probe that should be decontaminated between wells. Samples should generally not be collected until the field parameters have stabilized. Field parameters will be considered stable once three sets of measurements are within ±0.1 standard units for pH, ±3% for conductivity and temperature, ±10 millivolts for ORP, and ±10% for turbidity and dissolved oxygen. Purge rates should be adjusted to keep the drawdown in the well to less than 0.3 feet, as practical. Additionally, an attempt should be made to achieve a stable turbidity reading of less than 10 Nephelometric Turbidity Units (NTU) prior to sampling. If the turbidity reading does not stabilize at reading of less than 10 NTU for a given well, then both filtered and unfiltered samples should be collected from that well. If necessary, field filtration should be performed using a 0.45 micron disposable in-line filter. Groundwater samples should be collected after parameters have

stabilized as noted above or the readings are within the precision of the meter. Deviations from the stabilization and drawdown criteria, if any, should be noted on the sampling logs.

Samples should be collected directly into laboratory-supplied jars. After collection, all sample jars will be capped and securely tightened, and placed in iced coolers and maintained at 4°C ±2°C until they are transferred to the laboratory for analysis, in accordance with the procedures outlined in Sections 5.4 and 5.6. Analysis and/or extraction and digestion of collected groundwater samples will meet the holding times required for each analyte as specified in Attachment C. In addition, analysis of collected groundwater samples will meet all quality assurance criteria set forth by this QAPP and DER-10.

Soil Vapor and Ambient Air Samples

Prior to soil vapor and ambient air sample collection, a pre-sampling inspection will be conducted to document chemicals and potential subsurface pathways at the site. The pre-sampling inspection will assess the potential for impacts from any chemical or petroleum storage within the on-site buildings. Soil vapor and ambient air samples will be collected into laboratory-supplied, batch certified-clean Summa® canisters calibrated for a sampling rate of eight hours. The pressure gauges on each calibrated flow controller should be monitored throughout sample collection. Sample collection should be stopped when the pressure reading reaches -4 mmHg.

Emerging Contaminant Samples

Soil and groundwater samples collected for analysis of per- and polyfluoroalkyl substances (PFAS) and 1,4-dioxane will be collected in accordance with the specialized protocol outlined in this section and the *Sampling, Analysis, and Assessment of Per- and Polyfuoroalkyl Substances (PFAS) under NYSDEC's Part 375 Remedial Programs*, issued by the NYSDEC in April 2023. Soil and groundwater samples collected from select sample locations will be analyzed for 1,4-dioxane by EPA Method 8270 and for PFAS by EPA Method 1633 Modified in accordance with the procedure outlined in Attachment E.

Soil samples will be homogenized and placed into glass jars. Samples will be collected with unused sterile sampling scoops or spoons. After collection, all sample jars will be capped and securely tightened, and placed in iced coolers and maintained at 4°C ±2°C until they are transferred to the laboratory for analysis.

Groundwater sampling will be performed using low-flow sampling procedures following USEPA guidance ("Low Stress [low flow] Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells", January 19, 2017). Groundwater samples will be collected using a peristaltic pump fitted with dedicated, non-Teflon high-density polyethylene (HDPE) tubing and using low-flow purging techniques to minimize drawdown. A Horiba U-52 (or

similar) will be used to monitor water quality parameters (pH, conductivity, temperature, dissolved oxygen, oxidation-reduction-potential (ORP), and turbidity. Groundwater samples will be collected after the parameters stabilized within about 10 percent of consecutive values, to the extent practical, and turbidity is below 10 nephelometric turbidity units (NTU).

Food and beverages will be prohibited near the sampling equipment. Additionally, no cosmetics, moisturizers, hand cream, sun screen or clothing materials containing Gore-Tex or Tyvek will be worn during sampling. Non-disposable components of the pump will be decontaminated with Alconox and water. Field personnel will wear nitrile gloves while collecting and handing soil and groundwater samples.

Sample Field Blanks, Equipment Blanks, Trip Blanks and Duplicates

Field blanks will be collected for quality assurance purposes at a rate of one per 20 investigative samples per matrix (soil and groundwater only). Field blanks will be obtained by pouring laboratory-demonstrated analyte-free water on or through a decontaminated sampling device following use and implementation of decontamination protocols. The water will be collected off of the sampling device into a laboratory-provided sample container for analysis. Field blank samples will be analyzed for the complete list of analytes on the day of sampling. To assess contamination resulting from sample transport, trip blanks will be collected at a rate of one per day if soil or groundwater samples are analyzed for VOCs during that day. Field blanks and equipment blanks collected for PFAS will be collected at a minimum of one per day or one per 20 investigative samples per matrix; whichever frequency is higher.

Equipment blanks will be collected for quality assurance purposes at a rate of one per day per matrix for soil and groundwater PFAS samples. Field blanks will be obtained by pouring laboratory-demonstrated PFAS-free water on or through a decontaminated sampling device following use and implementation of decontamination protocols. The water will be collected off of the sampling device into a laboratory-provided sample container for analysis.

Duplicate soil and groundwater samples will be collected and analyzed for quality assurance purposes. Duplicate samples will be collected at a frequency of 1 per 20 investigative samples per matrix and will be submitted to the laboratory as "blind" samples. If less than 20 samples are collected during a particular sampling event, one duplicate sample will be collected.

5.4 SAMPLE CONTAINERS AND HANDLING

Certified, commercially clean sample containers will be obtained from the analytical laboratory. If soil samples or groundwater are being collected, the laboratory will also prepare and supply the required trip blanks and field blank sample containers and reagent preservatives. Sample bottle containers, including the field blank containers, will be placed into plastic coolers by the

laboratory. These coolers will be received by the field sampling team within 24 hours of their preparation in the laboratory. Prior to the commencement of field work, Langan field personnel will fill the plastic coolers with ice in Ziploc® bags (or equivalent) to maintain a temperature of 4° ±2° C.

Soil and/or groundwater samples collected in the field for laboratory analysis will be placed directly into the laboratory-supplied sample containers. Samples will then be placed and stored on-ice in laboratory provided coolers until shipment to the laboratory. The temperature in the coolers containing samples and associated field blanks will be maintained at a temperature of 4°±2°C while on-site and during sample shipment to the analytical laboratory.

Soil and groundwater sampling for PFAS will be collected in accordance with EPA Method 1633 Field Sampling Guidelines. PFAS samples will be collected first in High Density Polyethylene (HDPE)/polypropylene containers using sampling equipment either made with stainless steel, HDPE, or polypropylene. Food and beverages will be prohibited near the sampling equipment. Additionally, no cosmetics, moisturizers, hand cream, sun screen or clothing materials containing Gore-Tex™ or Tyvek® will be worn during sampling.

Possession of samples collected in the field will be traceable from the time of collection until they are analyzed by the analytical laboratory or are properly disposed. Chain-of-custody procedures, described in Section 5.9, will be followed to maintain and document sample possession. Samples will be packaged and shipped as described in Section 5.6.

5.5 SAMPLE PRESERVATION

Sample preservation measures will be used in an attempt to prevent sample decomposition by contamination, degradation, biological transformation, chemical interactions and other factors during the time between sample collection and analysis. Preservation will commence at the time of sample collection and will continue until analyses are performed. Should chemical preservation be required, the analytical laboratory will add the preservatives to the appropriate sample containers before shipment to the office or field. Samples will be preserved according to the requirements of the specific analytical method selected, as shown in Attachment C.

5.6 SAMPLE SHIPMENT

5.6.1 Packaging

Soil and groundwater sample containers will be placed in plastic coolers. Ice in Ziploc® bags (or equivalent) will be placed around sample containers. Cushioning material will be added around the sample containers if necessary. Chains-of-custody and other paperwork will be placed in a Ziploc® bag (or equivalent) and placed inside the cooler. The cooler will be taped closed and custody seals will be affixed to one side of the cooler at a minimum. If the samples are being

shipped by an express delivery company (e.g. FedEx) then laboratory address labels will be placed on top of the cooler.

5.6.2 Shipping

Standard procedures to be followed for shipping environmental samples to the analytical laboratory are outlined below.

- All environmental samples will be transported to the laboratory by a laboratory-provided courier under the chain-of-custody protocols described in Section 5.9.
- Prior notice will be provided to the laboratory regarding when to expect shipped samples. If the number, type or date of shipment changes due to site constraints or program changes, the laboratory will be informed.

5.7 DECONTAMINATION PROCEDURES

5.7.1 Decontamination General Sample Collection

Decontamination procedures will be used for non-dedicated sampling equipment. Decontamination of field personnel is discussed in the site-specific sample Health and Safety Plan (HASP) included in Appendix C of the RIWP. Field sampling equipment that is to be reused will be decontaminated in the field in accordance with the following procedures:

1. Laboratory-grade glassware detergent and tap water scrub to remove visual contamination
2. Generous tap water rinse
3. Distilled/de-ionized water rinse

5.7.2 Decontamination for PFAS Sample Collection

In addition to general decontamination procedures are outlined in Section 5.7.1, sampling equipment will be thoroughly decontaminated before mobilization and between sample locations. Field sampling equipment, including water level indicators and other non-dedicated equipment, requires cleaning between uses. Non-dedicated equipment used for PFAS sampling will be rinsed using a three bucket rinse procedure. An about 3-gallon solution of decontamination fluid consisting of Alconox or Citranox and deionized (DI) water will be prepared in a 5-gallon bucket for the first equipment rinse. A second 5-gallon bucket will be filled with about 3 gallons of DI water for the second rinse. A third 5-gallon bucket will be filled with about 3 gallons of DI water for the final rinse. Powderless nitrile (non-latex) gloves will be donned during the handling of sampling equipment and sample containers. The Safety Data Sheets of detergents used in decontamination procedures will be reviewed to ensure fluoro-surfactants and 1,4-dioxane are

not listed as ingredients. Laboratory-verified PFAS-free water will be used as the final rinse during decontamination of sampling equipment

5.8 RESIDUALS MANAGEMENT

Debris (e.g., paper, plastic and disposable personal protective equipment) will be collected in plastic garbage bags and disposed of as non-hazardous industrial waste. Soil cuttings with no apparent staining, odors, or elevated PID readings will be used to backfill boring holes. Soil to be disposed off-site will be placed in 55-gallon, UN/Department of Transportation (DOT) approved drums. Decontamination and well development/purging fluids will be placed in DOT-approved fluid drums with closed tops. All drums will be properly labeled, sealed, and characterized as necessary.

If initial analytical data is insufficient to gain disposal facility acceptance, waste characterization samples will be analyzed for parameters that are typically required by disposal facilities, such as target compounds list (TCL) VOCs, semivolatile organic compounds (SVOCs), Resource Conservation and Recovery Act (RCRA) metals, polychlorinated biphenyls (PCBs), pesticides, herbicides, Toxicity Characteristic Leaching Procedure (TCLP) VOCs, TCLP SVOCs, TCLP metals, ignitability, corrosivity, reactivity, and paint filter. Additional sampling and analyses may be required based on the selected disposal facility.

Samples will be collected in accordance with the selected disposal facility's requirements and will be collected to be representative of the material requiring disposal at a frequency consistent with disposal facility requirements. It is anticipated that all drummed material will be transported off-site and disposed of at a permitted facility.

5.9 CHAIN OF CUSTODY PROCEDURES

A chain-of-custody protocol has been established for collected samples that will be followed during sample handling activities in both field and laboratory operations. The primary purpose of the chain-of-custody procedures is to document the possession of the samples from collection through shipping, storage and analysis to data reporting and disposal. Chain-of-custody refers to actual possession of the samples. Samples are considered to be in custody if they are within sight of the individual responsible for their security or locked in a secure location. Each person who takes possession of the samples, except the shipping courier, is responsible for sample integrity and safe keeping. Chain-of-custody procedures are provided below:

- Chain-of-custody will be initiated by the laboratory supplying the pre-cleaned and prepared sample containers. Chain-of-custody forms will accompany the sample containers.
- Following sample collection, the chain-of-custody form will be completed for the sample collected. The sample identification number, date and time of sample collection, analysis

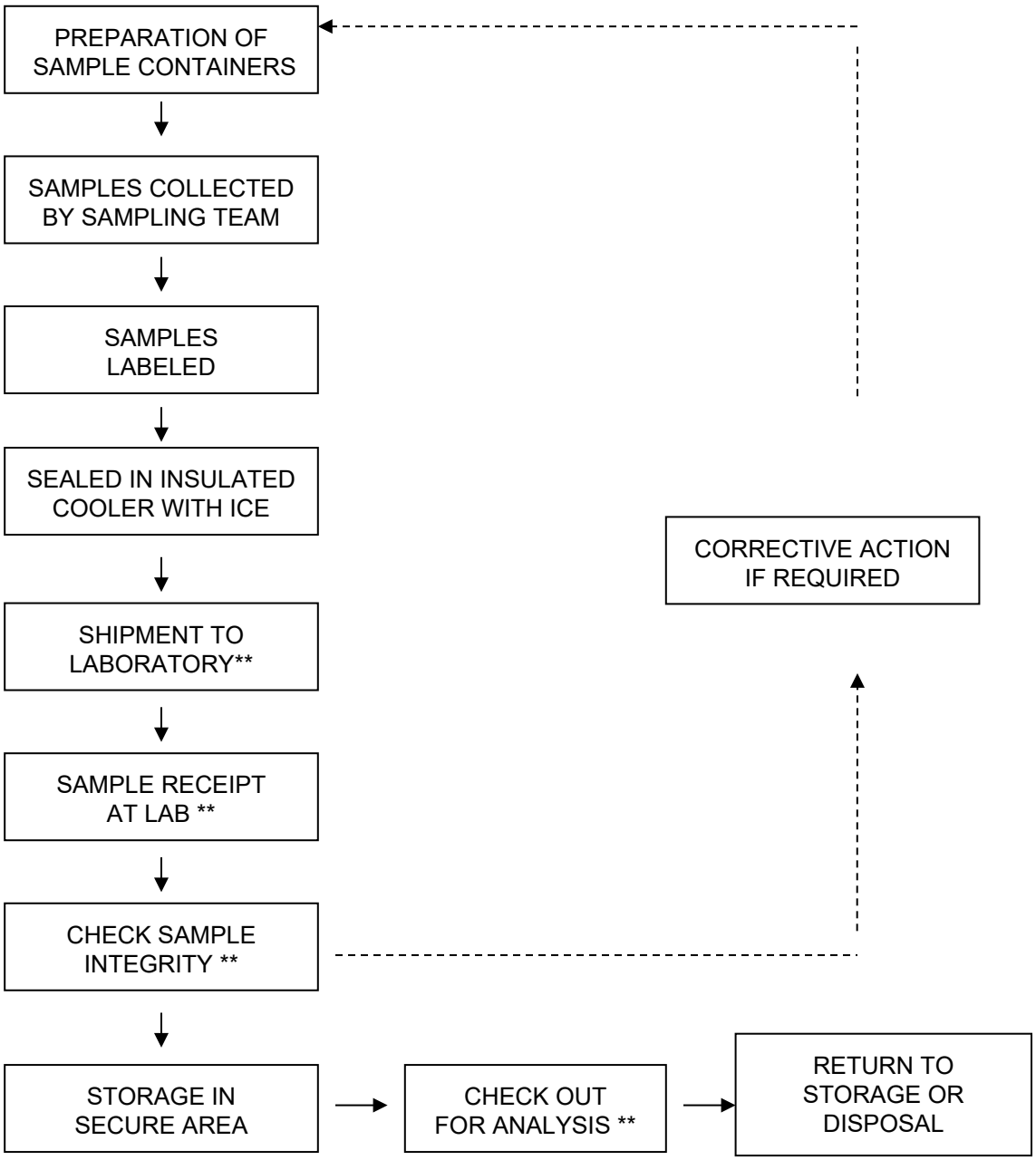
requested and other pertinent information (e.g., preservatives) will be recorded on the form. All entries will be made in waterproof, permanent blue or black ink.

- Langan field personnel will be responsible for the care and custody of the samples collected until the samples are transferred to another party, dispatched to the laboratory, or disposed. The sampling team leader will be responsible for enforcing chain-of-custody procedures during field work.
- When the form is full or when all samples have been collected that will fit in a single cooler, the sampling team leader will check the form for possible errors and sign the chain-of-custody form. Any necessary corrections will be made to the record with a single strike mark, dated, and initialed.

When soil and groundwater samples are collected, sample coolers will be accompanied by the chain-of-custody form, sealed in a Ziploc® bag (or equivalent) and placed on top of the samples or taped to the inside of the cooler lid. If applicable, a shipping bill will be completed for each cooler and the shipping bill number recorded on the chain-of-custody form.

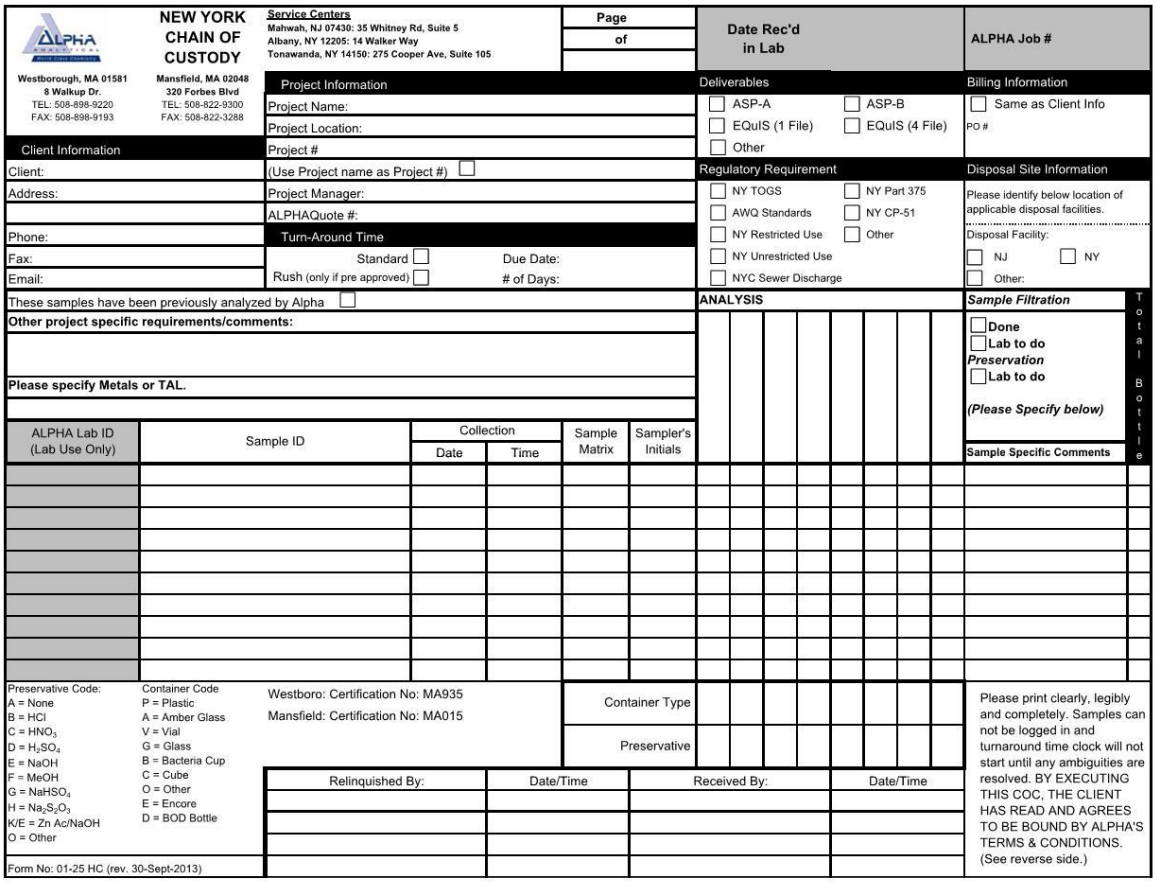
Samples will be packaged for shipment to the laboratory with the appropriate chain-of-custody form. A copy of the form will be retained by the sampling team for the project file and the original will be sent to the laboratory with the samples. Bills of lading will also be retained as part of the documentation for the chain-of-custody records, if applicable. When transferring custody of the samples, the individuals relinquishing and receiving custody of the samples will verify sample numbers and condition and will document the sample acquisition and transfer by signing and dating the chain-of-custody form. This process documents sample custody transfer from the sampler to the analytical laboratory. A flow chart showing a sample custody process is included as Figure 5.1, and an example chain-of-custody form for soil and groundwater samples is included as Figure 5.2.

Figure 5.1 Sample Custody



** REQUIRES SIGN-OFF ON CHAIN-OF-CUSTODY FORM

Figure 5.2 Sample Chain-of-Custody Form – Soil and Groundwater Samples



NEW YORK CHAIN OF CUSTODY

ALPHA Analytical Laboratories

Westborough, MA 01581 — 8 Walkup Dr. — TEL: 508-898-9220 — FAX: 508-898-9193

Mansfield, MA 02048 — 320 Forbes Blvd — TEL: 508-822-9300 — FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page of

Date Rec'd in Lab

ALPHA Job #

Client Information
Client:
Address:
Phone:
Fax:
Email:

Project Information
Project Name:
Project Location:
Project #
(Use Project name as Project #)
Project Manager:
ALPHAQuote #:

Turn-Around Time
Standard
Rush (only if pre approved)
Due Date:
# of Days:

Deliverables
ASP-A ASP-B
EQuIS (1 File) EQuIS (4 File)
Other

Regulatory Requirement
NY TOGS NY Part 375
AWQ Standards NY CP-51
NY Restricted Use Other
NY Unrestricted Use
NYC Sewer Discharge

Billing Information
Same as Client Info
PO #

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
NJ NY
Other:

These samples have been previously analyzed by Alpha

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
Done
Lab to do
Preservation
Lab to do
(Please Specify below)

Total Bottle

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Sample Specific Comments

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

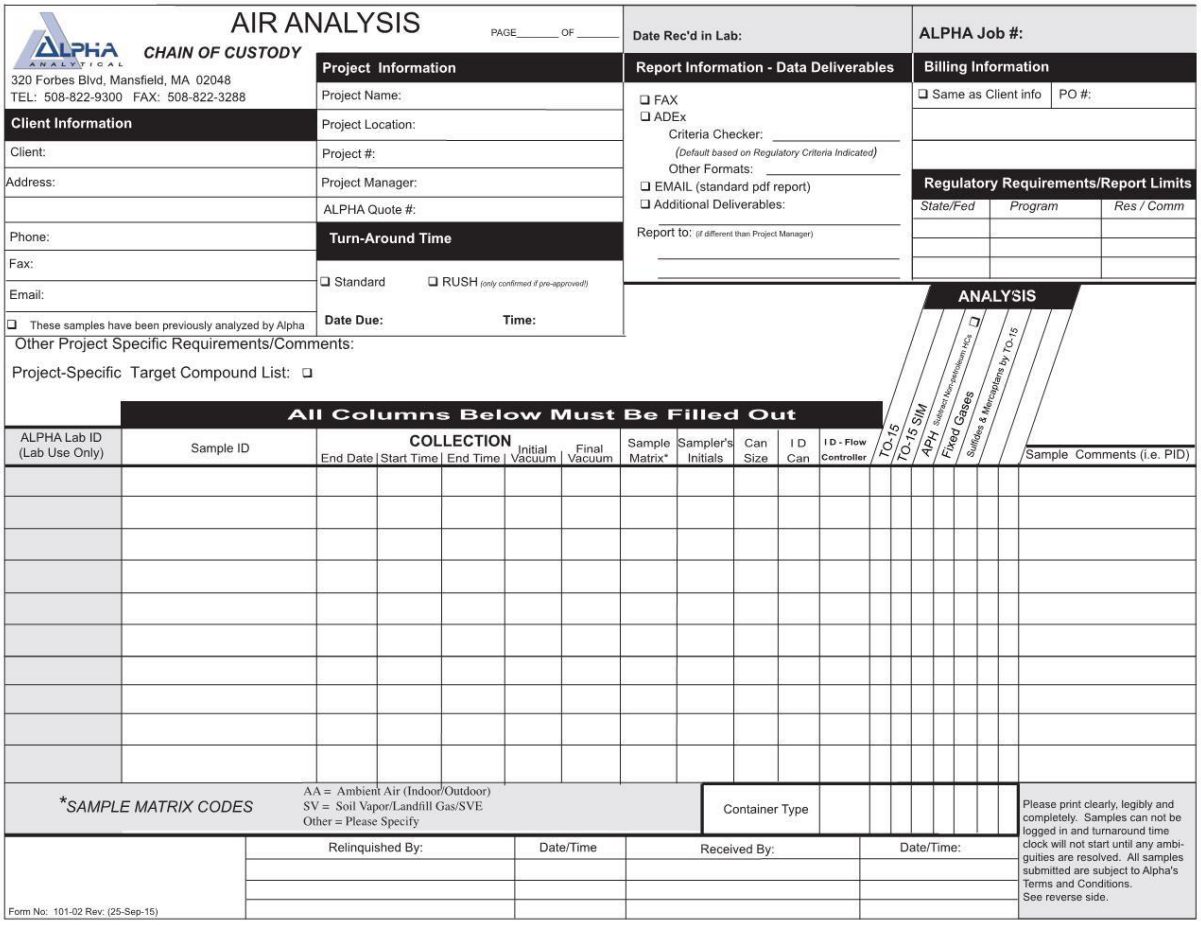
Container Type
Preservative

Relinquished By:	Date/Time	Received By:	Date/Time

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

Figure 5.3 Sample Chain-of-Custody Form – Soil Vapor and Ambient Air Samples



AIR ANALYSIS — CHAIN OF CUSTODY

PAGE_____ OF _____

ALPHA ANALYTICAL
320 Forbes Blvd, Mansfield, MA 02048
TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab:

ALPHA Job #:

Client Information
Client:
Address:
Phone:
Fax:
Email:
❑ These samples have been previously analyzed by Alpha

Project Information
Project Name:
Project Location:
Project #:
Project Manager:
ALPHA Quote #:

Turn-Around Time
❑ Standard ❑ RUSH (only confirmed if pre-approved!)
Date Due: Time:

Report Information - Data Deliverables
❑ FAX
❑ ADEx
Criteria Checker: _____
(Default based on Regulatory Criteria Indicated)
Other Formats: _____
❑ EMAIL (standard pdf report)
❑ Additional Deliverables:
Report to: (if different than Project Manager)

Billing Information
❑ Same as Client info PO #:

Regulatory Requirements/Report Limits

State/Fed	Program	Res / Comm

Other Project Specific Requirements/Comments:

Project-Specific Target Compound List: ❑

ANALYSIS ❑

TO-15 | TO-15 SIM | APH (Sulfate/Non-petroleum HCs) | Fixed Gases | Sulfides & Mercaptans by TO-15

All Columns Below Must Be Filled Out

ALPHA Lab ID (Lab Use Only)	Sample ID	COLLECTION End Date	Start Time	End Time	Initial Vacuum	Final Vacuum	Sample Matrix*	Sampler's Initials	Can Size	I D Can	I D - Flow Controller	Sample Comments (i.e. PID)

*SAMPLE MATRIX CODES
AA = Ambient Air (Indoor/Outdoor)
SV = Soil Vapor/Landfill Gas/SVE
Other = Please Specify

Container Type

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions.
See reverse side.

Relinquished By:	Date/Time	Received By:	Date/Time:

Form No: 101-02 Rev: (25-Sep-15)

Laboratory chain-of-custody will be maintained throughout the analytical processes as described in the laboratory's Quality Assurance Manual. The analytical laboratory will provide a copy of the chain-of-custody in the analytical data deliverable package. The chain-of-custody becomes the permanent record of sample handling and shipment.

5.10 LABORATORY SAMPLE STORAGE PROCEDURES

The subcontracted laboratory will use a laboratory information management system to track and schedule samples upon receipt by the analytical laboratories. Any sample anomalies identified during sample log-in must be evaluated on individual merit for the impact upon the results and the data quality objectives of the project. When irregularities do exist, the environmental consultant must be notified to discuss recommended courses of action and documentation of the issue must be included in the project file.

For samples requiring thermal preservation, the temperature of each cooler will be immediately recorded. Each sample and container will be will be assigned a unique laboratory identification number and secured within the custody room walk-in coolers designated for new samples. Samples will be, as soon as practical, disbursed in a manner that is functional for the operational team. The temperature of all coolers and freezers will be monitored and recorded using a certified temperature sensor. Any temperature excursions outside of acceptance criteria (i.e., below 2°C or above 6°C) will initiate an investigation to determine whether any samples may have been affected. Samples for VOCs will be maintained in satellite storage areas within the VOC laboratory. Following analysis, the laboratory's specific procedures for retention and disposal will be followed as specified in the laboratory's SOPs and/or Quality Assurance Manual.

5.11 SPECIAL CONSIDERATIONS FOR PFAS SAMPLE COLLECTION

Soil and groundwater samples collected for analysis of PFAS will be collected in accordance with the specialized protocol outlined in this section. Soil and groundwater samples collected from select sample locations will be analyzed for 1,4-dioxane by EPA Method 8270 SIM, and for PFAS by EPA Method 1633 Modified in accordance with the procedure outlined in Attachment E.

The following special considerations apply to the collection of groundwater samples for PFAS analysis to prevent cross-contamination:

- Field equipment will not contain Teflon®
- All sampling material will be made from stainless steel, HDPE, acetate, silicon, or polypropylene
- No waterproof field books will be used
- No plastic clipboards, binders, or spiral hard cover notebooks will be used

- No adhesives will be used
- No sharpies or permanent markers will be used; ball point pens are acceptable
- Aluminum foil will not be used
- PFAS samples will be kept in a separate cooler from other sampling containers
- Coolers will be filled only with regular ice

PFAS compound sampling protocols and laboratory SOP are provided in Attachment E.

5.12 PFAS TARGET ANALYTE LIST

DER has developed a PFAS target analyte list. At minimum, the laboratory will report the following PFAS target compounds:

Group	Analyte Name	Abbreviation	CAS #
Perfluoroalkyl carboxylates	Perfluorobutanoic acid	PFBA	375-22-4
	Perfluoropentanoic acid	PFPeA	2706-90-3
	Perfluorohexanoic acid	PFHxA	307-24-4
	Perfluoroheptanoic acid	PFHpA	375-85-9
	Perfluorooctanoic acid	PFOA	335-67-1
	Perfluorononanoic acid	PFNA	375-95-1
	Perfluorodecanoic acid	PFDA	335-76-2
	Perfluoroundecanoic acid	PFUA/PFUdA	2058-94-8
	Perfluorododecanoic acid	PFDoA	307-55-1
	Perfluorotridecanoic acid	PFTriA/PFTrDA	72629-94-8
	Perfluorotetradecanoic acid	PFTA/PFTeDA	376-06-7
Perfluoroalkyl sulfonates	Perfluorobutanesulfonic acid	PFBS	375-73-5
	Perfluoropentanesulfonic acid	PFPeS	2706-91-4
	Perfluorohexanesulfonic acid	PFHxS	355-46-4
	Perfluoroheptanesulfonic acid	PFHpS	375-92-8
	Perfluorooctanessulfonic acid	PFOS	1763-23-1
	Perfluorononanesulfonic acid	PFNS	68259-12-1
	Perfluorodecanesulfonic acid	PFDS	335-77-3
	Perfluorododecanesulfonic acid	PFDoS	79780-39-5
Fluorotelomer sulfonic acids	4:2 Fluorotelomer sulfonic acid	4:2 FTS	757124-72-4
	6:2 Fluorotelomer sulfonic acid	6:2 FTS	27619-97-2
	8:2 Fluorotelomer sulfonic acid	8:2 FTS	39108-34-4
Fluorotelomer carboxylic acids	3:3 Fluorotelomer carboxylic acid	3:3 FTCA	356-02-5
	5:3 Fluorotelomer carboxylic acid	5:3 FTCA	914637-49-3
	7:3 Fluorotelomer carboxylic acid	7:3 FTCA	812-70-4
Perfluorooctane-sulfonamides	Perfluroroctanesulfonamide	PFOSA	754-91-6
	N-methylperfluorooctane sulfonamide	NMeFOSA	31506-32-8
	N-ethylperfluorooctane sulfonamide	NEtFOSA	4151-50-2

Perfluorooctane-sulfonamidoacetic acids	N-methyl perfluorooctanesulfonamidoacetic acid	N-MeFOSAA	2355-31-9
	N-ethyl perfluorooctanesulfonamidoacetic acid	N-EtFOSAA	2991-50-6
Perfluorooctane sulfonamide ethanols	N-methylperfluorooctane sulfonamidoethanol	MeFOSE	24448-09-7
	N-ethylperfluorooctane sulfonamidoethanol	EtFOSE	1691-99-2
Ether sulfonic acids	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (F-53B Major)	9Cl-PF3ONS	756426-58-1
	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (F-53B Minor)	11Cl-PF3OUdS	763051-92-9
	Perfluoro(2-ethoxyethane) sulfonic acid	PFEESA	113507-82-7

6.0 DATA REDUCTION, VALIDATION, AND REPORTING

6.1 INTRODUCTION

Data collected during the field investigation will be reduced and reviewed by the laboratory quality assurance personnel, and a report on the findings will be tabulated in a standard format. The criteria used to identify and quantify the analytes will be those specified for the applicable methods in the USEPA SW-846 and subsequent updates. The data package provided by the laboratory will contain all items specified in the USEPA SW-846 methodology appropriate for the analyses to be performed, and be reported in standard format.

The completed copies of the chain-of-custody records (both external and internal) accompanying each sample from time of initial bottle preparation to completion of analysis shall be attached to the analytical reports.

6.2 DATA REDUCTION

The Analytical Services Protocol (ASP) Category B data packages and an electronic data deliverable (EDD) will be provided by the laboratory after receipt of a complete sample delivery group. The Project Manager will immediately arrange for archiving the results and preparation of result tables. These tables will form the database for assessment of the site contamination condition.

Each EDD deliverable must be formatted using a Microsoft Windows operating system and the NYSDEC data deliverable format for EQuIS. To avoid transcription errors, data will be loaded directly into the ASCII format from the laboratory information management system. If this cannot be accomplished, the consultant should be notified via letter of transmittal indicating that manual entry of data is required for a particular method of analysis. All EDDs must also undergo a quality control check by the laboratory before delivery. The original data, tabulations, and electronic media are stored in a secure and retrievable fashion.

The Project Manager or Task Manager will maintain close contact with the quality assurance reviewer to ensure all non-conformance issues are acted upon prior to data manipulation and assessment routines. Once the quality assurance review has been completed, the Project Manager may direct the Team Leaders or others to initiate and finalize the analytical data assessment.

6.3 DATA VALIDATION

Data validation will be performed in accordance with the USEPA Region 2 SOPs for data validation and USEPA's National Functional Guidelines for Organic and Inorganic Data Review. Tier 1 data validation (the equivalent of USEPA's Stage 2A validation) will be performed to evaluate data quality. Tier 1 data validation is based on completeness and compliance checks of sample-related QC results including:

- Holding times;
- Sample preservation;
- Blank results (method, trip, and field blanks);
- Surrogate recovery compounds and extracted internal standards (as applicable);
- LCS and LCSD recoveries and RPDs;
- MS and MSD recoveries and RPDs;
- Laboratory duplicate RPDs; and
- Field duplicate RPDs

A DUSR will be prepared by the data validator and reviewed by the Quality Assurance Manager before issuance. The DUSR will present the results of data validation, including a summary assessment of laboratory data packages, sample preservation and chain-of-custody procedures, and a summary assessment of precision, accuracy, representativeness, comparability, and completeness for each analytical method.

Based on the results of data validation, the validated analytical results reported by the laboratory will be assigned one of the following usability flags:

- "U" - Not detected. The associated number indicates the approximate sample concentration necessary to be detected significantly greater than the level of the highest associated blank;
- "UJ" - Not detected. Quantitation limit may be inaccurate or imprecise;
- "J" - Analyte is present. Reported value may be associated with a higher level of uncertainty than is normally expected with the analytical method
- "R" – Unreliable result; data is rejected or unusable. Analyte may or may not be present in the sample; and
- No Flag - Result accepted without qualification.

7.0 QUALITY ASSURANCE PERFORMANCE AUDITS AND SYSTEM AUDITS

7.1 INTRODUCTION

Quality assurance audits may be performed by the project quality assurance group under the direction and approval of the Quality Assurance Manager (QAM). These audits will be implemented to evaluate the capability and performance of project and subcontractor personnel, items, activities, and documentation of the measurement system(s). Functioning as an independent body and reporting directly to corporate quality assurance management, the QAM may plan, schedule, and approve system and performance audits based upon procedures customized to the project requirements. At times, the QAM may request additional personnel with specific expertise from company and/or project groups to assist in conducting performance audits. However, these personnel will not have responsibility for the project work associated with the performance audit.

7.2 SYSTEM AUDITS

System audits may be performed by the QAM or designated auditors, and encompass a qualitative evaluation of measurement system components to ascertain their appropriate selection and application. In addition, field and laboratory quality control procedures and associated documentation may be system audited. These audits may be performed once during the performance of the project. Additional audits may occur if conditions adverse to quality are detected or at the request of the Project Manager.

7.3 PERFORMANCE AUDITS

The laboratory may be required to conduct an analysis of Performance Evaluation samples or provide proof that Performance Evaluation samples submitted by USEPA or a state agency have been analyzed within the past twelve months.

7.4 FORMAL AUDITS

Formal audits refer to any system or performance audit that is documented and implemented by the quality assurance group. These audits encompass documented activities performed by qualified lead auditors to a written procedure or checklists to objectively verify that quality assurance requirements have been developed, documented, and instituted in accordance with contractual and project criteria. Formal audits may be performed on project and subcontractor work at various locations.

Audit reports will be written by auditors who have performed the site audit after gathering and evaluating all data. Items, activities, and documents determined by lead auditors to be in noncompliance shall be identified at exit interviews conducted with the involved management.

Non-compliances will be logged, and documented through audit findings, which are attached to and are a part of the integral audit report. These audit-finding forms are directed to management to satisfactorily resolve the noncompliance in a specified and timely manner.

The Project Manager has overall responsibility to ensure that all corrective actions necessary to resolve audit findings are acted upon promptly and satisfactorily. Audit reports must be submitted to the Project Manager within fifteen days of completion of the audit. Serious deficiencies will be reported to the Project Manager within 24 hours. All audit checklists, audit reports, audit findings, and acceptable resolutions are approved by the QAM prior to issue. Verification of acceptable resolutions may be determined by re-audit or documented surveillance of the item or activity. Upon verification acceptance, the QAM will close out the audit report and findings.

8.0 CORRECTIVE ACTION

8.1 INTRODUCTION

The following procedures have been established to ensure that conditions adverse to quality, such as malfunctions, deficiencies, deviations, and errors, are promptly investigated, documented, evaluated, and corrected.

8.2 PROCEDURE DESCRIPTION

When a significant condition adverse to quality is noted at a site, laboratory, or subcontractor location, the cause of the condition will be determined and corrective action will be taken to preclude repetition. Condition identification, cause, reference documents, and corrective action planned to be taken will be documented and reported to the QAM, Project Manager, Field Team Leader and involved contractor management, at a minimum. Implementation of corrective action is verified by documented follow-up action.

All project personnel have the responsibility, as part of the normal work duties, to promptly identify, solicit approved correction, and report conditions adverse to quality. Corrective actions will be initiated as follows:

- When predetermined acceptance standards are not attained;
- When procedure or data compiled are determined to be deficient;
- When equipment or instrumentation is found to be faulty;
- When samples and analytical test results are not clearly traceable;
- When quality assurance requirements have been violated;
- When designated approvals have been circumvented;
- As a result of system and performance audits;
- As a result of a management assessment;
- As a result of laboratory/field comparison studies; and
- As required by USEPA SW-846, and subsequent updates, or by the NYSDEC ASP.

Project management personnel, field investigation teams, remedial response planning personnel, and laboratory groups monitor ongoing work performance during the normal course of daily responsibilities. Work may be audited at project sites, laboratories, or contractor locations. Activities, or documents ascertained to be noncompliant with quality assurance requirements will be documented. Corrective actions will be mandated through audit finding sheets attached to the audit report. Audit findings are logged, maintained, and controlled by the Task Manager.

Personnel assigned to quality assurance functions will have the responsibility to issue and control Corrective Action Request (CAR) Forms (Figure 8.1 or similar by email). The CAR identifies the out-of-compliance condition, reference document(s), and recommended corrective action(s) to be administered. The CAR is issued to the personnel responsible for the affected item or activity. A copy is also submitted to the Project Manager. The individual to whom the CAR is addressed returns the requested response promptly to the quality assurance personnel, affixing his/her signature and date to the corrective action block, after stating the cause of the conditions and corrective action to be taken. The quality assurance personnel maintain the log for status of CARs, confirms the adequacy of the intended corrective action, and verifies its implementation. CARs will be retained in the project file for the records.

Any project personnel may identify noncompliance issues; however, the designated quality assurance personnel are responsible for documenting, numbering, logging, and verifying the close out action. The Project Manager will be responsible for ensuring that all recommended corrective actions are implemented, documented, and approved.

Figure 8.1 Correction Action Request Form

CORRECTIVE ACTION REQUEST
Number: _____ Date: _____
TO: _____ You are hereby requested to take corrective actions indicated below and as otherwise determined by you to (a) resolve the noted condition and (b) to prevent it from recurring. Your written response is to be returned to the project quality assurance manager by _____
CONDITION:
REFERENCE DOCUMENTS:
RECOMMENDED CORRECTIVE ACTIONS:
_____ _____ _____ _____ _____ _____ Originator Date Approval Date Approval Date
RESPONSE
CAUSE OF CONDITION
CORRECTIVE ACTION (A) RESOLUTION (B) PREVENTION (C) AFFECTED DOCUMENTS
C.A. FOLLOWUP: CORRECTIVE ACTION VERIFIED BY: _____ DATE:_____

9.0 REFERENCES

NYSDEC. Division of Environmental Remediation. DER-10/Technical Guidance for Site Investigation and Remediation, dated May 3, 2010.

USEPA, 2016. Low/Medium Volatile Data Validation. SOP No. HW-33A, Revision 1, dated September 2016. USEPA Region II.

USEPA, 2015. PCB Aroclor Data Validation. SOP No. HW-37A, Revision 0, dated July 2015. USEPA Region II.

USEPA, 2016. ICP-AES Data Validation. SOP No. HW-3a, Revision 1, dated September 2016. USEPA Region II.

USEPA, 2016. Mercury and Cyanide Data Validation. SOP No. HW-3c, Revision 1, dated September 2016. USEPA Region II.

USEPA, 2016. Pesticide Data Validation. SOP No. HW-36A, Revision 1, dated October 2016. USEPA Region II.

USEPA, 2016. Semivolatile Data Validation. SOP No. HW-35A, Revision 1, dated September 2016. USEPA Region II.

USEPA, 2016. Analysis of Volatile Organic Compounds in Air Contained in Canisters by Method TO-15, Revision 6, dated September 2016. USEPA Region II.

USEPA 2017. National Functional Guidelines for Superfund Organic Methods Data Review, Office of Superfund Remediation and Technology Innovation, EPA-540-R-2017-002, January 2017.

USEPA 2017b. National Functional Guidelines for Superfund Inorganic Methods Data Review, Office of Superfund Remediation and Technology Innovation, EPA-540-R-201 7-001, January 2017

ATTACHMENT A

RESUMES

ATTACHMENT B

LABORATORY REPORTING LIMITS AND METHOD DETECTION LIMITS

ATTACHMENT C

ANALYTICAL METHODS/
QUALITY ASSURANCE SUMMARY TABLE

ATTACHMENT D

SAMPLE NOMENCLATURE STANDARD OPERATING PROCEDURE

ATTACHMENT E

PFAS SAMPLING PROTOCOL AND LABORATORY SOP

MICHAEL D. BURKE, PG, CHMM, LEED AP

PRINCIPAL/VICE PRESIDENT

ENVIRONMENTAL ENGINEERING AND REMEDIATION

Mr. Burke is a geologist/environmental scientist whose practice involves site investigation and remediation, transactional due diligence, environmental site assessments, in-situ remedial technology, and manufactured gas plant (MGP) site characterization and remediation. His additional services include multi-media compliance audits, sub-slab depressurization system design, non-hazardous and hazardous waste management, emergency response, community air monitoring programs, environmental and geotechnical site investigations, and health and safety monitoring. He has experience with projects in the New York State Department of Environmental Conservation (NYSDEC) and New York State Brownfield Cleanup (NYS BCP) Programs; Inactive Hazardous Waste, and Spill Programs, and New York City Office of Environmental Remediation (OER) e-designated and New York City Voluntary Cleanup Program (NYC VCP) sites.

SELECTED PROJECTS

- 227-14 North Conduit Avenue, Industrial Wastewater Compliance, Jamaica, NY
- 420 Kent Avenue, NYS Brownfield Cleanup Program, Brooklyn, NY
- 572 Eleventh Avenue, NYC VCP, New York, NY
- Monian Site A, OER E-Designated Site, New York, NY
- 537 Sackett Street, Gowanus Canal Due Diligence/MGP Site, Brooklyn, NY
- ABC Blocks 25, 26 and 27, NYS Brownfield Cleanup Program Sites, Long Island City, NY
- 432 Rodney Street, NYS Brownfield Cleanup Program, Petroleum and Chlorinated Volatile Organic Compound Investigation and Remediation, Brooklyn, NY
- 787 Eleventh Avenue, NYS Brownfield Cleanup Program Site, New York, NY
- President Street at Gowanus Canal, NYS Brownfield Cleanup Program Site, Brooklyn, NY
- 22-36 Second Avenue at Gowanus Canal, NYS Brownfield Cleanup Program Site, Brooklyn, NY
- 563 Sacket Street, NYS Brownfield Cleanup Program Site, MGP Investigation, and Remediation, Brooklyn, NY
- 156-162 Perry Street, NYS Brownfield Cleanup Program Site, New York, NY
- Christopher and Weehawken Streets, NYS Brownfield Cleanup Program, New York, NY
- Phelps Dodge Block 2529 (Lots 40, 50, and 45), Inactive Hazardous Waste Disposal Site, Maspeth NY
- 42-50 24th Street, NYS Brownfield Cleanup Program Site, Long Island City, NY
- Storage Deluxe (163 6th Street), OER E-Designation Site, New York, NY

EDUCATION

M.S., Environmental Geology
Rutgers University

B.S., Geological Sciences
Rutgers University

B.S., Environmental Science
Rutgers University

PROFESSIONAL REGISTRATION

Professional Geologist (PG) in NY

Certified Hazardous Materials Manager – CHMM No. 15998

LEED Accredited Professional (LEED AP)

OSHA Certification for Hazardous Waste Site Supervisor

OSHA 29 CFR 1910.120 Certification for Hazardous Waste Operations and Emergency Response

NJDEP Certification for Community Noise Enforcement

AFFILIATIONS

New York State Council of Professional Geologists – Board of Directors

- Prospect Park Redevelopment, Landfill Reclamation, Prospect Park, NJ
- 431 Carroll Street, Gowanus Canal Due Diligence, Brooklyn, NY
- 76 4th Street Property, Gowanus Due Diligence, Brooklyn, NY
- Foxgate/MREC, Due Diligence and Solid Waste Compliance, Central Islip, NY
- 175-225 3rd Street at Gowanus Canal, NYS Brownfield Cleanup Program, Brooklyn, NY
- New York University Tandon School of Engineering, Spill Investigation/Remediation Dual Phase Recovery, and Laser Fluorescence Investigation, Brooklyn, NY
- 2420-2430 Amsterdam Avenue, NYS Brownfield Cleanup Program/Board of Standards and Appeals Variance, New York, NY
- 170 Amsterdam Avenue, NYC VCP, New York, NY
- 538-540 Hudson Street, NYS Brownfield Cleanup Program (Former Gas Station), New York, NY
- 234 Butler Street, Gowanus Canal Due Diligence, Brooklyn, NY
- 550 Clinton Street, NYS Brownfield Cleanup Program E-Designation, Brooklyn, NY
- 111 Leroy Street, OER E-Designation Site, New York, NY
- 335 Bond Street, NYS Brownfield Cleanup Program, New York, NY
- Gowanus Canal Northside, NYS BCP Former Fuel Oil Terminal, Brooklyn, NY
- Multiple Buildings, Major Oil Storage Facility, Gowanus Canal Location, Brooklyn, NY
- 197-205 Smith Street at Gowanus Canal, MGP Due Diligence, Brooklyn, NY
- 450 Union Street at Gowanus Canal, NYS Brownfield Cleanup Program, Brooklyn, NY
- 86 Fleet Place, NYC VCP E-Designation, Brooklyn, NY
- New York University College of Nursing at 433 1st Avenue, NYS BCP, Bronx, NY
- Retail Building at 225 3rd Street, Brooklyn, NY
- 29-37 41st Avenue, NYS Brownfield Cleanup Program, Long Island City, NY
- 43-01 22nd Street, NYS Brownfield Cleanup Program, Long Island City, NY
- Compliance Audit for NYU at Washington Square Park, New York, NY
- Former Watermark Locations, NYS Brownfield Cleanup Program, Chlorinated Volatile Organic Compound Investigation and Remediation; AS/SVE, Brooklyn, NY
- Former Gas Station (1525 Bedford Avenue), Brooklyn, NY
- NYS Brownfield Cleanup Program at 514 West 24th Street, New York, NY
- Gowanus Canal Due Diligence at 76 4th Street, Brooklyn, NY
- Urban Health Plan, Medical Building, NYS Brownfield Cleanup Program CVOC Investigation and Remediation, Bronx, NY
- 420 East 54th Street, NYS Spill Closure, New York, NY
- Equity Residential at 160 Riverside Boulevard, NYS Spill Closure, New York, NY
- 357-359 West Street and 156 Leroy Street, NYC VCP, New York, NY
- Emergency Spill Response at 322 West 57th Street, Investigation and Closure, New York, NY

New York Building Congress – Energy Committee

- Hurricane Sandy, Emergency Response at 21 West Street, New York, NY
- Hurricane Sandy, Emergency Response at 71 Pine Street, New York, NY
- Greenpoint Landing, NYC E-Designation, Brooklyn, NY
- 23-01 42nd Road, NYS Brownfield Cleanup Program, Long Island City, NY
- Greenpoint Waterfront Development, NYS Brownfield Cleanup Program, Brooklyn, NY
- 125th Street and Lenox Avenue, NYC VCP, New York, NY
- Whitehead Realty Solvent Site, Inactive Hazardous Waste site, CVOC, Investigation and Remediation, Brooklyn, NY
- SunCap Property Group Environmental On-Call Consulting, Various Locations, Nationwide
- Con Edison, Underground Storage Tank On-Call Contract, Five Boroughs of New York City, NY
- Con Edison, Construction Inspections On-Call Contract, Five Boroughs of New York City, NY
- Con Edison, Appendix B Spill Sites On-Call Contract, Five Boroughs of New York City, NY
- Meeker Avenue Plume Trackdown Site, Brooklyn, NY
- Distribution Facility, Superfund Redevelopment, Long Island City, NY
- Edison Properties, West 17th Street Development Site (Former MGP Site), New York, NY
- Con Edison, Governors Island Dielectric Fluid Spill, Investigation and Remediation, New York, NY
- 144-150 Barrow Street, NYS Brownfield Cleanup Program, New York, NY
- West 17th Street Development, NYS Brownfield Cleanup Program, MGP Investigation and Remediation, New York, NY
- Montefiore Medical Center, Emergency Response, PCB Remediation, Bronx, NY
- New York University, 4 Washington Square Village Fuel Oil Remediation, New York, NY
- NYCSCA, Proposed New York City School Construction Sites, Five Boroughs of New York City, NY
- Con Edison, East 60th Street Generating Station, New York, NY
- Residential Building at 82 Irving Place, Environmental Remediation, New York, NY
- 1113 York Avenue, Storage Tank Closures, New York, NY
- Peter Cooper Village/Stuyvesant Town, Phase I ESA, New York, NY
- Superior Ink, Waste Characterization and Remedial Action Plans, New York, NY
- Bronx Mental Health Redevelopment Project, Phase I ESA, Bronx, NY
- 2950 Atlantic Avenue, Site Characterization Investigation, Brooklyn, NY
- Con Edison, East 74th Street Generating Station, Sediment Investigation, New York, NY
- Con Edison, First Avenue Properties, New York, NY
- Queens West Development Corp. Stage II, Long Island City, NY
- Article X Project Environmental Reviews, Various New York State Electrical Generation Sites, NY
- Poletti Generating Station, Astoria, NY

- Arthur Kill Generating Station, Staten Island, NY
- Distribution Facility, Phase I & Phase II ESA and Regulatory Compliance, Bohemia, NY
- Huntington Station Superfund Due Diligence, Huntington Station, NY
- Garvies Point Bulkhead, Glen Cove, NY
- Johnson & Hoffman Metal Stamping Facility, Environmental Compliance, Carle Place, NY
- Floral Park Storage Facility, Phase I and Phase II ESA
- Garden City Phase I ESAs at two sites, including part of a Superfund Site, Garden City, NY
- Huntington Station Storage Facility, Phase I and II ESA, Huntington Station, NY
- Trevor Day School, NYS Spill Site Expert Testimony, New York, NY
- 320 West Fordham Road, Bronx, NY
- Bedford Union Armory, NYS Brownfield Cleanup Program, Brooklyn, NY

SELECTED PUBLICATIONS, REPORTS, AND PRESENTATIONS

Burke, M., Ciambruschini, S., Nicholls, G., Tashji, A., Vaidya, S., “Redeveloping a Remediated MGP Site”, MGP Symposium 2019, Atlantic City, NJ.

PAUL MCMAHON, PE

SENIOR PROJECT MANAGER

ENVIRONMENTAL ENGINEERING

Mr. McMahon is an environmental engineer working in the NY Metro area. He has experience with projects in the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP), Voluntary Cleanup Program (VCP) and Spill Programs, and New York City Office of Environmental Remediation (NYCOER) "E" Designated and VCP sites. His field experience includes conducting Phase II Environmental Site Investigations (ESI), remedial investigations, and indoor air quality analysis Investigations, and performing remediation oversight. Mr. McMahon's most recent experience includes the preparation of investigation reports and investigation work plans, management of NYSDEC BCP remediation projects and NYSDEC spill remediation projects, design of submembrane depressurization systems, and development of remediation work plans.

EDUCATION

M.E., Environmental Engineering
Manhattan College

B.S., Civil Engineering
Washington University in St. Louis

PROFESSIONAL REGISTRATION

Professional Engineer (PE) in NY

10-Hour OSHA

40-Hour OSHA HAZWOPER

SELECTED PROJECTS

- 55 Bank Street, NYSDEC BCP Site Remediation Project Management,
  White Plains, NY
- 23-01 42nd Road, NYSDEC BCP Site Remediation Oversight and Project Management, Long Island City, NY
- 23-10 Queens Plaza South, NYSDEC BCP Remedial Investigation Report, Interim Remedial Measures Work Plan, and Remediation Project Management, Long Island City, NY
- Brooklyn Navy Yard Dock 72, Management of Environmental Oversight in Accordance with NYSDEC VCP Site Management Plan, Brooklyn, NY
- Purves Street Development, Tall Residential Building, Phase II ESI/NYSDEC BCP Remedial Investigation, Remedial Action Work Plan, and Site Remediation Project Management, Long Island City, NY
- 27-21 44th Drive, NYSDEC BCP Site Remediation Project Management, Long Island City, NY
- NYU Tandon School of Engineering, NYSDEC Spill Investigation and Remediation Project Management, Brooklyn, NY
- Parcel B West, East Harlem, Affordable Housing Development, NYSDEC BCP Remedial Investigation, Remedial Action Work Plan, and Site Remediation Project Management, New York, NY
- 267-273 West 87th Street, NYSDEC BCP Remedial Investigation and Remedial Action Work Plan, and Site Remediation Project Management, New York, NY
- DuPont-Stauffer Landfill, NYSDEC Superfund Site, Site Management Plan Compliance, Newburgh, NY
- 190 Riverside Drive, Fuel Oil Spill Emergency Response, Site Investigation, and Remediation, New York, NY
- 473 President Street, NYSDEC BCP Remedial Investigation, Interim Remedial Measures, Project Management, Brooklyn, NY

- 175-225 3rd Street, NYSDEC BCP Remedial Investigation, Project Management, Brooklyn, NY
- 322 West 57th Street, Sheffield Building Oversight of Emergency Spill Response, New York, NY
- Hudson Yards Terra Firma and Hudson Yards Platform, Construction Oversight and Community Air Monitoring Program, New York, NY
- Columbia University Manhattanville Redevelopment, Remediation Oversight and Community Air Monitoring Program, New York, NY

KIMBERLY NAGOTKO

PROJECT GEOLOGIST

ENVIRONMENTAL ENGINEERING

Ms. Nagotko is an environmental geologist with seven years of experience supporting environmental oversight and remediation projects in New York. She has performed environmental field work including tailgate safety talks, daily field inspections, photo documentation of work, daily reporting, and enforcing compliance with contract and construction documents. Ms. Nagotko is an experienced project manager whose responsibilities now include supervising regulated remediation projects, reviewing contractor submittals, reviewing/commenting on project schedule and contractor pay items, preparing/reviewing remedial designs and regulatory reports, and coordinating across multiple agencies, clients and contractors.

SELECTED PROJECTS

- West 17th Street Development, Soil Boring Sampling, New York, NY
- Hudson Yards Redevelopment Tower D, Environmental Oversight, Vapor Barrier Inspections, Data and Daily Field Report Management, New York, NY
- Hudson Yards Redevelopment, Platform - Special Inspections, Environmental Oversight, Platform Special Inspections, Data and Daily Field Report Management, New York, NY
- 520 West 41st Street, Environmental Oversight, New York, NY
- International Leadership Bronx Charter School, Environmental Oversight, Bronx, NY
- NYCEDC Manhattan Greenway – Harlem River, New York, NY
- Residential Tower (West 52nd Street), Environmental Oversight, Truck Manifestation, and Reporting, New York, NY
- Greenpoint Landing, Figure and Table Compilation, and Reporting, Brooklyn, NY
- 60 West Street, Soil Boring, Groundwater, and Soil Vapor Sampling, Vacuum Test, Reporting, New York, NY
- 86 Fleet Place, Environmental Oversight, Soil Sampling, Truck Manifestation, Brooklyn, NY
- 295 Locust Avenue, Environmental Oversight, Bronx, NY
- 38-01 Queens Boulevard, Soil Vapor, Ambient Air, and Groundwater Sampling, Long Island City, NY
- 615 10th Avenue, Soil and Groundwater Drum Manifestation, New York, NY
- 2413 3rd Avenue, Soil Boring, Groundwater, and Soil Vapor Sampling, Bronx, NY
- 55 Bank Street Development, Environmental Oversight, Truck Manifestation, White Plains, NY
- 357-359 West Street & 156 Leroy Street, Groundwater Sampling, New York, NY
- Riverside Center Parcel 1, 3 & 4, Environmental Oversight, New York, NY
- Brooklyn Cultural District Apartments (aka BCD:A), Environmental Oversight, Truck Manifestation, Brooklyn, NY

EDUCATION

B.S., Environmental Geology
Bucknell University

PROFESSIONAL REGISTRATION

10-Hour OSHA

40-Hour HAZWOPER

AFFILIATIONS

Geological Society of America-Northeastern Division

- 29-37 41st Avenue, Groundwater and Soil Vapor Sampling, Long Island City, NY
- 2350 Lafayette Ave, Soil Vapor Sampling, Bronx, NY
- Expansion of OEM Headquarters, Soil Drum Sampling, Brooklyn, NY
- 86 Warren Street, Soil Boring and Groundwater Sampling, New York, NY
- 20 Water Grant Street – Palisades Point, Yonkers, NY, Environmental Oversight, Soil and Groundwater Sampling, Data and Daily Field Report Management

SELECTED PUBLICATIONS, REPORTS, AND PRESENTATIONS

Depositional Age Constraints and Detrital Zircon Age Populations Within the Paleoproterozoic Manzono Group, Central new Mexico What is the Provenance of "Yavapi" Age (CA 1.70-1.78) Detritus in the Manatzal Crustal Province (With D. Christopher, J. Jones and A. Luther) Geological Society of America Abstracts

GABRIELLA DEGENNARO

SENIOR STAFF SCIENTIST

ENVIRONMENTAL ENGINEERING

Ms. DeGennaro is a staff scientist with experience in environmental consulting and engineering and is proficient in GIS software, Microsoft Word, and Excel. Ms. DeGennaro has performed a variety of field work, including remedial investigations, and remedial oversight and implementation. She has supported environmental remediation projects in the greater New York City area that require soil classification, soil, groundwater, and soil vapor field sampling, waste characterizations, reviewing analytical laboratory reports, air monitoring, remedial oversight, and troubleshooting instruments used in the field. She has also supported geotechnical explorations in Northern Utah area. Ms. DeGennaro also worked in a laboratory to advance research studies throughout her undergraduate career.

EDUCATION

B.S., Environmental Science
Marist College

PROFESSIONAL REGISTRATION

OSHA 40-Hour

OSHA 10-Hour

AFFILIATIONS

American Geophysical Union

Marist College Hydrology Lab Group

Hudson River Environmental Society

Hudson River Watershed Alliance

SELECTED PROJECTS

- 23-15 44th Road, Long Island City, NY
- 250 Water Street, New York, NY
- 335 Bond Street, Brooklyn, NY
- President Street Properties, Brooklyn, NY
- 420-416 Kent Avenue, Brooklyn, NY
- 88 9th Street, Brooklyn, NY
- Governors Island Center for Climate Change, Governors Island, NY
- 76 Eleventh Avenue, New York, NY
- 7-13 Washington Square North, New York, NY
- Trevor Day School, New York, NY
- East Adams Redevelopment, Syracuse, NY
- Bronx Point, Bronx, NY
- Confidential Project, Utah
- Marist College Physical Plant, Poughkeepsie, NY*
- Hiking Trail Construction, Poughkeepsie, NY*
- COVID-19 Wastewater Surveillance, Poughkeepsie, NY*
- Flood Mitigation, Rhinebeck, NY*

SELECTED PUBLICATIONS, REPORTS, AND PRESENTATIONS

DeGennaro, G., Klos, Z., "Identifying Microplastic Accumulation Hotspots in Sediment Associated with Stream Outflows into Lakes and Estuaries", American Geophysical Union, Annual Fall Meeting, 2020; Hudson River Watershed Association, 2021; Frontiers in Hydrology, 2022.

Alder-Colvin, J., DeGennaro G., Klos, Z., "The Ecohydrology of Japanese Knotweed, Biological Invasions Note"- American Geophysical Union, Annual Fall Meeting, 2021.

**Projects represent experience with a previous firm*

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Langan Engineering & Environmental

TCL Volatiles - EPA 8260D/5035 High&Low (SOIL)

Holding Time: 14 days
Container/Sample Preservation: 1 - 1 Vial MeOH/2 Vial Water

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Methylene chloride	75-09-2	10	0.816	ug/kg	70-130	30	70-130	30	30			
1,1-Dichloroethane	75-34-3	1.5	0.2952	ug/kg	70-130	30	70-130	30	30			
Chloroform	67-66-3	1.5	0.3246	ug/kg	70-130	30	70-130	30	30			
Carbon tetrachloride	56-23-5	1	0.2112	ug/kg	70-130	30	70-130	30	30			
1,2-Dichloropropane	78-87-5	3.5	0.255	ug/kg	70-130	30	70-130	30	30			
Dibromochloromethane	124-48-1	1	0.3078	ug/kg	70-130	30	70-130	30	30			
1,1,2-Trichloroethane	79-00-5	1.5	0.393	ug/kg	70-130	30	70-130	30	30			
Tetrachloroethene	127-18-4	1	0.3062	ug/kg	70-130	30	70-130	30	30			
Chlorobenzene	108-90-7	1	0.1862	ug/kg	70-130	30	70-130	30	30			
Trichlorofluoromethane	75-69-4	5	0.3914	ug/kg	70-139	30	70-139	30	30			
1,2-Dichloroethane	107-06-2	1	0.2274	ug/kg	70-130	30	70-130	30	30			
1,1,1-Trichloroethane	71-55-6	1	0.2698	ug/kg	70-130	30	70-130	30	30			
Bromodichloromethane	75-27-4	1	0.3848	ug/kg	70-130	30	70-130	30	30			
trans-1,3-Dichloropropene	10061-02-6	1	0.3006	ug/kg	70-130	30	70-130	30	30			
cis-1,3-Dichloropropene	10061-01-5	1	0.2672	ug/kg	70-130	30	70-130	30	30			
1,1-Dichloropropene	563-58-6	5	0.4556	ug/kg	70-130	30	70-130	30	30			
Bromoform	75-25-2	4	0.4954	ug/kg	70-130	30	70-130	30	30			
1,1,2,2-Tetrachloroethane	79-34-5	1	0.2402	ug/kg	70-130	30	70-130	30	30			
Benzene	71-43-2	1	0.2972	ug/kg	70-130	30	70-130	30	30			
Toluene	108-88-3	1.5	0.2416	ug/kg	70-130	30	70-130	30	30			
Ethylbenzene	100-41-4	1	0.2214	ug/kg	70-130	30	70-130	30	30			
Chloromethane	74-87-3	5	0.7832	ug/kg	52-130	30	52-130	30	30			
Bromomethane	74-83-9	2	0.6478	ug/kg	57-147	30	57-147	30	30			
Vinyl chloride	75-01-4	2	0.7534	ug/kg	67-130	30	67-130	30	30			
Chloroethane	75-00-3	2	0.4384	ug/kg	50-151	30	50-151	30	30			
1,1-Dichloroethene	75-35-4	1	0.2598	ug/kg	65-135	30	65-135	30	30			
trans-1,2-Dichloroethene	156-60-5	1.5	0.3916	ug/kg	70-130	30	70-130	30	30			
Trichloroethene	79-01-6	1	0.224	ug/kg	70-130	30	70-130	30	30			
1,2-Dichlorobenzene	95-50-1	5	0.3642	ug/kg	70-130	30	70-130	30	30			
1,3-Dichlorobenzene	541-73-1	5	0.3996	ug/kg	70-130	30	70-130	30	30			
1,4-Dichlorobenzene	106-46-7	5	0.4198	ug/kg	70-130	30	70-130	30	30			
Methyl tert butyl ether	1634-04-4	2	0.487	ug/kg	66-130	30	66-130	30	30			
p/m-Xylene	179601-23-1	2	0.43	ug/kg	70-130	30	70-130	30	30			
o-Xylene	95-47-6	2	0.4174	ug/kg	70-130	30	70-130	30	30			
cis-1,2-Dichloroethene	156-59-2	1	0.3014	ug/kg	70-130	30	70-130	30	30			
Dibromomethane	74-95-3	10	0.4348	ug/kg	70-130	30	70-130	30	30			
Styrene	100-42-5	2	0.726	ug/kg	70-130	30	70-130	30	30			
Dichlorodifluoromethane	75-71-8	10	0.3888	ug/kg	30-146	30	30-146	30	30			
Acetone	67-64-1	10	3.235	ug/kg	54-140	30	54-140	30	30			
Carbon disulfide	75-15-0	10	0.3754	ug/kg	59-130	30	59-130	30	30			
2-Butanone	78-93-3	10	3.8772	ug/kg	70-130	30	70-130	30	30			
Vinyl acetate	108-05-4	10	0.751	ug/kg	70-130	30	70-130	30	30			

Please Note that the RL information provided in this table is calculated using a 100% Solids factor (Soil/Solids only)
Please Note that the information provided in this table is subject to change at anytime at the discretion of Alpha Analytical, Inc

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Langan Engineering & Environmental

TCL Volatiles - EPA 8260D/5035 High&Low (SOIL)

Holding Time: 14 days
Container/Sample Preservation: 1 - 1 Vial MeOH/2 Vial Water

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
4-Methyl-2-pentanone	108-10-1	10	0.8164	ug/kg	70-130	30	70-130	30	30			
1,2,3-Trichloropropane	96-18-4	10	0.387	ug/kg	68-130	30	68-130	30	30			
2-Hexanone	591-78-6	10	0.3964	ug/kg	70-130	30	70-130	30	30			
Bromochloromethane	74-97-5	5	0.3022	ug/kg	70-130	30	70-130	30	30			
2,2-Dichloropropane	594-20-7	5	0.795	ug/kg	70-130	30	70-130	30	30			
1,2-Dibromoethane	106-93-4	4	0.4088	ug/kg	70-130	30	70-130	30	30			
1,3-Dichloropropane	142-28-9	5	0.5656	ug/kg	69-130	30	69-130	30	30			
1,1,1,2-Tetrachloroethane	630-20-6	1	0.3284	ug/kg	70-130	30	70-130	30	30			
Bromobenzene	108-86-1	5	0.2202	ug/kg	70-130	30	70-130	30	30			
n-Butylbenzene	104-51-8	1	0.3144	ug/kg	70-130	30	70-130	30	30			
sec-Butylbenzene	135-98-8	1	0.2756	ug/kg	70-130	30	70-130	30	30			
tert-Butylbenzene	98-06-6	5	0.6032	ug/kg	70-130	30	70-130	30	30			
o-Chlorotoluene	95-49-8	5	0.313	ug/kg	70-130	30	70-130	30	30			
p-Chlorotoluene	106-43-4	5	0.3608	ug/kg	70-130	30	70-130	30	30			
1,2-Dibromo-3-chloropropane	96-12-8	5	0.8366	ug/kg	68-130	30	68-130	30	30			
Hexachlorobutadiene	87-68-3	5	0.4582	ug/kg	67-130	30	67-130	30	30			
Isopropylbenzene	98-82-8	1	0.177	ug/kg	70-130	30	70-130	30	30			
p-Isopropyltoluene	99-87-6	1	0.2732	ug/kg	70-130	30	70-130	30	30			
Naphthalene	91-20-3	5	0.7696	ug/kg	70-130	30	70-130	30	30			
Acrylonitrile	107-13-1	10	0.3756	ug/kg	70-130	30	70-130	30	30			
n-Propylbenzene	103-65-1	1	0.284	ug/kg	70-130	30	70-130	30	30			
1,2,3-Trichlorobenzene	87-61-6	5	0.4034	ug/kg	70-130	30	70-130	30	30			
1,2,4-Trichlorobenzene	120-82-1	5	0.7898	ug/kg	70-130	30	70-130	30	30			
1,3,5-Trimethylbenzene	108-67-8	5	0.6016	ug/kg	70-130	30	70-130	30	30			
1,2,4-Trimethylbenzene	95-63-6	5	0.573	ug/kg	70-130	30	70-130	30	30			
1,4-Dioxane	123-91-1	100	17.4	ug/kg	65-136	30	65-136	30	30			
1,4-Diethylbenzene	105-05-5	4	0.2	ug/kg	70-130	30	70-130	30	30			
4-Ethyltoluene	622-96-8	4	0.097	ug/kg	70-130	30	70-130	30	30			
1,2,4,5-Tetramethylbenzene	95-93-2	4	0.181	ug/kg	70-130	30	70-130	30	30			
Ethyl ether	60-29-7	5	0.3798	ug/kg	67-130	30	67-130	30	30			
trans-1,4-Dichloro-2-butene	110-57-6	5	1.478	ug/kg	70-130	30	70-130	30	30			
1,2-Dichloroethane-d4	*17060-07-0*									*70-130*		
2-Chloroethoxyethane												
Toluene-d8	*2037-26-5*									*70-130*		
4-Bromofluorobenzene	*460-00-4*									*70-130*		
Dibromofluoromethane	*1868-53-7*									*70-130*		

Please Note that the RL information provided in this table is calculated using a 100% Solids factor (Soil/Solids only)
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Langan Engineering & Environmental

NYTCL Semivolatiles - EPA 8270E (SOIL)

Holding Time: 14 days
Container/Sample Preservation: 1 - Glass 250ml/8oz unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Acenaphthene	83-32-9	133.6	17.3012	ug/kg	31-137	50	31-137	50	50			
1,2,4-Trichlorobenzene	120-82-1	167	19.1048	ug/kg	38-107	50	38-107	50	50			
Hexachlorobenzene	118-74-1	100.2	18.704	ug/kg	40-140	50	40-140	50	50			
Bis(2-chloroethyl)ether	111-44-4	150.3	22.6452	ug/kg	40-140	50	40-140	50	50			
2-Chloronaphthalene	91-58-7	167	16.5664	ug/kg	40-140	50	40-140	50	50			
1,2-Dichlorobenzene	95-50-1	167	29.9932	ug/kg	40-140	50	40-140	50	50			
1,3-Dichlorobenzene	541-73-1	167	28.724	ug/kg	40-140	50	40-140	50	50			
1,4-Dichlorobenzene	106-46-7	167	29.1582	ug/kg	28-104	50	28-104	50	50			
3,3'-Dichlorobenzidine	91-94-1	167	44.422	ug/kg	40-140	50	40-140	50	50			
2,4-Dinitrotoluene	121-14-2	167	33.4	ug/kg	40-132	50	40-132	50	50			
2,6-Dinitrotoluene	606-20-2	167	28.6572	ug/kg	40-140	50	40-140	50	50			
Fluoranthene	206-44-0	100.2	19.1716	ug/kg	40-140	50	40-140	50	50			
4-Chlorophenyl phenyl ether	7005-72-3	167	17.869	ug/kg	40-140	50	40-140	50	50			
4-Bromophenyl phenyl ether	101-55-3	167	25.4842	ug/kg	40-140	50	40-140	50	50			
Bis(2-chloroisopropyl)ether	108-60-1	200.4	28.5236	ug/kg	40-140	50	40-140	50	50			
Bis(2-chloroethoxy)methane	111-91-1	180.36	16.7334	ug/kg	40-117	50	40-117	50	50			
Hexachlorobutadiene	87-68-3	167	24.4488	ug/kg	40-140	50	40-140	50	50			
Hexachlorocyclopentadiene	77-47-4	477.62	151.302	ug/kg	40-140	50	40-140	50	50			
Hexachloroethane	67-72-1	133.6	27.0206	ug/kg	40-140	50	40-140	50	50			
Isophorone	78-59-1	150.3	21.6766	ug/kg	40-140	50	40-140	50	50			
Naphthalene	91-20-3	167	20.3406	ug/kg	40-140	50	40-140	50	50			
Nitrobenzene	98-95-3	150.3	24.716	ug/kg	40-140	50	40-140	50	50			
NitrosoDiPhenylAmine(NDPA)/DPA	86-30-6	133.6	19.0046	ug/kg	36-157	50	36-157	50	50			
n-Nitrosodi-n-propylamine	621-64-7	167	25.7848	ug/kg	32-121	50	32-121	50	50			
Bis(2-Ethylhexyl)phthalate	117-81-7	167	57.782	ug/kg	40-140	50	40-140	50	50			
Butyl benzyl phthalate	85-68-7	167	42.084	ug/kg	40-140	50	40-140	50	50			
Di-n-butylphthalate	84-74-2	167	31.6632	ug/kg	40-140	50	40-140	50	50			
Di-n-octylphthalate	117-84-0	167	56.78	ug/kg	40-140	50	40-140	50	50			
Diethyl phthalate	84-66-2	167	15.4642	ug/kg	40-140	50	40-140	50	50			
Dimethyl phthalate	131-11-3	167	35.07	ug/kg	40-140	50	40-140	50	50			
Benzo(a)anthracene	56-55-3	100.2	18.8042	ug/kg	40-140	50	40-140	50	50			
Benzo(a)pyrene	50-32-8	133.6	40.748	ug/kg	40-140	50	40-140	50	50			
Benzo(b)fluoranthene	205-99-2	100.2	28.1228	ug/kg	40-140	50	40-140	50	50			
Benzo(k)fluoranthene	207-08-9	100.2	26.72	ug/kg	40-140	50	40-140	50	50			
Chrysene	218-01-9	100.2	17.368	ug/kg	40-140	50	40-140	50	50			
Acenaphthylene	208-96-8	133.6	25.7848	ug/kg	40-140	50	40-140	50	50			
Anthracene	120-12-7	100.2	32.565	ug/kg	40-140	50	40-140	50	50			
Benzo(ghi)perylene	191-24-2	133.6	19.6392	ug/kg	40-140	50	40-140	50	50			
Fluorene	86-73-7	167	16.2324	ug/kg	40-140	50	40-140	50	50			
Phenanthrene	85-01-8	100.2	20.3072	ug/kg	40-140	50	40-140	50	50			
Dibenzo(a,h)anthracene	53-70-3	100.2	19.3052	ug/kg	40-140	50	40-140	50	50			
Indeno(1,2,3-cd)Pyrene	193-39-5	133.6	23.2798	ug/kg	40-140	50	40-140	50	50			

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Langan Engineering & Environmental

NYTCL Semivolatiles - EPA 8270E (SOIL)

Holding Time: 14 days
Container/Sample Preservation: 1 - Glass 250ml/8oz unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Pyrene	129-00-0	100.2	16.5998	ug/kg	35-142	50	35-142	50	50			
Biphenyl	92-52-4	380.76	21.71	ug/kg	37-127	50	37-127	50	50			
4-Chloroaniline	106-47-8	167	30.394	ug/kg	40-140	50	40-140	50	50			
2-Nitroaniline	88-74-4	167	32.1976	ug/kg	47-134	50	47-134	50	50			
3-Nitroaniline	99-09-2	167	31.4962	ug/kg	26-129	50	26-129	50	50			
4-Nitroaniline	100-01-6	167	69.138	ug/kg	41-125	50	41-125	50	50			
Dibenzofuran	132-64-9	167	15.7982	ug/kg	40-140	50	40-140	50	50			
2-Methylnaphthalene	91-57-6	200.4	20.1736	ug/kg	40-140	50	40-140	50	50			
Acetophenone	98-86-2	167	20.6746	ug/kg	14-144	50	14-144	50	50			
2,4,6-Trichlorophenol	88-06-2	100.2	31.6632	ug/kg	30-130	50	30-130	50	50			
P-Chloro-M-Cresol	59-50-7	167	24.883	ug/kg	26-103	50	26-103	50	50			
2-Chlorophenol	95-57-8	167	19.7394	ug/kg	25-102	50	25-102	50	50			
2,4-Dichlorophenol	120-83-2	150.3	26.8536	ug/kg	30-130	50	30-130	50	50			
2,4-Dimethylphenol	105-67-9	167	55.11	ug/kg	30-130	50	30-130	50	50			
2-Nitrophenol	88-75-5	360.72	62.792	ug/kg	30-130	50	30-130	50	50			
4-Nitrophenol	100-02-7	233.8	68.136	ug/kg	11-114	50	11-114	50	50			
2,4-Dinitrophenol	51-28-5	801.6	77.822	ug/kg	4-130	50	4-130	50	50			
4,6-Dinitro-o-cresol	534-52-1	434.2	80.16	ug/kg	10-130	50	10-130	50	50			
Pentachlorophenol	87-86-5	133.6	36.74	ug/kg	17-109	50	17-109	50	50			
Phenol	108-95-2	167	25.217	ug/kg	26-90	50	26-90	50	50			
2-Methylphenol	95-48-7	167	25.885	ug/kg	30-130.	50	30-130.	50	50			
3-Methylphenol/4-Methylphenol	106-44-5	240.48	26.1522	ug/kg	30-130	50	30-130	50	50			
2,4,5-Trichlorophenol	95-95-4	167	31.9972	ug/kg	30-130	50	30-130	50	50			
Benzoic Acid	65-85-0	541.08	169.004	ug/kg	10-110	50	10-110	50	50			
Benzyl Alcohol	100-51-6	167	51.102	ug/kg	40-140	50	40-140	50	50			
Carbazole	86-74-8	167	16.2324	ug/kg	54-128	50	54-128	50	50			
1,4-Dioxane	123-91-1	25.05	7.682	ug/kg	40-140	50	40-140	50	50			
2-Fluorophenol	*367-12-4*									*25-120*		
Phenol-d6	*13127-88-3*									*10-120*		
Nitrobenzene-d5	*4165-60-0*									*23-120*		
2-Fluorobiphenyl	*321-60-8*									*30-120*		
2,4,6-Tribromophenol	*118-79-6*									*10-136*		
4-Terphenyl-d14	*1718-51-0*									*18-120*		

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Langan Engineering & Environmental

TCL Pesticides - EPA 8081B (SOIL)

Holding Time: 14 days
Container/Sample Preservation: 1 - Glass 250ml/8oz unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Delta-BHC	319-86-8	1.6008	0.31349	ug/kg	30-150	30	30-150	50	50			
Lindane	58-89-9	0.667	0.298149	ug/kg	30-150	30	30-150	50	50			
Alpha-BHC	319-84-6	0.667	0.189428	ug/kg	30-150	30	30-150	50	50			
Beta-BHC	319-85-7	1.6008	0.60697	ug/kg	30-150	30	30-150	50	50			
Heptachlor	76-44-8	0.8004	0.358846	ug/kg	30-150	30	30-150	50	50			
Aldrin	309-00-2	1.6008	0.563615	ug/kg	30-150	30	30-150	50	50			
Heptachlor epoxide	1024-57-3	3.0015	0.90045	ug/kg	30-150	30	30-150	50	50			
Endrin	72-20-8	0.667	0.27347	ug/kg	30-150	30	30-150	50	50			
Endrin aldehyde	7421-93-4	2.001	0.70035	ug/kg	30-150	30	30-150	50	50			
Endrin ketone	53494-70-5	1.6008	0.412206	ug/kg	30-150	30	30-150	50	50			
Dieldrin	60-57-1	1.0005	0.50025	ug/kg	30-150	30	30-150	50	50			
4,4'-DDE	72-55-9	1.6008	0.370185	ug/kg	30-150	30	30-150	50	50			
4,4'-DDD	72-54-8	1.6008	0.570952	ug/kg	30-150	30	30-150	50	50			
4,4'-DDT	50-29-3	1.6008	1.28731	ug/kg	30-150	30	30-150	50	50			
Endosulfan I	959-98-8	1.6008	0.378189	ug/kg	30-150	30	30-150	50	50			
Endosulfan II	33213-65-9	1.6008	0.534934	ug/kg	30-150	30	30-150	50	50			
Endosulfan sulfate	1031-07-8	0.667	0.317492	ug/kg	30-150	30	30-150	50	50			
Methoxychlor	72-43-5	3.0015	0.9338	ug/kg	30-150	30	30-150	50	50			
Toxaphene	8001-35-2	30.015	8.4042	ug/kg	30-150	30	30-150	50	50			
cis-Chlordane	5103-71-9	2.001	0.557612	ug/kg	30-150	30	30-150	50	50			
trans-Chlordane	5103-74-2	2.001	0.528264	ug/kg	30-150	30	30-150	50	50			
Chlordane	57-74-9	13.34	5.30265	ug/kg	30-150	30	30-150	50	50			
2,4,5,6-Tetrachloro-m-xylene	*877-09-8*									*30-150*		
Decachlorobiphenyl	*2051-24-3*									*30-150*		

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Langan Engineering & Environmental

Herbicides -EPA 8151A (SOIL)

Holding Time: 14 days
Container/Sample Preservation: 1 - Glass 250ml/8oz unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
2,4-D	94-75-7	0.1665	0.0104895	mg/kg	30-150	30	30-150	30	30			
2,4,5-T	93-76-5	0.1665	0.0051615	mg/kg	30-150	30	30-150	30	30			
2,4,5-TP (Silvex)	93-72-1	0.1665	0.0044289	mg/kg	30-150	30	30-150	30	30			
DCAA	*19719-28-9*									*30-150*		

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TCL PCBs - EPA 8082A (SOIL)

Holding Time: 365 days
Container/Sample Preservation: 1 - Glass 250ml/8oz unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Aroclor 1016	12674-11-2	50	4.44	ug/kg	40-140	50	40-140	50	50			
Aroclor 1221	11104-28-2	50	5.01	ug/kg	40-140	50	40-140	50	50			
Aroclor 1232	11141-16-5	50	10.6	ug/kg	40-140	50	40-140	50	50			
Aroclor 1242	53469-21-9	50	6.74	ug/kg	40-140	50	40-140	50	50			
Aroclor 1248	12672-29-6	50	7.5	ug/kg	40-140	50	40-140	50	50			
Aroclor 1254	11097-69-1	50	5.47	ug/kg	40-140	50	40-140	50	50			
Aroclor 1260	11096-82-5	50	9.24	ug/kg	40-140	50	40-140	50	50			
Aroclor 1262	37324-23-5	50	6.35	ug/kg	40-140	50	40-140	50	50			
Aroclor 1268	11100-14-4	50	5.18	ug/kg	40-140	50	40-140	50	50			
PCBs, Total	1336-36-3	50	4.44	ug/kg				50	50			
2,4,5,6-Tetrachloro-m-xylene	*877-09-8*									*30-150*		
Decachlorobiphenyl	*2051-24-3*									*30-150*		

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METALS by 6010D (SOIL)

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria	Holding Time	Container
Aluminum, Total	7429-90-5	4	1.08	mg/kg	48-151		75-125	20	20		180 days	1 - Metals Only-Glass 60mL/2oz unpreserved
Antimony, Total	7440-36-0	2	0.152	mg/kg	1-208		75-125	20	20		180 days	1 - Metals Only-Glass 60mL/2oz unpreserved
Arsenic, Total	7440-38-2	0.4	0.0832	mg/kg	79-121		75-125	20	20		180 days	1 - Metals Only-Glass 60mL/2oz unpreserved
Barium, Total	7440-39-3	0.4	0.0696	mg/kg	83-117		75-125	20	20		180 days	1 - Metals Only-Glass 60mL/2oz unpreserved
Beryllium, Total	7440-41-7	0.2	0.0132	mg/kg	83-117		75-125	20	20		180 days	1 - Metals Only-Glass 60mL/2oz unpreserved
Cadmium, Total	7440-43-9	0.4	0.0392	mg/kg	83-117		75-125	20	20		180 days	1 - Metals Only-Glass 60mL/2oz unpreserved
Calcium, Total	7440-70-2	4	1.4	mg/kg	81-119		75-125	20	20		180 days	1 - Metals Only-Glass 60mL/2oz unpreserved
Chromium, Total	7440-47-3	0.4	0.0384	mg/kg	80-120		75-125	20	20		180 days	1 - Metals Only-Glass 60mL/2oz unpreserved
Cobalt, Total	7440-48-4	0.8	0.0664	mg/kg	84-115		75-125	20	20		180 days	1 - Metals Only-Glass 60mL/2oz unpreserved
Copper, Total	7440-50-8	0.4	0.1032	mg/kg	81-118		75-125	20	20		180 days	1 - Metals Only-Glass 60mL/2oz unpreserved
Iron, Total	7439-89-6	2	0.3612	mg/kg	45-155		75-125	20	20		180 days	1 - Metals Only-Glass 60mL/2oz unpreserved
Lead, Total	7439-92-1	2	0.1072	mg/kg	81-117		75-125	20	20		180 days	1 - Metals Only-Glass 60mL/2oz unpreserved
Magnesium, Total	7439-95-4	4	0.616	mg/kg	76-124		75-125	20	20		180 days	1 - Metals Only-Glass 60mL/2oz unpreserved
Manganese, Total	7439-96-5	0.4	0.0636	mg/kg	81-117		75-125	20	20		180 days	1 - Metals Only-Glass 60mL/2oz unpreserved
Nickel, Total	7440-02-0	1	0.0968	mg/kg	83-117		75-125	20	20		180 days	1 - Metals Only-Glass 60mL/2oz unpreserved
Potassium, Total	7440-09-7	100	5.76	mg/kg	71-129		75-125	20	20		180 days	1 - Metals Only-Glass 60mL/2oz unpreserved
Selenium, Total	7782-49-2	0.8	0.1032	mg/kg	78-122		75-125	20	20		180 days	1 - Metals Only-Glass 60mL/2oz unpreserved
Silver, Total	7440-22-4	0.2	0.1132	mg/kg	75-124		75-125	20	20		180 days	1 - Metals Only-Glass 60mL/2oz unpreserved
Sodium, Total	7440-23-5	80	1.26	mg/kg	72-127		75-125	20	20		180 days	1 - Metals Only-Glass 60mL/2oz unpreserved
Thallium, Total	7440-28-0	0.8	0.126	mg/kg	80-120		75-125	20	20		180 days	1 - Metals Only-Glass 60mL/2oz unpreserved
Vanadium, Total	7440-62-2	0.4	0.0812	mg/kg	78-122		75-125	20	20		180 days	1 - Metals Only-Glass 60mL/2oz unpreserved
Zinc, Total	7440-66-6	2	0.1172	mg/kg	82-118		75-125	20	20		180 days	1 - Metals Only-Glass 60mL/2oz unpreserved

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METALS by 7471B (SOIL)

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria	Holding Time	Container
Mercury, Total	7439-97-6	0.08	0.05216	mg/kg	72-128		80-120	20	20		28 days	1 - Metals Only-Glass 60mL/2oz unpreserved

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WETCHEM (SOIL)

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Method	Holding Time	Container
Chromium, Hexavalent	18540-29-9	0.8	0.16	mg/kg	80-120	20	75-125	20	20	7196A	30 days	1 - Glass 120ml/4oz unpreserved
Cyanide, Total	57-12-5	1	0.212	mg/kg	80-120	35	75-125	35	35	9010C/9012B	14 days	1 - Glass 250ml/8oz unpreserved

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PFAAs via EPA 1633 (Draft) (SOIL)

Holding Time: 90 days
Container/Sample Preservation: 1 - Plastic 8oz unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Perfluorobutanoic Acid (PFBA)	375-22-4	0.8	0.0504	ng/g	40-150	30	40-150	30	30			
Perfluoropentanoic Acid (PFPeA)	2706-90-3	0.4	0.056	ng/g	40-150	30	40-150	30	30			
Perfluorobutanesulfonic Acid (PFBS)	375-73-5	0.2	0.0432	ng/g	40-150	30	40-150	30	30			
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	757124-72-4	0.8	0.0808	ng/g	40-150	30	40-150	30	30			
Perfluorohexanoic Acid (PFHxA)	307-24-4	0.2	0.0464	ng/g	40-150	30	40-150	30	30			
Perfluoropentanesulfonic Acid (PFPeS)	2706-91-4	0.2	0.0232	ng/g	40-150	30	40-150	30	30			
Perfluoroheptanoic Acid (PFHpA)	375-85-9	0.2	0.0232	ng/g	40-150	30	40-150	30	30			
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	0.2	0.0592	ng/g	40-150	30	40-150	30	30			
Perfluorooctanoic Acid (PFOA)	335-67-1	0.2	0.052	ng/g	40-150	30	40-150	30	30			
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	27619-97-2	0.8	0.28	ng/g	40-150	30	40-150	30	30			
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	0.2	0.0368	ng/g	40-150	30	40-150	30	30			
Perfluorononanoic Acid (PFNA)	375-95-1	0.2	0.0784	ng/g	40-150	30	40-150	30	30			
Perfluorooctanesulfonic Acid (PFOS)	1763-23-1	0.2	0.0792	ng/g	40-150	30	40-150	30	30			
Perfluorodecanoic Acid (PFDA)	335-76-2	0.2	0.0752	ng/g	40-150	30	40-150	30	30			
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	39108-34-4	0.8	0.3872	ng/g	40-150	30	40-150	30	30			
Perfluorononanesulfonic Acid (PFNS)	68259-12-1	0.2	0.0424	ng/g	40-150	30	40-150	30	30			
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSA	2355-31-9	0.2	0.1	ng/g	40-150	30	40-150	30	30			
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	0.2	0.0512	ng/g	40-150	30	40-150	30	30			
Perfluorodecanesulfonic Acid (PFDS)	335-77-3	0.2	0.032	ng/g	40-150	30	40-150	30	30			
Perfluorooctanesulfonamide (FOSA)	754-91-6	0.2	0.0432	ng/g	40-150	30	40-150	30	30			
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	2991-50-6	0.2	0.0824	ng/g	40-150	30	40-150	30	30			
Perfluorododecanoic Acid (PFDoA)	307-55-1	0.2	0.0408	ng/g	40-150	30	40-150	30	30			
Perfluorotridecanoic Acid (PFTrDA)	72629-94-8	0.2	0.0528	ng/g	40-150	30	40-150	30	30			
Perfluorotetradecanoic Acid (PFTA)	376-06-7	0.2	0.1064	ng/g	40-150	30	40-150	30	30			
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Pr	13252-13-6	0.8	0.0984	ng/g	40-150	30	40-150	30	30			
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	919005-14-4	0.8	0.1464	ng/g	40-150	30	40-150	30	30			
Perfluorododecane Sulfonic Acid (PFDoDS)	79780-39-5	0.2	0.0384	ng/g	40-150	30	40-150	30	30			
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF	756426-58-1	0.8	0.196	ng/g	40-150	30	40-150	30	30			
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl	763051-92-9	0.8	0.1672	ng/g	40-150	30	40-150	30	30			
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	31506-32-8	0.2	0.1	ng/g	40-150	30	40-150	30	30			
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	4151-50-2	0.2	0.112	ng/g	40-150	30	40-150	30	30			
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	24448-09-7	2	0.2504	ng/g	40-150	30	40-150	30	30			
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	1691-99-2	2	0.5104	ng/g	40-150	30	40-150	30	30			
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	377-73-1	0.4	0.0408	ng/g	40-150	30	40-150	30	30			
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	863090-89-5	0.4	0.0312	ng/g	40-150	30	40-150	30	30			
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	113507-82-7	0.4	0.0832	ng/g	40-150	30	40-150	30	30			
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	151772-58-6	0.4	0.0952	ng/g	40-150	30	40-150	30	30			
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	356-02-5	1	0.144	ng/g	40-150	30	40-150	30	30			
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	914637-49-3	5	0.5048	ng/g	40-150	30	40-150	30	30			
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	812-70-4	5	1.76	ng/g	40-150	30	40-150	30	30			
Perfluoro[13C4]Butanoic Acid (MPFBA)	*NONE*									*20-150*		
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	*NONE*									*20-150*		

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PFAAs via EPA 1633 (Draft) (SOIL)

Holding Time: 90 days
Container/Sample Preservation: 1 - Plastic 8oz unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	*NONE*									*20-150*		
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-	*NONE*									*20-150*		
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	*NONE*									*20-150*		
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	*NONE*									*20-150*		
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	*NONE*									*20-150*		
Perfluoro[13C8]Octanoic Acid (M8PFOA)	*NONE*									*20-150*		
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-	*NONE*									*20-150*		
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	*NONE*									*20-150*		
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	*NONE*									*20-150*		
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	*NONE*									*20-150*		
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-	*NONE*									*20-150*		
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid	*NONE*									*20-150*		
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	*NONE*									*20-150*		
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	*NONE*									*20-150*		
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (	*NONE*									*20-150*		
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	*NONE*									*20-150*		
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	*NONE*									*20-150*		
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-1	*NONE*									*20-150*		
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (d3-NMeFOSA)	*NONE*									*20-150*		
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (d5-NEtFOSA)	*NONE*									*20-150*		
2-(N-Methyl-d3-Perfluoro-1-Octanesulfonamido)ethan-d4-o	*1265205-95-5*									*20-150*		
2-(N-Ethyl-d5-Perfluoro-1-Octanesulfonamido)ethan-d4-ol (	*NONE*									*20-150*		

Please Note that the RL information provided in this table is calculated using a 100% Solids factor ***(Soil/Solids only)***
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ATTACHMENT B

GROUNDWATER SAMPLES
LABORATORY REPORTING LIMITS AND METHOD DETECTION LIMITS

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Langan Engineering & Environmental

TCL Volatiles - EPA 8260D (WATER)

Holding Time: 14 days
Container/Sample Preservation: 3 - Vial HCl preserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Methylene chloride	75-09-2	2.5	0.7	ug/l	70-130	20	70-130	20	20			
1,1-Dichloroethane	75-34-3	2.5	0.7	ug/l	70-130	20	70-130	20	20			
Chloroform	67-66-3	2.5	0.7	ug/l	70-130	20	70-130	20	20			
Carbon tetrachloride	56-23-5	0.5	0.134	ug/l	63-132	20	63-132	20	20			
1,2-Dichloropropane	78-87-5	1	0.137	ug/l	70-130	20	70-130	20	20			
Dibromochloromethane	124-48-1	0.5	0.149	ug/l	63-130	20	63-130	20	20			
1,1,2-Trichloroethane	79-00-5	1.5	0.5	ug/l	70-130	20	70-130	20	20			
Tetrachloroethene	127-18-4	0.5	0.181	ug/l	70-130	20	70-130	20	20			
Chlorobenzene	108-90-7	2.5	0.7	ug/l	75-130	20	75-130	20	20			
Trichlorofluoromethane	75-69-4	2.5	0.7	ug/l	62-150	20	62-150	20	20			
1,2-Dichloroethane	107-06-2	0.5	0.132	ug/l	70-130	20	70-130	20	20			
1,1,1-Trichloroethane	71-55-6	2.5	0.7	ug/l	67-130	20	67-130	20	20			
Bromodichloromethane	75-27-4	0.5	0.192	ug/l	67-130	20	67-130	20	20			
trans-1,3-Dichloropropene	10061-02-6	0.5	0.164	ug/l	70-130	20	70-130	20	20			
cis-1,3-Dichloropropene	10061-01-5	0.5	0.144	ug/l	70-130	20	70-130	20	20			
1,3-Dichloropropene, Total	542-75-6	0.5	0.144	ug/l				20	20			
1,1-Dichloropropene	563-58-6	2.5	0.7	ug/l	70-130	20	70-130	20	20			
Bromoform	75-25-2	2	0.65	ug/l	54-136	20	54-136	20	20			
1,1,2,2-Tetrachloroethane	79-34-5	0.5	0.167	ug/l	67-130	20	67-130	20	20			
Benzene	71-43-2	0.5	0.159	ug/l	70-130	20	70-130	20	20			
Toluene	108-88-3	2.5	0.7	ug/l	70-130	20	70-130	20	20			
Ethylbenzene	100-41-4	2.5	0.7	ug/l	70-130	20	70-130	20	20			
Chloromethane	74-87-3	2.5	0.7	ug/l	64-130	20	64-130	20	20			
Bromomethane	74-83-9	2.5	0.7	ug/l	39-139	20	39-139	20	20			
Vinyl chloride	75-01-4	1	0.0714	ug/l	55-140	20	55-140	20	20			
Chloroethane	75-00-3	2.5	0.7	ug/l	55-138	20	55-138	20	20			
1,1-Dichloroethene	75-35-4	0.5	0.169	ug/l	61-145	20	61-145	20	20			
trans-1,2-Dichloroethene	156-60-5	2.5	0.7	ug/l	70-130	20	70-130	20	20			
Trichloroethene	79-01-6	0.5	0.175	ug/l	70-130	20	70-130	20	20			
1,2-Dichlorobenzene	95-50-1	2.5	0.7	ug/l	70-130	20	70-130	20	20			
1,3-Dichlorobenzene	541-73-1	2.5	0.7	ug/l	70-130	20	70-130	20	20			
1,4-Dichlorobenzene	106-46-7	2.5	0.7	ug/l	70-130	20	70-130	20	20			
Methyl tert butyl ether	1634-04-4	2.5	0.7	ug/l	63-130	20	63-130	20	20			
p/m-Xylene	179601-23-1	2.5	0.7	ug/l	70-130	20	70-130	20	20			
o-Xylene	95-47-6	2.5	0.7	ug/l	70-130	20	70-130	20	20			
Xylene (Total)	1330-20-7	2.5	0.7	ug/l				20	20			
cis-1,2-Dichloroethene	156-59-2	2.5	0.7	ug/l	70-130	20	70-130	20	20			
1,2-Dichloroethene (total)	540-59-0	2.5	0.7	ug/l				20	20			
Dibromomethane	74-95-3	5	1	ug/l	70-130	20	70-130	20	20			
1,2,3-Trichloropropane	96-18-4	2.5	0.7	ug/l	64-130	20	64-130	20	20			
Acrylonitrile	107-13-1	5	1.5	ug/l	70-130	20	70-130	20	20			
Styrene	100-42-5	2.5	0.7	ug/l	70-130	20	70-130	20	20			

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TCL Volatiles - EPA 8260D (WATER)

Holding Time: 14 days
Container/Sample Preservation: 3 - Vial HCl preserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Dichlorodifluoromethane	75-71-8	5	1	ug/l	36-147	20	36-147	20	20			
Acetone	67-64-1	5	1.46	ug/l	58-148	20	58-148	20	20			
Carbon disulfide	75-15-0	5	1	ug/l	51-130	20	51-130	20	20			
2-Butanone	78-93-3	5	1.94	ug/l	63-138	20	63-138	20	20			
Vinyl acetate	108-05-4	5	1	ug/l	70-130	20	70-130	20	20			
4-Methyl-2-pentanone	108-10-1	5	1	ug/l	59-130	20	59-130	20	20			
2-Hexanone	591-78-6	5	1	ug/l	57-130	20	57-130	20	20			
Bromochloromethane	74-97-5	2.5	0.7	ug/l	70-130	20	70-130	20	20			
2,2-Dichloropropane	594-20-7	2.5	0.7	ug/l	63-133	20	63-133	20	20			
1,2-Dibromoethane	106-93-4	2	0.65	ug/l	70-130	20	70-130	20	20			
1,3-Dichloropropane	142-28-9	2.5	0.7	ug/l	70-130	20	70-130	20	20			
1,1,1,2-Tetrachloroethane	630-20-6	2.5	0.7	ug/l	64-130	20	64-130	20	20			
Bromobenzene	108-86-1	2.5	0.7	ug/l	70-130	20	70-130	20	20			
n-Butylbenzene	104-51-8	2.5	0.7	ug/l	53-136	20	53-136	20	20			
sec-Butylbenzene	135-98-8	2.5	0.7	ug/l	70-130	20	70-130	20	20			
tert-Butylbenzene	98-06-6	2.5	0.7	ug/l	70-130	20	70-130	20	20			
o-Chlorotoluene	95-49-8	2.5	0.7	ug/l	70-130	20	70-130	20	20			
p-Chlorotoluene	106-43-4	2.5	0.7	ug/l	70-130	20	70-130	20	20			
1,2-Dibromo-3-chloropropane	96-12-8	2.5	0.7	ug/l	41-144	20	41-144	20	20			
Hexachlorobutadiene	87-68-3	2.5	0.7	ug/l	63-130	20	63-130	20	20			
Isopropylbenzene	98-82-8	2.5	0.7	ug/l	70-130	20	70-130	20	20			
p-Isopropyltoluene	99-87-6	2.5	0.7	ug/l	70-130	20	70-130	20	20			
Naphthalene	91-20-3	2.5	0.7	ug/l	70-130	20	70-130	20	20			
n-Propylbenzene	103-65-1	2.5	0.7	ug/l	69-130	20	69-130	20	20			
1,2,3-Trichlorobenzene	87-61-6	2.5	0.7	ug/l	70-130	20	70-130	20	20			
1,2,4-Trichlorobenzene	120-82-1	2.5	0.7	ug/l	70-130	20	70-130	20	20			
1,3,5-Trimethylbenzene	108-67-8	2.5	0.7	ug/l	64-130	20	64-130	20	20			
1,2,4-Trimethylbenzene	95-63-6	2.5	0.7	ug/l	70-130	20	70-130	20	20			
1,4-Dioxane	123-91-1	250	60.8	ug/l	56-162	20	56-162	20	20			
1,4-Diethylbenzene	105-05-5	2	0.7	ug/l	70-130	20	70-130	20	20			
4-Ethyltoluene	622-96-8	2	0.7	ug/l	70-130	20	70-130	20	20			
1,2,4,5-Tetramethylbenzene	95-93-2	2	0.542	ug/l	70-130	20	70-130	20	20			
Ethyl ether	60-29-7	2.5	0.7	ug/l	59-134	20	59-134	20	20			
trans-1,4-Dichloro-2-butene	110-57-6	2.5	0.7	ug/l	70-130	20	70-130	20	20			
1,2-Dichloroethane-d4	*17060-07-0*									*70-130*		
Toluene-d8	*2037-26-5*									*70-130*		
4-Bromofluorobenzene	*460-00-4*									*70-130*		
Dibromofluoromethane	*1868-53-7*									*70-130*		

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NYTCL Semivolatiles - EPA 8270E (LVI) (WATER)

Holding Time: 7 days
Container/Sample Preservation: 2 - Amber 250ml unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Acenaphthene	83-32-9	2.002	0.44408	ug/l	37-111	30	37-111	30	30			
1,2,4-Trichlorobenzene	120-82-1	5.0232	0.49868	ug/l	39-98	30	39-98	30	30			
Hexachlorobenzene	118-74-1	2.002	0.46592	ug/l	40-140	30	40-140	30	30			
Bis(2-chloroethyl)ether	111-44-4	2.002	0.50596	ug/l	40-140	30	40-140	30	30			
2-Chloronaphthalene	91-58-7	2.002	0.4368	ug/l	40-140	30	40-140	30	30			
1,2-Dichlorobenzene	95-50-1	2.002	0.455	ug/l	40-140	30	40-140	30	30			
1,3-Dichlorobenzene	541-73-1	2.002	0.40404	ug/l	40-140	30	40-140	30	30			
1,4-Dichlorobenzene	106-46-7	2.002	0.43316	ug/l	36-97	30	36-97	30	30			
3,3'-Dichlorobenzidine	91-94-1	5.0232	1.62344	ug/l	40-140	30	40-140	30	30			
2,4-Dinitrotoluene	121-14-2	5.0232	1.1648	ug/l	48-143	30	48-143	30	30			
2,6-Dinitrotoluene	606-20-2	5.0232	0.93184	ug/l	40-140	30	40-140	30	30			
Fluoranthene	206-44-0	2.002	0.257348	ug/l	40-140	30	40-140	30	30			
4-Chlorophenyl phenyl ether	7005-72-3	2.002	0.48776	ug/l	40-140	30	40-140	30	30			
4-Bromophenyl phenyl ether	101-55-3	2.002	0.37856	ug/l	40-140	30	40-140	30	30			
Bis(2-chloroisopropyl)ether	108-60-1	2.002	0.5278	ug/l	40-140	30	40-140	30	30			
Bis(2-chloroethoxy)methane	111-91-1	5.0232	0.50232	ug/l	40-140	30	40-140	30	30			
Hexachlorobutadiene	87-68-3	2.002	0.65884	ug/l	40-140	30	40-140	30	30			
Hexachlorocyclopentadiene	77-47-4	20.02	0.68796	ug/l	40-140	30	40-140	30	30			
Hexachloroethane	67-72-1	2.002	0.58604	ug/l	40-140	30	40-140	30	30			
Isophorone	78-59-1	5.0232	1.20484	ug/l	40-140	30	40-140	30	30			
Naphthalene	91-20-3	2.002	0.46592	ug/l	40-140	30	40-140	30	30			
Nitrobenzene	98-95-3	2.002	0.77168	ug/l	40-140	30	40-140	30	30			
NitrosoDiPhenylAmine(NDPA)/DPA	86-30-6	2.002	0.4186	ug/l	40-140	30	40-140	30	30			
n-Nitrosodi-n-propylamine	621-64-7	5.0232	0.64428	ug/l	29-132	30	29-132	30	30			
Bis(2-Ethylhexyl)phthalate	117-81-7	3.003	1.53608	ug/l	40-140	30	40-140	30	30			
Butyl benzyl phthalate	85-68-7	5.0232	1.17208	ug/l	40-140	30	40-140	30	30			
Di-n-butylphthalate	84-74-2	5.0232	0.38948	ug/l	40-140	30	40-140	30	30			
Di-n-octylphthalate	117-84-0	5.0232	1.274	ug/l	40-140	30	40-140	30	30			
Diethyl phthalate	84-66-2	5.0232	0.3822	ug/l	40-140	30	40-140	30	30			
Dimethyl phthalate	131-11-3	5.0232	1.82	ug/l	40-140	30	40-140	30	30			
Benzo(a)anthracene	56-55-3	2.002	0.32578	ug/l	40-140	30	40-140	30	30			
Benzo(a)pyrene	50-32-8	2.002	0.40768	ug/l	40-140	30	40-140	30	30			
Benzo(b)fluoranthene	205-99-2	2.002	0.355264	ug/l	40-140	30	40-140	30	30			
Benzo(k)fluoranthene	207-08-9	2.002	0.37492	ug/l	40-140	30	40-140	30	30			
Chrysene	218-01-9	2.002	0.341068	ug/l	40-140	30	40-140	30	30			
Acenaphthylene	208-96-8	2.002	0.46592	ug/l	45-123	30	45-123	30	30			
Anthracene	120-12-7	2.002	0.32942	ug/l	40-140	30	40-140	30	30			
Benzo(ghi)perylene	191-24-2	2.002	0.296296	ug/l	40-140	30	40-140	30	30			
Fluorene	86-73-7	2.002	0.41496	ug/l	40-140	30	40-140	30	30			
Phenanthrene	85-01-8	2.002	0.33124	ug/l	40-140	30	40-140	30	30			
Dibenzo(a,h)anthracene	53-70-3	2.002	0.323232	ug/l	40-140	30	40-140	30	30			
Indeno(1,2,3-cd)Pyrene	193-39-5	2.002	0.39676	ug/l	40-140	30	40-140	30	30			

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Langan Engineering & Environmental

NYTCL Semivolatiles - EPA 8270E (LVI) (WATER)

Holding Time: 7 days
Container/Sample Preservation: 2 - Amber 250ml unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Pyrene	129-00-0	2.002	0.279552	ug/l	26-127	30	26-127	30	30			
Biphenyl	92-52-4	2.002	0.45864	ug/l	40-140	30	40-140	30	30			
4-Chloroaniline	106-47-8	5.0232	1.07016	ug/l	40-140	30	40-140	30	30			
2-Nitroaniline	88-74-4	5.0232	0.49868	ug/l	52-143	30	52-143	30	30			
3-Nitroaniline	99-09-2	5.0232	0.81536	ug/l	25-145	30	25-145	30	30			
4-Nitroaniline	100-01-6	5.0232	0.8008	ug/l	51-143	30	51-143	30	30			
Dibenzofuran	132-64-9	2.002	0.49868	ug/l	40-140	30	40-140	30	30			
2-Methylnaphthalene	91-57-6	2.002	0.455	ug/l	40-140	30	40-140	30	30			
Acetophenone	98-86-2	5.0232	0.5278	ug/l	39-129	30	39-129	30	30			
2,4,6-Trichlorophenol	88-06-2	5.0232	0.61152	ug/l	30-130	30	30-130	30	30			
P-Chloro-M-Cresol	59-50-7	2.002	0.35126	ug/l	23-97	30	23-97	30	30			
2-Chlorophenol	95-57-8	2.002	0.48048	ug/l	27-123	30	27-123	30	30			
2,4-Dichlorophenol	120-83-2	5.0232	0.41132	ug/l	30-130	30	30-130	30	30			
2,4-Dimethylphenol	105-67-9	5.0232	1.77996	ug/l	30-130	30	30-130	30	30			
2-Nitrophenol	88-75-5	10.01	0.84812	ug/l	30-130	30	30-130	30	30			
4-Nitrophenol	100-02-7	10.01	0.6734	ug/l	10-80	30	10-80	30	30			
2,4-Dinitrophenol	51-28-5	20.02	6.6612	ug/l	20-130	30	20-130	30	30			
4,6-Dinitro-o-cresol	534-52-1	10.01	1.81636	ug/l	20-164	30	20-164	30	30			
Pentachlorophenol	87-86-5	10.01	1.79452	ug/l	9-103	30	9-103	30	30			
Phenol	108-95-2	5.0232	0.56784	ug/l	12-110	30	12-110	30	30			
2-Methylphenol	95-48-7	5.0232	0.4914	ug/l	30-130	30	30-130	30	30			
3-Methylphenol/4-Methylphenol	108-39-4/106-44-5	5.0232	0.48048	ug/l	30-130	30	30-130	30	30			
2,4,5-Trichlorophenol	95-95-4	5.0232	0.77532	ug/l	30-130	30	30-130	30	30			
Benzoic Acid	65-85-0	50.232	2.66084	ug/l	10-164	30	10-164	30	30			
Benzyl Alcohol	100-51-6	2.002	0.58968	ug/l	26-116	30	26-116	30	30			
Carbazole	86-74-8	2.002	0.4914	ug/l	55-144	30	55-144	30	30			
2-Fluorophenol	*367-12-4*									*21-120*		
Phenol-d6	*13127-88-3*									*10-120*		
Nitrobenzene-d5	*4165-60-0*									*23-120*		
2-Fluorobiphenyl	*321-60-8*									*15-120*		
2,4,6-Tribromophenol	*118-79-6*									*10-120*		
4-Terphenyl-d14	*1718-51-0*									*41-149*		

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NYTCL Semivolatiles -EPA 8270E-SIM (LVI) (WATER)

Holding Time: 7 days
Container/Sample Preservation: 2 - Amber 250ml unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Acenaphthene	83-32-9	0.1001	0.01442168	ug/l	40-140	40	40-140	40	40			
2-Chloronaphthalene	91-58-7	0.2002	0.01804712	ug/l	40-140	40	40-140	40	40			
Fluoranthene	206-44-0	0.1001	0.02054052	ug/l	40-140	40	40-140	40	40			
Hexachlorobutadiene	87-68-3	0.5005	0.04674852	ug/l	40-140	40	40-140	40	40			
Naphthalene	91-20-3	0.1001	0.04882696	ug/l	40-140	40	40-140	40	40			
Benzo(a)anthracene	56-55-3	0.1001	0.0198198	ug/l	40-140	40	40-140	40	40			
Benzo(a)pyrene	50-32-8	0.1001	0.01493856	ug/l	40-140	40	40-140	40	40			
Benzo(b)fluoranthene	205-99-2	0.1001	0.01156792	ug/l	40-140	40	40-140	40	40			
Benzo(k)fluoranthene	207-08-9	0.1001	0.00889616	ug/l	40-140	40	40-140	40	40			
Chrysene	218-01-9	0.1001	0.01198288	ug/l	40-140	40	40-140	40	40			
Acenaphthylene	208-96-8	0.1001	0.01222676	ug/l	40-140	40	40-140	40	40			
Anthracene	120-12-7	0.1001	0.01450176	ug/l	40-140	40	40-140	40	40			
Benzo(ghi)perylene	191-24-2	0.1001	0.01365	ug/l	40-140	40	40-140	40	40			
Fluorene	86-73-7	0.1001	0.01456364	ug/l	40-140	40	40-140	40	40			
Phenanthrene	85-01-8	0.1001	0.02333604	ug/l	40-140	40	40-140	40	40			
Dibenzo(a,h)anthracene	53-70-3	0.1001	0.0127218	ug/l	40-140	40	40-140	40	40			
Indeno(1,2,3-cd)Pyrene	193-39-5	0.1001	0.01217216	ug/l	40-140	40	40-140	40	40			
Pyrene	129-00-0	0.1001	0.01902264	ug/l	40-140	40	40-140	40	40			
2-Methylnaphthalene	91-57-6	0.1001	0.02192372	ug/l	40-140	40	40-140	40	40			
Pentachlorophenol	87-86-5	0.8008	0.0143416	ug/l	40-140	40	40-140	40	40			
Hexachlorobenzene	118-74-1	0.8008	0.00938028	ug/l	40-140	40	40-140	40	40			
Hexachloroethane	67-72-1	0.8008	0.06320132	ug/l	40-140	40	40-140	40	40			
2-Fluorophenol	*367-12-4*									*21-120*		
Phenol-d6	*13127-88-3*									*10-120*		
Nitrobenzene-d5	*4165-60-0*									*23-120*		
2-Fluorobiphenyl	*321-60-8*									*15-120*		
2,4,6-Tribromophenol	*118-79-6*									*10-120*		
4-Terphenyl-d14	*1718-51-0*									*41-149*		

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TCL Pesticides - EPA 8081B (WATER)

Holding Time: 7 days
Container/Sample Preservation: 2 - Amber 120ml unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Delta-BHC	319-86-8	0.02	0.00467	ug/l	30-150	20	30-150	30	30			
Lindane	58-89-9	0.02	0.00434	ug/l	30-150	20	30-150	30	30			
Alpha-BHC	319-84-6	0.02	0.00439	ug/l	30-150	20	30-150	30	30			
Beta-BHC	319-85-7	0.02	0.0056	ug/l	30-150	20	30-150	30	30			
Heptachlor	76-44-8	0.02	0.0031	ug/l	30-150	20	30-150	30	30			
Aldrin	309-00-2	0.02	0.00216	ug/l	30-150	20	30-150	30	30			
Heptachlor epoxide	1024-57-3	0.02	0.00415	ug/l	30-150	20	30-150	30	30			
Endrin	72-20-8	0.04	0.00429	ug/l	30-150	20	30-150	30	30			
Endrin aldehyde	7421-93-4	0.04	0.0081	ug/l	30-150	20	30-150	30	30			
Endrin ketone	53494-70-5	0.04	0.00477	ug/l	30-150	20	30-150	30	30			
Dieldrin	60-57-1	0.04	0.00429	ug/l	30-150	20	30-150	30	30			
4,4'-DDE	72-55-9	0.04	0.00381	ug/l	30-150	20	30-150	30	30			
4,4'-DDD	72-54-8	0.04	0.00464	ug/l	30-150	20	30-150	30	30			
4,4'-DDT	50-29-3	0.04	0.00432	ug/l	30-150	20	30-150	30	30			
Endosulfan I	959-98-8	0.02	0.00345	ug/l	30-150	20	30-150	30	30			
Endosulfan II	33213-65-9	0.04	0.00519	ug/l	30-150	20	30-150	30	30			
Endosulfan sulfate	1031-07-8	0.04	0.00481	ug/l	30-150	20	30-150	30	30			
Methoxychlor	72-43-5	0.2	0.00684	ug/l	30-150	20	30-150	30	30			
Toxaphene	8001-35-2	0.2	0.0627	ug/l	30-150	20	30-150	30	30			
cis-Chlordane	5103-71-9	0.02	0.00666	ug/l	30-150	20	30-150	30	30			
trans-Chlordane	5103-74-2	0.02	0.00627	ug/l	30-150	20	30-150	30	30			
Chlordane	57-74-9	0.2	0.0463	ug/l	30-150	20	30-150	30	30			
2,4,5,6-Tetrachloro-m-xylene	*877-09-8*									*30-150*		
Decachlorobiphenyl	*2051-24-3*									*30-150*		

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Langan Engineering & Environmental

Herbicides -EPA 8151A (WATER)

Holding Time: 7 days
Container/Sample Preservation: 2 - Amber 1000ml unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
2,4-D	94-75-7	10	0.498	ug/l	30-150	25	30-150	25	25			
2,4,5-T	93-76-5	2	0.531	ug/l	30-150	25	30-150	25	25			
2,4,5-TP (Silvex)	93-72-1	2	0.539	ug/l	30-150	25	30-150	25	25			
DCAA	*19719-28-9*									*30-150*		

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TCL PCBs - EPA 8082A (LVI) (WATER)

Holding Time: 365 days
Container/Sample Preservation: 2 - Amber 120ml unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Aroclor 1016	12674-11-2	0.0000714	0.000061047	mg/l	40-140	50	40-140	50	50			
Aroclor 1221	11104-28-2	0.0000714	0.000061047	mg/l	40-140	50	40-140	50	50			
Aroclor 1232	11141-16-5	0.0000714	0.000061047	mg/l	40-140	50	40-140	50	50			
Aroclor 1242	53469-21-9	0.0000714	0.000061047	mg/l	40-140	50	40-140	50	50			
Aroclor 1248	12672-29-6	0.0000714	0.000061047	mg/l	40-140	50	40-140	50	50			
Aroclor 1254	11097-69-1	0.0000714	0.000061047	mg/l	40-140	50	40-140	50	50			
Aroclor 1260	11096-82-5	0.0000714	0.000061047	mg/l	40-140	50	40-140	50	50			
Aroclor 1262	37324-23-5	0.0000714	0.000061047	mg/l	40-140	50	40-140	50	50			
Aroclor 1268	11100-14-4	0.0000714	0.000061047	mg/l	40-140	50	40-140	50	50			
PCBs, Total	1336-36-3	0.0000714	0.000061047	mg/l				50	50			
2,4,5,6-Tetrachloro-m-xylene	*877-09-8*									*30-150*		
Decachlorobiphenyl	*2051-24-3*									*30-150*		

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METALS by 6020B (WATER)

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria	Holding Time	Container
Aluminum, Total	7429-90-5	0.01	0.00327	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Antimony, Total	7440-36-0	0.004	0.000429	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Arsenic, Total	7440-38-2	0.0005	0.000165	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Barium, Total	7440-39-3	0.0005	0.000173	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Beryllium, Total	7440-41-7	0.0005	0.000107	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Cadmium, Total	7440-43-9	0.0002	0.0000599	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Calcium, Total	7440-70-2	0.1	0.0394	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Chromium, Total	7440-47-3	0.001	0.000178	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Cobalt, Total	7440-48-4	0.0005	0.000163	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Copper, Total	7440-50-8	0.001	0.000384	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Iron, Total	7439-89-6	0.05	0.0191	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Lead, Total	7439-92-1	0.001	0.000343	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Magnesium, Total	7439-95-4	0.07	0.0242	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Manganese, Total	7439-96-5	0.001	0.00044	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Nickel, Total	7440-02-0	0.002	0.000556	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Potassium, Total	7440-09-7	0.1	0.0309	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Selenium, Total	7782-49-2	0.005	0.00173	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Silver, Total	7440-22-4	0.0004	0.000163	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Sodium, Total	7440-23-5	0.1	0.0293	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Thallium, Total	7440-28-0	0.001	0.000143	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Vanadium, Total	7440-62-2	0.005	0.00157	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Zinc, Total	7440-66-6	0.01	0.00341	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved

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METALS by 7470A (WATER)

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria	Holding Time	Container
Mercury, Total	7439-97-6	0.0002	0.0000915	mg/l	80-120		75-125	20	20		28 days	1 - Plastic 500ml HNO3 preserved

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WETCHEM (WATER)

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Method	Holding Time	Container
Chromium, Hexavalent	18540-29-9	0.01	0.003	mg/l	85-115	20	85-115	20	20	7196A	24 hours	1 - Plastic 500ml unpreserved
Cyanide, Total	57-12-5	0.005	0.0018	mg/l	85-115	20	80-120	20	20	9010C/9012B	14 days	1 - Plastic 250ml NaOH preserved

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1,4 Dioxane via EPA 8270E-SIM (WATER)

Holding Time: 7 days
Container/Sample Preservation: 2 - Amber 250ml unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
1,4-Dioxane	123-91-1	150	33.9	ng/l	40-140	30	40-140	30	30			
1,4-Dioxane-d8	*17647-74-4*									*15-110*		
1,4-Dioxane-d8 (IS)	17647-74-4			ng/l								

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PFAAs via LCMSMS-Isotope Dilution (WATER)

Holding Time: 28 days
Container/Sample Preservation: 3 - Plastic 500ml unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Perfluorobutanoic Acid (PFBA)	375-22-4	6.4	1.024	ng/l	40-150	30	40-150	30	30			
Perfluoropentanoic Acid (PFPeA)	2706-90-3	3.2	0.856	ng/l	40-150	30	40-150	30	30			
Perfluorobutanesulfonic Acid (PFBS)	375-73-5	1.6	0.536	ng/l	40-150	30	40-150	30	30			
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	757124-72-4	6.4	1.672	ng/l	40-150	30	40-150	30	30			
Perfluorohexanoic Acid (PFHxA)	307-24-4	1.6	0.472	ng/l	40-150	30	40-150	30	30			
Perfluoropentanesulfonic Acid (PFPeS)	2706-91-4	1.6	0.28	ng/l	40-150	30	40-150	30	30			
Perfluoroheptanoic Acid (PFHpA)	375-85-9	1.6	0.32	ng/l	40-150	30	40-150	30	30			
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	1.6	0.384	ng/l	40-150	30	40-150	30	30			
Perfluorooctanoic Acid (PFOA)	335-67-1	1.6	0.696	ng/l	40-150	30	40-150	30	30			
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	27619-97-2	6.4	2.16	ng/l	40-150	30	40-150	30	30			
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	1.6	0.432	ng/l	40-150	30	40-150	30	30			
Perfluorononanoic Acid (PFNA)	375-95-1	1.6	0.504	ng/l	40-150	30	40-150	30	30			
Perfluorooctanesulfonic Acid (PFOS)	1763-23-1	1.6	0.728	ng/l	40-150	30	40-150	30	30			
Perfluorodecanoic Acid (PFDA)	335-76-2	1.6	0.648	ng/l	40-150	30	40-150	30	30			
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	39108-34-4	6.4	2.488	ng/l	40-150	30	40-150	30	30			
Perfluorononanesulfonic Acid (PFNS)	68259-12-1	1.6	0.496	ng/l	40-150	30	40-150	30	30			
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSA	2355-31-9	1.6	0.872	ng/l	40-150	30	40-150	30	30			
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1.6	0.696	ng/l	40-150	30	40-150	30	30			
Perfluorodecanesulfonic Acid (PFDS)	335-77-3	1.6	0.368	ng/l	40-150	30	40-150	30	30			
Perfluorooctanesulfonamide (FOSA)	754-91-6	1.6	0.432	ng/l	40-150	30	40-150	30	30			
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	2991-50-6	1.6	0.864	ng/l	40-150	30	40-150	30	30			
Perfluorododecanoic Acid (PFDoA)	307-55-1	1.6	0.736	ng/l	40-150	30	40-150	30	30			
Perfluorotridecanoic Acid (PFTrDA)	72629-94-8	1.6	0.6	ng/l	40-150	30	40-150	30	30			
Perfluorotetradecanoic Acid (PFTA)	376-06-7	1.6	0.424	ng/l	40-150	30	40-150	30	30			
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Pr	13252-13-6	6.4	0.896	ng/l	40-150	30	40-150	30	30			
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	919005-14-4	6.4	1.008	ng/l	40-150	30	40-150	30	30			
Perfluorododecane Sulfonic Acid (PFDoDS)	79780-39-5	1.6	0.608	ng/l	40-150	30	40-150	30	30			
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF	756426-58-1	6.4	1.32	ng/l	40-150	30	40-150	30	30			
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl	763051-92-9	6.4	1.32	ng/l	40-150	30	40-150	30	30			
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	31506-32-8	1.6	0.696	ng/l	40-150	30	40-150	30	30			
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	4151-50-2	1.6	0.736	ng/l	40-150	30	40-150	30	30			
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	24448-09-7	16	3.76	ng/l	40-150	30	40-150	30	30			
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	1691-99-2	16	1.96	ng/l	40-150	30	40-150	30	30			
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	377-73-1	3.2	0.456	ng/l	40-150	30	40-150	30	30			
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	863090-89-5	3.2	0.424	ng/l	40-150	30	40-150	30	30			
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	113507-82-7	3.2	0.352	ng/l	40-150	30	40-150	30	30			
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	151772-58-6	3.2	1.888	ng/l	40-150	30	40-150	30	30			
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	356-02-5	8	2.64	ng/l	40-150	30	40-150	30	30			
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	914637-49-3	40	9.36	ng/l	40-150	30	40-150	30	30			
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	812-70-4	40	6.312	ng/l	40-150	30	40-150	30	30			
Perfluoro[13C4]Butanoic Acid (MPFBA)	*NONE*									*20-150*		
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	*NONE*									*20-150*		

Please Note that the RL information provided in this table is calculated using a 100% Solids factor (Soil/Solids only)
Please Note that the information provided in this table is subject to change at anytime at the discretion of Alpha Analytical, Inc

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Langan Engineering & Environmental

PFAAs via LCMSMS-Isotope Dilution (WATER)

Holding Time: 28 days
Container/Sample Preservation: 3 - Plastic 500ml unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	*NONE*									*20-150*		
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-	*NONE*									*20-150*		
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	*NONE*									*20-150*		
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	*NONE*									*20-150*		
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	*NONE*									*20-150*		
Perfluoro[13C8]Octanoic Acid (M8PFOA)	*NONE*									*20-150*		
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-	*NONE*									*20-150*		
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	*NONE*									*20-150*		
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	*NONE*									*20-150*		
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	*NONE*									*20-150*		
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-	*NONE*									*20-150*		
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid	*NONE*									*20-150*		
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	*NONE*									*20-150*		
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	*NONE*									*20-150*		
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (	*NONE*									*20-150*		
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	*NONE*									*20-150*		
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	*NONE*									*20-150*		
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-1	*NONE*									*20-150*		
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (d3-NMeFOSA)	*NONE*									*20-150*		
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (d5-NEtFOSA)	*NONE*									*20-150*		
2-(N-Methyl-d3-Perfluoro-1-Octanesulfonamido)ethan-d4-o	*1265205-95-5*									*20-150*		
2-(N-Ethyl-d5-Perfluoro-1-Octanesulfonamido)ethan-d4-ol (	*NONE*									*20-150*		

Please Note that the RL information provided in this table is calculated using a 100% Solids factor ***(Soil/Solids only)***
Please Note that the information provided in this table is subject to change at anytime at the discretion of Alpha Analytical, Inc

ATTACHMENT B

AIR SAMPLES
LABORATORY REPORTING LIMITS AND METHOD DETECTION LIMITS

Method	Analyte	Units	Reporting Limit		Method	Analyte	Units	Reporting Limit
TO15	1,1,1-Trichloroethane	1.09	ug/m3		TO15	1,1,1-Trichloroethane	0.2	ppbV
TO15	1,1,2,2-Tetrachloroethane	1.37	ug/m3		TO15	1,1,2,2-Tetrachloroethane	0.2	ppbV
TO15	1,1,2-Trichloroethane	1.09	ug/m3		TO15	1,1,2-Trichloroethane	0.2	ppbV
TO15	1,1-Dichloroethane	0.809	ug/m3		TO15	1,1-Dichloroethane	0.2	ppbV
TO15	1,1-Dichloroethene	0.793	ug/m3		TO15	1,1-Dichloroethene	0.2	ppbV
TO15	1,2,4-Trichlorobenzene	1.48	ug/m3		TO15	1,2,4-Trichlorobenzene	0.2	ppbV
TO15	1,2,4-Trimethylbenzene	0.983	ug/m3		TO15	1,2,4-Trimethylbenzene	0.2	ppbV
TO15	1,2-Dibromoethane	1.54	ug/m3		TO15	1,2-Dibromoethane	0.2	ppbV
TO15	1,2-Dichlorobenzene	1.2	ug/m3		TO15	1,2-Dichlorobenzene	0.2	ppbV
TO15	1,2-Dichloroethane	0.809	ug/m3		TO15	1,2-Dichloroethane	0.2	ppbV
TO15	1,2-Dichloropropane	0.924	ug/m3		TO15	1,2-Dichloropropane	0.2	ppbV
TO15	1,3,5-Trimethylbenzene	0.983	ug/m3		TO15	1,3,5-Trimethylbenzene	0.2	ppbV
TO15	1,3-Butadiene	0.442	ug/m3		TO15	1,3-Butadiene	0.2	ppbV
TO15	1,3-Dichlorobenzene	1.2	ug/m3		TO15	1,3-Dichlorobenzene	0.2	ppbV
TO15	1,4-Dichlorobenzene	1.2	ug/m3		TO15	1,4-Dichlorobenzene	0.2	ppbV
TO15	1,4-Dioxane	0.721	ug/m3		TO15	1,4-Dioxane	0.2	ppbV
TO15	2,2,4-Trimethylpentane	0.934	ug/m3		TO15	2,2,4-Trimethylpentane	0.2	ppbV
TO15	2-Butanone	1.47	ug/m3		TO15	2-Butanone	0.5	ppbV
TO15	2-Hexanone	0.82	ug/m3		TO15	2-Hexanone	0.2	ppbV
TO15	3-Chloropropene	0.626	ug/m3		TO15	3-Chloropropene	0.2	ppbV
TO15	4-Ethyltoluene	0.983	ug/m3		TO15	4-Ethyltoluene	0.2	ppbV
TO15	4-Methyl-2-pentanone	2.05	ug/m3		TO15	4-Methyl-2-pentanone	0.5	ppbV
TO15	Acetone	2.38	ug/m3		TO15	Acetone	1	ppbV
TO15	Benzene	0.639	ug/m3		TO15	Benzene	0.2	ppbV
TO15	Benzyl chloride	1.04	ug/m3		TO15	Benzyl chloride	0.2	ppbV
TO15	Bromodichloromethane	1.34	ug/m3		TO15	Bromodichloromethane	0.2	ppbV
TO15	Bromoform	2.07	ug/m3		TO15	Bromoform	0.2	ppbV
TO15	Bromomethane	0.777	ug/m3		TO15	Bromomethane	0.2	ppbV
TO15	Carbon disulfide	0.623	ug/m3		TO15	Carbon disulfide	0.2	ppbV
TO15	Carbon tetrachloride	1.26	ug/m3		TO15	Carbon tetrachloride	0.2	ppbV
TO15	Chlorobenzene	0.921	ug/m3		TO15	Chlorobenzene	0.2	ppbV
TO15	Chloroethane	0.528	ug/m3		TO15	Chloroethane	0.2	ppbV
TO15	Chloroform	0.977	ug/m3		TO15	Chloroform	0.2	ppbV
TO15	Chloromethane	0.413	ug/m3		TO15	Chloromethane	0.2	ppbV
TO15	cis-1,2-Dichloroethene	0.793	ug/m3		TO15	cis-1,2-Dichloroethene	0.2	ppbV

ATTACHMENT B

AIR SAMPLES
LABORATORY REPORTING LIMITS AND METHOD DETECTION LIMITS

Method	Analyte	Units	Reporting Limit		Method	Analyte	Units	Reporting Limit
TO15	cis-1,3-Dichloropropene	0.908	ug/m3		TO15	cis-1,3-Dichloropropene	0.2	ppbV
TO15	Cyclohexane	0.688	ug/m3		TO15	Cyclohexane	0.2	ppbV
TO15	Dibromochloromethane	1.7	ug/m3		TO15	Dibromochloromethane	0.2	ppbV
TO15	Dichlorodifluoromethane	0.989	ug/m3		TO15	Dichlorodifluoromethane	0.2	ppbV
TO15	Ethanol	9.42	ug/m3		TO15	Ethanol	5	ppbV
TO15	Ethyl Acetate	1.8	ug/m3		TO15	Ethyl Acetate	0.5	ppbV
TO15	Ethylbenzene	0.869	ug/m3		TO15	Ethylbenzene	0.2	ppbV
TO15	Freon-113	1.53	ug/m3		TO15	Freon-113	0.2	ppbV
TO15	Freon-114	1.4	ug/m3		TO15	Freon-114	0.2	ppbV
TO15	Heptane	0.82	ug/m3		TO15	Heptane	0.2	ppbV
TO15	Hexachlorobutadiene	2.13	ug/m3		TO15	Hexachlorobutadiene	0.2	ppbV
TO15	Isopropanol	1.23	ug/m3		TO15	Isopropanol	0.5	ppbV
TO15	Methyl tert butyl ether	0.721	ug/m3		TO15	Methyl tert butyl ether	0.2	ppbV
TO15	Methylene chloride	1.74	ug/m3		TO15	Methylene chloride	0.5	ppbV
TO15	n-Hexane	0.705	ug/m3		TO15	n-Hexane	0.2	ppbV
TO15	o-Xylene	0.869	ug/m3		TO15	o-Xylene	0.2	ppbV
TO15	p/m-Xylene	1.74	ug/m3		TO15	p/m-Xylene	0.4	ppbV
TO15	Styrene	0.852	ug/m3		TO15	Styrene	0.2	ppbV
TO15	Tertiary butyl Alcohol	1.52	ug/m3		TO15	Tertiary butyl Alcohol	0.5	ppbV
TO15	Tetrachloroethene	1.36	ug/m3		TO15	Tetrachloroethene	0.2	ppbV
TO15	Tetrahydrofuran	1.47	ug/m3		TO15	Tetrahydrofuran	0.5	ppbV
TO15	Toluene	0.754	ug/m3		TO15	Toluene	0.2	ppbV
TO15	trans-1,2-Dichloroethene	0.793	ug/m3		TO15	trans-1,2-Dichloroethene	0.2	ppbV
TO15	trans-1,3-Dichloropropene	0.908	ug/m3		TO15	trans-1,3-Dichloropropene	0.2	ppbV
TO15	Trichloroethene	1.07	ug/m3		TO15	Trichloroethene	0.2	ppbV
TO15	Trichlorofluoromethane	1.12	ug/m3		TO15	Trichlorofluoromethane	0.2	ppbV
TO15	Vinyl bromide	0.874	ug/m3		TO15	Vinyl bromide	0.2	ppbV
TO15	Vinyl chloride	0.511	ug/m3		TO15	Vinyl chloride	0.2	ppbV

ATTACHMENT D

ANALYTICAL METHODS/QUALITY ASSURANCE SUMMARY TABLE

Matrix Type	Field Parameters	Laboratory Parameters	Analytical Methods	Sample Preservation	Sample Container Volume and Type	Sample Hold Time	Field Duplicate Samples	Field Blank Samples	Media Blank Samples	Equipment Blank Samples	Trip Blank Samples	Ambient Air Samples	MS/MSD Samples
Soil	Total VOCs via PID	Part 375 + TCL VOCs	EPA 8260C	Cool to 4°C	Two 40-ml VOC vials with 5ml H_2O, one with MeOH or 3 En Core Samplers (separate container for % solids)	14 days	1 per 20 samples (minimum 1)	1 per 20 samples (minimum 1)	NA	NA	NA	NA	1 per 20 samples
		Part 375 + TCL SVOCs	EPA 8270D	Cool to 4°C	4 oz. amber glass jar	14 days extract, 40 days after extraction to analysis							
		Part 375 + TAL Metals + Cyanide	EPA 6010C, EPA 7470A, EPA 7196A, EPA 9014/9010C	Cool to 4°C	2 oz. amber glass jar	6 months, except mercury 28 days							
		Part 375 + TCL Pesticides	EPA 8081B	Cool to 4°C	4 oz. amber glass jar	14 days extract, 40 days after extraction to analysis							
		Part 375 + TCL PCBs	EPA 8082A	Cool to 4°C	4 oz. amber glass jar	14 days extract, 40 days after extraction to analysis							
		NYSDEC List PFAS	EPA 1633 Modified	Cool to 4°C	8 oz. HDPE jar	14 days to extract, 28 days after extraction to analysis				1 per day			
		1,4-Dioxane	8270 SIM	Cool to 4°C	4 oz. amber glass jar	14 days extract, 40 days after extraction to analysis				NA			
Groundwater	Temperature, Turbidity, pH, ORP, Conductivity, DO	Part 375 + TCL VOCs	EPA 8260C	Cool to 4°C; HCl to pH <2;no headspace	Three 40-mL VOC vials with Teflon®-lined cap	Analyze within 14 days of collection	1 per 20 samples (minimum 1)	1 per 20 samples (minimum 1)	NA	NA	1 per shipment of VOC samples	NA	1 per 20 samples
		Part 375 + TCL SVOCs	EPA 8270D	Cool to 4°C	Two 1-Liter amber glass	7 days to extract, 40 days after extraction to analysis							
		Part 375 + TAL Metals	EPA 6010C, EPA 7470A	HNO_3	250 ml plastic	6 months, except Mercury 28 days							
		Hexavalent Chromium	EPA 7196A	Cool to 4°C	250 ml plastic	24 hours							
		Cyanide	SM 4500 C/E	NaOH plus 0.6g ascorbic acid	250 ml plastic	14 days							
		Part 375 + TCL Pesticides	EPA 8081B	Cool to 4°C	Two 1-Liter Amber Glass for Pesticides/PCB	7 days to extract, 40 days after extraction to analysis							
		PCBs	EPA 8082A	Cool to 4°C		7 days to extract, 40 days after extraction to analysis							
		PFAS	EPA 1633 Modified	Cool to 4°C	Two 250 mL HDPE	14 days to extract, 40 days after extraction to analysis				1 per day			
		1,4-dioxane	8270 SIM	Cool to 4°C	One 1 -Liter Amber Glass	7 days to extract, 40 days after extraction to analysis				NA			
Soil Vapor	Total VOCs, Oxygen, LEL, CO, and H_2S, with MultiGas Meter	TO-15 Listed VOCs	TO-15	Ambient Temperature	2.7-Liter Summa Canister	Analyze within 30 days of collection	1 per 20 samples (minimum 1)	NA	NA	NA	NA	1 per 10 samples (minimum 1)	NA
Ambient/Indoor Air	Total VOCs via PID				6-Liter Summa Canister		NA	NA	NA	NA			

ATTACHMENT D

ANALYTICAL METHODS/QUALITY ASSURANCE SUMMARY TABLE

Matrix Type	Field Parameters	Laboratory Parameters	Analytical Methods	Sample Preservation	Sample Container Volume and Type	Sample Hold Time	Field Duplicate Samples	Field Blank Samples	Media Blank Samples	Equipment Blank Samples	Trip Blank Samples	Ambient Air Samples	MS/MSD Samples
Soil Vapor	Mercury Vapor via Jerome J405	Mercury Vapor	EPA 6009	Ambient Temperature	Glass Sorbent Tube containing one section of 200 mg Hopcalite	Analyze within 30 days of collection	1 per 20 samples (minimum 1)	NA	3 per set	NA	NA	1 per 10 samples (minimum 1)	NA

Notes:
1. PID - Photoionization Detector
2. VOC - Volatile organic compound
3. EPA - Environmental Protection Agency
4. TCL - Target compound list
5. TAL - Target analyte list
6. ORP - Oxidation reduction potential
7. DO - Dissolved oxygen
8. LEL - Lower explosive limit
9. CO -Carbon monoxide
10. H_2S - Hydrogen sulfide
11. PFAS - Per-fluoroalkyl substances
12. HDPE - High-Density Polyethylene

SOP #01 – Sample Nomenclature

INTRODUCTION

The Langan Environmental Group conducts an assortment of site investigations where samples (Vapor, Solids, and Aqueous) are collected and submitted to analytical laboratories for analysis. The results of which are then evaluated and entered into a data base allowing quick submittal to the state regulatory authority (New York State Division of Environmental Conservation [NYSDEC]). In addition, Langan is linking their data management system to graphic and analytical software to enable efficient evaluation of the data as well as creating client-ready presentational material.

SCOPE AND APPLICATION

This Standard Operating Procedure (SOP) is applicable to the general framework for labeling vapor, solid (soil) and aqueous (groundwater) samples that will be submitted for laboratory analysis. The nomenclature being introduced is designed to meet the NYSDEC EQuIS standard and has been incorporated into Langan software scripts to assist project personnel in processing the data. While this SOP is applicable to all site investigation; unanticipated conditions may arise which may require considerable flexibility in complying with this SOP. Therefore, guidance provided in this SOP is presented in terms of general steps and strategies that should be applied; but deviation from this SOP must be reported to the Project Manager (PM) immediately.

GENERAL SAMPLE IDENTIFICATION CONSIDERATIONS

Sample Labels

All sample ware must have a label. Recall that when you are using the Encore™ samples (see below); they are delivered in plastic lined foil bags. You are to label the bags[1]:

All other samples containers including Terra Cores™ must be labeled with laboratory provided self-adhesive labels.

Quick Breakdown of Sample Format

The general format for sample nomenclature is:

[1]Both Alpha and York laboratories permit the combining of the three Encore™ into a single bag. This may not be appropriate for all laboratories so please confirm with the labs themselves

LLNN_ID

Where

LL is a grouping of two (2) to four (4) letters signifying the sample media source. In older nomenclature SOPs this portion of the sample identification is commonly referred to as the *Sample Investigation Code*

NN represents a two digit number identifying the specific sample location or sample sequence number

_ ***(underscore)*** is required between the sample lettering and numeric identification and additional modifying data that determines the date of sampling or the depth of the sample interval

ID is a modifier specific to the sample type media (depth of soil sample or date of groundwater sample)

LL – Sample Investigation Code

Langan has devised a list of two to four letters to insure a quick ability to identify the sample investigation.

Code	Investigation
AA	Ambient Air
DS	Drum
EPB	Endpoint Location - Bottom (Excavation)
EPSW	Endpoint Location - Sidewall (Excavation)
FP	Free Product
IA	Indoor Air
IDW	Investigation Derived Waste (Soil Pile)
MW	Monitoring Well (Permanent)
SB	Soil Boring
SG	Staff Gauge (Stream Gauging)
SL	Sludge
SV	Soil Vapor Point
SVE	Soil Vapor Extraction Well
SW	Surface Water
TMW	Temporary Monitoring Well
TP	Test Pit (Excavated Material from Test Pit Not Associated With Sidewall or Bottom Samples)
WC	Waste Characterization Boring
COMP	Composite Sample
TB	Trip Blank (QA/QC Sampling – All Investigations)
FB	Field Blank (QA/QC Sampling – All Investigations)
DUP	Duplicate (QA/QC Sampling – All Investigations)

NN – Numeric Identifier

The two digit number that follows the sample investigation code (LL) identifies the specific sample based on the soil boring, monitoring well, endpoint or other location identification. For a subset of samples

where there is no specific location identifier, the two digit number is the sequence number for the sample submitted. For example, an aqueous sample from a monitoring well identified as MW-1 would have the sample investigation code of MW and the numeric identifier as 01. Note there is no hyphen. The same can be done for soil borings, a soil sample collected from soil boring 9 (SB-9) would be have the LLNN identification of SB09 (again, no hyphen).

Note however that there is a subset of samples related to laboratory analytical quality assurance, among these includes TB, FB, and DUP. On many investigations, the Scope will require multiple collections of these types of samples, therefore the numerical number represents the sequence sample count where the first sample is 01, the second sample is 02, and the third sample is 03 and so on.

_ Underscore
The underscore is required. It separates the investigation code and numeric identifier from the modifier specific to the sample itself. Note that every effort should be made to insure that the underscore is clear on the sample label and chain of custody (COC).

ID – Modifier Specific to Type Media
Each sample investigation code and numeric identifier is further modified by an ID specific to the sample type media. In general, soil samples (soil borings or endpoint samples) use an ID that indicates the depth at which the sample was taken. Aqueous samples (groundwater or surface water samples) are identified by the date the sample was collected. Other types of samples including quality control (TB, FB, and DUP), Vapor samples (AA, IA, SV or SVE), other soil type samples (IDW, sludge, free product, drum, and others) are also identified by a date. The following rules apply to the ID when using sample depth or sample date.

Sample Depth
The sample depth must be whole numbers (no fractions) separated by a hyphen. Thus for a soil sample collected from the soil boring SB-1 from a depth of 6 feet to 8 feet, the sample would be identified as:

SB01_6-8

Unfortunately, the NYSDEC EQuIS system does not accept fractions. Therefore, if your sample interval is a fraction of a foot (6.5-7.5), round up to the larger interval (6-8).

Sample Date
The sample date is always in the format of MMDDYY. Note that the year is two digits. Thus for a groundwater sample collected on July 1, 2015 from the monitoring well MW-1, the sample would be identified as:

MW01_070115

Special Cases
There are a couple of specific sample types that require further explanation.

Endpoint Sampling
End point sidewall samples are sometimes modified by magnetic direction (N, S, E, and W). For example, the first sidewall endpoint sample from the north wall of an excavation at a depth of 5 feet would be written as:

EPSW01_N_5

Again, note that the N in the identification refers to north and is separated from the prefix investigation code/numeric identifier and ID modifier suffix by underscores.

Vapor Extraction Well Sample
As with the sidewall endpoint samples, the sample name is altered by inserting a middle modifier between the prefix and suffix of the sample name. The middle modifier is used to identify the source of the sample (inlet sample port, midpoint sample port or outlet sample port). For example the midpoint port of the vapor extraction well number 1 sampled on July 1, 2015 would be written as;

SVE01_MID_070115

Matrix Spike and Matrix Spike Duplicate
On occasion, a Langan investigation will collect a sample to be used to provide the lab with a site specific medium to spike to determine the quality of the analytical method. This special case of sampling requires additional information to be used in the sample name, specifically, a suffix specifying whether the sample is the matrix spike (MS) or the matrix spike duplicate (MSD). In the following example, the sample is collected from soil boring number 1 at a depth of 2-4 feet. For the matrix spike sample:

SB01_2-4_MS

and for the matrix spike duplicate sample:

SB01_2-4_MSD

Multiple Interval Groundwater Sampling
Although not currently a common practice, low flow sampling facilitates stratigraphic sampling of a monitoring well. If the scope requires stratigraphic sampling then groundwater samples will be labeled with a lower case letter following the well number. For example, placing the pump or sampling tube at 10 feet below surface in MW01 on July 1, 2015 would require the sample to be labeled as:

MW01a_070115

While a second sample where the pump or tubing intake is placed at 20 feet would be labeled as:

MW01b_070115

Note that it is important that you record what depth the intake for each sample represents in your field notes; as this information is going to be critical to interpreting the results.

NEW YORK STATE OF OPPORTUNITY.

Department of Environmental Conservation

SAMPLING, ANALYSIS, AND ASSESSMENT OF PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS)

Under NYSDEC's Part 375 Remedial Programs

April 2023

www.dec.ny.gov

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ERRATA SHEET for

SAMPLING, ANALYSIS, AND ASSESSMENT OF PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS) Under NYSDEC's Part 375 Remedial Programs Issued January 17, 2020

Citation and Page Number	Current Text	Corrected Text	Date
Title of Appendix I, page 32	Appendix H	Appendix I	2/25/2020
Document Cover, page 1	Guidelines for Sampling and Analysis of PFAS	Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs	9/15/2020
Data Assessment and Application to Site Cleanup Page 3	Until such time as Ambient Water Quality Standards (AWQS) and Soil Cleanup Objectives (SCOs) for PFOA and PFOS are published	Until such time as Soil Cleanup Objectives (SCOs) for PFOA and PFOS are published	3/28/2023
Water Sample Results Page 3	PFOA and PFOS should be further assessed and considered as potential contaminants of concern in groundwater or surface water if PFOA or PFOS is detected in any water sample at or above 10 ng/L (ppt) and is determined to be attributable to the site, either by a comparison of upgradient and downgradient levels, or the presence of soil source areas, as defined below.	NYSDEC has adopted ambient water quality guidance values for PFOA and PFOS. Groundwater samples should be compared to the human health criteria of 6.7 ng/l (ppt) for PFOA and 2.7 ng/l (ppt) for PFOS. These guidance values also include criteria for surface water for PFOS applicable for aquatic life, which may be applicable at some sites. Drinking water sample results should be compared to the NYS maximum contaminant level (MCL) of 10 ng/l (ppt).Analysis to determine if PFOA and PFOS concentrations are attributable to the site should include a comparison between upgradient and downgradient levels, and the presence of soil source areas, as defined below.	3/28/2023
Soil Sample Results Page 3	Soil cleanup objectives for PFOA and PFOS have been proposed in an upcoming revision to 6 NYCRR Part 375-6. Until SCOs are in effect, the following are to be used as guidance values:	NYSDEC will delay adding soil cleanup objectives for PFOA and PFOS to 6 NYCRR Part 375-6 until the PFAS rural soil background study has been completed. Until SCOs are in effect, the following are to be used as guidance values:	3/28/2023
Protection of Groundwater Page 3	PFOA (ppb) 1.1 PFOS (ppb) 3.7	PFOA (ppb) 0.8 PFOS (ppb) 1.0	3/28/2023

Citation and Page Number	Current Text	Corrected Text	Date
Footnote 2 Page 3	The movement of PFAS in the environment is being aggressively researched at this time; that research will eventually result in more accurate models for the behaviors of these chemicals. In the meantime, DEC has calculated the guidance value for the protection of groundwater using the same procedure used for all other chemicals, as described in Section 7.7 of the Technical Support Document (http://www.dec.ny.gov/docs/remediation_hudson_pdf/techsuppdoc.pdf).	The Protection of Groundwater values are based on the above referenced ambient groundwater guidance values. Details on that calculation are available in the following document, prepared for the February 2022 proposed changes to Part 375 (https://www.dec.ny.gov/docs/remediation_hudson_pdf/part375techsupport.pdf). The movement of PFAS in the environment is being aggressively researched at this time; that research will eventually result in more accurate models for the behaviors of these chemicals. In the meantime, DEC has calculated the guidance value for the protection of groundwater using the same procedure used for all other chemicals, as described in Section 7.7 of the Technical Support Document (http://www.dec.ny.gov/docs/remediation_hudson_pdf/techsuppdoc.pdf).	3/28/2023
Testing for Imported Soil Page 4	If the concentrations of PFOA and PFOS in leachate are at or above 10 ppt (the Maximum Contaminant Levels established for drinking water by the New York State Department of Health), then the soil is not acceptable.	If the concentrations of PFOA and PFOS in leachate are at or above the ambient water quality guidance values for groundwater, then the soil is not acceptable.	3/28/2023
Routine Analysis, page 9	"However, laboratories analyzing environmental samples…PFOA and PFOS in drinking water by EPA Method 537, 537.1 or ISO 25101."	"However, laboratories analyzing environmental samples…PFOA and PFOS in drinking water by EPA Method 537, 537.1, ISO 25101, or Method 533."	9/15/2020
Additional Analysis, page 9, new paragraph regarding soil parameters	None	"In cases where site-specific cleanup objectives for PFOA and PFOS are to be assessed, soil parameters, such as Total Organic Carbon (EPA Method 9060), soil pH (EPA Method 9045), clay content (percent), and cation exchange capacity (EPA Method 9081), should be included in the analysis to help evaluate factors affecting the leachability of PFAS in site soils."	9/15/2020

Citation and Page Number	Current Text	Corrected Text	Date
Data Assessment and Application to Site Cleanup Page 10	Until such time as Ambient Water Quality Standards (AWQS) and Soil Cleanup Objectives (SCOs) for PFAS are published, the extent of contaminated media potentially subject to remediation should be determined on a case-by-case basis using the procedures discussed below and the criteria in DER-10. Target levels for cleanup of PFAS in other media, including biota and sediment, have not yet been established by the DEC.	Until such time as Ambient Water Quality Standards (AWQS) and Soil Cleanup Objectives (SCOs) for PFOA and PFOS are published, the extent of contaminated media potentially subject to remediation should be determined on a case-by-case basis using the procedures discussed below and the criteria in DER-10. Preliminary target levels for cleanup of PFOA and PFOS in other media, including biota and sediment, have not yet been established by the DEC.	9/15/2020
Water Sample Results Page 10	PFAS should be further assessed and considered as a potential contaminant of concern in groundwater or surface water (…) If PFAS are identified as a contaminant of concern for a site, they should be assessed as part of the remedy selection process in accordance with Part 375 and DER-10.	PFOA and PFOS should be further assessed and considered as potential contaminants of concern in groundwater or surface water (…) If PFOA and/or PFOS are identified as contaminants of concern for a site, they should be assessed as part of the remedy selection process in accordance with Part 375 and DER-10.	9/15/2020

Citation and Page Number	Current Text	Corrected Text	Date
Soil Sample Results, page 10	"The extent of soil contamination for purposes of delineation and remedy selection should be determined by having certain soil samples tested by Synthetic Precipitation Leaching Procedure (SPLP) and the leachate analyzed for PFAS. Soil exhibiting SPLP results above 70 ppt for either PFOA or PFOS (individually or combined) are to be evaluated during the cleanup phase."	"Soil cleanup objectives for PFOA and PFOS will be proposed in an upcoming revision to 6 NYCRR Part 375-6. Until SCOs are in effect, the following are to be used as guidance values. " [Interim SCO Table] "PFOA and PFOS results for soil are to be compared against the guidance values listed above. These guidance values are to be used in determining whether PFOA and PFOS are contaminants of concern for the site and for determining remedial action objectives and cleanup requirements. Site-specific remedial objectives for protection of groundwater can also be presented for evaluation by DEC. Development of site-specific remedial objectives for protection of groundwater will require analysis of additional soil parameters relating to leachability. These additional analyses can include any or all the parameters listed above (soil pH, cation exchange capacity, etc.) and/or use of SPLP. As the understanding of PFAS transport improves, DEC welcomes proposals for site-specific remedial objectives for protection of groundwater. DEC will expect that those may be dependent on additional factors including soil pH, aqueous pH, % organic carbon, % Sand/Silt/Clay, soil cations: K, Ca, Mg, Na, Fe, Al, cation exchange capacity, and anion exchange capacity. Site-specific remedial objectives should also consider the dilution attenuation factor (DAF). The NJDEP publication on DAF can be used as a reference: https://www.nj.gov/dep/srp/guidance/rs/daf.pdf. "	9/15/2020

Citation and Page Number	Current Text	Corrected Text	Date
Testing for Imported Soil Page 11	Soil imported to a site for use in a soil cap, soil cover, or as backfill is to be tested for PFAS in general conformance with DER-10, Section 5.4(e) for the PFAS Analyte List (Appendix F) using the analytical procedures discussed below and the criteria in DER-10 associated with SVOCs. If PFOA or PFOS is detected in any sample at or above 1 µg/kg, then soil should be tested by SPLP and the leachate analyzed for PFAS. If the SPLP results exceed 10 ppt for either PFOA or PFOS (individually) then the source of backfill should be rejected, unless a site-specific exemption is provided by DER. SPLP leachate criteria is based on the Maximum Contaminant Levels proposed for drinking water by New York State's Department of Health, this value may be updated based on future Federal or State promulgated regulatory standards. Remedial parties have the option of analyzing samples concurrently for both PFAS in soil and in the SPLP leachate to minimize project delays. Category B deliverables should be submitted for backfill samples, though a DUSR is not required.	Testing for PFAS should be included any time a full TAL/TCL analyte list is required. Results for PFOA and PFOS should be compared to the applicable guidance values. If PFOA or PFOS is detected in any sample at or above the guidance values then the source of backfill should be rejected, unless a site-specific exemption is provided by DER based on SPLP testing, for example. If the concentrations of PFOA and PFOS in leachate are at or above 10 ppt (the Maximum Contaminant Levels established for drinking water by the New York State Department of Health), then the soil is not acceptable. PFOA, PFOS and 1,4-dioxane are all considered semi-volatile compounds, so composite samples are appropriate for these compounds when sampling in accordance with DER-10, Table 5.4(e)10. Category B deliverables should be submitted for backfill samples, though a DUSR is not required.	9/15/2020

Citation and Page Number	Current Text	Corrected Text	Date
Footnotes	None	[1] TOP Assay analysis of highly contaminated samples, such as those from an AFFF (aqueous film-forming foam) site, can result in incomplete oxidation of the samples and an underestimation of the total perfluoroalkyl substances. [2] The movement of PFAS in the environment is being aggressively researched at this time; that research will eventually result in more accurate models for the behaviors of these chemicals. In the meantime, DEC has calculated the soil cleanup objective for the protection of groundwater using the same procedure used for all other chemicals, as described in Section 7.7 of the Technical Support Document (http://www.dec.ny.gov/docs/remediation_hudson_pdf/techsuppdoc.pdf).	9/15/2020
Additional Analysis, page 9	In cases… soil parameters, such as Total Organic Carbon (EPA Method 9060), soil…	In cases… soil parameters, such as Total Organic Carbon (Lloyd Kahn), soil…	1/8/2021
Appendix A, General Guidelines, fourth bullet	List the ELAP-approved lab(s) to be used for analysis of samples	List the ELAP- certified lab(s) to be used for analysis of samples	1/8/2021
Appendix E, Laboratory Analysis and Containers	Drinking water samples collected using this protocol are intended to be analyzed for PFAS by ISO Method 25101.	Drinking water samples collected using this protocol are intended to be analyzed for PFAS by EPA Method 537, 537.1, 533, or ISO Method 25101	1/8/2021
Water Sample Results Page 9	"In addition, further assessment of water may be warranted if either of the following screening levels are met: a. any other individual PFAS (not PFOA or PFOS) is detected in water at or above 100 ng/L; or b. total concentration of PFAS (including PFOA and PFOS) is detected in water at or above 500 ng/L"	Deleted	6/15/2021

Citation and Page Number	Current Text	Corrected Text	Date
Routine Analysis, Page XX	Currently, New York State Department of Health's Environmental Laboratory Approval Program (ELAP)… criteria set forth in the DER's laboratory guidelines for PFAS in non-potable water and solids (Appendix H - Laboratory Guidelines for Analysis of PFAS in Non-Potable Water and Solids).	Deleted	5/31/2022
Analysis and Reporting, Page XX	As of October 2020, the United States Environmental Protection Agency (EPA) does not have a validated method for analysis of PFAS for media commonly analyzed under DER remedial programs (non-potable waters, solids). DER has developed the following guidelines to ensure consistency in analysis and reporting of PFAS.	Deleted	5/31/2022
Routine Analysis, Page XX	LC-MS/MS analysis for PFAS using methodologies based on EPA Method 537.1 is the procedure to use for environmental samples. Isotope dilution techniques should be utilized for the analysis of PFAS in all media.	EPA Method 1633 is the procedure to use for environmental samples.	
Soil Sample Results, Page XX	Soil cleanup objectives for PFOA and PFOS will be proposed in an upcoming revision to 6 NYCRR Part 375-6	Soil cleanup objectives for PFOA and PFOS have been proposed in an upcoming revision to 6 NYCRR Part 375-6	
Appendix A	"Include in the text… LC-MS/MS for PFAS using methodologies based on EPA Method 537.1"	"Include in the text ….EPA Method 1633"	
Appendix A	"Laboratory should have ELAP certification for PFOA and PFOS in drinking water by EPA Method 537, 537.1, EPA Method 533, or ISO 25101"	Deleted	
Appendix B	"Samples collected using this protocol are intended to be analyzed for PFAS using methodologies based on EPA Method 537.1"	"Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633"	

Citation and Page Number	Current Text	Corrected Text	Date
Appendix C	"Samples collected using this protocol are intended to be analyzed for PFAS using methodologies based on EPA Method 537.1"	"Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633"	
Appendix D	"Samples collected using this protocol are intended to be analyzed for PFAS using methodologies based on EPA Method 537.1"	"Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633"	
Appendix G		Updated to include all forty PFAS analytes in EPA Method 533	
Appendix H		Deleted	
Appendix I	Appendix I	Appendix H	
Appendix H	"These guidelines are intended to be used for the validation of PFAS analytical results for projects within the Division of Environmental Remediation (DER) as well as aid in the preparation of a data usability summary report."	"These guidelines are intended to be used for the validation of PFAS using EPA Method 1633 for projects within the Division of Environmental Remediation (DER)."	
Appendix H	"The holding time is 14 days…"	"The holding time is 28 days…"	
Appendix H, Initial Calibration	"The initial calibration should contain a minimum of five standards for linear fit…"	"The initial calibration should contain a minimum of six standards for linear fit…"	
Appendix H, Initial Calibration	Linear fit calibration curves should have an R^2 value greater than 0.990.	Deleted	
Appendix H, Initial Calibration Verification	Initial Calibration Verification Section	Deleted	
Appendix H	secondary Ion Monitoring Section	Deleted	
Appendix H	Branched and Linear Isomers Section	Deleted	

Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs

Objective

New York State Department of Environmental Conservation's Division of Environmental Remediation (DER) performs or oversees sampling of environmental media and subsequent analysis of PFAS as part of remedial programs implemented under 6 NYCRR Part 375. To ensure consistency in sampling, analysis, reporting, and assessment of PFAS, DER has developed this document which summarizes currently accepted procedures and updates previous DER technical guidance pertaining to PFAS.

Applicability

All work plans submitted to DEC pursuant to one of the remedial programs under Part 375 shall include PFAS sampling and analysis procedures that conform to the guidelines provided herein.

As part of a site investigation or remedial action compliance program, whenever samples of potentially affected media are collected and analyzed for the standard Target Analyte List/Target Compound List (TAL/TCL), PFAS analysis should also be performed. Potentially affected media can include soil, groundwater, surface water, and sediment. Based upon the potential for biota to be affected, biota sampling and analysis for PFAS may also be warranted as determined pursuant to a Fish and Wildlife Impact Analysis. Soil vapor sampling for PFAS is not required.

Field Sampling Procedures

DER-10 specifies technical guidance applicable to DER's remedial programs. Given the prevalence and use of PFAS, DER has developed "best management practices" specific to sampling for PFAS. As specified in DER-10 Chapter 2, quality assurance procedures are to be submitted with investigation work plans. Typically, these procedures are incorporated into a work plan, or submitted as a stand-alone document (e.g., a Quality Assurance Project Plan). Quality assurance guidelines for PFAS are listed in Appendix A - Quality Assurance Project Plan (QAPP) Guidelines for PFAS.

Field sampling for PFAS performed under DER remedial programs should follow the appropriate procedures outlined for soils, sediments, or other solids (Appendix B), non-potable groundwater (Appendix C), surface water (Appendix D), public or private water supply wells (Appendix E), and fish tissue (Appendix F).

QA/QC samples (e.g. duplicates, MS/MSD) should be collected as specified in DER-10, Section 2.3(c). For sampling equipment coming in contact with aqueous samples only, rinsate or equipment blanks should be collected. Equipment blanks should be collected at a minimum frequency of one per day per site or one per twenty samples, whichever is more frequent.

Analysis and Reporting

The investigation work plan should describe analysis and reporting procedures, including laboratory analytical procedures for the methods discussed below. As specified in DER-10 Section 2.2, laboratories should provide a full Category B deliverable. In addition, a Data Usability Summary Report (DUSR) should be prepared by an independent, third-party data validator. Electronic data submissions should meet the requirements provided at: https://www.dec.ny.gov/chemical/62440.html.

DER has developed a *PFAS Analyte List* (Appendix G) for remedial programs to understand the nature of contamination at sites. It is expected that reported results for PFAS will include, at a minimum, all the compounds listed. If lab and/or matrix specific issues are encountered for any analytes, the DER project manager, in consultation with the DER chemist, will make case-by-case decisions as to whether certain analytes may be temporarily or permanently discontinued from analysis at each site. As with other contaminants that are analyzed for at a site, the *PFAS Analyte List* may be refined for future sampling events based on investigative findings.

Routine Analysis

EPA Method 1633 is the procedure to use for environmental samples. Reporting limits for PFOA and PFOS in aqueous samples should not exceed 2 ng/L. Reporting limits for PFOA and PFOS in solid samples should not exceed 0.5 µg/kg. Reporting limits for all other PFAS in aqueous and solid media should be as close to these limits as possible. If laboratories indicate that they are not able to achieve these reporting limits for the entire *PFAS Analyte List*, site-specific decisions regarding acceptance of elevated reporting limits for specific PFAS can be made by the DER project manager in consultation with the DER chemist. Data review guidelines were developed by DER to ensure data comparability and usability (Appendix H - Data Review Guidelines for Analysis of PFAS in Non-Potable Water and Solids).

Additional Analysis

Additional laboratory methods for analysis of PFAS may be warranted at a site, such as the Synthetic Precipitation Leaching Procedure (SPLP) and Total Oxidizable Precursor Assay (TOP Assay).

In cases where site-specific cleanup objectives for PFOA and PFOS are to be assessed, soil parameters, such as Total Organic Carbon (Lloyd Kahn), soil pH (EPA Method 9045), clay content (percent), and cation exchange capacity (EPA Method 9081), should be included in the analysis to help evaluate factors affecting the leachability of PFAS in site soils.

SPLP is a technique used to determine the mobility of chemicals in liquids, soils and wastes, and may be useful in determining the need for addressing PFAS-containing material as part of the remedy. SPLP by EPA Method 1312 should be used unless otherwise specified by the DER project manager in consultation with the DER chemist.

Impacted materials can be made up of PFAS that are not analyzable by routine analytical methodology. A TOP Assay can be utilized to conceptualize the amount and type of oxidizable PFAS which could be liberated in the environment, which approximates the maximum concentration of perfluoroalkyl substances that could be generated if all polyfluoroalkyl substances were oxidized. For example, some polyfluoroalkyl substances may degrade or transform to form perfluoroalkyl substances (such as PFOA or PFOS), resulting in an increase in perfluoroalkyl substance concentrations as contaminated groundwater moves away from a source. The TOP Assay converts, through oxidation, polyfluoroalkyl substances (precursors) into perfluoroalkyl substances that can be detected by routine analytical methodology.[1]

[1] TOP Assay analysis of highly contaminated samples, such as those from an AFFF (aqueous film-forming foam) site, can result in incomplete oxidation of the samples and an underestimation of the total perfluoroalkyl substances.

Commercial laboratories have adopted methods which allow for the quantification of targeted PFAS in air and biota. The EPA's Office of Research and Development (ORD) is currently developing methods which allow for air emissions characterization of PFAS, including both targeted and non-targeted analysis of PFAS. Consult with the DER project manager and the DER chemist for assistance on analyzing biota/tissue and air samples.

Data Assessment and Application to Site Cleanup

Until such time as Soil Cleanup Objectives (SCOs) for PFOA and PFOS are published, the extent of contaminated media potentially subject to remediation should be determined on a case-by-case basis using the procedures discussed below and the criteria in DER-10. Preliminary target levels for cleanup of PFOA and PFOS in other media, including biota and sediment, have not yet been established by the DEC.

Water Sample Results

NYSDEC has adopted ambient water quality guidance values for PFOA and PFOS. Groundwater samples should be compared to the human health criteria of 6.7 ng/l (ppt) for PFOA and 2.7 ng/l (ppt) for PFOS. These human health criteria should also be applied to surface water that is used as a water supply. This guidance also includes criteria for surface water for PFOS applicable for aquatic life, which may be applicable at some sites. Drinking water sample results should be compared to the NYS maximum contaminant level (MCL) of 10 ng/l (ppt). Analysis to determine if PFOA and PFOS concentrations are attributable to the site should include a comparison between upgradient and downgradient levels, and the presence of soil source areas, as defined below.

If PFOA and/or PFOS are identified as contaminants of concern for a site, they should be assessed as part of the remedy selection process in accordance with Part 375 and DER-10.

Soil Sample Results

NYSDEC will delay adding soil cleanup objectives for PFOA and PFOS to 6 NYCRR Part 375-6 until the PFAS rural soil background study has been completed. Until SCOs are in effect, the following are to be used as guidance values:

Guidance Values for Anticipated Site Use	PFOA (ppb)	PFOS (ppb)
Unrestricted	0.66	0.88
Residential	6.6	8.8
Restricted Residential	33	44
Commercial	500	440
Industrial	600	440
Protection of Groundwater[2]	0.8	1.0

PFOA and PFOS results for soil are to be compared against the guidance values listed above. These guidance values are to be used in determining whether PFOA and PFOS are contaminants of concern for the site and for determining remedial action objectives and cleanup requirements. Site-specific remedial objectives for protection of groundwater can also be presented for evaluation by DEC. Development of site-specific remedial objectives for protection of groundwater will require analysis of additional soil parameters relating to leachability. These

[2] The Protection of Groundwater values are based on the above referenced ambient groundwater guidance values. Details on that calculation are available in the following document, prepared for the February 2022 proposed changes to Part 375 (https://www.dec.ny.gov/docs/remediation_hudson_pdf/part375techsupport.pdf). The movement of PFAS in the environment is being aggressively researched at this time; that research will eventually result in more accurate models for the behaviors of these chemicals. In the meantime, DEC has calculated the guidance value for the protection of groundwater using the same procedure used for all other chemicals, as described in Section 7.7 of the Technical Support Document (http://www.dec.ny.gov/docs/remediation_hudson_pdf/techsuppdoc.pdf).

additional analyses can include any or all the parameters listed above (soil pH, cation exchange capacity, etc.) and/or use of SPLP.

As the understanding of PFAS transport improves, DEC welcomes proposals for site-specific remedial objectives for protection of groundwater. DEC will expect that those may be dependent on additional factors including soil pH, aqueous pH, % organic carbon, % Sand/Silt/Clay, soil cations: K, Ca, Mg, Na, Fe, Al, cation exchange capacity, and anion exchange capacity. Site-specific remedial objectives should also consider the dilution attenuation factor (DAF). The NJDEP publication on DAF can be used as a reference: https://www.nj.gov/dep/srp/guidance/rs/daf.pdf.

Testing for Imported Soil

Testing for PFAS should be included any time a full TAL/TCL analyte list is required. Results for PFOA and PFOS should be compared to the applicable guidance values. If PFOA or PFOS is detected in any sample at or above the guidance values then the source of backfill should be rejected, unless a site-specific exemption is provided by DER based on SPLP testing, for example. If the concentrations of PFOA and PFOS in leachate are at or above the ambient water quality guidance values for groundwater, then the soil is not acceptable.

PFOA, PFOS and 1,4-dioxane are all considered semi-volatile compounds, so composite samples are appropriate for these compounds when sampling in accordance with DER-10, Table 5.4(e)10. Category B deliverables should be submitted for backfill samples, though a DUSR is not required.

Appendix A - Quality Assurance Project Plan (QAPP) Guidelines for PFAS

The following guidelines (general and PFAS-specific) can be used to assist with the development of a QAPP for projects within DER involving sampling and analysis of PFAS.

General Guidelines in Accordance with DER-10

- Document/work plan section title – Quality Assurance Project Plan
- Summarize project scope, goals, and objectives
- Provide project organization including names and resumes of the project manager, Quality Assurance Officer (QAO), field staff, and Data Validator
    - The QAO should not have another position on the project, such as project or task manager, that involves project productivity or profitability as a job performance criterion
- List the ELAP certified lab(s) to be used for analysis of samples
- Include a site map showing sample locations
- Provide detailed sampling procedures for each matrix
- Include Data Quality Usability Objectives
- List equipment decontamination procedures
- Include an "Analytical Methods/Quality Assurance Summary Table" specifying:
    - Matrix type
    - Number or frequency of samples to be collected per matrix
    - Number of field and trip blanks per matrix
    - Analytical parameters to be measured per matrix
    - Analytical methods to be used per matrix with minimum reporting limits
    - Number and type of matrix spike and matrix spike duplicate samples to be collected
    - Number and type of duplicate samples to be collected
    - Sample preservation to be used per analytical method and sample matrix
    - Sample container volume and type to be used per analytical method and sample matrix
    - Sample holding time to be used per analytical method and sample matrix
- Specify Category B laboratory data deliverables and preparation of a DUSR

Specific Guidelines for PFAS

- Include in the text that sampling for PFAS will take place
- Include in the text that PFAS will be analyzed by EPA Method 1633
- Include the list of PFAS compounds to be analyzed (*PFAS Analyte List*)
- Include the laboratory SOP for PFAS analysis
- List the minimum method-achievable Reporting Limits for PFAS
    - Reporting Limits should be less than or equal to:
        - Aqueous – 2 ng/L (ppt)
        - Solids – 0.5 µg/kg (ppb)
- Include the laboratory Method Detection Limits for the PFAS compounds to be analyzed
-
- Include detailed sampling procedures
    - Precautions to be taken
    - Pump and equipment types
    - Decontamination procedures
    - Approved materials only to be used
- Specify that regular ice only will be used for sample shipment
- Specify that equipment blanks should be collected at a minimum frequency of 1 per day per site for each matrix

Appendix B - Sampling Protocols for PFAS in Soils, Sediments and Solids

General

The objective of this protocol is to give general guidelines for the collection of soil, sediment and other solid samples for PFAS analysis. The sampling procedure used should be consistent with Sampling Guidelines and Protocols – Technological Background and Quality Control/Quality Assurance for NYS DEC Spill Response Program – March 1991 (http://www.dec.ny.gov/docs/remediation_hudson_pdf/sgpsect5.pdf), with the following limitations.

Laboratory Analysis and Containers

Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633.

The preferred material for containers is high density polyethylene (HDPE). Pre-cleaned sample containers, coolers, sample labels, and a chain of custody form will be provided by the laboratory.

Equipment

Acceptable materials for sampling include stainless steel, HDPE, PVC, silicone, acetate, and polypropylene. Additional materials may be acceptable if pre-approved by New York State Department of Environmental Conservation's Division of Environmental Remediation.

No sampling equipment components or sample containers should come in to contact with aluminum foil, low density polyethylene, glass, or polytetrafluoroethylene (PTFE, Teflon™) materials including sample bottle cap liners with a PTFE layer.

A list of acceptable equipment is provided below, but other equipment may be considered appropriate based on sampling conditions.

- stainless steel spoon
- stainless steel bowl
- steel hand auger or shovel without any coatings

Equipment Decontamination

Standard two step decontamination using detergent (Alconox is acceptable) and clean, PFAS-free water will be performed for sampling equipment. All sources of water used for equipment decontamination should be verified in advance to be PFAS-free through laboratory analysis or certification.

Sampling Techniques

Sampling is often conducted in areas where a vegetative turf has been established. In these cases, a pre-cleaned trowel or shovel should be used to carefully remove the turf so that it may be replaced at the conclusion of sampling. Surface soil samples (e.g. 0 to 6 inches below surface) should then be collected using a pre-cleaned, stainless steel spoon. Shallow subsurface soil samples (e.g. 6 to ~36 inches below surface) may be collected by digging a hole using a pre-cleaned hand auger or shovel. When the desired subsurface depth is reached, a pre-cleaned hand auger or spoon shall be used to obtain the sample.

When the sample is obtained, it should be deposited into a stainless steel bowl for mixing prior to filling the sample containers. The soil should be placed directly into the bowl and mixed thoroughly by rolling the material into the middle until the material is homogenized. At this point the material within the bowl can be placed into the laboratory provided container.

Sample Identification and Logging

A label shall be attached to each sample container with a unique identification. Each sample shall be included on the chain of custody (COC).

Quality Assurance/Quality Control

- Immediately place samples in a cooler maintained at 4 ± 2º Celsius using ice
- Collect one field duplicate for every sample batch, minimum 1 duplicate per 20 samples. The duplicate shall consist of an additional sample at a given location
- Collect one matrix spike / matrix spike duplicate (MS/MSD) for every sample batch, minimum 1 MS/MSD per 20 samples. The MS/MSD shall consist of an additional two samples at a given location and identified on the COC
- Request appropriate data deliverable (Category B) and an electronic data deliverable

Documentation

A soil log or sample log shall document the location of the sample/borehole, depth of the sample, sampling equipment, duplicate sample, visual description of the material, and any other observations or notes determined to be appropriate. Additionally, care should be performed to limit contact with PFAS containing materials (e.g. waterproof field books, food packaging) during the sampling process.

Personal Protection Equipment (PPE)

For most sampling Level D PPE is anticipated to be appropriate. The sampler should wear nitrile gloves while conducting field work and handling sample containers.

Field staff shall consider the clothing to be worn during sampling activities. Clothing that contains PTFE material (including GORE-TEX®) or that have been waterproofed with PFAS materials should be avoided. All clothing worn by sampling personnel should have been laundered multiple times.

Appropriate rain gear (PVC, polyurethane, or rubber rain gear are acceptable), bug spray, and sunscreen should be used that does not contain PFAS. Well washed cotton coveralls may be used as an alternative to bug spray and/or sunscreen.

PPE that contains PFAS is acceptable when site conditions warrant additional protection for the samplers and no other materials can be used to be protective. Documentation of such use should be provided in the field notes.

Appendix C - Sampling Protocols for PFAS in Monitoring Wells

General

The objective of this protocol is to give general guidelines for the collection of groundwater samples for PFAS analysis. The sampling procedure used should be consistent with Sampling Guidelines and Protocols – Technological Background and Quality Control/Quality Assurance for NYS DEC Spill Response Program – March 1991 (http://www.dec.ny.gov/docs/remediation_hudson_pdf/sgpsect5.pdf), with the following limitations.

Laboratory Analysis and Container

Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633.

The preferred material for containers is high density polyethylene (HDPE). Pre-cleaned sample containers, coolers, sample labels, and a chain of custody form will be provided by the laboratory.

Equipment

Acceptable materials for sampling include: stainless steel, HDPE, PVC, silicone, acetate, and polypropylene. Additional materials may be acceptable if pre-approved by New York State Department of Environmental Conservation's Division of Environmental Remediation.

No sampling equipment components or sample containers should come in contact with aluminum foil, low density polyethylene, glass, or polytetrafluoroethylene (PTFE, Teflon™) materials including plumbers tape and sample bottle cap liners with a PTFE layer.

A list of acceptable equipment is provided below, but other equipment may be considered appropriate based on sampling conditions.

- stainless steel inertia pump with HDPE tubing
- peristaltic pump equipped with HDPE tubing and silicone tubing
- stainless steel bailer with stainless steel ball
- bladder pump (identified as PFAS-free) with HDPE tubing

Equipment Decontamination

Standard two step decontamination using detergent (Alconox is acceptable) and clean, PFAS-free water will be performed for sampling equipment. All sources of water used for equipment decontamination should be verified in advance to be PFAS-free through laboratory analysis or certification.

Sampling Techniques

Monitoring wells should be purged in accordance with the sampling procedure (standard/volume purge or low flow purge) identified in the site work plan, which will determine the appropriate time to collect the sample. If sampling using standard purge techniques, additional purging may be needed to reduce turbidity levels, so samples contain a limited amount of sediment within the sample containers. Sample containers that contain sediment may cause issues at the laboratory, which may result in elevated reporting limits and other issues during the sample preparation that can compromise data usability. Sampling personnel should don new nitrile gloves prior to sample collection due to the potential to contact PFAS containing items (not related to the sampling equipment) during the purging activities.

Sample Identification and Logging

A label shall be attached to each sample container with a unique identification. Each sample shall be included on the chain of custody (COC).

Quality Assurance/Quality Control

- Immediately place samples in a cooler maintained at 4 ± 2º Celsius using ice
- Collect one field duplicate for every sample batch, minimum 1 duplicate per 20 samples. The duplicate shall consist of an additional sample at a given location
- Collect one matrix spike / matrix spike duplicate (MS/MSD) for every sample batch, minimum 1 MS/MSD per 20 samples. The MS/MSD shall consist of an additional two samples at a given location and identified on the COC
- Collect one equipment blank per day per site and minimum 1 equipment blank per 20 samples. The equipment blank shall test the new and decontaminated sampling equipment utilized to obtain a sample for residual PFAS contamination. This sample is obtained by using laboratory provided PFAS-free water and passing the water over or through the sampling device and into laboratory provided sample containers
- Additional equipment blank samples may be collected to assess other equipment that is utilized at the monitoring well
- Request appropriate data deliverable (Category B) and an electronic data deliverable

Documentation

A purge log shall document the location of the sample, sampling equipment, groundwater parameters, duplicate sample, visual description of the material, and any other observations or notes determined to be appropriate. Additionally, care should be performed to limit contact with PFAS containing materials (e.g. waterproof field books, food packaging) during the sampling process.

Personal Protection Equipment (PPE)

For most sampling Level D PPE is anticipated to be appropriate. The sampler should wear nitrile gloves while conducting field work and handling sample containers.

Field staff shall consider the clothing to be worn during sampling activities. Clothing that contains PTFE material (including GORE-TEX®) or that have been waterproofed with PFAS materials should be avoided. All clothing worn by sampling personnel should have been laundered multiple times.

Appropriate rain gear (PVC, polyurethane, or rubber rain gear are acceptable), bug spray, and sunscreen should be used that does not contain PFAS. Well washed cotton coveralls may be used as an alternative to bug spray and/or sunscreen.

PPE that contains PFAS is acceptable when site conditions warrant additional protection for the samplers and no other materials can be used to be protective. Documentation of such use should be provided in the field notes.

Appendix D - Sampling Protocols for PFAS in Surface Water

General

The objective of this protocol is to give general guidelines for the collection of surface water samples for PFAS analysis. The sampling procedure used should be consistent with Sampling Guidelines and Protocols – Technological Background and Quality Control/Quality Assurance for NYS DEC Spill Response Program – March 1991 (http://www.dec.ny.gov/docs/remediation_hudson_pdf/sgpsect5.pdf), with the following limitations.

Laboratory Analysis and Container

Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633.

The preferred material for containers is high density polyethylene (HDPE). Pre-cleaned sample containers, coolers, sample labels, and a chain of custody form will be provided by the laboratory.

Equipment

Acceptable materials for sampling include: stainless steel, HDPE, PVC, silicone, acetate, and polypropylene. Additional materials may be acceptable if pre-approved by New York State Department of Environmental Conservation's Division of Environmental Remediation.

No sampling equipment components or sample containers should come in contact with aluminum foil, low density polyethylene, glass, or polytetrafluoroethylene (PTFE, Teflon™) materials including sample bottle cap liners with a PTFE layer.

A list of acceptable equipment is provided below, but other equipment may be considered appropriate based on sampling conditions.

- stainless steel cup

Equipment Decontamination

Standard two step decontamination using detergent (Alconox is acceptable) and clean, PFAS-free water will be performed for sampling equipment. All sources of water used for equipment decontamination should be verified in advance to be PFAS-free through laboratory analysis or certification.

Sampling Techniques

Where conditions permit, (e.g. creek or pond) sampling devices (e.g. stainless steel cup) should be rinsed with site medium to be sampled prior to collection of the sample. At this point the sample can be collected and poured into the sample container.

If site conditions permit, samples can be collected directly into the laboratory container.

Sample Identification and Logging

A label shall be attached to each sample container with a unique identification. Each sample shall be included on the chain of custody (COC).

Quality Assurance/Quality Control

- Immediately place samples in a cooler maintained at 4 ± 2º Celsius using ice
- Collect one field duplicate for every sample batch, minimum 1 duplicate per 20 samples. The duplicate shall consist of an additional sample at a given location
- Collect one matrix spike / matrix spike duplicate (MS/MSD) for every sample batch, minimum 1 MS/MSD per 20 samples. The MS/MSD shall consist of an additional two samples at a given location and identified on the COC
- Collect one equipment blank per day per site and minimum 1 equipment blank per 20 samples. The equipment blank shall test the new and decontaminated sampling equipment utilized to obtain a sample for residual PFAS contamination. This sample is obtained by using laboratory provided PFAS-free water and passing the water over or through the sampling device and into laboratory provided sample containers
- Request appropriate data deliverable (Category B) and an electronic data deliverable

Documentation

A sample log shall document the location of the sample, sampling equipment, duplicate sample, visual description of the material, and any other observations or notes determined to be appropriate. Additionally, care should be performed to limit contact with PFAS containing materials (e.g. waterproof field books, food packaging) during the sampling process.

Personal Protection Equipment (PPE)

For most sampling Level D PPE is anticipated to be appropriate. The sampler should wear nitrile gloves while conducting field work and handling sample containers.

Field staff shall consider the clothing to be worn during sampling activities. Clothing that contains PTFE material (including GORE-TEX®) or that have been waterproofed with PFAS materials should be avoided. All clothing worn by sampling personnel should have been laundered multiple times.

Appropriate rain gear (PVC, polyurethane, or rubber rain gear are acceptable), bug spray, and sunscreen should be used that does not contain PFAS. Well washed cotton coveralls may be used as an alternative to bug spray and/or sunscreen.

PPE that contains PFAS is acceptable when site conditions warrant additional protection for the samplers and no other materials can be used to be protective. Documentation of such use should be provided in the field notes.

Appendix E - Sampling Protocols for PFAS in Private Water Supply Wells

General

The objective of this protocol is to give general guidelines for the collection of water samples from private water supply wells (with a functioning pump) for PFAS analysis. The sampling procedure used should be consistent with Sampling Guidelines and Protocols – Technological Background and Quality Control/Quality Assurance for NYS DEC Spill Response Program – March 1991 (http://www.dec.ny.gov/docs/remediation_hudson_pdf/sgpsect5.pdf), with the following limitations.

Laboratory Analysis and Container

Drinking water samples collected using this protocol are intended to be analyzed for PFAS by EPA Method 537, 537.1, 533, or ISO Method 25101. The preferred material for containers is high density polyethylene (HDPE). Pre-cleaned sample containers, coolers, sample labels, and a chain of custody form will be provided by the laboratory.

Equipment

Acceptable materials for sampling include stainless steel, HDPE, PVC, silicone, acetate, and polypropylene. Additional materials may be acceptable if pre-approved by New York State Department of Environmental Conservation's Division of Environmental Remediation.

No sampling equipment components or sample containers should come in contact with aluminum foil, low density polyethylene, glass, or polytetrafluoroethylene (PTFE, Teflon™) materials (e.g. plumbers tape), including sample bottle cap liners with a PTFE layer.

Equipment Decontamination

Standard two step decontamination using detergent (Alconox is acceptable) and clean, PFAS-free water will be performed for sampling equipment. All sources of water used for equipment decontamination should be verified in advance to be PFAS-free through laboratory analysis or certification.

Sampling Techniques

Locate and assess the pressure tank and determine if any filter units are present within the building. Establish the sample location as close to the well pump as possible, which is typically the spigot at the pressure tank. Ensure sampling equipment is kept clean during sampling as access to the pressure tank spigot, which is likely located close to the ground, may be obstructed and may hinder sample collection.

Prior to sampling, a faucet downstream of the pressure tank (e.g., washroom sink) should be run until the well pump comes on and a decrease in water temperature is noted which indicates that the water is coming from the well. If the homeowner is amenable, staff should run the water longer to purge the well (15+ minutes) to provide a sample representative of the water in the formation rather than standing water in the well and piping system including the pressure tank. At this point a new pair of nitrile gloves should be donned and the sample can be collected from the sample point at the pressure tank.

Sample Identification and Logging

A label shall be attached to each sample container with a unique identification. Each sample shall be included on the chain of custody (COC).

Quality Assurance/Quality Control

- Immediately place samples in a cooler maintained at 4 ± 2º Celsius using ice
- Collect one field duplicate for every sample batch, minimum 1 duplicate per 20 samples. The duplicate shall consist of an additional sample at a given location
- Collect one matrix spike / matrix spike duplicate (MS/MSD) for every sample batch, minimum 1 MS/MSD per 20 samples. The MS/MSD shall consist of an additional two samples at a given location and identified on the COC
- If equipment was used, collect one equipment blank per day per site and a minimum 1 equipment blank per 20 samples. The equipment blank shall test the new and decontaminated sampling equipment utilized to obtain a sample for residual PFAS contamination. This sample is obtained by using laboratory provided PFAS-free water and passing the water over or through the sampling device and into laboratory provided sample containers.
- A field reagent blank (FRB) should be collected at a rate of one per 20 samples. The lab will provide a FRB bottle containing PFAS free water and one empty FRB bottle. In the field, pour the water from the one bottle into the empty FRB bottle and label appropriately.
- Request appropriate data deliverable (Category B) and an electronic data deliverable
- For sampling events where multiple private wells (homes or sites) are to be sampled per day, it is acceptable to collect QC samples at a rate of one per 20 across multiple sites or days.

Documentation

A sample log shall document the location of the private well, sample point location, owner contact information, sampling equipment, purge duration, duplicate sample, visual description of the material, and any other observations or notes determined to be appropriate and available (e.g. well construction, pump type and location, yield, installation date). Additionally, care should be performed to limit contact with PFAS containing materials (e.g. waterproof field books, food packaging) during the sampling process.

Personal Protection Equipment (PPE)

For most sampling Level D PPE is anticipated to be appropriate. The sampler should wear nitrile gloves while conducting field work and handling sample containers.

Field staff shall consider the clothing to be worn during sampling activities. Clothing that contains PTFE material (including GORE-TEX®) or that have been waterproofed with PFAS materials should be avoided. All clothing worn by sampling personnel should have been laundered multiple times.

Appendix F - Sampling Protocols for PFAS in Fish

This appendix contains a copy of the current SOP developed by the Division of Fish and Wildlife (DFW) entitled "General Fish Handling Procedures for Contaminant Analysis" (Ver. 8). This SOP should be followed when collecting fish for contaminant analysis. Note, however, that the Bureau of Ecosystem Health will not be supplying bags or tags. All supplies are the responsibility of the collector

Procedure Name: General Fish Handling Procedures for Contaminant Analysis

Number: FW-005

Purpose: This procedure describes data collection, fish processing and delivery of fish collected for contaminant monitoring. It contains the chain of custody and collection record forms that should be used for the collections.

Organization: Environmental Monitoring Section
Bureau of Ecosystem Health
Division of Fish and Wildlife (DFW)
New York State Department of Environmental Conservation (NYSDEC)
625 Broadway
Albany, New York 12233-4756

Version: 8

Previous Version Date: 21 March 2018

Summary of Changes to this Version: Updated bureau name to Bureau of Ecosystem Health. Added direction to list the names of all field crew on the collection record. Minor formatting changes on chain of custody and collection records.

Originator or Revised by: Wayne Richter, Jesse Becker

Date: 26 April 2019

Quality Assurance Officer and Approval Date: Jesse Becker, 26 April 2019

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

GENERAL FISH HANDLING PROCEDURES FOR CONTAMINANT ANALYSES

A. Original copies of all continuity of evidence (i.e., Chain of Custody) and collection record forms must accompany delivery of fish to the lab. A copy shall be directed to the Project Leader or as appropriate, Wayne Richter. All necessary forms will be supplied by the Bureau of Ecosystem Health. Because some samples may be used in legal cases, it is critical that each section is filled out completely. Each Chain of Custody form has three main sections:

   1. The top box is to be filled out **and signed** by the person responsible for the fish collection (e.g., crew leader, field biologist, researcher). This person is responsible for delivery of the samples to DEC facilities or personnel (e.g., regional office or biologist).

   2. The second section is to be filled out **and signed** by the person responsible for the collections while being stored at DEC, before delivery to the analytical lab. This may be the same person as in (1), but it is still required that they complete the section. Also important is the **range of identification numbers** (i.e., tag numbers) included in the sample batch.

   3. Finally, the bottom box is to record any transfers between DEC personnel and facilities. Each subsequent transfer should be **identified, signed, and dated**, until laboratory personnel take possession of the fish.

B. The following data are required on each **Fish Collection Record** form:

   1. Project and Site Name.

   2. DEC Region.

   3. All personnel (and affiliation) involved in the collection.

   4. Method of collection (gill net, hook and line, etc.)

   5. Preservation Method.

C. The following data are to be taken on each fish collected and recorded on the **Fish Collection Record** form:

   1. Tag number - Each specimen is to be individually jaw tagged at time of collection with a unique number. Make sure the tag is turned out so that the number can be read without opening the bag. Use tags in sequential order. For small fish or composite samples place the tag inside the bag with the samples. The Bureau of Ecosystem Health can supply the tags.

   2. Species identification (please be explicit enough to enable assigning genus and species). Group fish by species when processing.

   3. Date collected.

   4. Sample location (waterway and nearest prominent identifiable landmark).

   5. Total length (nearest mm or smallest sub-unit on measuring instrument) and weight (nearest g or

smallest sub-unit of weight on weighing instrument). Take all measures as soon as possible with calibrated, protected instruments (e.g. from wind and upsets) and prior to freezing.

6. Sex - fish may be cut enough to allow sexing or other internal investigation, but do not eviscerate. Make any incision on the right side of the belly flap or exactly down the midline so that a left-side fillet can be removed.

D. General data collection recommendations:

1. It is helpful to use an ID or tag number that will be unique. It is best to use metal striped bass or other uniquely numbered metal tags. If uniquely numbered tags are unavailable, values based on the region, water body and year are likely to be unique: for example, R7CAY11001 for Region 7, Cayuga Lake, 2011, fish 1. If the fish are just numbered 1 through 20, we have to give them new numbers for our database, making it more difficult to trace your fish to their analytical results and creating an additional possibility for errors.

2. Process and record fish of the same species sequentially. Recording mistakes are less likely when all fish from a species are processed together. Starting with the bigger fish species helps avoid missing an individual.

3. If using Bureau of Ecosystem Health supplied tags or other numbered tags, use tags in sequence so that fish are recorded with sequential Tag Numbers. This makes data entry and login at the lab and use of the data in the future easier and reduces keypunch errors.

4. Record length and weight as soon as possible after collection and before freezing. Other data are recorded in the field upon collection. An age determination of each fish is optional, but if done, it is recorded in the appropriate “Age” column.

5. For composite samples of small fish, record the number of fish in the composite in the Remarks column. Record the length and weight of each individual in a composite. All fish in a composite sample should be of the same species and members of a composite should be visually matched for size.

6. Please submit photocopies of topographic maps or good quality navigation charts indicating sampling locations. GPS coordinates can be entered in the Location column of the collection record form in addition to or instead for providing a map. These records are of immense help to us (and hopefully you) in providing documented location records which are not dependent on memory and/or the same collection crew. In addition, they may be helpful for contaminant source trackdown and remediation/control efforts of the Department.

7. When recording data on fish measurements, it will help to ensure correct data recording for the data recorder to call back the numbers to the person making the measurements.

E. Each fish is to be placed in its own individual plastic bag. For small fish to be analyzed as a composite, put all of the fish for one composite in the same bag but use a separate bag for each composite. It is important to individually bag the fish to avoid difficulties or cross contamination when processing the fish for chemical analysis. Be sure to include the fish’s tag number inside the bag, preferably attached to the fish with the tag number turned out so it can be read. Tie or otherwise secure the bag closed. **The Bureau of Ecosystem Health will supply the bags.** If necessary, food grade bags may be procured from a suitable vendor (e.g., grocery store). It is preferable to redundantly label each bag with a manila tag tied between the knot and the body of the bag. This tag should be labeled with the project name, collection location, tag number, collection date, and fish species. If scales are collected, the scale envelope should be labeled with

the same information.

F. Groups of fish, by species, are to be placed in one large plastic bag per sampling location. **The Bureau of Ecosystem Health will supply the larger bags.** Tie or otherwise secure the bag closed. Label the site bag with a manila tag tied between the knot and the body of the bag. The tag should contain: project, collection location, collection date, species and **tag number ranges**. Having this information on the manila tag enables lab staff to know what is in the bag without opening it.

G. Do not eviscerate, fillet or otherwise dissect the fish unless specifically asked to. If evisceration or dissection is specified, the fish must be cut along the exact midline or on the right side so that the left side fillet can be removed intact at the laboratory. If filleting is specified, the procedure for taking a standard fillet (SOP PREPLAB 4) must be followed, including removing scales.

H. Special procedures for PFAS: Unlike legacy contaminants such as PCBs, which are rarely found in day to day life, PFAS are widely used and frequently encountered. Practices that avoid sample contamination are therefore necessary. While no standard practices have been established for fish, procedures for water quality sampling can provide guidance. The following practices should be used for collections when fish are to be analyzed for PFAS:

No materials containing Teflon.
No Post-it notes.
No ice packs; only water ice or dry ice.
Any gloves worn must be powder free nitrile.
No Gore-Tex or similar materials (Gore-Tex is a PFC with PFOA used in its manufacture).
No stain repellent or waterproof treated clothing; these are likely to contain PFCs.
Avoid plastic materials, other than HDPE, including clipboards and waterproof notebooks.
Wash hands after handling any food containers or packages as these may contain PFCs.
Keep pre-wrapped food containers and wrappers isolated from fish handling.
Wear clothing washed at least six times since purchase.
Wear clothing washed without fabric softener.
Staff should avoid cosmetics, moisturizers, hand creams and similar products on the day of sampling as many of these products contain PFCs (Fujii et al. 2013). Sunscreen or insect repellent should not contain ingredients with “fluor” in their name. Apply any sunscreen or insect repellent well downwind from all materials. Hands must be washed after touching any of these products.

I. All fish must be kept at a temperature <45° F (<8° C) immediately following data processing. As soon as possible, freeze at -20° C ± 5° C. Due to occasional freezer failures, daily freezer temperature logs are required. The freezer should be locked or otherwise secured to maintain chain of custody.

J. In most cases, samples should be delivered to the Analytical Services Unit at the Hale Creek field station. Coordinate delivery with field station staff and send copies of the collection records, continuity of evidence forms and freezer temperature logs to the field station. For samples to be analyzed elsewhere, non-routine collections or other questions, contact Wayne Richter, Bureau of Ecosystem Health, NYSDEC, 625 Broadway, Albany, New York 12233-4756, 518-402-8974, or the project leader about sample transfer. Samples will then be directed to the analytical facility and personnel noted on specific project descriptions.

K. A recommended equipment list is at the end of this document.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF FISH AND WILDLIFE
FISH COLLECTION RECORD

Project and Site Name _____ DEC Region _____

Collections made by (include all crew) _____

Sampling Method: □Electrofishing □Gill netting □Trap netting □Trawling □Seining □Angling □Other _____

Preservation Method: □Freezing □Other _____ Notes (SWFDB survey number): _____

FOR LAB USE ONLY- LAB ENTRY NO.	COLLECTION OR TAG NO.	SPECIES	DATE TAKEN	LOCATION	AGE	SEX &/OR REPROD. CONDIT	LENGTH ( )	WEIGHT ( )	REMARKS

richter: revised 2011, 5/7/15, 10/4/16, 3/20/17; becker: 3/23/17, 4/26/19

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
CHAIN OF CUSTODY

I, _____, of _____ collected the
(Print Name) (Print Business Address)

following on _____, 20____ from _____
(Date) (Water Body)

in the vicinity of _____
(Landmark, Village, Road, etc.)

Town of _____, in _____ County.

Item(s) _____

_____

Said sample(s) were in my possession and handled according to standard procedures provided to me prior to collection. The sample(s) were placed in the custody of a representative of the New York State Department of Environmental Conservation on _____, 20_____.

_____ _____
Signature Date

I, _____, received the above mentioned sample(s) on the date specified and assigned identification number(s) _____ to the sample(s). I have recorded pertinent data for the sample(s) on the attached collection records. The sample(s) remained in my custody until subsequently transferred, prepared or shipped at times and on dates as attested to below.

_____ _____
Signature Date

SECOND RECIPIENT (Print Name)	TIME & DATE	PURPOSE OF TRANSFER
SIGNATURE	UNIT	
THIRD RECIPIENT (Print Name)	TIME & DATE	PURPOSE OF TRANSFER
SIGNATURE	UNIT	
FOURTH RECIPIENT (Print Name)	TIME & DATE	PURPOSE OF TRANSFER
SIGNATURE	UNIT	
RECEIVED IN LABORATORY BY (Print Name)	TIME & DATE	REMARKS
SIGNATURE	UNIT	
LOGGED IN BY (Print Name)	TIME & DATE	ACCESSION NUMBERS
SIGNATURE	UNIT	

richter: revised 21 April 2014; becker: 23 March 2017, 26 April, 2019

NOTICE OF WARRANTY

By signature to the chain of custody (reverse), the signatory warrants that the information provided is truthful and accurate to the best of his/her ability. The signatory affirms that he/she is willing to testify to those facts provided and the circumstances surrounding the same. Nothing in this warranty or chain of custody negates responsibility nor liability of the signatories for the truthfulness and accuracy of the statements provided.

HANDLING INSTRUCTIONS

On day of collection, collector(s) name(s), address(es), date, geographic location of capture (attach a copy of topographic map or navigation chart), species, number kept of each species, and description of capture vicinity (proper noun, if possible) along with name of Town and County must be indicated on reverse.

Retain organisms in manila tagged plastic bags to avoid mixing capture locations. Note appropriate information on each bag tag.

Keep samples as cool as possible. Put on ice if fish cannot be frozen within 12 hours. If fish are held more than 24 hours without freezing, they will not be retained or analyzed.

Initial recipient (either DEC or designated agent) of samples from collector(s) is responsible for obtaining and recording information on the collection record forms which will accompany the chain of custody. This person will seal the container using packing tape and writing his signature, the time and the date across the tape onto the container with indelible marker. Any time a seal is broken, for whatever purpose, the incident must be recorded on the Chain of Custody (reason, time, and date) in the purpose of transfer block. Container then is resealed using new tape and rewriting signature, with time and date.

EQUIPMENT LIST

Scale or balance of appropriate capacity for the fish to be collected.

Fish measuring board.

Plastic bags of an appropriate size for the fish to be collected and for site bags.

Individually numbered metal tags for fish.

Manila tags to label bags.

Small envelops, approximately 2” x 3.5”, if fish scales are to be collected.

Knife for removing scales.

Chain of custody and fish collection forms.

Clipboard.

Pens or markers.

Paper towels.

Dish soap and brush.

Bucket.

Cooler.

Ice.

Duct tape.

Appendix G – PFAS Analyte List

Group	Chemical Name	Abbreviation	CAS Number
Perfluoroalkyl sulfonic acids	Perfluorobutanesulfonic acid	PFBS	375-73-5
	Perfluoropentanesulfonic acid	PFPeS	2706-91-4
	Perfluorohexanesulfonic acid	PFHxS	355-46-4
	Perfluoroheptanesulfonic acid	PFHpS	375-92-8
	Perfluorooctanesulfonic acid	PFOS	1763-23-1
	Perfluorononanesulfonic acid	PFNS	68259-12-1
	Perfluorodecanesulfonic acid	PFDS	335-77-3
	Perfluorododecanesulfonic acid	PFDoS	79780-39-5
Perfluoroalkyl carboxylic acids	Perfluorobutanoic acid	PFBA	375-22-4
	Perfluoropentanoic acid	PFPeA	2706-90-3
	Perfluorohexanoic acid	PFHxA	307-24-4
	Perfluoroheptanoic acid	PFHpA	375-85-9
	Perfluorooctanoic acid	PFOA	335-67-1
	Perfluorononanoic acid	PFNA	375-95-1
	Perfluorodecanoic acid	PFDA	335-76-2
	Perfluoroundecanoic acid	PFUnA	2058-94-8
	Perfluorododecanoic acid	PFDoA	307-55-1
	Perfluorotridecanoic acid	PFTrDA	72629-94-8
	Perfluorotetradecanoic acid	PFTeDA	376-06-7
Per- and Polyfluoroether carboxylic acids	Hexafluoropropylene oxide dimer acid	HFPO-DA	13252-13-6
	4,8-Dioxa-3H-perfluorononanoic acid	ADONA	919005-14-4
	Perfluoro-3-methoxypropanoic acid	PFMPA	377-73-1
	Perfluoro-4-methoxybutanoic acid	PFMBA	863090-89-5
	Nonafluoro-3,6-dioxaheptanoic acid	NFDHA	151772-58-6
Fluorotelomer sulfonic acids	4:2 Fluorotelomer sulfonic acid	4:2-FTS	757124-72-4
	6:2 Fluorotelomer sulfonic acid	6:2-FTS	27619-97-2
	8:2 Fluorotelomer sulfonic acid	8:2-FTS	39108-34-4
Fluorotelomer carboxylic acids	3:3 Fluorotelomer carboxylic acid	3:3 FTCA	356-02-5
	5:3 Fluorotelomer carboxylic acid	5:3 FTCA	914637-49-3
	7:3 Fluorotelomer carboxylic acid	7:3 FTCA	812-70-4
Perfluorooctane sulfonamides	Perfluorooctane sulfonamide	PFOSA	754-91-6
	N-methylperfluorooctane sulfonamide	NMeFOSA	31506-32-8
	N-ethylperfluorooctane sulfonamide	NEtFOSA	4151-50-2
Perfluorooctane sulfonamidoacetic acids	N-methylperfluorooctane sulfonamidoacetic acid	N-MeFOSAA	2355-31-9
	N-ethylperfluorooctane sulfonamidoacetic acid	N-EtFOSAA	2991-50-6
Perfluorooctane sulfonamide ethanols	N-methylperfluorooctane sulfonamidoethanol	MeFOSE	24448-09-7
	N-ethylperfluorooctane sulfonamidoethanol	EtFOSE	1691-99-2

Group	Chemical Name	Abbreviation	CAS Number
Ether sulfonic acids	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (F-53B Major)	9Cl-PF3ONS	756426-58-1
	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (F-53B Minor)	11Cl-PF3OUdS	763051-92-9
	Perfluoro(2-ethoxyethane) sulfonic acid	PFEESA	113507-82-7

Appendix H - Data Review Guidelines for Analysis of PFAS in Non-Potable Water and Solids

General

These guidelines are intended to be used for the validation of PFAS using EPA Method 1633 for projects within the Division of Environmental Remediation (DER). Data reviewers should understand the methodology and techniques utilized in the analysis. Consultation with the end user of the data may be necessary to assist in determining data usability based on the data quality objectives in the Quality Assurance Project Plan. A familiarity with the laboratory's Standard Operating Procedure may also be needed to fully evaluate the data. If you have any questions, please contact DER's Quality Assurance Officer, Dana Barbarossa, at dana.barbarossa@dec.ny.gov.

Preservation and Holding Time

Samples should be preserved with ice to a temperature of less than 6°C upon arrival at the lab. The holding time is 28 days to extraction for aqueous and solid samples. The time from extraction to analysis for aqueous samples is 28 days and 40 days for solids.

Temperature greatly exceeds 6ºC upon arrival at the lab*	Use professional judgement to qualify detects and non-detects as estimated or rejected
Holding time exceeding 28 days to extraction	Use professional judgement to qualify detects and non-detects as estimated or rejected if holding time is grossly exceeded

*Samples that are delivered to the lab immediately after sampling may not meet the thermal preservation guidelines. Samples are considered acceptable if they arrive on ice or an attempt to chill the samples is observed.

Initial Calibration

The initial calibration should contain a minimum of six standards for linear fit and six standards for a quadratic fit. The relative standard deviation (RSD) for a quadratic fit calibration should be less than 20%.

The low-level calibration standard should be within 50% - 150% of the true value, and the mid-level calibration standard within 70% - 130% of the true value.

%RSD >20%	J flag detects and UJ non detects

Continuing Calibration Verification

Continuing calibration verification (CCV) checks should be analyzed at a frequency of one per ten field samples. If CCV recovery is very low, where detection of the analyte could be in question, ensure a low level CCV was analyzed and use to determine data quality.

CCV recovery <70 or >130%	J flag results

Blanks

There should be no detections in the method blanks above the reporting limits. Equipment blanks, field blanks, rinse blanks etc. should be evaluated in the same manner as method blanks. Use the most contaminated blank to evaluate the sample results.

Blank Result	Sample Result	Qualification
Any detection	<Reporting limit	Qualify as ND at reporting limit
Any detection	>Reporting Limit and >10x the blank result	No qualification
>Reporting limit	>Reporting limit and <10x blank result	J+ biased high

Field Duplicates

A blind field duplicate should be collected at rate of one per twenty samples. The relative percent difference (RPD) should be less than 30% for analyte concentrations greater than two times the reporting limit. Use the higher result for final reporting.

RPD >30%	Apply J qualifier to parent sample

Lab Control Spike

Lab control spikes should be analyzed with each extraction batch or one for every twenty samples. In the absence of lab derived criteria, use 70% - 130% recovery criteria to evaluate the data.

Recovery <70% or >130% (lab derived criteria can also be used)	Apply J qualifier to detects and UJ qualifier to non detects

Matrix Spike/Matrix Spike Duplicate

One matrix spike and matrix spike duplicate should be collected at a rate of one per twenty samples. Use professional judgement to reject results based on out of control MS/MSD recoveries.

Recovery <70% or >130% (lab derived criteria can also be used)	Apply J qualifier to detects and UJ qualifier to non detects of parent sample only
RPD >30%	Apply J qualifier to detects and UJ qualifier to non detects of parent sample only

Extracted Internal Standards (Isotope Dilution Analytes)

Problematic analytes (e.g. PFBA, PFPeA, fluorotelomer sulfonates) can have wider recoveries without qualification. Qualify corresponding native compounds with a J flag if outside of the range.

Recovery <50% or >150%	Apply J qualifier
Recovery <25% or >150% for poor responding analytes	Apply J qualifier
Isotope Dilution Analyte (IDA) Recovery <10%	Reject results

Signal to Noise Ratio

The signal to noise ratio for the quantifier ion should be at least 3:1. If the ratio is less than 3:1, the peak is discernable from the baseline noise and symmetrical, the result can be reported. If the peak appears to be baseline noise and/or the shape is irregular, qualify the result as tentatively identified.

Reporting Limits

If project-specific reporting limits were not met, please indicate that in the report along with the reason (e.g. over dilution, dilution for non-target analytes, high sediment in aqueous samples).

Peak Integrations

Target analyte peaks should be integrated properly and consistently when compared to standards. Ensure branched isomer peaks are included for PFAS where standards are available. Inconsistencies should be brought to the attention of the laboratory or identified in the data review summary report.

Method 1633 Analysis of Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous, Solid, Biosolids, Oil and Tissue Samples by LC-MS/MS

References: Method 1633 - Analysis of Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous, Solid, Biosolids, Oil and Tissue Samples by LC-MS/MS (2nd Draft -June 2022)

DOD QSM (US Department of Defense Quality Systems Manual for Environmental Laboratories, version 5.4, 20221)

1. Scope and Application

Matrices: Drinking water, Non-potable Water, Tissues, Oils, Biosolids and Solid Matrices

Definitions: Refer to Alpha Analytical Quality Manual.

1.1 Method 1633 is for use in the Clean Water Act (CWA) for the determination of the per- and polyfluoroalkyl substances (PFAS) in Table 1 in aqueous, solid (soil, biosolids, sediment) and tissue samples by liquid chromatography/mass spectrometry (LC-MS/MS).

1.2 The method calibrates and quantifies PFAS analytes using isotopically labeled standards. Where linear and branched isomers are present in the sample and either qualitative or quantitative standards containing branched and linear isomers are commercially available, the PFAS analyte is reported as a single analyte consisting of the sum of the linear and branched isomer concentrations

1.3 This is a liquid chromatography/tandem mass spectrometry (LC/MS/MS) method for the determination of selected perfluorinated alkyl substances (PFAS) in Non-Drinking Water, tissue soil and biosolid Matrices. Accuracy and precision data have been generated for the compounds listed in Table 1.

1.4 The data report packages present the documentation of any method modification related to the samples tested. Depending upon the nature of the modification and the extent of intended use, the laboratory may be required to demonstrate that the modifications will produce equivalent results for the matrix. Approval of all method modifications is by one or more of the following laboratory personnel before performing the modification: Area Supervisor, Department Supervisor, Laboratory Director, or Quality Assurance Officer.

1.5 This method is restricted to use by or under the supervision of analysts experienced in the operation of the LC/MS/MS and in the interpretation of LC/MS/MS data. Each analyst must demonstrate the ability to generate acceptable results with this method by performing an initial demonstration of capability.

2. Summary of Method

2.1 Environmental samples are prepared and extracted using method-specific procedures. Sample extracts are subjected to cleanup procedures designed to remove interferences. Analyses of the sample extracts are conducted by LC-MS/MS in the multiple reaction monitoring (MRM) mode. Sample concentrations are determined by isotope dilution or

extracted internal standard quantification using isotopically labeled compounds added to the samples before extraction.

2.2 Aqueous samples are spiked with isotopically labeled standards, extracted using solid-phase extraction (SPE) cartridges and undergo cleanup using carbon before analysis.

2.3 Solid and Oil samples are spiked with isotopically labeled standards, extracted into basic methanol, and cleaned up by carbon and SPE cartridges before analysis

2.4 Tissue samples are spiked with isotopically labeled standards, extracted in potassium hydroxide and acetonitrile followed by basic methanol, and cleaned up by carbon and SPE cartridges before analysis.

2.5 A sample extract is injected into an LC equipped with a C18 column that is interfaced to an MS/MS). The analytes are separated and identified by comparing the acquired mass spectra and retention times to reference spectra and retention times for calibration standards acquired under identical LC/MS/MS conditions. The concentration of each analyte is determined by using the isotope dilution technique. Extracted Internal Standards (EIS) analytes are used to monitor the extraction efficiency of the method analytes.

2.6 Method Modifications from Reference

N/A

3. Reporting Limits

The reporting limit for PFAS's are listed in Table 8.

4. Interferences

4.1 PFAS standards, extracts and samples should not come in contact with any glass containers or pipettes as these analytes can potentially adsorb to glass surfaces. PFAS analyte and EIS standards commercially purchased in glass ampoules are acceptable; however, all subsequent transfers or dilutions performed by the analyst must be prepared and stored in polypropylene containers.

4.2 Method interferences may be caused by contaminants in solvents, reagents (including reagent water), sample bottles and caps, and other sample processing hardware that lead to discrete artifacts and/or elevated baselines in the chromatograms. The method analytes in this method can also be found in many common laboratory supplies and equipment, such as PTFE (polytetrafluoroethylene) products, LC solvent lines, methanol, aluminum foil, SPE sample transfer lines, etc. All items such as these must be routinely demonstrated to be free from interferences (less than 1/2 the RL for each method analyte) under the conditions of the analysis by analyzing laboratory reagent blanks as described in Section 9.1. Subtracting blank values from sample results is not permitted.

4.3 Matrix interferences may be caused by contaminants that are co-extracted from the sample. The extent of matrix interferences will vary considerably from source to source, depending upon the nature of the water. Humic and/or fulvic material can be co-extracted during SPE and high levels can cause enhancement and/or suppression in the electrospray ionization

source or low recoveries on the SPE sorbent. Total organic carbon (TOC) is a good indicator of humic content of the sample.

4.4 SPE cartridges can be a source of interferences. The analysis of field and laboratory reagent blanks can provide important information regarding the presence or absence of such interferences. Brands and lots of SPE devices should be tested to ensure that contamination does not preclude analyte identification and quantitation.

5. Health and Safety

5.1 The toxicity or carcinogenicity of each reagent and standard used in this method is not fully established; however, each chemical compound should be treated as a potential health hazard. From this viewpoint, exposure to these chemicals must be reduced to the lowest possible level by whatever means available. A reference file of material safety data sheets is available to all personnel involved in the chemical analysis. Additional references to laboratory safety are available in the Chemical Hygiene Plan.

5.2 All personnel handling environmental samples known to contain or to have been in contact with municipal waste must follow safety practices for handling known disease causative agents.

5.3 PFOA has been described as “likely to be carcinogenic to humans.” Pure standard materials and stock standard solutions of these method analytes should be handled with suitable protection to skin and eyes, and care should be taken not to breathe the vapors or ingest the materials.

6. Sample Collection, Preservation, Shipping and Handling

6.1 Sample Collection for Aqueous Samples

6.1.1 Samples must be collected in two (2) 500-mL or 250-mL high density polyethylene (HDPE) container with an unlined plastic screw cap. All sample containers must have linerless HDPE or polypropylene caps.

6.1.2 The sample handler must wash their hands before sampling and wear nitrile gloves while filling and sealing the sample bottles. PFAS contamination during sampling can occur from a number of common sources, such as food packaging and certain foods and beverages. Proper hand washing and wearing nitrile gloves will aid in minimizing this type of accidental contamination of the samples.

6.1.3 Open the tap and allow the system to flush until the water temperature has stabilized (approximately 3 to 5 min). Collect samples from the flowing system.

6.1.4 Fill sample bottles. Samples do not need to be collected headspace free.

6.1.5 After collecting the sample and cap the bottle. Keep the sample sealed from time of collection until extraction.

6.1.6 Maintain all aqueous samples protected from light at 0 - 6 ºC from the time of collection until shipped to the laboratory. Samples must be shipped as soon as practical with sufficient ice to maintain the sample temperature below 6 ºC during transport and be received by the laboratory within 48 hours of collection. The laboratory must confirm that the sample temperature is 0 - 6 ºC upon receipt.

Once received by the laboratory, the samples must be stored at ≤ -20 ºC until sample preparation.

6.2 Sample Collection for Solid and Oil samples.

6.2.1 Grab samples are collected in polypropylene containers. Sample containers and contact surfaces containing PTFE shall be avoided. Samples should fill no more than ¾ full.

6.2.2 Maintain solid samples protected from light (in HDPE containers) at 0 - 6 ºC from the time of collection until receipt at the laboratory. The laboratory must confirm that the sample temperature is 0 - 6 ºC upon receipt. Once received by the laboratory, the samples must be stored at ≤ -20 ºC until sample preparation.

6.3 Sample Collection for fish and other tissue samples

6.3.1 If the time of collection to the time of receipt at the laboratory is expected to exceed 24 hours, the tissue samples must be frozen upon collection and shipped to the laboratory on dry ice.

6.3.2 Once received by the laboratory, the samples must be maintained protected from light at ≤ -20 ºC until prepared. Store unused samples in HDPE containers or wrapped in aluminum foil at ≤ -20 ºC.

6.3.3 The nature of the tissues of interest may vary by project. Field sampling plans and protocols should explicitly state the samples to be collected and if any processing will be conducted in the field (e.g., filleting of whole fish or removal of organs). All field procedures must involve materials and equipment that have been shown to be free of PFAS.

6.4 Sample Preservation

Not applicable.

6.5 Sample Shipping

Samples must be chilled during shipment and must not exceed 0 – 6 °C during the first 48 hours after collection. Sample temperature must be confirmed to be at or below 0 – 6 °C when the samples are received at the laboratory. Samples stored in the lab must be held at or below 6 °C until extraction but should not be frozen.

NOTE: Samples that are significantly above 0 – 6 ° C, at the time of collection, may need to be iced or refrigerated for a period of time, in order to chill them prior to shipping. This will allow them to be shipped with sufficient ice to meet the above requirements.

6.6 Sample Handling

6.6.1 Aqueous samples (including leachates) should be analyzed as soon as possible; however, samples may be held in the laboratory for up to 90 days from collection, when stored at ≤ -20 ºC and protected from the light. When stored at 0 - 6 ºC and protected from the light, aqueous samples may be held for up to 28 days, with the caveat that issues were observed with certain perfluorooctane sulfonamide ethanols and perfluorooctane sulfonamidoacetic acids after 7 days. These issues are more likely to elevate the observed concentrations of other PFAS compounds via the transformation of these precursors if they are present in the sample.

6.6.2 Solid samples (soils and sediments), Oil and tissue samples may be held for up to 90 days, if stored by the laboratory in the dark at either 0 - 6 ºC or ≤ -20 ºC, with the caveat that samples may need to be extracted as soon as possible if NFDHA is an important analyte.

6.6.3 Biosolids samples may be held for up to 90 days, if stored by the laboratory in the dark at 0 - 6 ºC or at -20 ºC. Because microbiological activity in biosolids samples at 0 - 6 ºC may lead to production of gases which may cause the sample to be expelled from the container when it is opened, as well as producing noxious odors, EPA recommends that samples be frozen if they need to be stored for more than a few days before extraction. Store sample extracts in the dark at less than 0 - 4 ºC until analyzed. If stored in the dark at less than 0 - 4 ºC, sample extracts may be stored for up to 90 days, with the caveat that issues were observed for some ether sulfonates after 28 days. These issues may elevate the observed concentrations of the ether sulfonates in the extract over time. Samples may need to be extracted as soon as possible if NFDHA is an important analyte.

7. Equipment and Supplies

7.1 SAMPLE CONTAINERS – 500-mL or 250-mL high density polyethylene (HDPE) bottles fitted with unlined screw caps. Sample bottles must be discarded after use.

7.2 SAMPLE JARS – 8-ounce wide mouth high density polyethylene (HDPE) bottles fitted with unlined screw caps. Sample bottles must be discarded after use.

7.3 POLYPROPYLENE BOTTLES – 4-mL narrow-mouth polypropylene bottles.

7.4 CENTRIFUGE TUBES – 50-mL conical polypropylene tubes with polypropylene screw caps for storing standard solutions and for collection of the extracts.

7.5 AUTOSAMPLER VIALS – Polypropylene 0.7-mL autosampler vials with polypropylene caps.

7.5.1 NOTE: Polypropylene vials and caps are necessary to prevent contamination of the sample from PTFE coated septa. However, polypropylene caps do not reseal, so evaporation occurs after injection. Thus, multiple injections from the same vial are not possible.

7.6 POLYPROPYLENE GRADUATED CYLINDERS – Suggested sizes include 25, 50, 100 and 1000-mL cylinders.

7.7 Auto Pipets – Suggested sizes include 5, 10, 25, 50, 100, 250, 500, 1000, 5000 and 10,000-µls.

7.8 PLASTIC PIPETS – Polypropylene or polyethylene disposable pipets.

7.9 Silanized glass wool (Sigma-Aldrich, Cat # 20411 or equivalent) – store in a clean glass jar and rinsed with methanol (2 times) prior to use.

7.10 Disposable syringe filter, 25-mm, 0.2-µm Nylon membrane, PALL/Acrodisc or equivalent

7.11 Variable volume pipettes with disposable HDPE or polypropylene tips (10 µL to 5 mL) used for preparation of calibration standards and spiked samples.

7.12 ANALYTICAL BALANCE – Capable of weighing to the nearest 0.0001 g.

7.13 ANALYTICAL BALANCE – Capable of weighing to the nearest 0.1 g.

7.14 SOLID PHASE EXTRACTION (SPE) APPARATUS FOR USING CARTRIDGES

7.14.1 SPE CARTRIDGES – (Phenomenex WAX 150 or 250mg or equivalent). The SPE sorbent must have a pKa above 8 so that it remains positively charged during the extraction.

7.14.1.1 Note: SPE cartridges with different bed volume (e.g., 500 mg) may be used; however, the laboratory must demonstrate that the bed volume does not negatively affect analyte absorption and elution, by performing the initial demonstration of capability analyses described in Section 13.

7.14.2 VACUUM EXTRACTION MANIFOLD – A manual vacuum manifold with large volume sampler for cartridge extractions, or an automatic/robotic sample preparation system designed for use with SPE cartridges, may be used if all QC requirements discussed in Section 9 are met. Extraction and/or elution steps may not be changed or omitted to accommodate the use of an automated system. Care must be taken with automated SPE systems to ensure the PTFE commonly used in these systems does not contribute to unacceptable analyte concentrations in the MB.

7.14.3 SAMPLE DELIVERY SYSTEM – Use of a polypropylene transfer tube system, which transfers the sample directly from the sample container to the SPE cartridge, is recommended, but not mandatory. Standard extraction manifolds come equipped with PTFE transfer tube systems. These can be replaced with 1/8” O.D. x 1/16” I.D. polypropylene or polyethylene tubing cut to an appropriate length to ensure no sample contamination from the sample transfer lines. Other types of non-PTFE tubing may be used provided it meets the MB and LCS QC requirements.

7.15 EXTRACT CONCENTRATION SYSTEM – Extracts are concentrated by evaporation with nitrogen using a water bath set no higher than 55 °C.

7.16 LABORATORY OR ASPIRATOR VACUUM SYSTEM – Sufficient capacity to maintain a vacuum of approximately 10 to 15 inches of mercury for extraction cartridges.

7.17 LIQUID CHROMATOGRAPHY (LC)/TANDEM MASS SPECTROMETER (MS/MS) WITH DATA SYSTEM

7.17.1 LC SYSTEM – Instrument capable of reproducibly injecting up to 10-µL aliquots and performing binary linear gradients at a constant flow rate near the flow rate used for development of this method (0.4 mL/min). The LC must be capable of pumping the water/methanol mobile phase without the use of a degasser which pulls vacuum on the mobile phase bottle (other types of degassers are acceptable). Degassers which pull vacuum on the mobile phase bottle will volatilize the ammonium acetate mobile phase causing the analyte peaks to shift to earlier retention times over the course of the analysis batch. The usage of a column heater is optional.

7.17.2 LC/TANDEM MASS SPECTROMETER – The LC/MS/MS must be capable of negative ion electrospray ionization (ESI) near the suggested LC flow rate of 0.4 mL/min. The system must be capable of performing MS/MS to produce unique product ions for the method analytes within specified retention time segments. A minimum of 10 scans across the chromatographic peak is required to ensure adequate precision.

7.17.3 DATA SYSTEM – An interfaced data system is required to acquire, store, reduce, and output mass spectral data. The computer software should have the capability of processing stored LC/MS/MS data by recognizing an LC peak within any given retention time window. The software must allow integration of the ion abundance of any specific ion within specified time or scan number limits. The software must be able to calculate relative response factors, construct linear regressions or quadratic calibration curves, and calculate analyte concentrations.

7.17.4 INSTRUMENT COLUMNS

7.17.4.1 ANALYTICAL: C18 column, 1.7 µm, 50 x 2.1 mm (Waters Acquity UPLC® BEH or equivalent)

7.17.4.2 OPTIONAL GUARD COLUMN: (Phenomenex Kinetex® Evo C18 or equivalent)

8. Reagents and Standards

8.1 GASES, REAGENTS, AND SOLVENTS – Reagent grade or better chemicals must be used.

8.1.1 REAGENT WATER – Purified water which does not contain any measurable quantities of any method analytes or interfering compounds greater than 1/2 the RL for each method analyte of interest. Prior to daily use, at least 3 L of reagent water should be flushed from the purification system to rinse out any build-up of analytes in the system's tubing.

8.1.2 METHANOL (CH_3OH, CAS#: 67-56-1) – High purity, demonstrated to be free of analytes and interferences.

8.1.3 AMMONIUM ACETATE ($NH_4C_2H_3O_2$, CAS#: 631-61-8) – High purity, demonstrated to be free of analytes and interferences. Store at 2-8° and replace 2 years after opening date.

8.1.4 ACETIC ACID (H_3CCOOH, CAS#: 64-19-7) - High purity, demonstrated to be free of analytes and interferences and stored at room temperature.

8.1.4.1 Acetic Acid (0.1%) – Dissolve acetic acid (1 mL) in reagent water (1 L), store at room temperature, replace after 3 months.

8.1.5 1M AMMONIUM ACETATE/REAGENT WATER – High purity, demonstrated to be free of analytes and interferences.

8.1.6 2mM AMMONIUM ACETATE/METHANOL:WATER (5:95) – To prepare, mix 2 ml of 1M AMMONIUM ACETATE,1 ml ACETIC ACID and 50 ml METHANOL into I Liter of REAGENT WATER.

8.1.7 ACETONITRILE – UPLC grade or equivalent, store at room temperature

8.1.8 TOLUENE – HPLC grade or equivalent.

8.1.9 ACETONE – pesticide grade or equivalent

8.1.10 AMMONIUM HYDROXIDE (NH_3, CAS#: 1336-21-6) – High purity, demonstrated to be free of analytes and interferences, and stored at room temperature.

8.1.11 AQUEOUS AMMONIUM HYDROXIDE (3%) – Add ammonium hydroxide (10 mL, 30%) to reagent water (90 mL), store at room temperature, replace after 3 months.

8.1.12 METHANOLIC AMMONIUM HYDROXIDE (0.3%) - add ammonium hydroxide (1 mL, 30%) to methanol (99 mL), store at room temperature, replace after 1 month

8.1.13 METHANOLIC AMMONIUM HYDROXIDE (1%) - add ammonium hydroxide (3.3 mL, 30%) to methanol (97 mL), store at room temperature, replace after 1 month

8.1.14 METHANOLIC AMMONIUM HYDROXIDE (2%) - add ammonium hydroxide (6.6 mL, 30%) to methanol (93.4 mL), store at room temperature, replace after 1 month

8.1.15 METHANOLIC POTASSIUM HYDROXIDE (0.05 M) – add 3.3 g of potassium hydroxide to 1 L of methanol, store at room temperature, replace after 3 months

8.1.16 METHANOL WITH 4% WATER, 1% AMMONIUM HYDROXIDE AND 0.625% ACETIC ACID - add ammonium hydroxide (3.3 mL, 30%), reagent water (1.7 mL) and acetic acid (0.625 mL) to methanol (92 mL), store at room temperature, replace after 1 month. This solution is used to prepare the instrument blank and calibration standards (Section 8.3.2).

8.1.17 FORMIC ACID – (greater than 96% purity or equivalent). Store at room temperature and replace after 2 years.

8.1.18 FORMIC ACID (aqueous, 0.1 M) - dissolve formic acid (4.6 g) in reagent water (1 L), store at room temperature, replace after 2 years.

8.1.19 FORMIC ACID (aqueous, 0.3 M) - dissolve formic acid (13.8 g) in reagent water (1 L), store at room temperature, replace after 2 years.

8.1.20 FORMIC ACID (aqueous, 5% v/v) - mix 5 mL formic acid with 95 mL reagent water, store at room temperature, replace after 2 years.

8.1.21 FORMIC ACID (methanolic 1:1, 0.1 M formic acid/methanol) - mix equal volumes of methanol and 0.1 M formic acid, store at room temperature, replace after 2 years.

8.1.22 FORMIC ACID (aqueous, 50% v/v) - mix 50 mL formic acid with 50 mL reagent water, store at room temperature, replace after 2 years.

8.1.23 POTASSIUM HYDROXIDE – certified ACS or equivalent, store at room temperature, replace after 2 years.

8.1.24 CARBON - – EnviCarb® 1-M-USP or equivalent, verified by lot number before use, stored at room temperature. Loose carbon allows for better adsorption of interferent organics. Note: The single-laboratory validation laboratory achieved better performance with loose carbon than carbon cartridges. Loose carbon will be used for the multi-laboratory validation to set statistically based method criteria.

8.1.25 NITROGEN – Used for the following purposes: Nitrogen aids in aerosol generation of the ESI liquid spray and is used as collision gas in some MS/MS instruments. The nitrogen used should meet or exceed instrument manufacturer's specifications. In addition, Nitrogen is used to concentrate sample extracts (Ultra High Purity or equivalent).

8.1.26 ARGON – Used as collision gas in some MS/MS instruments. Argon should meet or exceed instrument manufacturer's specifications. Nitrogen gas may be used as the collision gas provided sufficient sensitivity (product ion formation) is achieved.

8.2 REFERENCE MATRICES - Matrices in which PFAS and interfering compounds are not detected by this method. These matrices are to be used to prepare the batch QC samples, LOQ/MDL, and IDOC samples.

8.2.1 Reagent water - purified water, Type I

8.2.2 Solid reference matrix Ottawa Sand or equivalent

8.2.3 Tissue Reference matrix – Cod loin or other animal tissue demonstrated to be PFAS free.

8.3 STANDARD SOLUTIONS – When a compound purity is assayed to be 96% or greater, the weight can be used without correction to calculate the concentration of the stock standard. PFAS analyte and IS standards commercially purchased in glass ampoules are acceptable; however, all subsequent transfers or dilutions performed by the analyst must be prepared and stored in polypropylene containers and are stored at ≤4 °C. Standards for sample fortification generally should be prepared in the smallest volume that can be accurately measured to minimize the addition of excess organic solvent to aqueous samples.

8.3.1 Stock standards and diluted stock standards are stored at ≤4 °C. Prepare a spiking solution, containing the method analytes listed in Table 1, in methanol from prime stocks. The solution is used to prepare the calibration standards and to spike the known reference QC samples that are analyzed with every batch. Quantitative standards containing a mixture of branched and linear isomers must be used for method analytes if they are commercially available. Currently, these include PFOS, PFHxS, NEtFOSAA, and NMeFOSAA.

8.3.2 Calibration standard solutions – A series of calibration solutions containing the target analytes and the Labeled extracted internal standards (EIS) and non-extracted internal standards (NIS) is used to establish the initial calibration of the analytical instrument. Table 4 represents the concentrations of the native, EIS and NIS analytes of the calibration curve. Calibration standard solutions are made using the solution described in section 8.1.16.

8.3.3 ISOTOPE DILUTION EXTRACTED INTERNAL STANDARD (EIS) – Isotopically labelled analogs of the target analytes to be used for the quantification of target analytes. EIS stock standard solutions are purchased in glass ampoules and are stored in accordance with the manufacturer's recommendations. The EIS stock solution to be used for the fortification of samples and QC in accordance with the isotope dilution procedure. Table 2 represents the EIS concentrations and nominal sample amounts added to each field sample and QC element.

8.3.4 ISOTOPE DILUTION NON-EXTRACTED INTERNAL STANDARDS (NIS) – Isotopically labelled analogs to be added post extraction for the measurement of EIS extraction efficiency and is added to the final volume of all extractions. Table 3 represents the EIS concentrations and nominal sample amounts added to each field sample and QC element.

9. Quality Control

9.1 Method Blank

9.1.1 A Method Blank (MB) is required with each extraction batch to confirm that potential background contaminants are not interfering with the identification or quantitation of method analytes. An aliquot of reagent water that is treated exactly as a sample including exposure to all glassware, equipment, solvents, reagents and standards. Prep and analyze a MB for every 20 samples. If the MB produces a peak within the retention time window of any analyte that would prevent the determination of that analyte, determine the source of contamination, and eliminate the interference before processing samples. Background contamination must be reduced to an acceptable level before proceeding. Background from method analytes or other contaminants that interfere with the measurement of method analytes must be below the RL. If the method analytes are detected in the MB at concentrations equal to or greater than this level, then all data for the problem analyte(s) must be considered invalid for all samples in the extraction batch.

9.2 Laboratory Control Sample (LCS)

9.2.1 Low Level LCS or OPR (Ongoing Precision Recovery) sample is required with each extraction batch. A LLCS or OPR samples is a method blank spiked with known quantities of analytes. The fortified concentration of the LCS is spiked at 2X the LOQ. Default limits of 70-130% of the true value may be used for analytes until sufficient replicates have been analyzed to generate proper control limits. Calculate the percent recovery (%*R*) for each analyte using the equation:

9.2.2 An LCS or OPR (Ongoing Precision Recovery) sample is required with each extraction batch. A LCS or OPR samples is a method blank spiked with known quantities of analytes. The fortified concentration of the LCS is spiked at the midpoint of the calibration curve. Default limits of 70-130% of the true value may be used for analytes until sufficient replicates have been analyzed to generate proper control limits. Calculate the percent recovery (%*R*) for each analyte using the equation:

$$\%R = \frac{A \times 100}{B}$$

Where:

A = measured concentration in the fortified sample
B =fortification concentration.

9.1.1 Where applicable, in the absence of additional sample volume required to perform matrix specific QC, LCSD's are to be extracted and analyzed. The concentration and analyte

recovery criteria for the LCSD must be the same as the batch LCS The RSD's must fall within ≤30% of the true value for medium and high-level replicates, and ≤50% for low level replicates. Calculate the relative percent difference (RPD) for duplicate MSs (MS and MSD) using the equation:

$$RPD = \frac{|LCS - LCSD|}{(LCS + LCSD) / 2} \times 100$$

9.1.2 If the LCS and or LCSD results do not meet these criteria for method analytes, then all data for the problem analyte(s) must be considered invalid for all samples in the extraction batch.

9.3 Non-extracted Internal Standard Area (NIS)

Each time an initial calibration is performed, use the data from all the initial calibration standards used to meet the linearity test in Section 10.3.3.3 to calculate the mean area response for each of the NIS compounds, using the equation below.

$$\text{Mean Area}_{NISi} = \sum \text{AREA}_{NISi} / n$$

where:

AreaNISi = Area counts for the ith NIS, where i ranges from 1 to 7, for the seven NIS compounds listed in Table 1
n = The number of ICAL standards (the default value is n = 6). If a different number of standards is used for the ICAL, for example, to increase the calibration range or by dropping a point at either end of the range to meet the linearity criterion, change 6 to match the actual number of standards used)
Record the mean areas for each NIS for use in evaluating results for sample analyses. There is no acceptance criterion associated with the mean NIS area data.

9.4 Extracted Internal Standards (EIS)

9.4.1 The EIS standard is fortified into all samples, CCVs, MBs, LCSs, MSs, MSDs, FD, and FRB prior to extraction. It is also added to the CAL standards. The EIS is a means of assessing method performance from extraction to final chromatographic measurement. Calculate the recovery (%R) for the EIS using the following equation:

$$\%R = (A / B) \times 100$$

Where:
A = calculated EIS concentration for the QC or Field Sample
B = fortified concentration of the EIS.

9.4.2 Default limits of 50-150% may be used for analytes until sufficient replicates have been analyzed to generate proper control limits. A low or high percent recovery for a sample, blank, or CCV does not require discarding the analytical data but it may indicate a potential problem with future analytical data. When EIS recovery from a sample, blank, or CCV are outside control limits, check 1) calculations to locate possible errors, 2) standard solutions for degradation, 3) contamination, and 4)

instrument performance. For CCVs and QC elements spiked with all target analytes, if the recovery of the corresponding target analytes meet the acceptance criteria for the EIS in question, the data can be used but all potential biases in the recovery of the EIS must be documented in the sample report. If the associated target analytes do not meet the acceptance criteria, the data must be reanalyzed.

9.5 Matrix Spike (MS/MSD)

9.5.1 Analysis of an MS is prepared one per preparation batch (if required).

9.5.2 Aliquots of field samples that have been fortified with a known concentration of target compounds, prior to sample preparation and extraction, and analyzed to measure the effect of matrix interferences. The use of MS/MSD samples is generally not required in isotope dilution methods because the labeled compounds added to every sample provide more performance data than spiking a single sample in each preparation batch. Aliquots of field samples

9.5.3 Analyte recoveries may exhibit matrix bias. For samples fortified at or above their native concentration, recoveries should range between 50-150%. If the accuracy of any analyte falls outside the designated range, and the laboratory performance for that analyte is shown to be in control in the LCS, the recovery is judged to be matrix biased. The result for that analyte in the unfortified sample is labeled suspect/matrix to inform the data user that the results are suspect due to matrix effects.

9.6 Laboratory Duplicate

9.6.1 FIELD DUPLICATE OR LABORATORY FORTIFIED SAMPLE MATRIX DUPLICATE (FD or MSD) – Within each extraction batch (not to exceed 20 Field Samples), a minimum of one FD or MSD must be analyzed. Duplicates check the precision associated with sample collection, preservation, storage, and laboratory procedures. If method analytes are not routinely observed in Field Samples, an MSD should be analyzed rather than an FD.

9.6.2 Calculate the relative percent difference (*RPD*) for duplicate measurements (*FD1* and *FD2*) using the equation:

$$RPD = \frac{|FD1 - FD2|}{(FD1 + FD2) / 2} \times 100$$

9.6.3 RPDs for FDs should be ≤30%. Greater variability may be observed when FDs have analyte concentrations that are within a factor of 2 of the RL. At these concentrations, FDs should have RPDs that are ≤50%. If the RPD of any analyte falls outside the designated range, and the laboratory performance for that analyte is shown to be in control in the CCV, the recovery is judged to be matrix biased. The result for that analyte in the unfortified sample is labeled suspect/matrix to inform the data user that the results are suspect due to matrix effects.

9.6.4 If an MSD is analyzed instead of a FD, calculate the relative percent difference (RPD) for duplicate MSs (MS and MSD) using the equation:

$$RPD = \frac{|MS - MSD|}{} \times 100$$

(MS + MSD) / 2

9.6.5 RPDs for duplicate MSs should be ≤30% for samples fortified at or above their native concentration. Greater variability may be observed when MSs are fortified at analyte concentrations that are within a factor of 2 of the RL. MSs fortified at these concentrations should have RPDs that are ≤50% for samples fortified at or above their native concentration. If the RPD of any analyte falls outside the designated range, and the laboratory performance for that analyte is shown to be in control in the LCSD where applicable, the result is judged to be matrix biased. If no LCSD is present, the associated MS and MSD are to be re-analyzed to determine if any analytical has occurred. If the resulting RPDs are still outside control limits, the result for that analyte in the unfortified sample is labeled suspect/matrix to inform the data user that the results are suspect due to matrix effects.

9.7 Bile Salt Interference Check

9.7.1 The laboratory must analyze a TDCA standard after the initial calibration, prior to the analysis of tissue samples, to check for interferences caused by bile salts. If an interference is present, the chromatographic conditions must be modified to eliminate the interference from TDCA (e.g., changing the retention time of TDCA such that it falls outside the

9.8 Initial Calibration Verification (ICV)

9.8.1 After each ICAL, analyze a QCS sample from a source different from the source of the CAL standards. If a second vendor is not available, then a different lot of the standard should be used. The QCS should be prepared and analyzed just like a CCV. Acceptance criteria for the QCS are identical to the CCVs; the calculated amount for each analyte must be ± 30% of the expected value. If measured analyte concentrations are not of acceptable accuracy, check the entire analytical procedure to locate and correct the problem.

9.9 Instrument Sensitivity Check (ISC)

9.9.1 At the start of each 12-hour shift, analyze a standard at the LOQ. The signal-to-noise ratio of the ISC standard must be greater than or equal to 3:1. If the requirements cannot be met, the problem must be corrected before analyses can proceed.

9.10 Continuing Calibration Verification (CCV)

9.10.1 CCV Standards must be analyzed at the beginning of each analysis batch, after every 10 Field Samples, and at the end of the analysis batch.

9.10.2 The recovery of native and isotopically labeled compounds for the CVs must be within 70 - 130%

9.11 Method-specific Quality Control Samples

9.11.1 Instrument Blank – During the analysis of a batch of samples, a solvent blank is analyzed after samples containing high level of target compounds (e.g., calibration, CV) to monitor carryover from the previous injection. The injection blank consists of the solution in Section 8.1.16 fortified with the EIS and NIS for quantitation purposes.

9.12 Example Method Sequence

- INSTRUMENT BLANK
- INSTRUMENT SENSITIVITY CHECK
- CALIBRATION VERIFICATION STANDARD
- QUALITATIVE IDENTIFICATION STANDARDS
- TDCA STANDARD (only if analyzing tissues)
- INSTRUMENT BLANK
- METHOD BLANK
- LOW-LEVEL LCS/OPR
- OPR/LCS
- SAMPLE (10 or fewer)
- CALIBRATION VERIFICATION STANDARD
- INSTRUMENT BLANK
- SAMPLE (10 or fewer)
- CALIBRATION VERIFICATION STANDARD
- INSTRUMENT BLANK

10. Procedure

10.1 Equipment Set-up

10.1.1 This procedure may be performed manually or in an automated mode using a robotic or automatic sample preparation device. If an automated system is used to prepare samples, follow the manufacturer's operating instructions, but all extraction and elution steps must be the same as in the manual procedure. Extraction and/or elution steps may not be changed or omitted to accommodate the use of an automated system. If an automated system is used, the MBs should be rotated among the ports to ensure that all the valves and tubing meet the MB requirements.

10.1.2 Some of the PFAS's adsorb to surfaces, including polypropylene. Therefore, the aqueous sample bottles must be rinsed with the elution solvent whether extractions are performed manually or by automation. The bottle rinse is passed through the cartridge to elute the method analytes and is then collected.

10.1.3 The SPE cartridges and sample bottles described in this section are designed as single use items and should be discarded after use. They may not be refurbished for reuse in subsequent analyses.

10.1.4 All SPE apparatus, including manifolds, tubing and sample ports must be thoroughly rinsed following each use with 1% methanolic ammonium hydroxide, followed by Methanol and then DI water. Additionally, sample manifold ports and transfer tubing should be inspected regularly for signs of wear and/or

discoloration. When such observations are made, the associated components should be replaced.

10.1.5 Prior to the start of any extraction, sample site information must be evaluated for any potentially high level PFAS concentrations or sample matrix irregularities that may impact the extraction process. If such samples are identified, aqueous samples may be pre-screened via direct aqueous injection prior to analysis to estimate the potential PFAS concentrations present.

10.1.6 To perform a direct aqueous injection (DAI) screen, the sample should be inverted several times to try and evenly disperse any organic matter present. A 1 ml aliquot (or less depending on the matrix) is to be taken from the parent sample, volume adjusted to 1 ml with reagent water if less than 1ml, fortified with EIS and NIS spiking solutions to match the concentrations of an extracted sample (typically 5 µl per 1 ml DAI), and then analyzed under the same analytical conditions as field samples.

10.2 Sample Preparation of Aqueous Samples

10.2.1 Samples are preserved, collected, and stored as presented in Section 6.

10.2.2 Determine sample volume. Weigh all samples to the nearest 1g. If visible sediment is present, centrifuge and decant into a new HDPE bottle and record the weight of the new container.

NOTE: Some of the PFAS's adsorb to surfaces, thus the sample volume may not be transferred to a graduated cylinder for volume measurement.

10.2.3 The MB, LCS and FRB may be prepared by measuring reagent water with a polypropylene graduated cylinder or filling an HDPE sample bottle near the top.

10.2.4 Check that the pH is 6.5 ± 0.5. If necessary, adjust pH with 50% formic acid or ammonium hydroxide and 3% aqueous ammonium hydroxide. The extract is now ready for solid-phase extraction (SPE) and cleanup.

10.2.5 Add 20 µL of the EIS to each sample and QC, cap and invert to mix.

10.2.6 If the sample is an LCS, LCSD, MS, or MSD, add the necessary amount of analyte PDS. Cap and invert each sample to mix.

10.3 Sample Prep and Extraction Protocol for Solids.

10.3.1 Homogenize and weigh 5 grams of sample (measured to the nearest hundredth of a gram) into a 50 ml polypropylene centrifuge tube. For laboratory control blanks and spikes, 5 grams of clean sand is used.

10.3.1.1 For Biosolids and other complex matrices, a small aliquot may be required due to co-extracted matrix interferences.

10.3.1.2 For batch QC samples using 5 g of reference solid, add 2.5 g of reagent water. The addition of reagent water to the sand provides a matrix closer in composition to real-world samples.

10.3.2 Add 20 µL of the EIS to each sample and QC.

10.3.3 If the sample is an LCS, LCSD, MS, or MSD, add the necessary amount of analyte PDS. Cap and invert each sample to mix.

10.3.4 Vortex the samples to evenly disperse the spiking solutions and allow to equilibrate for 30 minutes.

10.3.5 To all samples, add 10 ml of 0.3% methanolic ammonium hydroxide, cap, vortex for 25 seconds.

10.3.6 Following mixing, shake each sample for 30 minutes on a shaker table.

10.3.7 Centrifuge each sample at 2800RPM for 10 minutes.

10.3.8 Remove the supernatant and transfer to a clean 50 ml polypropylene centrifuge tube.

10.3.9 Repeat steps 10.3.4 to 10.3.7, with 15 ml of 0.3% methanolic ammonium hydroxide, combining the supernatants.

10.3.10 Add 5ml of 0.3% methanolic ammonium hydroxide to the sample, vortex for 25 seconds and centrifuge each sample at 2800RPM for 10 minutes.

10.3.11 Remove the supernatant and transfer to the same 50 ml polypropylene centrifuge tube containing eluates from the previous cycles.

10.3.12 Add 10 mg of carbon to the combined extract, mix by occasional hand shaking for no more than five minutes and then centrifuge at 2800 rpm for 10 minutes. Immediately decant the extract into a 50 ml polypropylene centrifuge tube.

10.3.13 Dilute to approximately 35 mL with reagent water. Samples containing more than 50% water may yield extracts that are greater than 35 mL in volume; therefore, do not add water to these. Determine the water content in the sample as follows (percent moisture is determined from the % solids):

Water Content in Sample = (Sample Weight * Percent moisture) / 100

10.3.14 Concentrate each extract at approximately 55 ºC with a gentle N2 flow to a final volume that is based on the water content of the sample (see table below). Allow extracts to concentrate for 10 minutes, then mix (by vortex if the volume is < 20. Continue concentrating and mixing every 5 minutes until the extract has been reduced to the required volume as specified in the table below. If the extract volume appears to stop dropping, the concentration must be stopped and the volume at which it was stopped recorded.

Water Content in Sample	Concentrated Final Volume
< 5 grams	15 ml
5-8 grams	15-20 ml
8-9 grams	20-22.5 ml
9-10 grams	22.5-25 ml

10.3.15 Add 40 - 50 mL of reagent water to the extract and vortex. Check that the pH is 6.5 ±0.5 and adjust as necessary with 50% formic acid or 30% ammonium hydroxide, or with 5% formic acid and 3% aqueous ammonium hydroxide. The extracts are ready for SPE and cleanup.

10.4 Sample Prep and Extraction Protocol for Oils.

10.4.1 Weigh 1-2 grams of sample (measured to the nearest hundredth of a gram) into a 50 ml polypropylene centrifuge tube. For laboratory control blanks and spikes, 1 grams of mineral oil is used.

10.4.1.1 For batch QC samples use 1 g of reference oil.

10.4.2 Add 20 µL of the EIS to each sample and QC.

10.4.3 If the sample is an LCS, LCSD, MS, or MSD, add the necessary amount of analyte PDS. Cap and invert each sample to mix.

10.4.4 Vortex the samples to evenly disperse the spiking solutions and allow to equilibrate for 30 minutes.

10.4.5 To all samples, add 10 ml of 0.3% methanolic ammonium hydroxide, cap, vortex for 25 seconds.

10.4.6 Following mixing, shake each sample for 30 minutes on a shaker table.

10.4.7 Centrifuge each sample at 2800RPM for 10 minutes.

10.4.8 Remove the supernatant and transfer to a clean 50 ml polypropylene centrifuge tube.

10.4.9 Repeat steps 10.3.4 to 10.3.7, with 15 ml of 0.3% methanolic ammonium hydroxide, combining the supernatants.

10.4.10 Add 5ml of 0.3% methanolic ammonium hydroxide to the sample, vortex for 25 seconds and centrifuge each sample at 2800RPM for 10 minutes.

10.4.11 Remove the supernatant and transfer to the same 50 ml polypropylene centrifuge tube containing eluates from the previous cycles.

10.4.12 Add 10 mg of carbon to the combined extract, mix by occasional hand shaking for no more than five minutes and then centrifuge at 2800 rpm for 10 minutes. Immediately decant the extract into a 50 ml polypropylene centrifuge tube.

10.5 Sample Prep and Extraction Protocol for Tissues.

10.5.1 Homogenize and weigh 2 grams of sample (measured to the nearest hundredth of a gram) into a 50 ml polypropylene centrifuge tube. For laboratory control blanks and spikes, 2 grams of clean tissue is used.

10.5.2 Add 20 µL of the EIS PDS to each sample and QC.

10.5.3 If the sample is an LCS, LCSD, MS, or MSD, add the necessary amount of analyte PDS. Cap and invert each sample to mix.

10.5.4 Add 10 mL of 0.05M KOH in methanol to each sample. Vortex to disperse the tissue then place tubes on a mixing table to extract for at 16 hours. Centrifuge at 2800 rpm for 10 minutes and collect the supernatant in a 50-mL polypropylene centrifuge tube.

10.5.5 Add 10 mL of acetonitrile to remaining tissue in the 50-mL centrifuge tube, vortex to mix and disperse the tissue. Sonicate for 30 minutes. Centrifuge at 2800 rpm for 10 minutes and collect the supernatant, adding it to the 50-mL centrifuge tube containing the initial extract.

10.5.6 Add 5 mL of 0.05M KOH in methanol to the remaining sample in each centrifuge tube. Vortex to disperse the tissue and hand mix briefly. Centrifuge at 2800 rpm

for 10 minutes and collect the supernatant, adding it to the 50-mL centrifuge tube containing the first two extracts.

10.5.7 Add 10 mg of carbon to the combined extract, mix by occasional hand shaking over a period of no more than five minutes and then centrifuge at 2800 rpm for 10 minutes. Immediately decant the extract into a 50-mL centrifuge tube.

10.5.8 Add 1 mL of reagent water to each tube and concentrate each extract at approximately 55 ºC with a gentle N2 flow to a final volume of 2.5 ml.

10.5.9 Add reagent water to each evaporation/concentrator tube to dilute the extracts to 50 mL. Check that the pH = 6.5 ± 0.5 and adjust as needed with 50% formic acid, or ammonium hydroxide or with 5% formic acid and 3% aqueous ammonium hydroxide. The extracts are ready for SPE and cleanup.

10.6 SPE Extract: All matrices

10.6.1 Pack clean silanized glass wool to half the height of the WAX SPE cartridge barrel.

10.6.2 Pre-condition the cartridges by washing them with 3 X 5 mL of 1% methanolic ammonium hydroxide, discarding the wash volumes.

10.6.3 Rinse the cartridge with 5 mL of 0.3M formic acid, allowing the cartridge to drain using gravity only, discarding the rinse volume. Do not allow the cartridge to go dry

10.6.4 Adjust the vacuum so that the approximate flow rate is ~5 mL/min and load the sample across the cartridge. Do not allow the cartridge to go dry before all the sample has passed through.

10.6.5 Once all the sample has passed across the cartridge, rinse the walls of the reservoir with 2 X 5 mL reagent water, loading the rinse across the cartridge.

10.6.6 Rinse the walls of the reservoir with 5 mL of 1:1 0.1M formic acid/methanol and pass the rinse through the cartridge using vacuum. Dry the cartridge by pulling air through for 15 seconds.

10.6.7 Rinse the inside of the sample bottle with 5 mL of 1% methanolic ammonium hydroxide. Use vacuum to pull the elution solvent through the cartridge and into the collection tubes. When the cartridge bed and glass wool are submerged, stop the cartridge flow by closing the valve, keeping the sorbent bed and wool submerged.

10.6.8 Let the wetted sorbent bed and wool soak for 1 minute.

10.6.9 Open the cartridge valve and collect the eluate into a 15 ml polypropylene collection tube.

10.6.10 Add 25 µL of concentrated acetic acid to each sample eluted in the collection tubes and vortex to mix.

10.6.11 Add 10 mg of carbon to each sample and batch QC extract, using a 10-mg scoop. Handshake occasionally for no more than 5 minutes. It is important to minimize the time the sample extract is in contact with the carbon. Immediately vortex (30 seconds) and centrifuge at 2800 rpm for 10 minutes.

10.6.12 Add NIS solution to a clean collection tube. Place a syringe filter (25-mm filter, 0.2-µm nylon membrane) on a 5-mL polypropylene syringe. Take the plunger out and carefully decant the sample supernatant into the syringe barrel. Replace the

plunger and filter the entire extract into the new collection tube containing the NIS.

10.6.13 Vortex to mix and transfer a portion of the extract into a .7-mL polypropylene LC vial for LC-MS/MS analysis. Cap the collection tube containing the remaining extract and store at 4 °C

10.7 Sample Volume Determination

10.7.1 If using weight to determine volume, weigh the empty bottle to the nearest 1 g and determine the sample weight by subtraction of the empty bottle weight from the original sample weight. Assume a sample density of 1.0 g/mL. In either case, the sample volume will be used in the final calculations of the analyte concentration.

10.8 Initial Calibration - Demonstration and documentation of acceptable initial calibration is required before any samples are analyzed. After the initial calibration is successful, a CCV is required at the beginning and end of each period in which analyses are performed, and after every tenth Field Sample.

10.8.1 ESI-MS/MS TUNE

10.8.1.1 Calibrate the mass scale of the MS with the calibration compounds and procedures prescribed by the manufacturer.

10.8.1.2 Optimize the [M-H]- or [M-CO_2]- for each method analyte by infusing approximately 0.5-1.0 µg/mL of each analyte (prepared in the initial mobile phase conditions) directly into the MS at the chosen LC mobile phase flow rate (0.4 mL/min). This tune can be done on a mix of the method analytes. The MS parameters (voltages, temperatures, gas flows, etc.) are varied until optimal analyte responses are determined. The method analytes may have different optima requiring some compromise between the optima.

The Mass spec conditions found in Table 7 show the Sciex Triple Quad 5500+ operation conditions used in this method.

10.8.1.3 Optimize the product ion for each analyte by infusing approximately 0.5-1.0 µg/mL of each analyte (prepared in the initial mobile phase conditions) directly into the MS at the chosen LC mobile phase flow rate (approximately 0.4 mL/min). This tune can be done on a mix of the method analytes. The MS/MS parameters (collision gas pressure, collision energy, etc.) are varied until optimal analyte responses are determined. Typically, the carboxylic acids have very similar MS/MS conditions, and the sulfonic acids have similar MS/MS conditions.

The conditions found on table 5 are representative of expected tune optimizations for each analyte. If conditions other the ones close to the values provided in table 5 are achieved, the process should be re-performed and/or instrument maintenance performed to resolve the problem.

10.8.2 Establish LC operating parameters that optimize resolution and peak shape. Modifying the standard or extract composition to more aqueous content to prevent poor shape is not permitted.

Table 6 represents the operation conditions of a Sciex Exion LC system when running this method.

10.8.3 Inject 2µl of a mid-level CAL standard under LC/MS conditions to obtain the retention times of each method analyte. Divide the chromatogram into retention time windows each of which contains one or more chromatographic peaks. During MS/MS analysis, fragment a small number of selected precursor ions ([M-H]-) for the analytes in each window and choose the most abundant product ion. For maximum sensitivity, small mass windows of ±0.5 daltons around the product ion mass were used for quantitation.

10.8.4 Inject a mid-level CAL standard under optimized LC/MS/MS conditions to ensure that each method analyte is observed in its MS/MS window and that there are at least 10 scans across the peak for optimum precision.

NOTE: PFHxS, PFOS, NMeFOSAA, and NEtFOSAA have multiple chromatographic peaks using the LC conditions in Table 7 due to chromatographic resolution of the linear and branched isomers of these compounds. Most PFAS's are produced by two different processes. One process gives rise to linear PFAS's only while the other process produces both linear and branched isomers. Thus, both branched and linear PFAS's can potentially be found in the environment. For the aforementioned compounds that give rise to more than one peak, all the chromatographic peaks observed in the standard must be integrated and the areas totaled. Chromatographic peaks in a sample must be integrated in the same way as the CAL standard.

10.8.5 Prepare a set of CAL standards as outlined in table 5. The lowest concentration CAL standard must be at or below the LOQ.

10.8.6 The LC/MS/MS system is calibrated using the isotope dilution technique. Target analytes are quantitated against their isotopically labeled analog (Extracted Internal Standard) where commercially available. If a labeled analog is not commercially available, the extracted internal standard with the closest retention time and /or closest chemical similarity is to be used. Use the LC/MS/MS data system software to generate a linear regression or quadratic calibration curve for each of the analytes. This curve must always be forced through zero and may be concentration weighted, if necessary. Forcing zero allows for a better estimate of the background levels of method analytes. A minimum of 6 calibration points are required for a linear or quadratic calibration model.

10.8.7 **CALIBRATION ACCEPTANCE CRITERIA** – A linear fit is acceptable if the calculated RSD or RSE for each target analyte is ≤20%. If linear or Quadratic regressions are used, coefficient of determination (r^2) values must be greater than 0.99. When quantitated using the initial calibration curve, each calibration point at or above the LOQ for each analyte must calculate to be within 70-130% of its true value. The calculate value of each EIS analyte must be within 50-150% of its true value. If these criteria cannot be met, corrective action is taken to reanalyze the CAL standards, restrict the range of calibration.

10.8.8 **Bile salts interference check -** The laboratory must analyze a TDCA standard after the initial calibration, prior to the analysis of tissue samples, to check for interferences caused by bile salts. If an interference is present, the chromatographic conditions must be modified to eliminate the interference from TDCA (e.g., changing the retention time of TDCA such that it falls outside the

retention window for PFOS by at least one minute), and the initial calibration repeated.

10.9 CONTINUING CALIBRATION CHECK (CCV) – Minimum daily calibration verification is as follows. Verify the initial calibration at the beginning and end of each group of analyses, and after every tenth sample during analyses. In this context, a "sample" is considered to be a Field Sample. MBs, CCVs, LCSs, MSs, FDs FRBs and MSDs are not counted as samples. The beginning CCV of each analysis batch must be at or below the RL in order to verify instrument sensitivity prior to any analyses. If standards have been prepared such that all low CAL points are not in the same CAL solution, it may be necessary to analyze two CAL standards to meet this requirement. Alternatively, the analyte concentrations in the analyte PDS may be customized to meet these criteria. Subsequent CCVs should alternate between a medium and Low concentration CAL standard.

10.9.1 Inject an aliquot of the appropriate concentration CAL standard and analyze with the same conditions used during the initial calibration.

10.9.2 Calculate the concentration of each analyte and EIS in the CCV. The calculated amount for each native and EIS analyte for medium level CCVs must be within ± 30% of the true. If these conditions do not exist, then all data for the problem analyte must be considered invalid, and remedial action should be taken which may require recalibration. Any Field or QC Samples that have been analyzed since the last acceptable calibration verification should be reanalyzed after adequate calibration has been restored, with the following exception. If the CCV fails because the calculated concentration is greater than 130% for a particular method analyte, and Field Sample extracts show no detection for that method analyte, non-detects may be reported without re-analysis.

10.9.3 REMEDIAL ACTION – Failure to meet CCV QC performance criteria may require remedial action. Major maintenance, such as cleaning the electrospray probe, atmospheric pressure ionization source, cleaning the mass analyzer, replacing the LC column, etc., requires recalibration and verification of sensitivity by analyzing a CCV at or below the LOQ.

10.10 EXTRACT ANALYSIS

10.10.1 The same operating conditions used for the initial calibration and summarized in Tables 6 and 7 are to be used.

10.10.2 Prior to analysis of sample extracts, the Instrument mass calibration verification must be performed using standards whose mass range brackets the masses of interest and performed in the negative ion mode. The mass calibration is verified if the calculated mass is within ± .2 daltons of the specified mass.

10.10.3 Establish an appropriate retention time window for each analyte. This should be based on measurements of actual retention time variation for each method analyte in CAL standard solutions analyzed on the LC over the course of time. A value of plus or minus three times the standard deviation of the retention time obtained for each method analyte while establishing the initial calibration can be used to calculate a suggested window size. However, the experience of the analyst should weigh heavily on the determination of the appropriate retention window size.

10.10.4 Calibrate the system by either the analysis of a calibration curve or by confirming the initial calibration is still valid by analyzing a CCV.

10.10.5 Begin analyzing Field Samples, including QC samples, at their appropriate frequency by injecting the same size aliquots under the same conditions used to analyze the CAL standards.

10.10.6 For concentrations at or above the method LOQ, the total (branched and linear isomer) quantification ion response to the total (branched and linear isomer) confirmation ion response ratio must fall within ± 50% of the ratio observed in the midpoint initial calibration standard.

10.10.7 At the conclusion of data acquisition, use the same software that was used in the calibration procedure to identify peaks of interest in predetermined retention time windows. Use the data system software to examine the ion abundances of the peaks in the chromatogram. Identify an analyte by comparison of its retention time with that of the corresponding method analyte peak in a reference standard.

10.10.7.1 Method analyte, EIS analyte, and NIS analyte RTs must fall within 0.4 minutes of the predicted retention times from the midpoint standard of the ICAL or initial daily CV, whichever was used to establish the RT window position for the analytical batch. All branched isomer peaks identified in either the calibration standard or the qualitative (technical grade) standard must fall within in the retention time window for that analyte.

10.10.7.2 For all method analytes with exact corresponding isotopically labeled analogs, method analytes must elute within 0.1 minutes of the associated EIS.

10.10.8 The analyst must not extrapolate beyond the established calibration range. If an analyte peak area exceeds the range of the initial calibration curve, the sample should be re-extracted with a reduced sample volume in order to bring the out of range target analytes into the calibration range. If a smaller sample size would not be representative of the entire sample, the following options are recommended. Re-extract an additional aliquot of sufficient size to ensure that it is representative of the entire sample. Spike it with a higher concentration of internal standard. Prior to LC/MS analysis, dilute the sample so that it has a concentration of internal standard equivalent to that present in the calibration standard. Then, analyze the diluted extract.3

10.10.9 In instances where re-extraction is not an option, dilute a subsample of the sample extract with 0.1% acetic acid by a factor no greater than 10x adjust the amount of the NIS in the diluted extract, and analyze the diluted extract. If the responses for each EIS in the diluted extract meet the S/N and retention time, and the EIS recoveries from the analysis of the diluted extract are greater than 5%, then the compounds associated with those EISs may be quantified using isotope dilution. Use the EIS recoveries from the original analysis to select the dilution factor, with the objective of keeping the EIS recoveries in the dilution above that 5% lower limit. If the adjusted EIS recoveries are below 5%, the dilution is assumed invalid. If the adjusted EIS recoveries are greater than 5%, adjust the compound concentrations, detection limits, and minimum levels to account for the dilution.

11. Data Evaluation, Calculations and Reporting

11.1 Complete chromatographic resolution is not necessary for accurate and precise measurements of analyte concentrations using MS/MS. In validating this method, concentrations were calculated by measuring the product ions listed in Table 9.

11.2 Calculate analyte concentrations using the multipoint calibration established in Section 10.9. Do not use daily calibration verification data to quantitate analytes in samples. Adjust final analyte concentrations to reflect the actual sample volume determined in Section 10.8

C_{ex} = (Area of target analyte * Concentration of Labeled analog) / (area of labeled analog * CF)

C_s = (C_{ex} / sample volume in ml) * 1000

C_{ex} = The concentration of the analyte in the extract
CF = calibration factor from calibration.

11.3 Prior to reporting the data, the chromatogram should be reviewed for any incorrect peak identification or poor integration.

11.4 PFHxS, PFOS, PFOA, NMeFOSAA, and NEtFOSAA have multiple chromatographic peaks using the LC conditions in Table 7 due to the linear and branch isomers of these compounds (Sect. 10.10.4.). The areas of all the linear and branched isomer peaks observed in the CAL standards for each of these analytes must be summed and the concentrations reported as a total for each of these analytes.

11.5 Calculations must utilize all available digits of precision, but final reported concentrations should be rounded to an appropriate number of significant figures (one digit of uncertainty), typically two, and not more than three significant figures.

12. Contingencies for Handling Out-of-Control Data or Unacceptable Data

12.1 Section 9.0 outlines sample batch QC acceptance criteria. If non-compliant organic compound results are to be reported, the Organic Section Head and/or the Laboratory Director, and the Operations Manager must approve the reporting of these results. The laboratory Project Manager shall be notified and may choose to relay the non-compliance to the client, for approval, or other corrective action, such as re-sampling and re-analysis. The analyst, Data Reviewer, or Department Supervisor performing the secondary review initiates the project narrative, and the narrative must clearly document the non-compliance and provide a reason for acceptance of these results.

12.2 All results for the organic compounds of interest are reportable without qualification if extraction and analytical holding times are met, preservation requirements (including cooler temperatures) are met, all QC criteria are met, and matrix interference is not suspected during extraction or analysis of the samples. If any of the below QC parameters are not met, all associated samples must be evaluated for re-extraction and/or re-analysis.

13. Method Performance

13.1 Detection Limit Study (DL) / Limit of Detection Study (LOD) / Limit of Quantitation (LOQ)

13.1.1 The laboratory follows the procedure to determine the DL, LOD, and/or LOQ as outlined in Alpha SOP ID 1732. These studies performed by the laboratory are maintained on file for review.

13.2 Demonstration of Capability Studies

13.2.1 Refer to Alpha SOP ID 1739 for further information regarding IDC/DOC Generation.

13.2.2 The analyst must make a continuing, annual, demonstration of the ability to generate acceptable accuracy and precision with this method.

14. Pollution Prevention and Waste Management

14.1 Refer to Alpha's Chemical Hygiene Plan and Hazardous Waste Management and Disposal SOP for further pollution prevention and waste management information.

14.2 This method utilizes SPE to extract analytes from water. It requires the use of very small volumes of organic solvent and very small quantities of pure analytes, thereby minimizing the potential hazards to both the analyst and the environment as compared to the use of large volumes of organic solvents in conventional liquid-liquid extractions.

14.3 The analytical procedures described in this method generate relatively small amounts of waste since only small amounts of reagents and solvents are used. The matrices of concern are finished drinking water or source water. However, laboratory waste management practices must be conducted consistent with all applicable rules and regulations, and that laboratories protect the air, water, and land by minimizing and controlling all releases from fume hoods and bench operations. Also, compliance is required with any sewage discharge permits and regulations, particularly the hazardous waste identification rules and land disposal restrictions.

15. Referenced Documents

Chemical Hygiene Plan – ID 2124

SOP ID 1732 Detection Limit (DL), Limit of Detection (LOD) & Limit of Quantitation (LOQ) SOP

SOP ID 1739 Demonstration of Capability (DOC) Generation SOP

SOP ID 1728 Hazardous Waste Management and Disposal SOP

16. Attachments

Table 1: Names, Abbreviations, and CAS Registry Numbers for Target PFAS, Extracted Internal Standards and Non-extracted Internal Standards

Parameter	Acronym	CAS
PER- and POLYFLUOROALKYLETHER CARBOXYLIC ACIDS (PFECAs)		
Tetrafluoro-2-(heptafluoropropoxy)propanoic acid	HFPO-DA	13252-13-6
4,8-dioxa-3H-perfluorononanoic acid	ADONA	919005-14-4
Perfluoro-3-methoxypropanoic acid	PFMPA	377-73-1
Perfluoro-4-methoxybutanoic acid	PFMBA	863090-89-5
Nonafluoro-3,6-dioxaheptanoic acid	NFDHA	151772-58-6
PERFLUOROALKYLCARBOXILIC ACIDS (PFCAs)		
Perfluorobutanoic acid	PFBA	375-22-4
Perfluoropentanoic acid	PFPeA	2706-90-3
Perfluorohexanoic acid	PFHxA	307-24-4
Perfluoroheptanoic acid	PFHpA	375-85-9

Perfluorooctanoic acid	PFOA	335-67-1
Perfluorononanoic acid	PFNA	375-95-1
Perfluorodecanoic acid	PFDA	335-76-2
Perfluoroundecanoic acid	PFUnA	2058-94-8
Perfluorododecanoic acid	PFDoA	307-55-1
Perfluorotridecanoic acid	PFTrDA	72629-94-8
Perfluoorotetradecanoic acid	PFTeDA	376-06-7
PERFLUOROALKYL SULFONIC ACIDS (PFASs)		
Perfluorobutanesulfonic acid	PFBS	375-73-5
Perfluoropentanesulfonic acid	PFPeS	2706-91-4
Perfluorohexanesulfonic acid	PFHxS	355-46-4
Perfluoroheptanesulfonic acid	PFHpS	375-92-8
Perfluorooctanesulfonic acid	PFOS	1763-23-1
Perfluorononanesulfonic acid	PFNS	68259-12-1
Perfluorodecanesulfonic acid	PFDS	335-77-3
Perfluorododecanesulfonic acid	PFDoS	79780-39-5
CHLORO-PERFLUOROALKYLSULFONATE		
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	11Cl-PF3OUdS	763051-92-9

Perfluoro(2-ethoxyethane)sulfonic acid	PFEESA	113507-82-7
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid	9Cl-PF3ONS	756426-58-1
FLUOROTELOMER CARBOXYLIC ACIDS		
3-Perfluoropropyl propanoic acid	3:3FTCA	356-02-5
2H,2H,3H,3H-Perfluorooctanoic acid	5:3FTCA	914637-49-3
Perfluoroheptyl propanoic acid	7:3FTCA	812-70-4
PERFLUOROOCTANESULFONAMIDES		
Perfluorooctanesulfonamide	PFOSA	754-91-6
N-methylperfluoro-1-octanesulfonamide	NMeFOSA	31506-32-8
N-ethylperfluoro-1-octanesulfonamide	NEtFOSA	4151-50-2
PERFLUOROCTANE SULFONAMIDE ETHANOLS		
N-Methyl perfluorooctanesulfonamidoethanol	NMeFOSE	24448-09-7
N-ethyl perfluorooctanesulfonamidoethanol	NEtFOSE	1691-99-2
TELOMER SULFONIC ACIDS		
1H,1H,2H,2H-perfluorohexanesulfonic acid (4:2)	4:2FTS	757124-72-4
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	6:2FTS	27619-97-2
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	8:2FTS	39108-34-4
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS		

N-methyl perfluorooctanesulfonamidoacetic acid	NMeFOSAA	2355-31-9
N-ethyl perfluorooctanesulfonamidoacetic acid	NEtFOSAA	2991-50-6
PERFLUOROETHER AND POLYETHER CARBOXYLIC ACIDS		
Perfluoro-3-methoxypropanoic acid	PFMPA	377-73-1
Perfluoro-4-methoxybutanoic acid	PFMBA	863090-89-5
Perfluoro(2-ethoxyethane)sulfonic acid	PFEESA	113507-82-7
Nonafluoro-3,6-dioxaheptanoic acid	NFDHA	151772-58-6

Table 2: Stock and Nominal Extracted Internal Standard Concentrations

Isotope Labeled Standard	Conc. of EIS Stock (ng/mL)	Nominal amount of EIS added to extracts (ng)
M4PFBA	2000	40
M5PFPeA	1000	20
M5PFHxA	500	10
M4PFHpA	500	10
M8PFOA	500	10
M9PFNA	250	5
M6PFDA	250	5
M7PFUdA	250	5
MPFDoA	250	5
M2PFTeDA	250	5
M3PFBS	466	9.32
M3PFHxS	474	9.48
M8PFOS	479	9.58
M2-4:2FTS	938	18.8
M2-6:2FTS	951	19
M2-8:2FTS	960	19.2
M8FOSA	500	10
d3-N-MeFOSA	500	10
d5-N-EtFOSA	500	10
d3-N-MeFOSAA	1000	20
d5-N-EtFOSAA	1000	20
d7-N-MeFOSE	5000	100
d9-N-EtFOSE	5000	100
M3HFPO-DA	2000	40

Table 3: Stock and Nominal Non-Extracted Internal Standard Concentrations

Isotope Labeled Standard	Conc. of EIS Stock (ng/mL)	Nominal amount of EIS added to extracts (ng)
M3PFBA	1000	40
M2PFHxA	500	10
M4PFOA	500	10
M5PFNA	250	5
M2PFDA	250	5
18O2PFHxS	474	9.48
M4PFOS	479	9.58

Table 4: Initial Calibration levels and Concentrations

Analyte	Cal A	Cal B (LOQ)	CAL C	Cal D	Cal E (CCV)	Cal F	Cal G	Cal H	Cal I
PFBA	.4	.8	2	5	10	20	50	250	500
PFPeA	.2	.4	1	2.5	5	10	25	125	250
PFHxA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFHpA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFOA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFNA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFDA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFUnA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFDoA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFTrDA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFTA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFBS	0.089	0.177	0.444	1.11	2.22	4.44	11.1	55.4	111
PFPeS	0.094	0.188	0.471	1.18	2.35	4.71	11.8	58.8	118
PFHxS	0.091	0.183	0.457	1.14	2.29	4.57	11.4	57.1	114
PFHpS	0.095	0.191	0.477	1.19	2.38	4.77	11.9	59.6	119
PFOS	0.093	0.186	0.464	1.16	2.32	4.64	11.6	58	116
PFNS	0.096	0.192	0.481	1.20	2.41	4.81	12	60.1	120
PFDS	0.097	0.193	0.483	1.21	2.41	4.83	12.1	60.3	121
PFDOS	0.097	0.194	0.485	1.21	2.43	4.85	12.1	60.6	121.
4:2FTS	0.375	0.75	1.88	4.69	9.38	18.8	46.9	234	469
6:2FTS	0.38	0.76	1.9	4.75	9.5	19	47.5	238	475
8:2FTS	0.384	0.768	1.92	4.8	9.6	19.2	48	240	480
PFOSA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125

NMeFOSA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
NEtFOSA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
NMeFOSAA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
NEtFOSAA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
NMeFOSE	1	2	5	12.5	25	50	125	625	1250
NEtFOSE	1	2	5	12.5	25	50	125	625	1250
HFPO-DA	.4	.8	2	5	10	20	50	250	500
ADONA	0.378	0.756	1.89	4.73	9.45	18.9	47.3	236	473
9Cl-PFONS	0.374	0.748	1.87	4.68	9.35	18.7	46.8	234	468
11Cl-PFOUdS	0.378	0.756	1.89	4.73	9.45	18.9	47.3	236	473
PFMPA	.2	.4	1	2.5	5	10	25	125	250
PFMBA	.2	.4	1	2.5	5	10	25	125	250
PFEESA	0.178	0.356	0.89	2.23	4.45	8.9	22.3	111	223
NFDHA	.2	.4	1	2.5	5	10	25	125	250
3:3FTCA	.5	1	2.5	6.25	12.5	25	62.5	312	624
5:3FTCA	2.5	5	12.5	31.3	62.5	125	312	1560	3120
7:3FTCA	2.5	5	12.5	31.3	62.5	125	312	1560	3125
M4PFBA	10	10	10	10	10	10	10	10	10
M5PFPeA	5	5	5	5	5	5	5	5	5
M5PFHxA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
M4PFHpA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
M8PFOA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
M9PFNA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
M6PFDA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
M7PFUdA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
MPFDoA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
M2PFTeDA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
M3PFBS	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33
M3PFHxS	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37
M8PFOS	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
M2-4:2FTS	4.69	4.69	4.69	4.69	4.69	4.69	4.69	4.69	4.69
M2-6:2FTS	4.76	4.76	4.76	4.76	4.76	4.76	4.76	4.76	4.76
M2-8:2FTS	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
M8FOSA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
d3-N-MeFOSA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
d5-N-EtFOSA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5

d3-N-MeFOSAA	5	5	5	5	5	5	5	5	5
d5-N-EtFOSAA	5	5	5	5	5	5	5	5	5
d7-N-MeFOSE	25	25	25	25	25	25	25	25	25
d9-N-EtFOSE	25	25	25	25	25	25	25	25	25
M3HFPO-DA	10	10	10	10	10	10	10	10	10
M3PFBA	5	5	5	5	5	5	5	5	5
M2PFHxA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
M4PFOA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
M5PFNA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
M2PFDA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
18O2PFHxS	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37
M4PFOS	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4

Table 5: Expected Mass Transitions and instrument conditions.

Q1	Q2	Analyte	DP Volts	CE Volts
213.032	169.022	PFBA	-50	-14
263.039	219.03	PFPeA	-55	-12
263.039	68.9	PFPeA_2	-55	-55
313.047	269.037	PFHxA	-45	-12
313.047	119	PFHxA_2	-45	-28
363.055	319.045	PFHpA	-60	-12
363.055	169.022	PFHpA_2	-60	-24
413.063	369.053	PFOA	-65	-14
413.063	169.022	PFOA_2	-65	-23
463.071	419.061	PFNA	-70	-14
463.071	219.03	PFNA_2	-70	-24
513.078	469.069	PFDA	-80	-16
513.078	219.03	PFDA_2	-80	-30
563.086	519.076	PFUnA	-85	-18
563.086	269.037	PFUnA_2	-85	-25
613.094	569.084	PFDoA	-85	-18
613.094	319.045	PFDoA_2	-85	-28
663.102	619.092	PFTrDA	-85	-20
663.102	169.022	PFTrDA_2	-85	-36
713.11	669.1	PFTA	-70	-22
713.11	169.022	PFTA_2	-70	-38
299.092	80.062	PFBS	-100	-65

299.092	99.061	PFBS_2	-100	-40
349.1	80.062	PFPeS	-100	-75
349.1	99.061	PFPeS_2	-100	-60
399.107	80.062	PFHxS	-120	-75
399.107	99.061	PFHxS_2	-120	-80
449.115	80.062	PFHpS	-140	-95
449.115	99.061	PFHpS_2	-140	-80
499.113	80.062	PFOS	-145	-108
499.113	99.061	PFOS_2	-145	-85
549.131	80.062	PFNS	-180	-100
549.131	99.061	PFNS_2	-180	-100
599.139	80.062	PFDS	-170	-110
599.138	99.061	PFDS_2	-170	-100
699.154	80.062	PFDoS	-160	-150
699.154	99.061	PFDoS_2	-160	-130
327.146	307.139	4:2FTS	-100	-28
327.146	81.07	4:2FTS_2	-100	-50
427.161	407.155	6:2FTS	-120	-33
427.161	81.07	6:2FTS_2	-120	-65
527.177	507.17	8:2FTS	-140	-39
527.177	81.07	8:2FTS_2	-140	-85
498.146	78.07	FOSA	-150	-90
498.146	478	FOSA_2	-150	-35
512.163	219.03	NMeFOSA	-130	-35
512.163	169.022	NMeFOSA_2	-130	-40
526.192	219.03	NEtFOSA	-140	-35
526.192	169.022	NEtFOSA_2	-140	-35
570.202	419.061	NMeFOSAA	-100	-28
570.202	483	NMeFOSAA_2	-100	-22
584.229	419.061	NEtFOSAA	-100	-28
584.229	526.192	NEtFOSAA_2	-100	-38
616.1	58.9	NMeFOSE	-90	-70
630	58.9	NEtFOSE	-80	-75
285.035	169.022	HFPO-DA	-60	-12
285.035	184.9	HFPO-DA_2	-60	-18
377.06	251.028	ADONA	-65	-18
377.06	84.8	ADONA_2	-65	-48
530.8	351.05	9Cl-PFONS	-130	-38
532.8	353	9Cl-PFONS_2	-130	-38

630.9	451.031	11Cl-PFOUdS	-145	-41
632.9	452.9	11Cl-PFOUdS_2	-145	-41
241.085	177.069	3:3FTCA	-60	-12
241.085	117	3:3FTCA_2	-60	-50
341.101	237.072	5:3FTCA	-70	-20
341.101	217	5:3FTCA_2	-70	-35
441.117	316.9	7:3FTCA	-85	-30
441.117	337.088	7:3FTCA_2	-85	-20
315.093	135.013	PFEESA	-100	-35
315.093	82.9	PFEESA_2	-100	-25
229.032	85.006	PFMPA	-40	-25
279.042	85.006	PFMBA	-45	-25
295.032	201	NFDHA	-30	-15
295.032	84.9	NFDHA_2	-30	-40
217.001	171.999	MPFBA	-50	-14
268.001	222.999	M5PFPeA	-55	-12
318.009	273.007	M5PFHxA	-45	-12
367.024	322.022	M4PFHpA	-60	-12
421.002	376	M8PFOA	-65	-14
472.002	427	M9PFNA	-70	-14
519.033	474.03	M6PFDA	-80	-16
570.033	525.031	M7-PFUdA	-85	-18
615.079	570.033	MPFDoA	-85	-18
715.094	670.092	M2PFTeDA	-70	-22
302.069	80.062	M3PFBS	-100	-65
402.084	80.062	M3PFHxS	-120	-74
507.062	80.062	M8PFOS	-145	-85
329.13	81.07	M2-4:2FTS	-100	-50
429.162	81.07	M2-6:2FTS	-120	-65
529.162	81.07	M2-8:2FTS	-140	-85
506.077	78.07	M8FOSA	-150	-90
515.183	219.03	d3-NMeFOSA	-130	-35
531.222	219.03	d5-NEtFOSA	-140	-35
573.22	419.061	d3-NMeFOSAA	-75	-28
589.259	419.061	d5-NEtFOSAA	-90	-28
623.2	58.9	d7-NMeFOSE	-100	-28
639.2	58.9	d9-NEtFOSE	-100	-28
287.02	169.022	M3HFPO-DA	-60	-12
216.009	171.999	M3PFBA	-50	-14

315.032	270.03	M2PFHxA	-45	-12
417.032	372.03	M4PFOA	-65	-14
468.032	423.03	M5PFNA	-70	-14
515.063	470.061	M2PFDA	-80	-16
403.107	84.062	18O2-PFHxS	-120	-74
503.093	80.062	M4PFOS	-145	-85

Table 6: LC Method Conditions

Time (min)	2 mM Ammonium Acetate (5:95 CH/H_2O)	100% Acetonitrile	Gradient Curve
Initial	100.0	0.0	0
.2	100.0	0.0	2
4	70	30	7
7	45	55	8
9	25	80	8
10	5	95	6
10.4	98	2	10
11.8	100	0	7
12	100	0	1
Waters Aquity UPLC ® BEHC_{18} 2.1 x 50 mm packed with 1.7 µm BEH C_{18} stationary phase Flow rate of 0.4 mL/min 2 µL injection			

Table 7: ESI-MS Method Conditions

ESI Conditions	
Polarity	Negative ion
Curtain Gas	30
Collision gas	9
Ion Spray Voltage	-4500
Desolvation gas temp.	500 ºC
Ion Source Gas 1	30
Ion Source Gas 2	50
Entrance Poitential	-10
Exic Cell Potential	-11

Table 8. Reporting limits by Matrix

Compound	Aqueous (ng/L)	Solid (ng/g)	Tissue (ng/g)
PFBA	6.4	0.8	2
PFPeA	3.2	0.4	1
PFHxA	1.6	0.2	0.5
PFHpA	1.6	0.2	0.5
PFOA	1.6	0.2	0.5
PFNA	1.6	0.2	0.5
PFDA	1.6	0.2	0.5
PFUnA	1.6	0.2	0.5
PFDoA	1.6	0.2	0.5
PFTrDA	1.6	0.2	0.5
PFTA	1.6	0.2	0.5
PFBS	1.6	0.2	0.5
PFPeS	1.6	0.2	0.5
PFHxS	1.6	0.2	0.5
PFHpS	1.6	0.2	0.5
PFOS	1.6	0.2	0.5
PFNS	1.6	0.2	0.5
PFDS	1.6	0.2	0.5
PFDoS	1.6	0.2	0.5
4:2FTS	6.4	0.8	2
6:2FTS	6.4	0.8	2
8:2FTS	6.4	0.8	2
FOSA	1.6	0.2	2
NMeFOSA	1.6	0.2	0.5
NEtFOSA	1.6	0.2	0.5
NMeFOSAA	1.6	0.2	0.5
NEtFOSAA	1.6	0.2	0.5
NMeFOSE	16	2	5
NEtFOSE	16	2	5
HFPO-DA	6.4	0.8	2
ADONA	6.4	0.8	2
9Cl-PFONS	6.4	0.8	2
11Cl-PFOUdS	6.4	0.8	2
3:3FTCA	8	1	2.5
5:3FTCA	40	5	12.5

7:3FTCA	40	5	12.5
PFEESA	3.2	0.4	1
PFMPA	3.2	0.4	1
PFMBA	3.2	0.4	1
NFDHA	3.2	0.4	1

APPENDIX E

COMMUNITY AIR MONITORING PLAN

New York State Department of Health Generic Community Air Monitoring Plan

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area and when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH. Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for volatile organic compounds (VOCs) and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate NYSDEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during building slab demolition. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind and upwind perimeter of the immediate work area (i.e., the exclusion zone) on a **continuous** basis. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of

calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less – but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

All 15-minute readings must be recorded and available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored **continuously** at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m3 above the upwind level and provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m3 of the upwind level and in preventing visible dust migration.

All readings must be recorded and be available for State (DEC and DOH) personnel to review.

Special Requirements for Work Within 20 Feet of Potentially Exposed Individuals or Structures

When work areas are within 20 feet of potentially exposed populations or occupied structures, the continuous monitoring locations for VOCs and particulates must reflect the nearest potentially exposed individuals and the location of ventilation system intakes for nearby structures. The use of engineering controls such as vapor/dust barriers, temporary negative-pressure enclosures, or special ventilation devices should be considered to prevent exposures related to the work activities and to control dust and odors. Consideration should be given to implementing the planned activities when potentially exposed populations are at a minimum, such as during weekends or evening hours in non-residential settings.

- If total VOC concentrations opposite the walls of occupied structures or next to intake vents exceed 1 ppm, monitoring should occur within the occupied structure(s). Background readings in the occupied spaces must be taken prior to commencement of the planned work. Any unusual background readings should be discussed with NYSDOH prior to commencement of the work.

- If total particulate concentrations opposite the walls of occupied structures or next to intake vents exceed 150 mcg/m3, work activities should be suspended until controls are implemented and are successful in reducing the total particulate concentration to 150 mcg/m3 or less at the monitoring point.

- Depending upon the nature of contamination and remedial activities, other parameters (e.g., explosivity, oxygen, hydrogen sulfide, carbon monoxide) may also need to be monitored. Response levels and actions should be pre-determined, as necessary, for each site.

Special Requirements for Indoor Work with Co-Located Residences or Facilities

Unless a self-contained, negative-pressure enclosure with proper emission controls will encompass the work area, all individuals not directly involved with the planned work must be absent from the room in which the work will occur. Monitoring requirements shall be as stated above under “Special Requirements for Work Within 20 Feet of Potentially Exposed Individuals or Structures” except that in this instance “nearby/occupied structures” would be adjacent occupied rooms. Additionally, the location of all exhaust vents in the room and their discharge points, as well as potential vapor pathways (openings conduits, etc.) relative to adjoining rooms, should be understood and the monitoring locations established accordingly. In these situations, it is strongly recommended that exhaust fans or other engineering controls be used to create negative air pressure within the work area during remedial activities. Additionally, it is strongly recommended that the planned work be implemented during hours (e.g. weekends or evenings) when building occupancy is at a minimum.