77-40 Hewlett Street
New Hyde Park, New York
TAX MAP ID: BLOCK 8555, LOT 60
NYSDEC Site No: 241308

Site Characterization

Work Plan

Submitted To:

New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, NY 12233-7016

Prepared For:

Norman Dawson Realty, LLC
c/o Dawn Dawson, Executrix
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Prepared By:

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PWGC Project Number: NDR2601

SEPTEMBER 2026

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ACRONYMS

Acronym	Definition
AOC	Area of Concern
AST	Aboveground Storage Tank
ASTM	American Society for Testing and Materials
AWQS	Ambient Water Quality Standards
BCP	Brownfield Cleanup Program
BTEX	Benzene, Toluene, Ethylbenzene, and Xylenes
COC	Contaminant of Concern
COPC	Contaminants of Potential Concern
CVOCs	Chlorinated Volatile Organic Compounds
DER	Department of Environmental Remediation
EDR	Environmental Data Resources
ELAP	Environmental Laboratory Approval Program
ESA	Environmental Site Assessment
FOIA	Freedom of Information Act
GIS	Geographic Information System
GPR	Ground Penetrating Radar
LPM	Liters per minute
LTANKS	Leaking Tanks
MCL	Maximum Contaminant Level
MDL	Method Detection Limit
mg/kg	Milligrams per kilogram
mg/L	Milligrams per liter
mg/m^3	Milligrams per cubic meter
µg/kg	Micrograms per kilogram
µg/L	Micrograms per liter
$µg/m^3$	Micrograms per cubic meter
msl	Mean sea level
NFA	No Further Action
NYC	New York City
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOL	New York State Department of Labor
OSHA	Occupational Safety and Health Administration
PAHs	Polycyclic Aromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
PCE	Tetrachloroethylene
PGM	Portable Gas Monitor
PID	Photoionization detector
PM	Particulate Matter
ppb	Parts per billion
ppm	Parts per million

Acronym	Definition
PVC	Polyvinyl chloride
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RfC	Reference Concentration
RL	Reporting Limit
RSL	Regional Screening Level
SCDHS	Suffolk County Department of Health Services
SCO	Soil Cleanup Objective
SDS	Safety Data Sheets
SMP	Site Management Plan
SMS	Safety Management Specialist
SPDES	State Pollutant Discharge Elimination System
SVOC	Semi-volatile Organic Compound
TAL	Target Analyte List
TCE	Trichloroethylene
TOGS	Technical and Operational Guidance Series
TVOCs	Total Volatile Organic Compounds
TWA	time weighted average
USCS	Unified Soil Classification System
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UST	Underground Storage Tank
VC	Vinyl Chloride
VOCs	Volatile Organic Compounds

CERTIFICATION

I, Zeb Youngman, PG, certify that I am currently a Qualified Environmental Professional (QEP) as defined in 6 New York Codes, Rules, and Regulations (NYCRR) Part 375 and that this Site Characterization Work Plan (SCWP) was prepared in accordance with applicable statutes and regulations and in substantial conformance with the New York State Department of Environmental Conservation's (NYSDEC's) Division of Environmental Remediation's (DER's) Technical Guidance for Site Investigation and Remediation (DER-10).

I certify that the information and statements in this certification are true. I understand that a false statement made herein is punishable as Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.



September 29, 2026

Signature Date

It is a violation of Article 145 of New York State Education Law for any person to alter this document in any way without the express written verification of adoption by any New York State licensed engineer in accordance with Section 7209(2), Article 145, New York State Education Law.

1.0 INTRODUCTION

P.W. Grosser Consulting Engineer & Hydrogeologist, D.P.C. (PWGC) has prepared the following Site Characterization Work Plan (SCWP) to outline procedures and a scope of work intended to determine the extent of impact of chlorinated volatile organic compounds (CVOCs) at the property identified as 77-40 Hewlett St, New Hyde Park, New York (the Site). The proposed characterization is intended to obtain additional subsurface soil and soil vapor quality data, delineate areas of concern within the Site boundary, and evaluate whether off-site adjacent properties may be impacted.

The NYSDEC has P-listed the Site (Site No. 241308) pending the outcome of this Site Characterization.

1.1 Site Description

The Site consists of one parcel located at 77-40 Hewlett Street, New Hyde Park, New York. The Site is located in the borough of Queens in Queens County and is identified on the NYC Tax Map as Block 8555, Lot 60.

A Site Vicinity Map is included as **Figure 1**. A Site Plan is included as **Figure 2**.

1.2 Site History

Historical usage of the Site includes the following:

- Norman Dawson Realty, LLC has owned the property since 1975, with no available ownership records before that date. Since 1992, at least two different parties have operated underground petroleum storage at the Site. According to the NYSDEC Petroleum Bulk Storage Database (Site No. 2-188808), the Site has 25 registered USTs, 18 of which are identified as decommissioned. Decommissioned USTs consist of five 4,000-gallon gasoline tanks and thirteen 550-gallon USTs with "other" identified as the product. Active tanks consist of one 1,000-gallon #2 fuel oil tank, one 1,000-gallon waste oil tank, one 12,000-gallon gasoline tank, one 6,000-gallon gasoline tank, one 6,000-gallon diesel tank, one 8,000-gallon gasoline tank, and one 4,000-gallon gasoline tank.

1.3 Previous Environmental Reports

The Site's environmental history, summarized below, is based upon the following reports that have been prepared for the Site:

- Underground Storage Tank System and Hydraulic Lift Removal Report – AECOM prepared February 2011

The report is summarized below and can be found in **Appendix A**.

1.3.1 Underground Storage Tank System and Hydraulic Lift Removal Report (February 2011)

In February 2011, AECOM prepared an Underground Storage Tank System and Hydraulic Lift Removal Report for the property. The investigation documented the removal of five 4,000-gallon gasoline USTs, associated piping/dispenser components, and three hydraulic lifts. Approximately 809 tons of impacted soil were excavated and disposed/recycled off-site. Endpoint samples from the former UST excavations were generally less than then NYSDEC recommended soil cleanup objectives (RSCOs) which were applicable at the time of removal; however, residual volatile organic compounds / semi-volatile organic compound (VOC/SVOC) impacts were identified between the dispenser islands and building and were attributed to an older 550-gallon UST system and historical Spill No. 9315013. Tetrachloroethene (PCE) and metals were also detected in samples associated with hydraulic lift areas. The maximum PCE concentration detected in a soil sample was 2,700 µg/kg or 2.7 mg/kg which exceeds the NYSDEC Part 375 Unrestricted Use Soil Cleanup Objective (SCO) of 1.3 mg/kg.

1.4 Current Site Use

The Site measures approximately 13,250 square feet and is improved with a one-story commercial building built in 1960 and is utilized as an automobile service garage and convenience store with retail gasoline dispensing services.

1.5 Surrounding Land Use

The Site is located in an urban, mixed use (commercial/industrial/residential) area in New Hyde Park, New York. The Site is bounded by residential houses to the north and west, industrial area and Lakeville Road to the east, and a food establishment to the south. The surrounding land use is shown on **Figure 3**.

1.6 Site Geology

The Site is approximately 125 feet above mean sea level. According to the 2011 AECOM report, the stratigraphy of the Site, from the surface down, consists primarily of medium to coarse-grained sand and some gravel from grade down to at least 35 feet below grade. Groundwater is estimated to be approximately 80 feet below grade and regional groundwater flow is anticipated to flow towards the northwest according to the United States Geological Survey (USGS) 2016 Groundwater Conditions on Long Island map.

2.0 STANDARDS, CRITERIA, AND GUIDANCE

Based on previous investigations at the Site, the primary contaminants of potential concern (COPC) to be encountered at the Site are chlorinated VOCs.

Soil sample results will be compared to the applicable regulations in 6 NYCRR § 375-6.8, updated December 2025, which provide SCOs for Unrestricted Use and Commercial Use.

Soil vapor and indoor air results will be compared to the applicable Soil Vapor/Indoor Air Decision Matrices specified in NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006 with subsequent updates through February 2024.

3.0 SCOPE OF WORK

The purpose of this Site Characterization is to delineate the areal and vertical extent of chlorinated VOCs in soil and soil vapor at the Site, determine the surface and subsurface characteristics of the Site, identify the sources of contamination, the migration pathways, and actual or potential off-site receptors of contaminants.

3.1 Sampling Methodologies

3.1.1 Soil Sampling Methodology

To characterize soil quality, ten soil borings will be installed throughout the Site. Boring locations will be focused in areas of potential concern as shown on **Figure 4**. A direct-push drill rig (Geoprobe® 7822DT or equivalent) will be utilized to install the soil borings.

Soils will be collected continuously from ground surface to the terminus of the boring, estimated to be approximately 15 feet below grade. The acetate liners will be cut open and the soil core will be screened for the presence of volatile organic vapors utilizing a PID. Each soil core will be classified by a hydrogeologist using the Unified Soil Classification System (USCS) and soil boring logs developed for each location.

One sample will be collected from each boring from the 2-foot interval exhibiting the highest degree of visual or olfactory contamination; the sample will be placed directly into laboratory-supplied bottleware and placed on ice in a cooler for transport to a New York State Department of Health (NYSDOH) Environmental Laboratory Accredited Program (ELAP) certified laboratory. Each sample will be analyzed for the following analytes:

- TCL VOCs by USEPA Method 8260, collected with terracore devices or equivalent.

If evidence of contamination is not observed, samples will be collected from the 0 to 2 foot interval. In the event that visual/olfactory evidence of impact is identified, additional step-out borings may be performed to delineate the arial extent of impact.

3.1.2 Soil Vapor Sampling Methodology

To evaluate potential soil vapor intrusion or off-site migration of soil vapor, ten soil vapor sampling points will be installed as shown on **Figure 5**.

Soil vapor sampling point installation and sample collection will be performed in accordance with the NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2006; as amended).

Sub-slab soil vapor sampling points will be installed with a hammer drill or similar equipment to approximately two inches beneath the floor slab in accordance with procedures specified in the NYSDOH Guidance. Sampling points will be constructed of dedicated polyethylene tubing backfilled with a porous inert material and sealed at the surface with hydrated bentonite.

Soil vapor sampling points will be installed to 5-feet below grade, in accordance with procedures specified in the NYSDOH Guidance. Soil vapor sampling points will be installed utilizing a Geoprobe® direct-push drill rig. At each location, a 6-inch stainless-steel screen will be installed at the base of the sampling point with dedicated polyethylene tubing to grade. A porous inert material will be placed surrounding the screen and six inches above. The remainder of the soil vapor point annulus will be sealed with bentonite grout to the surface and sealed at the surface with hydrated bentonite.

As part of the vapor evaluation, a tracer gas will be used in accordance with NYSDOH protocols to serve as a QA/QC device to verify the integrity of the soil vapor probe seal. The environment surrounding the seal will be enriched with a tracer gas (helium) and a portable monitoring device will be used to analyze a sample of soil vapor for the tracer prior to sampling. If the tracer sample results show a significant presence of the tracer (greater than 10% of the air), the probe seals will be adjusted to prevent infiltration.

Prior to sampling, approximately two to three probe volumes will be purged at a flow rate less than 0.2 liters per minute. Soil vapor samples will then be collected using 6-liter SUMMA® canisters. The laboratory will provide batch certified-clean canisters for sample collection and flow regulators pre-set to provide uniform sample collection over an approximate 2-hour sampling period. Sample collection will be ceased (i.e., the valve on the canister closed) when 2 hours has passed or approximately 2 in. of Hg vacuum remains in the canister (whichever occurs quicker), leaving a vacuum in the canister as a means for the laboratory to verify the canister did not leak while in transit. Soil vapor samples shall be analyzed for VOCs by USEPA Method TO-15.

Sample locations, depths, and rationales are detailed in the below table.

Proposed Location	Proposed Depth(s)	Rationale
SS001	6 inches below concrete slab	Sub-slab soil vapor sample
SS002	6 inches below concrete slab	Sub-slab soil vapor sample
SS003	6 inches below concrete slab	Sub-slab soil vapor sample
SS004	6 inches below concrete slab	Sub-slab soil vapor sample
SV001	5 feet	Soil vapor sample
SV002	5 feet	Soil vapor sample
SV003	5 feet	Soil vapor sample
SV004	5 feet	Soil vapor sample

4.0 QUALITY ASSURANCE PROJECT PLAN

PWGC has prepared a Quality Assurance Project Plan (QAPP) in accordance with DER-10, Section 2.4. The QAPP presents the objectives, functional activities, methods, and QA/QC requirements associated with sample collection and laboratory analysis for characterization activities. Specifically, this QAPP addresses the following:

- Project Scope and Goals
- Organization and Responsibilities of Project Personnel
- Project Objectives, including Quality Assurance Objectives for Data
- Overview of Field Sampling Program and Procedures
- Sample Packaging and Shipping
- Sample Documentation
- Sample Analytical Program
- Quality Assurance/Quality Control Procedures

A copy of the QAPP is included as **Appendix B.**

5.0 HEALTH AND SAFETY PLAN

PWGC has developed a Health and Safety Plan (HASP) to be followed during the implementation of the Site Characterization. The HASP has been developed in accordance with DER-10, Section 1.9. Activities performed under the HASP will comply with applicable parts of OSHA Regulations, primarily 29 CFR Parts 1910 and 1926. A copy of the HASP is included as **Appendix C**.

Subcontractors will have the option of adopting this HASP or developing their own site-specific HASP. If a subcontractor prepares their own HASP, it must meet the minimum requirements of this HASP and must be made available to PWGC and the NYSDEC prior to implementation of the SCWP.

5.1 Community Air Monitoring Plan

In addition to the HASP, a Community Air Monitoring Plan (CAMP) has been developed. The purpose of the CAMP is to address community health and safety to ensure that the public living and working near the Site, as well as employees or visitors to any facility located on the Site, are protected from exposure to Site contaminants during intrusive activities. This CAMP has been developed in accordance with DER-10, Section 1.9 and Appendix 1A. A copy of the CAMP is included as **Appendix D**Error! Reference source not found.**.**

6.0 GREEN AND SUSTAINABLE TECHNIQUES

The Site Characterization effort will be conducted with consideration for green / sustainable techniques, in accordance with NYSDEC DER-31 Green Remediation. Techniques will include, but are not limited to, the following:

- When available, local staff near the Site will be utilized to reduce emissions from vehicular traffic.
- Reduce vehicle idling while on-site.
- Use of reusable equipment in lieu of disposal equipment to reduce waste, when feasible.
- Mobilize drilling equipment once and leave on-site during the duration of the drilling activities.
- Use of bio-diesel or ultra-low sulfur diesel (ULSD) in heavy machinery, when available.

Upon completion, PWGC will complete an environmental footprint analysis utilizing SEFA to analyze the environmental footprint of the Site Characterization activities at the Site. This analysis will be included in the Site Characterizaiton

7.0 PROJECT SCHEDULE

The preliminary schedule for the major project milestones is presented in **Table 1**. Field work is anticipated to begin 30 days following approval of this SCWP by NYSDEC. A draft Site Characterization Report shall be submitted to the NYSDEC 45 days following receipt of validated analytical results.

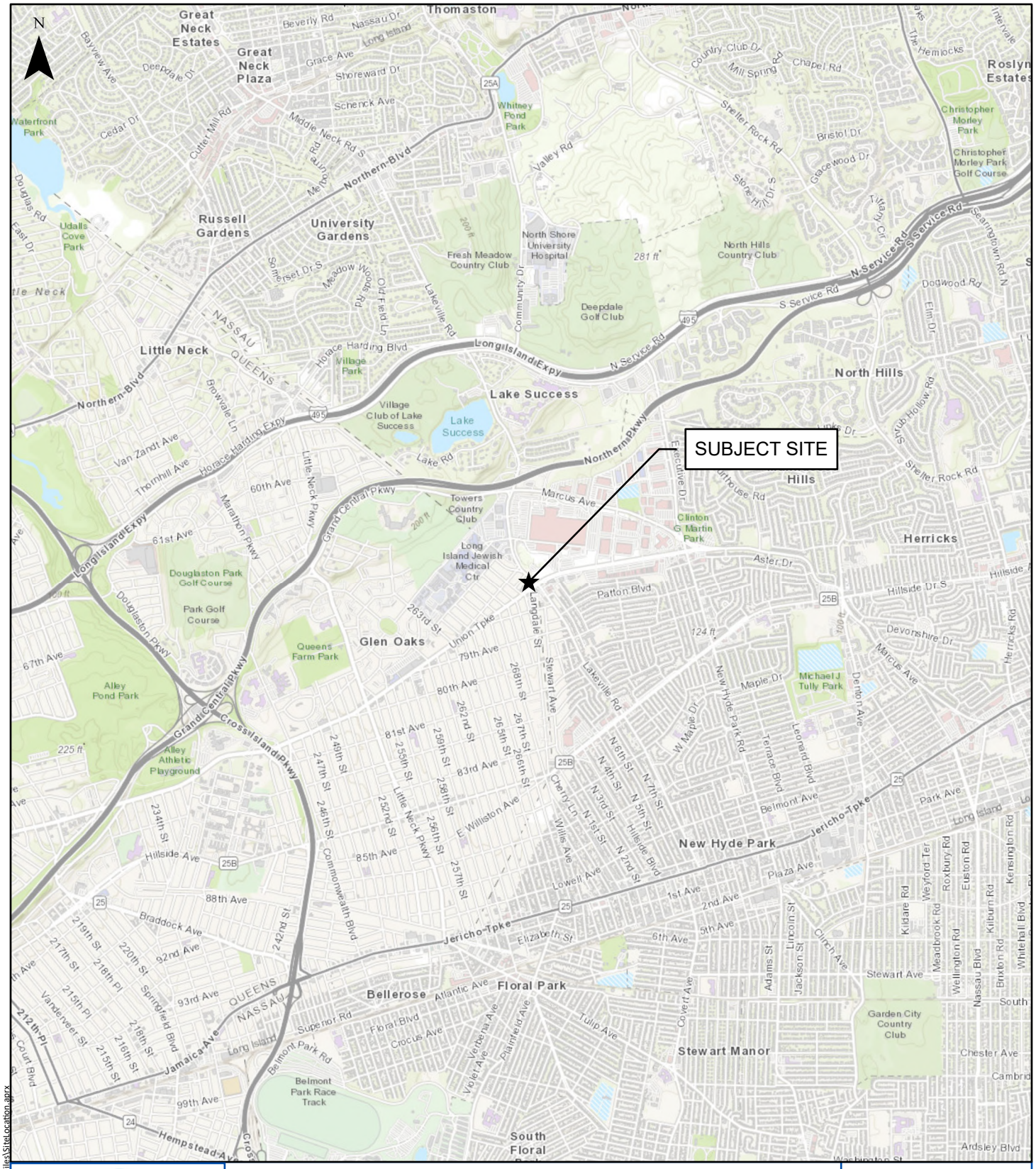
8.0 REPORTING

A Site Characterization Report will incorporate the methods and findings of the investigation activities performed as outlined in this work plan. The report will identify specific contamination concentrations throughout each media (e.g. soil, soil vapor, etc.), delineate the extent of contamination in soil and soil vapor, evaluate potential exposure pathways, and provide conclusions and recommendations for additional investigation and/or remedial action. An electronic copy of the Site Characterization Investigation Report will be submitted to the NYSDEC. Analytical results of the investigation will be submitted in the electronic data delivery (EDD) format through the Department's environmental information management system (EIMS).

9.0 REFERENCES

- NYSDEC, Division of Environmental Restoration, 6 NYCRR Part 375 Subpart 6, Remedial Program Soil Cleanup Objectives, December 31, 2025.
- NYSDEC, Division of Environmental Remediation, May 2010, Draft DER-10, Technical Guidance for Site Investigation and Remediation.
- NYSDOH, October 2006 Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York.
- NYSDOH, May 2017 and February 2024, Updates to Soil Vapor / Indoor Air Matrices.

FIGURES



VICINITY MAP

77-40 Hewlett Street
Queens, NY

0 1 2 Miles

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Project:	NDR2601
Date:	9/18/2026
Designed by:	AB
Drawn by:	AM
Approved by:	AB
Figure No:	1

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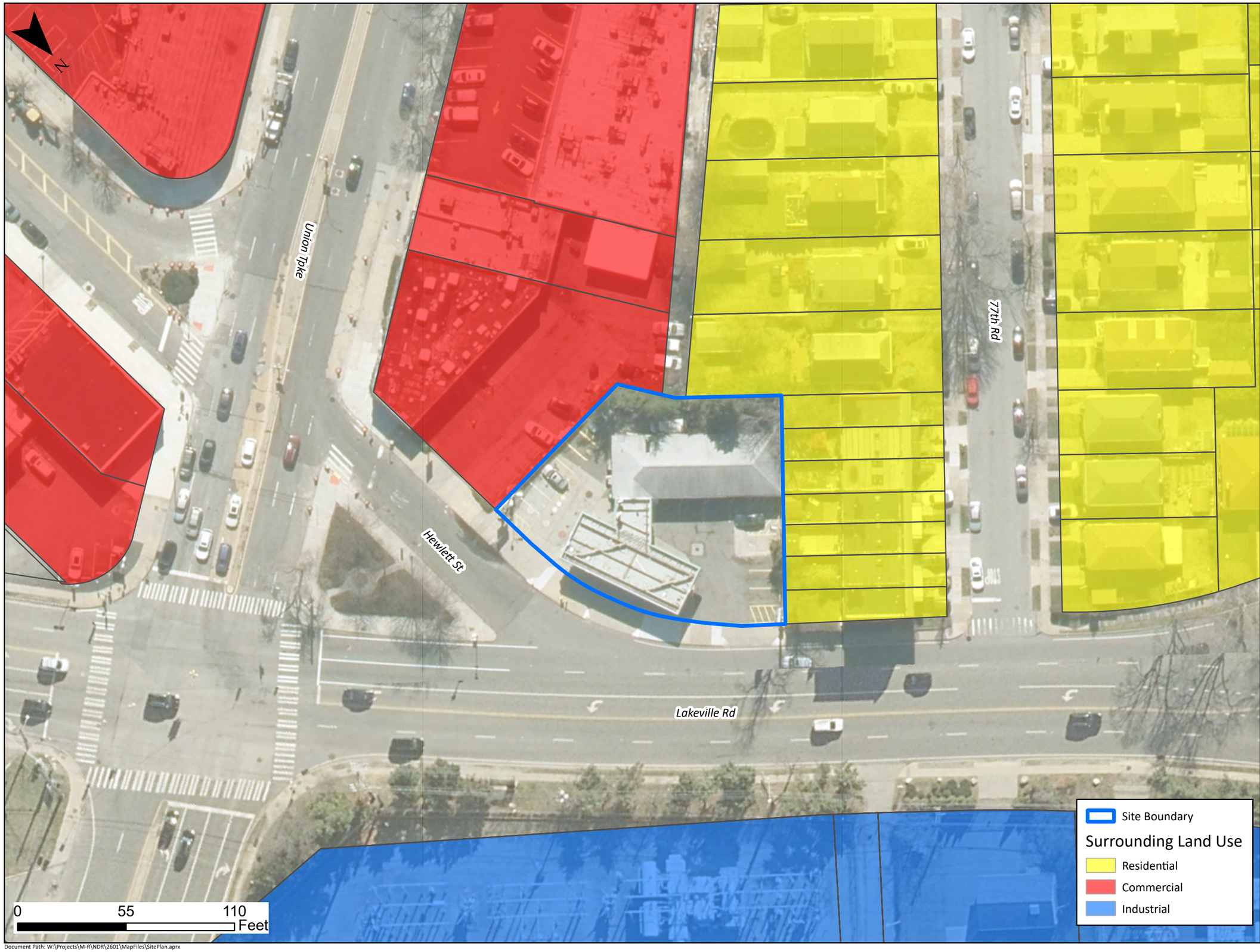
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Site Plan

77-40 Hewlett Street
Queens, NY

FIGURE NO:

2



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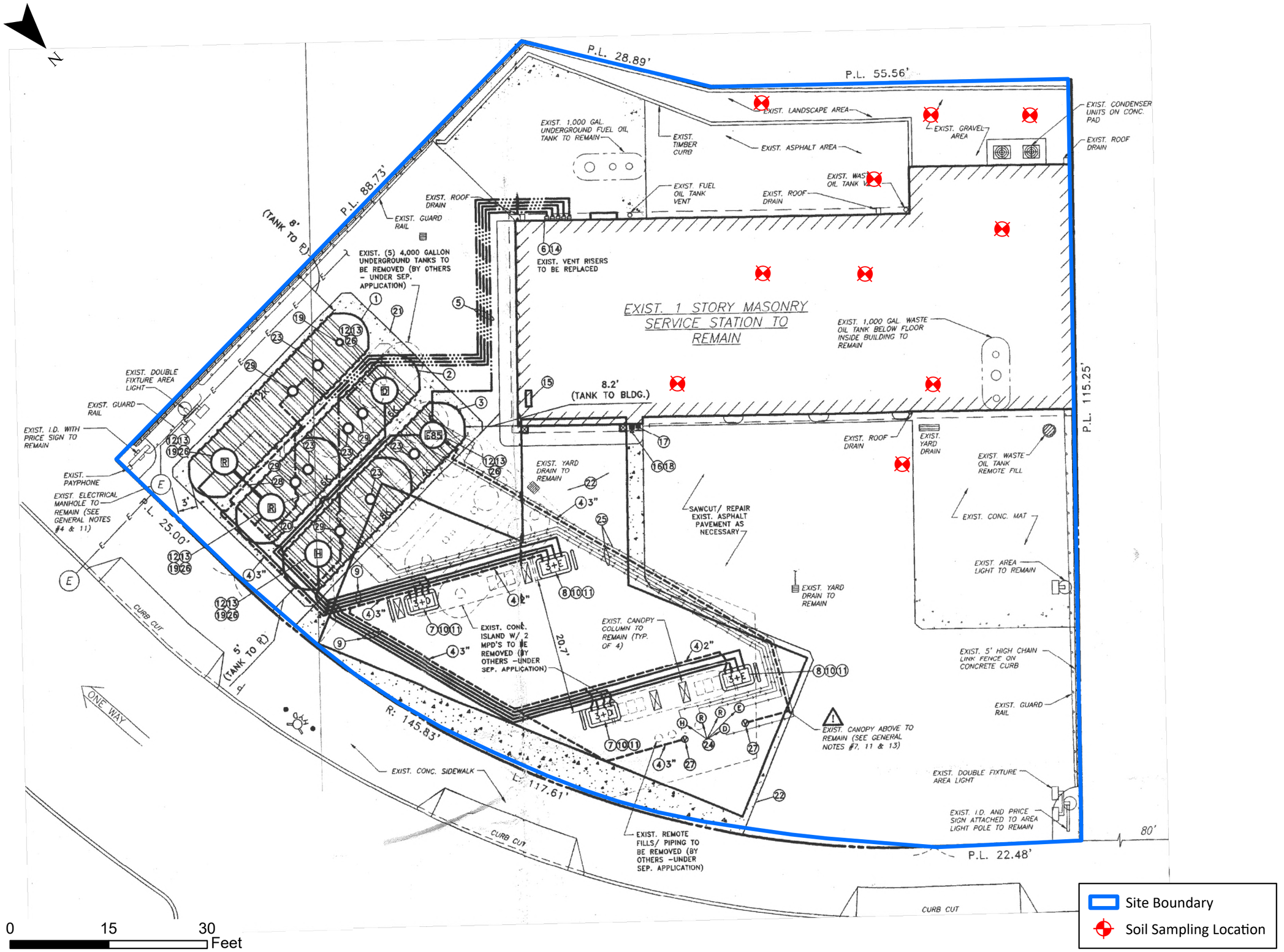
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Surrounding Land Use

77-40 Hewlett Street
Queens, NY

FIGURE NO:

3



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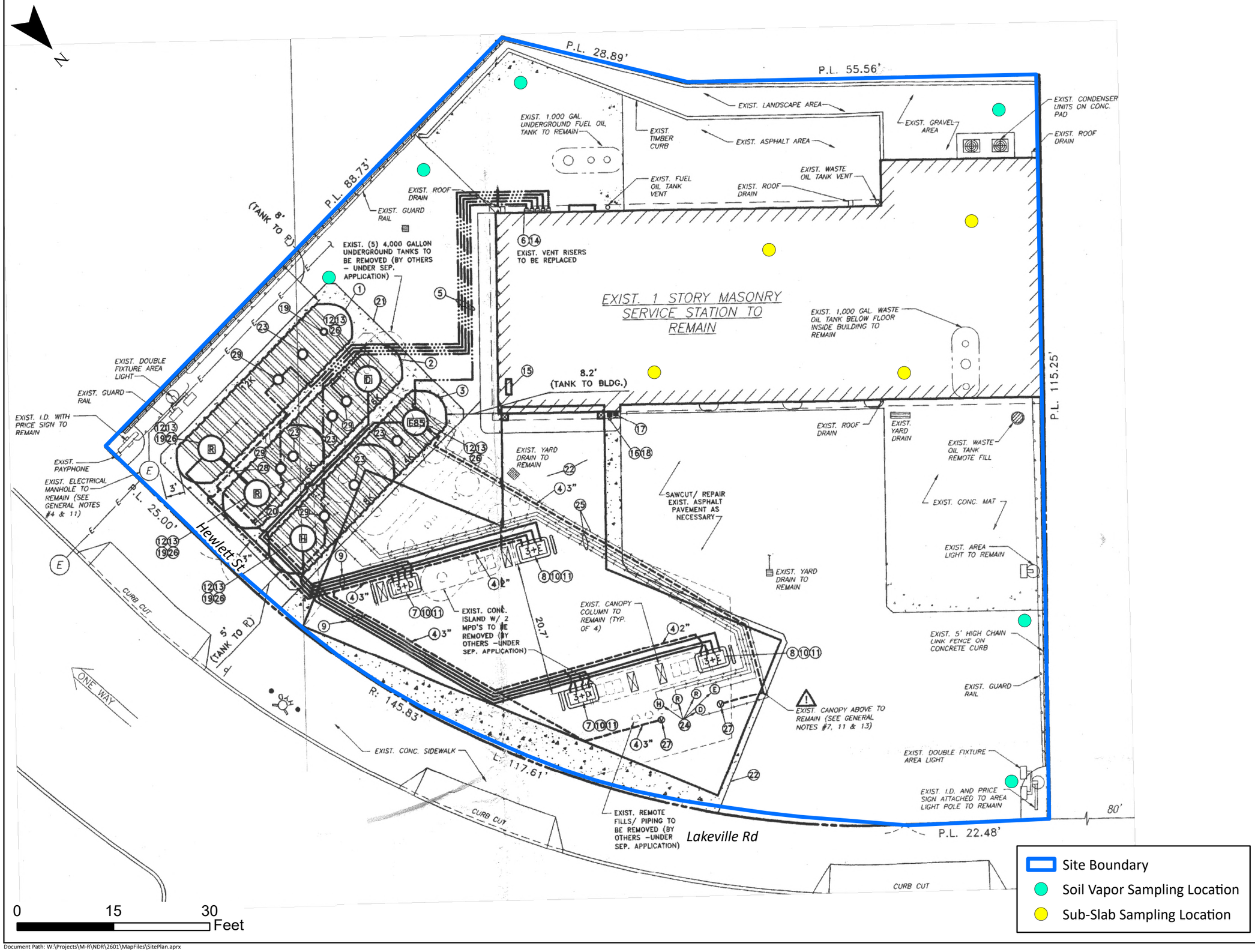
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Soil Sampling Locations

77-40 Hewlett Street
Queens, NY

FIGURE NO:

4



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Soil Vapor Sampling Locations

77-40 Hewlett Street
Queens, NY

FIGURE NO:

5

TABLES

Table 1

Proposed Project Timeline
NYSDEC Site No.241308 - 77-40 Hewlett Street, New Hyde Park

Task Name	Duration (days)	Start	Finish
Site Characterization	**177**	**9/30/2026**	**3/26/2027**
NYSDEC Approval of SCWP	1	9/30/2026	10/1/2026
Contractor Bids and Contracts	30	10/1/2026	10/31/2026
Coordinating Field Activities	15	10/31/2026	11/15/2026
Field Activities	2	11/15/2026	11/17/2026
Laboratory Analysis	14	11/17/2026	12/1/2026
Data Validation	45	12/1/2026	1/15/2027
Preparation of SCR	14	1/15/2027	1/29/2027
Submission of Draft SCR to NYSDEC	1	1/29/2027	1/30/2027
NYSDEC Internal Review of Draft SCR	30	1/30/2027	3/1/2027
Incorporation of NYSDEC Comments and Resubmittal	15	3/1/2027	3/16/2027
NYSDEC Approves SCR	10	3/16/2027	3/26/2027

APPENDIX A
Previous Environmental Files

AECOM
2 Technology Park Drive
Westford, MA 01886-3140

978.589.3000 tel
978.589.3100 fax

February 28, 2011

Mr. Hiralkumar Patel
New York Department of Environmental Conservation
Division of Environmental Remediation, Region 2
One Hunters Point Plaza
47-40 21st Street
Long Island City, NY 11101

Subject: **UST System and Hydraulic Lift Removal Report**
77-40 Hewlett Street
New Hyde Park, NY
PBS #2-188808
Spill No. 1005059

Dear Mr. Patel,

On behalf of Gulf Oil Limited Partnership (Gulf), AECOM is submitting an Underground Storage Tank (UST) and Hydraulic Lift Removal Report summarizing the facility closure activities that occurred at the above referenced property. In August 2010, during the removal of gasoline UST system, gasoline-impacted soil was identified and the New York State Department of Environmental Conservation (NYSDEC) issued Spill #1005-059 to Gulf. The objective of this report is to document the removal of five USTs and subsurface soil impacts associated with Spill #1005-059. Additionally, hydraulic lifts from three service bays were removed concurrent to this removal action.

Please call me at 978-589-3078 if you have any questions.

Yours sincerely,

Jennifer Hadden
Senior Project Manager
jennifer.hadden@aecom.com

Attachment
Cc: Donald Smith – Environmental Compliance Manager, Gulf Oil LP
Norman Dawson – Property Owner

AECOM Environment

Submitted to:
Gulf Oil Limited Partnership
Framingham, MA

Submitted by:
AECOM
Westford, MA
February 2011

Underground Storage Tank System and Hydraulic Lift Removal Report

Norman's Lakeville Service Station
77-40 Hewlett Street
New Hyde Park, NY
NYSDEC Spill # 1005059
File # 60158261

AECOM Environment

Submitted to:
Gulf Oil Limited Partnership
Framingham, MA

Submitted by:
AECOM
Westford, MA
February 2011

Underground Storage Tank System and Hydraulic Lift Removal Report

Norman's Lakeville Service Station
77-40 Hewlett Street
New Hyde Park, NY
NYSDEC Spill # 1005059
File # 60158261

Prepared By
Caryn DeJesus

Reviewed By
Jennifer Hadden

Reviewed By
David Espy

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1.0 Introduction

AECOM, on behalf of Gulf Oil Limited Partnership (Gulf), has prepared this Underground Storage Tank (UST) System and Hydraulic Lift Removal Report to document facility closure activities at the Norman's Lakeville Service Station, located at 77-40 Hewlett Street in New Hyde Park, New York. In August 2010, during the removal of gasoline UST system, gasoline-impacted soil was identified and the New York State Department of Environmental Conservation (NYSDEC) issued Spill #1005-059 to Gulf. The objective of this report is to document the removal of five USTs and subsurface soil impacts associated with Spill #1005-059. Additionally, hydraulic lifts from three service bays were removed concurrent to this removal action. It should be noted that the removal of the five USTs was voluntary and not initiated by a known release, although a release was identified during removal activities. The five USTs were owned and maintained by Gulf and were removed as part of a tank upgrade by the property owner. Gulf's environmental responsibility is limited to the five 4,000 gallon USTs (Tank #1 - #5), associated UST piping and hydraulic lifts associated with three service bays (Bay #1, Bay #2 and Bay #3). The property owner, Norman Dawson, has responsibility for the two 1,000-gallon USTs (Tank#6 and Tank #7), canopy, footings for the canopy, dispenser islands, and two service bays (Bay #4 and Bay #5).

This report documents all of the activities performed at the site, including pre-characterization soil borings, removal of five 4,000-gallon USTs and associated piping, and the removal of three hydraulic bay lifts. This work was performed in accordance with the September 8, 2010 letter from NYSDEC to Gulf providing provisions for the UST removal. The letter included the following requirements:

- Delineate soil contamination;
- Continuous monitoring with a photoionization detector (PID);
- Submission of soil samples from 1) the deepest dry depth and 2) the highest PID reading (or two deepest dry soil samples if no elevated PID readings were found); and
- Collection of endpoint soil samples from the tank excavation.

Based upon the findings presented herein, the NYSDEC will determine if additional action is necessary to close out Spill #1005-059.

As part of the UST and hydraulic lift removal activities, a total of 809.36 tons of impacted soil were removed from the site. According to the analytical results, soil impacts were detected above the NYSDEC Recommended Soil Cleanup Objective (RSCOs) from three endpoint samples (North Wall, West Wall and Bottom North) in the area of four (4) 550-gallon USTs, removed by Exxon Corporation in 1994. All endpoint samples collected in the area of the five 4,000-gallon USTs were below applicable NYSDEC RSCOs. Refer to **Figure 1**, the Site Locus, for the regional location of the facility and **Figure 2**, the Site Plan, for the pertinent site features, endpoint sampling locations, soil boring locations, and the approximate location of the excavation areas associated with the tanks and hydraulic lifts.

All activities were performed in accordance with DER-10 Proposed Technical Guidance for Site Investigation and Remediation (DER-10), NYSDEC Policy DRAFT Soil Cleanup Guidance (November 4, 2009) and the directive presented in a letter from the NYSDEC dated September 8, 2010. All opinions

presented herein are subject to the Service Constraints presented in **Appendix A**. Prior to initiating Tank Closure activities at the site, AECOM submitted the initial UST Closure Notification to NYSDEC on May 14, 2010.

2.0 Project Background

As previously stated, the removal of the USTs was a voluntary action not initiated by a release, although a release was identified during excavation activities. Site details and background information are provided below.

2.1 Site Description

The property is located on an approximately 0.30-acre parcel of land identified as Queens Block 08555, Lot 0060, located at 77-40 Hewlett Street in New Hyde Park, New York (**Figure 1**). Commercial operations at the site include an automobile service garage and convenience store with a retail service gasoline dispensing facility. The UST system was owned by Gulf since September 2003. Prior to Gulf, the UST system was owned by Exxon Corporation. The property is currently owned by Norman Dawson. The gasoline retail dispensing and automobile repair facility were not operated by Gulf. The property is bound to the north by Lakeville Road, beyond which is an electrical power substation. The intersection of Lakeville Road and Union Turnpike is located east of the property, beyond which is Dunkin Donuts. A parking lot, restaurant, and small retail strip mall borders the property to the south, beyond which is Union Turnpike. Residential properties border the property to the west and northwest, beyond which is 77th Road. Historically, two other gasoline stations were located south of Union Turnpike; however, presently a restaurant, bank and residential homes are located south of Union Turnpike. Specific site details are provided on **Figure 2**.

2.2 Site History

According to the New York City Department of Finance Office of the City Register Database, Norman Dawson has owned the property since 1975. Property ownership information was not available prior to 1975. Furthermore, underground storage of petroleum products at the site has been operated by at least two different parties since 1992. Based on the NYSDEC Petroleum Bulk Storage Database, 25 USTs have been registered with the site. A total of 13 550-gallon USTs of "other" product are listed as being installed in December 1959. Twelve of these USTs are listed as being closed prior to March 1991 and one is listed as being removed in April 1994. Also listed are one 4,000-gallon gasoline UST installed in December 1977 and four 4,000-gallon gasoline USTs installed in December 1984. These five 4,000-gallon USTs are the subject of this Tank Removal Report. Five USTs were installed by the property owner in August 2010. The remaining two USTs include one 1,000-gallon waste oil tank and one 1,000-gallon fuel oil tank. Ownership of both of these tanks was transferred to the property owner in August 2010 and they are currently in service.

2.3 Historic Releases

Between 1992 and 2010, six spills (9113024, 9304484, 9315013, 9407730 and 1005059) have been documented at the site. Five of these spills have been previously closed by the NYSDEC. As part of a FOIL Request, AECOM requested copies of the NYSDEC records associated with the five closed spills. The NYSDEC only found additional information for spill #9315013. Please note Spill # 9407730, resulting from tank test failure, was recently closed by NYSDEC on August 10, 2010. Below is a short

summary of Spill #935013 and the recently assigned Spill #1005059, the subject of this Tank Removal Report.

Spill #9315013

Between March and April 1994, Alvin Petroleum Systems, on behalf of Exxon, removed six (6) USTs from the site. The tanks included four (4) previously abandoned 550-gallon gasoline tanks, one (1) waste oil tank encased in concrete, and one (1) 550-gallon fuel oil tank. All tanks were single-walled steel construction. During the removal of the tanks, elevated photoionization detector (PID) readings and elevated volatile organic compounds were detected above NYSDEC RSCOs in the soils. As a result, the NYSDEC assigned the release spill #9315013. Refer to Unico Environmentals, Inc's Tank-Field Excavation Assessment Report, dated July 15, 1994, for details on the tank removal activities and results. This spill was closed out on August 18, 1994.

Spill #1005059

On August 4, 2010, the NYSDEC issued Spill #1005059 to Gulf based upon elevated PID readings detected in the soils during the removal of five 4,000-gallon USTs. Between August 4, 2010 and January 26, 2011, AECOM completed the environment assessment of the soil conditions around the removed tank system and three removed hydraulic lifts. The findings are presented in this report.

2.4 Site Geology and Hydrogeology

According to the Surficial Geologic Map of New York, Lower Hudson Sheet, surficial geology beneath the subject site consists of outwash and gravel deposits of coarse to fine gravel with sand of variable thickness (2 to 20 meters). Based on subsurface investigations, overburden soil consists of medium to coarse sand and some gravel observed from 2 to 35 feet below ground surface (bgs).

Based on regionally topography, the site is located at approximately 125 feet above mean sea level. The topography is flat and the site is paved with little to no vegetation. The groundwater table was not encountered during UST removal activities, nor was it encountered during the advancement of soil borings at a maximum depth of 35 feet bgs. Based on published data, groundwater is anticipated to be 95 feet bgs.

3.0 Investigation Activities

Between August 4, 2010 and September 9, 2010, AECOM provided oversight of the UST closure activities and between September 8, 2010 and September 9, 2010, AECOM provided oversight of the removal of two hydraulic lifts. The removal of the third hydraulic lift was delayed by the property owner. AECOM provided oversight for the removal of the third hydraulic lift on January 26, 2011. The investigation activities included pre-characterization soil borings (completed June 29, 2010), removal of five tanks, removal of three hydraulic lifts and the collection of endpoint soil samples from the tanks and lift graves. The activities completed as part of this investigation were performed in accordance with the detailed procedures and protocols described in the DER-10 Technical Guidance for Site Investigation and Remediation.

3.1 Subsurface Utility Clearance

Prior to subsurface investigation activities, a mark-out of underground utilities in the investigation area was requested for the site from the Underground Facilities Protective Organization (UFPO) One Call Center for the New York City-Long Island Area (1-800-272-4480) at least 72 hours prior to the initiation of drilling or excavation activities. Additionally, as-built drawings and information from the property owner were reviewed to identify subsurface hazards.

3.2 Soil Boring Investigation

On June 29, 2010, AECOM was onsite to conduct pre-characterization soil borings for the excavation area. Three borings (SB01, SB02, and SB03) were advanced from 30 to 40 feet bgs in the area of the USTs and dispenser islands. A fourth boring SB04 was advanced to 1 foot and discontinued due to refusal. The location of the soil borings are shown on **Figure 2**. Each boring was screened using a PID and samples were collected for laboratory analysis. No elevated PID readings were observed. Four composite samples were collected for laboratory analysis:

- SB01 – from 12.5 to 15 feet bgs,
- SB02 – from 12.5 to 15 feet bgs,
- SB03 – from 10 to 15 feet bgs, and
- SB03 – from 35 to 40 feet bgs.

All four samples were submitted to Groundwater Analytical of Buzzards Bay, Massachusetts for analysis of VOCs by EPA Method 8260, SVOCs by EPA Method 8270, and lead by EPA Method 6010B. No VOCs, SVOCs, or lead results were detected above laboratory reporting limits. A copy of the laboratory analytical report is provided in **Appendix B**. Boring logs are provided in **Appendix C**.

3.3 Air Monitoring

Air monitoring was conducted during site investigation and UST closure activities to provide protection for site workers and site occupants from potential airborne contaminant releases as a direct result of investigative and investigation activities.

VOCs were monitored in the immediate work area (i.e., the exclusion zone) on a continuous basis during soil intrusive activities (i.e., excavation of the tank graves). The air monitoring was performed

using PID. Equipment was calibrated, at a minimum, at the start of each workday for the contaminant(s) of interest or for an appropriate surrogate. No elevated PID readings were observed from the work area nor were any visible dust observed to migrate from the work area.

3.4 UST and Hydraulic Lift Excavations

On August 2, 2010, Island Pump & Tank Corporation (IP&T) of Northport, New York mobilized equipment on-site and began fence installation and washing the inside of the USTs. Between August 4, 2010 and September 9, 2010, AECOM provided oversight of the UST closure activities and between September 8, 2010 and September 9, 2010, AECOM provided oversight of the removal of two hydraulic lifts. The removal of the third hydraulic lift was delayed by the property owner. AECOM provided oversight for the removal of the third hydraulic lift on January 26, 2011. Details on the excavation are provided below.

3.4.1 Soil Screening and Segregation

During the tank and lift removal activities, soil samples were periodically obtained from the excavation and inspected for visual and olfactory indications of hydrocarbon impacts. Soils and other materials encountered within the excavation were logged and monitored with a PID for the presence of volatile organic vapors (VOVs). The PID was equipped with a 10.6 eV lamp, calibrated to an isobutylene standard and response factor of 1.0. Soils exhibiting elevated PID readings were segregated for offsite disposal. Refer to Section 3.7 for additional information on soil disposal. The ranges of PID readings in four excavation areas are as follows:

UST Excavation Area: 1.2 parts-per-million (ppm) (CS-W) to 3,644 ppm (CS_BT2 at 10' BSG)

Dispensers 3/4: 2.5 ppm (Disp #4) to 4.6 ppm (Disp #3)

Dispensers 1/2 and Remote Fill: below detection limits (BDL) (B3) to 3,138 ppm (B/C9-5 at 5' BSG)

Hydraulic Lifts: 11.2 ppm (Bay 3 Bottom) to 20.3 ppm (Bay 3 SW)

The soil samples collected from the excavation of the UST system that exhibited the highest PID readings (CS_BT2 and B/C9-5) were analyzed for waste characterization purposes. Due to the elevated PID readings detected in those two samples, those two areas were over-excavated to 14' BSG and 7' BSG, respectively. As a result, the impacted soils associated with CS_BT2 and B/C9-5 were removed and new endpoints samples (CS-BT3 and Bottom North) in those areas were collected. Therefore, sample CS_BT2 and B/C9-5 are not representative of the current site conditions and only discussed for waste characterization purposes. The analytical results for the endpoint sampling and waste characterization sampling are discussed further in Section 3.4.2 through Section 3.7.2 and included in **Tables 1 through 3**.

3.4.2 Gasoline Tanks

The size of the UST excavation area was approximately 65 feet long, 20 feet wide and between 7 and 16 feet in depth. Between August 4 and August 5, 2010, one single-walled 4,000-gallon steel UST (Tank #5) and four double-walled 4,000-gallon steel USTs (Tanks #1 through #4) were removed from the ground and inspected for integrity. Tank #5 was encased in concrete and the remaining four tanks were sitting on a concrete slab. Based upon visual inspection, all USTs appeared in good condition with no holes or pitting observed. Note that a slight sheen under Tank #4 was observed; however, there was no sign of holes/pitting, nor was there any sign of contamination on the concrete slab. Once the

impacted soils and concrete slab were segregated and removed, PID readings of soil below the slab of Tank #4 were all below 10.4 ppm. The concrete sub-slab was broken up and removed from under all the tanks except Tanks #1 and 2 due to concerns of compromising the integrity of the dispenser and building footing. Refer to **Appendix D** for photographs of the USTs. Between August 4 and August 5, 2010, four tanks were removed and transported offsite for disposal to Mid Island Salvage Corporation in Deer Park, NY and one tank was removed and transported offsite for disposal to Gershow Recycling in New Hyde Park, NY. Refer to **Appendix E** for a copy of the bill of lading.

It should be noted that tank tightness testing was last performed and passed in May 2008 prior to the removal of the product from the tanks in December 2008. In December 2009, the Stage II and cathodic protection at the facility passed annual testing. In addition, the facility passed the last NYC Fire Department functionality test on October 30, 2009.

A total of 11 soil endpoint samples were collected from the excavation tank grave to confirm the absence/presence of petroleum product within the tank grave. Samples were submitted to Groundwater Analytical of Buzzards Bay, Massachusetts for analysis of VOCs by EPA Method 8260 and SVOCs by EPA Method 8270. Based on the results, all 11 samples were below laboratory detection limits or below the recommended soil cleanup objective. A summary of the analytical results is provided in **Table 1** and a copy of the laboratory analytical report is provided in **Appendix B**.

3.5 Dispenser and Piping Excavation

Between August 20, 2010 and September 8, 2010, the areas associated with the tank piping, dispensers and the remote fills were excavated and assessed for impacts. On August 20, 2010, the remote fills were removed. During the removal of the remote fills, elevated PID readings were noted. As a result, four test pits were completed to 5 feet BSG on four sides of the dispenser island 1/2 and adjacent to the remote fill. One test pit had a PID reading of BDL and the other three test pits had PID readings ranging from 500 to 800 ppm. The concrete base of the dispenser island and associated canopy and footings were not removed during the UST removal activities. Therefore, excavation activities in the immediate vicinity of the dispenser island were limited due to concerns about undermining the canopy footings.

Based on the elevated PID readings noted during the advancement of the test pits, AECOM supervised the excavation of soil from around the dispenser island 1/2. The concrete pad was not removed from under dispenser 1/2; therefore, samples were not collected directly under dispenser 1/2. The areas adjacent to the canopy footings and dispenser were excavated to a depth no greater than 7 feet BSG due to concerns about compromising the integrity of the canopy. Please note, the soils associated with previously collected samples from 5 feet BSG, B/C9-5 and C4-5, were removed from the site. New endpoints samples (CS-BT3 and Bottom North) in those areas were collected at 7 feet BSG. A summary of the analytical results for soils used for waste characterization are provided in **Table 2** and a copy of the laboratory analytical report is provided in **Appendix B**.

During the excavation in the northern portion of the site, the soils were removed between the dispenser 1/2 and Hewlett Street (which includes the remote fill area) and an area of approximately 10 feet by 15 feet from the dispenser 1/2 towards Service Bay 2. It should be noted that as the excavation moved away from the dispenser towards the building, PID readings dropped to less than 500 ppm at approximately 10 feet from the dispenser and increased to 1,698 ppm approximately 15 feet from the dispenser. At approximately 15 feet from the dispenser, a concrete sub-slab was observed at approximately 7 feet BSG. In addition, black stained soils were noted from 5 to 7 feet BSG

The sub-slab appeared to be associated with the former 550-gallon USTs, not owned or operated by Gulf. Based on these observations, the impacts discovered adjacent to the sub-slab is not associated with Gulf's UST system. On September 9, 2010, AECOM discussed with the NYSDEC the observations noted and opinion that the impacts are not associated with Gulf's UST system. NYSDEC agreed that if the impacts are not associated with Gulf's UST system, it's not Gulf's responsibility to assess and remove the soil impacts. An additional soil sample (S-1) was collected of the impacted soils for forensics evaluation and age dating of petroleum. Sample S-1 represents the impacted soils that were observed in the vicinity of historic UST tank grave located north of the service bays. The sample was collected from the bottom of the excavation at the west wall, from approximately 7 feet BSG. The results of the forensic analysis indicated that the sample contained moderately weathered gasoline and motor oil. This forensics evaluation supports the observations that indicate that the source of the impacts is due to the former 550-gallon gasoline and waste oil USTs. Therefore, Gulf did not continue excavating towards the west. A copy of the forensics report is provided in **Appendix B**.

A total of 11 soil endpoint samples were collected from the excavation associated with the dispensers and piping to confirm the absence/presence of petroleum product. Samples were submitted to Groundwater Analytical of Buzzards Bay, Massachusetts for analysis of VOCs by EPA Method 8260 and SVOCs by EPA Method 8270. A total of 2 soil endpoint samples were collected under the former dispenser #3 and #4. One soil sample was collected under the remote fill piping leading back to the UST, mid-way between the two dispenser islands. A total of 8 soil endpoint samples were collected from the excavation adjacent to dispenser #1 and #2. Based on the results, 7 of the 11 soil samples were below laboratory detection limits or below the NYSDEC RSCOs.

Based on the analytical data from the endpoint samples, several VOCs were detected above the NYSDEC RSCOs in the West Wall and S-1 samples and total xylenes was detected above the RSCOs objectives in the Bottom North sample. Several SVOCs along with benzene were detected above the NYSDEC RSCOs in the North Wall sample. Based on the location of these endpoint samples being located in the area of the historic UST tank grave, additional impacts were not excavated as they are not associated with Gulf UST system. Refer to Unico's 1994 Tank Field Excavation Assessment Report associated with spill # 9315013. A summary of the analytical results is provided in **Table 3** and a copy of the laboratory analytical report is provided in **Appendix B**.

3.6 Hydraulic Bay Lift Removal

A total of five hydraulic lifts are located in the automobile service area of the property. Three of the five hydraulic lifts (Bay 1 through Bay 3 as shown on **Figure 2**) were removed as part of this investigation. The other two hydraulic lifts (Bay 4 and Bay 5) are not owned by Gulf and therefore not removed. Prior to removal, the lifts were drained of all hydraulic fluids.

On September 8, 2010, two of the three hydraulic lifts (Bay 2 and Bay 3) were removed. Based upon visual inspection, both lift units appeared in good condition with no holes or pitting observed. Based on PID readings, impacted soils were observed from both lifts excavations and approximately 10 tons if impacted soils were segregated for off-site disposal. The excavation area within the service bays was limited by the building foundation. The PID readings from the endpoint soil samples ranged from 11.2 ppm to 20.3 ppm.

Following removal of the hydraulic lifts, endpoint samples were collected from the sidewalls (Bay 2 SW and Bay 3 SW) and base of the excavation area (Bay 2 Bottom and Bay 3 Bottom) for each lift. Samples were submitted to Groundwater Analytical of Buzzards Bay, Massachusetts for analysis of VOCs by EPA Method 8260, SVOCs by EPA Method 8270, polychlorinated biphenyl (PCBs) by EPA

Method 8082, and trace metals by EPA Method 6010B. SVOCs and PCBs were not detected above laboratory reporting limits. Tetrachloroethene was the only VOC detected above the RSCOs in both samples collected from Bay 3. Tetrachloroethene is not a chemical stored in hydraulic lifts and is therefore not associated with a release from the lift. Chromium was detected above the recommended soil cleanup objective (10 mg/Kg) in all four samples and ranged from 13 to 17 milligrams per kilogram (mg/Kg). Cadmium was detected slightly above the RSCO of 1 mg/Kg in sample Bay 3 SW at 1.3 mg/Kg.

On January 26, 2011, the last of the three hydraulic lifts (Bay 1) was removed. Based upon visual inspection, the lift unit appeared in good condition with no holes or pitting observed. Refer to **Appendix D** for photographs of the hydraulic lift. Based on PID readings of less than 4 ppm, all soils were left in-place and one sidewall (Composite) and one bottom soil sample (Bottom) were collected. Samples were submitted to Groundwater Analytical of Buzzards Bay, Massachusetts for analysis of VOCs by EPA Method 8260, SVOCs by EPA Method 8270, and lead. VOCs and SVOCs were not detected above RSCOs.

A summary of the analytical results is provided in **Table 4** and a copy of the laboratory analytical report is provided in **Appendix B**.

3.6.1 Waste Management

On August 4, 2010, AECOM collected a soil sample (CS_BT2) from the highest PID reading within the tank excavation grave. The sample was submitted to Groundwater Analytical for laboratory analysis to meet the waste characterization requirements of Soil Safe Inc. of Bridgeport, New Jersey. The soil sample was analyzed for VOCs by EPA Method 8260B, SVOCs by EPA Method 8270, trace metals by EPA Method 6010B, total petroleum hydrocarbons (TPH) by EPA Method 8015, PCBs by EPA Method 8082, 10 Total and toxicity characteristic leaching procedure (TCLP) Metals by EPA Method 6010B/7470A and Paint Filter by EPA Method 9095A. On September 2, 2010, AECOM submitted two additional soil samples (B/C9-5 and C4-5) with elevated PID readings within the dispenser and remote fill area for waste characterization purposes. The samples were submitted to Groundwater Analytical for VOC and SVOC analysis. A summary of the analytical results is provided in **Table 2** and a copy of the Laboratory Analytical Data is included in **Appendix B**. Based on the results of the waste characterization, soils were classified as non-hazardous.

Between August 4 and September 8, 2010, 809.36 tons of impacted soils were transported offsite as non-hazardous for recycling by Soil Safe, Inc. of Bridgeport, New Jersey. Refer to **Appendix E** for a copy of the waste manifests for the soil.

All other investigation derived waste (IDW) such as spent personal protective equipment or disposable sampling equipment was disposed of as general refuse.

4.0 Summary and Recommendations

Between August 2, 2010 and January 26, 2011, five 4,000-gallon gasoline USTs, three hydraulic lifts, and 809.36 tons of impacted soil were removed from the ground and disposed off-site by Soil Safe. Seven sidewall and four bottom soil samples were collected from the endpoints of the five 4,000-gallon UST excavation and submitted for VOC and SVOC analysis. All endpoint soil samples associated with the UST excavation were below NYSDEC RSCOs. In addition, AECOM submitted composite sidewall and bottom samples from each of the three hydraulic lifts. All VOC and SVOC concentrations were below NYSDEC RSCOs except for tetrachoroethene, detected above RSCOs from the Bay 3 samples. Tetrachloroethene is not a chemical stored in hydraulic lifts and is therefore not associated with a release from the lift. Ten endpoint samples were collected associated with the piping, dispenser and remote fill area. All endpoint soil samples results were below applicable NYSDEC RSCOs except the sidewall and bottom samples collected in-between the dispenser island and the building.

Based on Unico's 1994 Tank Field Excavation Assessment Report, impacts were observed during the removal of six 550-gallon UST, located between the dispenser and the building (refer to Figure 2). VOC concentrations exceeded NYSDEC RSCO's from a tank bottom sample (BS4) during Unico's tank removal activities. As a result of the impacted soils, NYSDEC issued Exxon spill # 9315013. On September 8, 2010, during excavation activities between the dispenser 1/2 and the building, AECOM discovered a concrete sub-slab at approximately 7 feet BSG. Forensics evaluation of the soil adjacent to the sub-slab identified the impacts as moderately weathered gasoline and motor oil. In addition, field screening results collected from this area exhibited a clear distinction between impacted soil around the dispenser and impacted soil located in the historical UST area. It is AECOM's opinion that the impacts observed around the concrete slab believed to be the historical UST area are not associated with Gulf's UST system. The four soil samples that exceed NYSDEC RSCO's were all collected within or immediately adjacent to the historical UST area and therefore are likely to be unrelated to Spill #1005059.

5.0 References

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New York State Geological Survey, Surficial Geologic Map of New York – Lower Hudson Sheet, 1989.

Unico Environmental, Inc., Tank-Field Excavation Assessment Report, dated July 15, 1994

* Pre-Classification *
(6/10)

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July 20, 2010

Ms. Jennifer Hadden
AECOM Environment
2 Technology Park Drive
Westford, MA 01886

LABORATORY REPORT

Project: **Normans Lakeville Gulf/60158261-300**
Lab ID: **134421**
Received: **06-30-10**

Dear Jennifer:

Enclosed are the analytical results for the above referenced project. The project was processed for Priority turnaround.

This letter authorizes the release of the analytical results, and should be considered a part of this report. This report contains a sample receipt report detailing the samples received, a project narrative indicating project changes and non-conformances, a quality control report, and a statement of our state certifications.

The analytical results contained in this report meet all applicable NELAC or NVLAP standards, except as may be specifically noted, or described in the project narrative. The analytical results relate only to the samples received. This report may only be used or reproduced in its entirety.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Should you have any questions concerning this report, please do not hesitate to contact me.

Sincerely,

Karyn E. Raymond

Karyn E. Raymond
Project Manager

KER/elm
Enclosures

GROUNDWATER ANALYTICAL

Sample Receipt Report

Project: **Normans Lakeville Gulf/60158261-300**
Client: **AECOM Environment**
Lab ID: **134421**

Delivery: **GWA Courier**
Airbill: **n/a**
Lab Receipt: **06-30-10**

Temperature: **2.0°C**
Chain of Custody: **Present**
Custody Seal(s): **n/a**

Lab ID	Field ID		Matrix	Sampled	Method				Notes
134421-1	SBO1 (12.5-15)		Soil	6/29/10 9:50	EPA 8260B Volatile Organics with Oxygenates				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1276722	40 mL VOA Vial	Scientific Specialist	BX36977	NaHSO4	R-5468C	06-22-10	n/a		
C1276710	40 mL VOA Vial	Scientific Specialist	BX36977	NaHSO4	R-5468C	06-22-10	n/a		
C1276696	40 mL VOA Vial	Scientific Specialist	BX36977	NaHSO4	R-5468C	06-22-10	n/a		
C1255514	40 mL VOA Vial	Scientific Specialist	BX36564	Methanol	R-6187H	06-15-10	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
134421-2	SBO2 (12.5-15)		Soil	6/29/10 11:45	EPA 8260B Volatile Organics with Oxygenates				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1276720	40 mL VOA Vial	Scientific Specialist	BX36977	NaHSO4	R-5468C	06-22-10	n/a		
C1276693	40 mL VOA Vial	Scientific Specialist	BX36977	NaHSO4	R-5468C	06-22-10	n/a		
C1276666	40 mL VOA Vial	Scientific Specialist	BX36977	NaHSO4	R-5468C	06-22-10	n/a		
C1255572	40 mL VOA Vial	Scientific Specialist	BX36564	Methanol	R-6187H	06-14-10	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
134421-3	SBO3 (10-15)		Soil	6/29/10 14:00	EPA 8260B Volatile Organics with Oxygenates				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1276661	40 mL VOA Vial	Scientific Specialist	BX36977	NaHSO4	R-5468C	06-22-10	n/a		
C1276684	40 mL VOA Vial	Scientific Specialist	BX36977	NaHSO4	R-5468C	06-22-10	n/a		
C1276680	40 mL VOA Vial	Scientific Specialist	BX36977	NaHSO4	R-5468C	06-22-10	n/a		
C1255312	40 mL VOA Vial	Scientific Specialist	BX36537	Methanol	R-6158C	06-04-10	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
134421-4	SBO3 (35-40)		Soil	6/29/10 15:00	EPA 8260B Volatile Organics with Oxygenates				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1276692	40 mL VOA Vial	Scientific Specialist	BX36977	NaHSO4	R-5468C	06-22-10	n/a		
C1276690	40 mL VOA Vial	Scientific Specialist	BX36977	NaHSO4	R-5468C	06-22-10	n/a		
C1276683	40 mL VOA Vial	Scientific Specialist	BX36977	NaHSO4	R-5468C	06-22-10	n/a		
C1255338	40 mL VOA Vial	Scientific Specialist	BX36537	Methanol	R-6158C	06-04-10	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
134421-5	Trip Blank		Soil	6/29/10 0:00	EPA 8260B Volatile Organics with Oxygenates				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1276703	40 mL VOA Vial	Scientific Specialist	BX36977	NaHSO4	R-5468C	06-22-10	n/a		
C1276699	40 mL VOA Vial	Scientific Specialist	BX36977	NaHSO4	R-5468C	06-22-10	n/a		
C1276691	40 mL VOA Vial	Scientific Specialist	BX36977	NaHSO4	R-5468C	06-22-10	n/a		
C1255538	40 mL VOA Vial	Scientific Specialist	BX36564	Methanol	R-6187H	06-15-10	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
134421-6	SBO1 (12.5-15)		Soil	6/29/10 9:50	EPA 6010B Pb EPA 8270C Semivolatile Organics				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1256866	250 mL Amber Glass	Scientific Specialist	BX36826	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
134421-7	SBO2 (12.5-15)		Soil	6/29/10 11:45	EPA 6010B Pb EPA 8270C Semivolatile Organics				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1256862	250 mL Amber Glass	Scientific Specialist	BX36826	None	n/a	n/a	n/a		

GROUNDWATER ANALYTICAL

Sample Receipt Report (Continued)

Project: **Normans Lakeville Gulf/60158261-300**
Client: **AECOM Environment**
Lab ID: **134421**

Delivery: **GWA Courier**
Airbill: **n/a**
Lab Receipt: **06-30-10**

Temperature: **2.0°C**
Chain of Custody: **Present**
Custody Seal(s): **n/a**

Lab ID	Field ID		Matrix	Sampled	Method				Notes
134421-8	SBO3 (10-15)		Soil	6/29/10 14:00	EPA 6010B Pb EPA 8270C Semivolatile Organics				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1256868	250 mL Amber Glass	Scientific Specialist	BX36826	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
134421-9	SBO3 (35-40)		Soil	6/29/10 15:00	EPA 6010B Pb EPA 8270C Semivolatile Organics				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1256870	250 mL Amber Glass	Scientific Specialist	BX36826	None	n/a	n/a	n/a		

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**SBO1 (12.5-15)**	Matrix:	**Soil**
Project:	**Normans Lakeville Gulf/60158261-300**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**NaHSO4 / Cool**
Laboratory ID:	**134421-1**	QC Batch ID:	**VM1-2864-S**
Sampled:	**06-29-10 09:50**	Instrument ID:	**MS-1 HP 5890**
Received:	**06-30-10 18:00**	Sample Weight:	**5.9 g**
Analyzed:	**07-04-10 12:29**	% Solids:	**93**
Analyst:	**LMG**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	10
74-87-3	Chloromethane	BRL		ug/Kg	10
75-01-4	Vinyl Chloride	BRL		ug/Kg	10
74-83-9	Bromomethane	BRL		ug/Kg	10
75-00-3	Chloroethane	BRL		ug/Kg	10
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	10
60-29-7	Diethyl Ether	BRL		ug/Kg	10
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	50
67-64-1	Acetone	BRL		ug/Kg	200
75-15-0	Carbon Disulfide	BRL		ug/Kg	50
75-09-2	Methylene Chloride	BRL		ug/Kg	50
107-13-1	Acrylonitrile	BRL		ug/Kg	5
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	5
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	5
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	5
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	5
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	5
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	50
74-97-5	Bromochloromethane	BRL		ug/Kg	5
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	50
67-66-3	Chloroform	BRL		ug/Kg	5
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	5
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	5
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	5
71-43-2	Benzene	BRL		ug/Kg	5
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	5
79-01-6	Trichloroethene	BRL		ug/Kg	5
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	5
74-95-3	Dibromomethane	BRL		ug/Kg	5
75-27-4	Bromodichloromethane	BRL		ug/Kg	5
123-91-1	1,4-Dioxane	BRL		ug/Kg	5,000
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	50
108-88-3	Toluene	BRL		ug/Kg	5
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	5
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	5
127-18-4	Tetrachloroethene	BRL		ug/Kg	5
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	5
591-78-6	2-Hexanone	BRL		ug/Kg	50
124-48-1	Dibromochloromethane	BRL		ug/Kg	5
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	5
108-90-7	Chlorobenzene	BRL		ug/Kg	5
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	5
100-41-4	Ethylbenzene	BRL		ug/Kg	5
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL		ug/Kg	5

GROUNDWATER ANALYTICAL

EPA Method 8260B (Continued)
Volatile Organics by GC/MS

Field ID:	**SBO1 (12.5-15)**	Matrix:	**Soil**
Project:	**Normans Lakeville Gulf/60158261-300**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**NaHSO4 / Cool**
Laboratory ID:	**134421-1**	QC Batch ID:	**VM1-2864-S**
Sampled:	**06-29-10 09:50**	Instrument ID:	**MS-1 HP 5890**
Received:	**06-30-10 18:00**	Sample Weight:	**5.9 g**
Analyzed:	**07-04-10 12:29**	% Solids:	**93**
Analyst:	**LMG**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
95-47-6	*ortho*-Xylene	BRL		ug/Kg	5
100-42-5	Styrene	BRL		ug/Kg	5
75-25-2	Bromoform	BRL		ug/Kg	5
98-82-8	Isopropylbenzene	BRL		ug/Kg	5
108-86-1	Bromobenzene	BRL		ug/Kg	5
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	5
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	5
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	50
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	5
95-49-8	2-Chlorotoluene	BRL		ug/Kg	5
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	5
106-43-4	4-Chlorotoluene	BRL		ug/Kg	5
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	5
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	5
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	5
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	5
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	5
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	5
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	5
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	5
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	5
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	5
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	5
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	5
91-20-3	Naphthalene	BRL		ug/Kg	5
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	5
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	200
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	5
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	5
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	50	56	**111** %	70 - 130 %
1,2-Dichloroethane-d_4	50	43	**86** %	70 - 130 %
Toluene-d_8	50	55	**109** %	70 - 130 %
4-Bromofluorobenzene	50	58	**115** %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample preparation performed by EPA Method 5030B. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**SBO2 (12.5-15)**	Matrix:	**Soil**
Project:	**Normans Lakeville Gulf/60158261-300**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**NaHSO4 / Cool**
Laboratory ID:	**134421-2**	QC Batch ID:	**VM1-2864-S**
Sampled:	**06-29-10 11:45**	Instrument ID:	**MS-1 HP 5890**
Received:	**06-30-10 18:00**	Sample Weight:	**5.1 g**
Analyzed:	**07-04-10 13:40**	% Solids:	**97**
Analyst:	**LMG**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	10
74-87-3	Chloromethane	BRL		ug/Kg	10
75-01-4	Vinyl Chloride	BRL		ug/Kg	10
74-83-9	Bromomethane	BRL		ug/Kg	10
75-00-3	Chloroethane	BRL		ug/Kg	10
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	10
60-29-7	Diethyl Ether	BRL		ug/Kg	10
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	51
67-64-1	Acetone	BRL		ug/Kg	200
75-15-0	Carbon Disulfide	BRL		ug/Kg	51
75-09-2	Methylene Chloride	BRL		ug/Kg	51
107-13-1	Acrylonitrile	BRL		ug/Kg	5
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	5
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	5
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	5
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	5
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	5
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	51
74-97-5	Bromochloromethane	BRL		ug/Kg	5
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	51
67-66-3	Chloroform	BRL		ug/Kg	5
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	5
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	5
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	5
71-43-2	Benzene	BRL		ug/Kg	5
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	5
79-01-6	Trichloroethene	BRL		ug/Kg	5
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	5
74-95-3	Dibromomethane	BRL		ug/Kg	5
75-27-4	Bromodichloromethane	BRL		ug/Kg	5
123-91-1	1,4-Dioxane	BRL		ug/Kg	5,100
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	51
108-88-3	Toluene	BRL		ug/Kg	5
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	5
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	5
127-18-4	Tetrachloroethene	BRL		ug/Kg	5
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	5
591-78-6	2-Hexanone	BRL		ug/Kg	51
124-48-1	Dibromochloromethane	BRL		ug/Kg	5
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	5
108-90-7	Chlorobenzene	BRL		ug/Kg	5
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	5
100-41-4	Ethylbenzene	BRL		ug/Kg	5
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL		ug/Kg	5

GROUNDWATER ANALYTICAL

EPA Method 8260B (Continued)
Volatile Organics by GC/MS

Field ID:	**SBO2 (12.5-15)**	Matrix:	**Soil**
Project:	**Normans Lakeville Gulf/60158261-300**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**NaHSO4 / Cool**
Laboratory ID:	**134421-2**	QC Batch ID:	**VM1-2864-S**
Sampled:	**06-29-10 11:45**	Instrument ID:	**MS-1 HP 5890**
Received:	**06-30-10 18:00**	Sample Weight:	**5.1 g**
Analyzed:	**07-04-10 13:40**	% Solids:	**97**
Analyst:	**LMG**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
95-47-6	*ortho*-Xylene	BRL		ug/Kg	5
100-42-5	Styrene	BRL		ug/Kg	5
75-25-2	Bromoform	BRL		ug/Kg	5
98-82-8	Isopropylbenzene	BRL		ug/Kg	5
108-86-1	Bromobenzene	BRL		ug/Kg	5
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	5
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	5
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	51
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	5
95-49-8	2-Chlorotoluene	BRL		ug/Kg	5
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	5
106-43-4	4-Chlorotoluene	BRL		ug/Kg	5
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	5
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	5
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	5
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	5
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	5
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	5
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	5
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	5
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	5
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	5
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	5
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	5
91-20-3	Naphthalene	BRL		ug/Kg	5
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	5
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	200
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	5
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	5
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	50	65	**129 %**	70 - 130 %
1,2-Dichloroethane-d_4	50	61	**123 %**	70 - 130 %
Toluene-d_8	50	63	**126 %**	70 - 130 %
4-Bromofluorobenzene	50	58	**117 %**	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample preparation performed by EPA Method 5030B. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**SBO3 (10-15)**	Matrix:	**Soil**
Project:	**Normans Lakeville Gulf/60158261-300**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**NaHSO4 / Cool**
Laboratory ID:	**134421-3**	QC Batch ID:	**VM1-2864-S**
Sampled:	**06-29-10 14:00**	Instrument ID:	**MS-1 HP 5890**
Received:	**06-30-10 18:00**	Sample Weight:	**5.3 g**
Analyzed:	**07-04-10 14:51**	% Solids:	**92**
Analyst:	**LMG**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	10
74-87-3	Chloromethane	BRL		ug/Kg	10
75-01-4	Vinyl Chloride	BRL		ug/Kg	10
74-83-9	Bromomethane	BRL		ug/Kg	10
75-00-3	Chloroethane	BRL		ug/Kg	10
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	10
60-29-7	Diethyl Ether	BRL		ug/Kg	10
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	51
67-64-1	Acetone	BRL		ug/Kg	200
75-15-0	Carbon Disulfide	BRL		ug/Kg	51
75-09-2	Methylene Chloride	BRL		ug/Kg	51
107-13-1	Acrylonitrile	BRL		ug/Kg	5
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	5
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	5
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	5
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	5
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	5
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	51
74-97-5	Bromochloromethane	BRL		ug/Kg	5
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	51
67-66-3	Chloroform	BRL		ug/Kg	5
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	5
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	5
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	5
71-43-2	Benzene	BRL		ug/Kg	5
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	5
79-01-6	Trichloroethene	BRL		ug/Kg	5
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	5
74-95-3	Dibromomethane	BRL		ug/Kg	5
75-27-4	Bromodichloromethane	BRL		ug/Kg	5
123-91-1	1,4-Dioxane	BRL		ug/Kg	5,100
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	51
108-88-3	Toluene	BRL		ug/Kg	5
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	5
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	5
127-18-4	Tetrachloroethene	BRL		ug/Kg	5
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	5
591-78-6	2-Hexanone	BRL		ug/Kg	51
124-48-1	Dibromochloromethane	BRL		ug/Kg	5
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	5
108-90-7	Chlorobenzene	BRL		ug/Kg	5
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	5
100-41-4	Ethylbenzene	BRL		ug/Kg	5
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL		ug/Kg	5

GROUNDWATER ANALYTICAL

EPA Method 8260B (Continued)
Volatile Organics by GC/MS

Field ID:	**SBO3 (10-15)**	Matrix:	**Soil**
Project:	**Normans Lakeville Gulf/60158261-300**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**NaHSO4 / Cool**
Laboratory ID:	**134421-3**	QC Batch ID:	**VM1-2864-S**
Sampled:	**06-29-10 14:00**	Instrument ID:	**MS-1 HP 5890**
Received:	**06-30-10 18:00**	Sample Weight:	**5.3 g**
Analyzed:	**07-04-10 14:51**	% Solids:	**92**
Analyst:	**LMG**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
95-47-6	*ortho*-Xylene	BRL		ug/Kg	5
100-42-5	Styrene	BRL		ug/Kg	5
75-25-2	Bromoform	BRL		ug/Kg	5
98-82-8	Isopropylbenzene	BRL		ug/Kg	5
108-86-1	Bromobenzene	BRL		ug/Kg	5
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	5
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	5
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	51
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	5
95-49-8	2-Chlorotoluene	BRL		ug/Kg	5
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	5
106-43-4	4-Chlorotoluene	BRL		ug/Kg	5
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	5
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	5
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	5
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	5
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	5
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	5
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	5
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	5
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	5
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	5
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	5
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	5
91-20-3	Naphthalene	BRL		ug/Kg	5
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	5
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	200
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	5
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	5
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	50	54	**107** %	70 - 130 %
1,2-Dichloroethane-d_4	50	45	**90** %	70 - 130 %
Toluene-d_8	50	53	**106** %	70 - 130 %
4-Bromofluorobenzene	50	50	**101** %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample preparation performed by EPA Method 5030B. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	SBO3 (35-40)	Matrix:	Soil
Project:	Normans Lakeville Gulf/60158261-300	Container:	40 mL VOA Vial
Client:	AECOM Environment	Preservation:	NaHSO4 / Cool
Laboratory ID:	134421-4	QC Batch ID:	VM1-2864-S
Sampled:	06-29-10 15:00	Instrument ID:	MS-1 HP 5890
Received:	06-30-10 18:00	Sample Weight:	5.2 g
Analyzed:	07-04-10 15:26	% Solids:	93
Analyst:	LMG	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	10
74-87-3	Chloromethane	BRL		ug/Kg	10
75-01-4	Vinyl Chloride	BRL		ug/Kg	10
74-83-9	Bromomethane	BRL		ug/Kg	10
75-00-3	Chloroethane	BRL		ug/Kg	10
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	10
60-29-7	Diethyl Ether	BRL		ug/Kg	10
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	52
67-64-1	Acetone	BRL		ug/Kg	210
75-15-0	Carbon Disulfide	BRL		ug/Kg	52
75-09-2	Methylene Chloride	BRL		ug/Kg	52
107-13-1	Acrylonitrile	BRL		ug/Kg	5
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	5
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	5
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	5
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	5
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	5
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	52
74-97-5	Bromochloromethane	BRL		ug/Kg	5
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	52
67-66-3	Chloroform	BRL		ug/Kg	5
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	5
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	5
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	5
71-43-2	Benzene	BRL		ug/Kg	5
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	5
79-01-6	Trichloroethene	BRL		ug/Kg	5
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	5
74-95-3	Dibromomethane	BRL		ug/Kg	5
75-27-4	Bromodichloromethane	BRL		ug/Kg	5
123-91-1	1,4-Dioxane	BRL		ug/Kg	5,200
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	52
108-88-3	Toluene	BRL		ug/Kg	5
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	5
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	5
127-18-4	Tetrachloroethene	BRL		ug/Kg	5
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	5
591-78-6	2-Hexanone	BRL		ug/Kg	52
124-48-1	Dibromochloromethane	BRL		ug/Kg	5
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	5
108-90-7	Chlorobenzene	BRL		ug/Kg	5
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	5
100-41-4	Ethylbenzene	BRL		ug/Kg	5
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL		ug/Kg	5

GROUNDWATER ANALYTICAL

EPA Method 8260B (Continued)
Volatile Organics by GC/MS

Field ID:	SBO3 (35-40)	Matrix:	Soil
Project:	Normans Lakeville Gulf/60158261-300	Container:	40 mL VOA Vial
Client:	AECOM Environment	Preservation:	NaHSO4 / Cool
Laboratory ID:	134421-4	QC Batch ID:	VM1-2864-S
Sampled:	06-29-10 15:00	Instrument ID:	MS-1 HP 5890
Received:	06-30-10 18:00	Sample Weight:	5.2 g
Analyzed:	07-04-10 15:26	% Solids:	93
Analyst:	LMG	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
95-47-6	*ortho*-Xylene	BRL		ug/Kg	5
100-42-5	Styrene	BRL		ug/Kg	5
75-25-2	Bromoform	BRL		ug/Kg	5
98-82-8	Isopropylbenzene	BRL		ug/Kg	5
108-86-1	Bromobenzene	BRL		ug/Kg	5
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	5
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	5
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	5
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	52
95-49-8	2-Chlorotoluene	BRL		ug/Kg	5
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	5
106-43-4	4-Chlorotoluene	BRL		ug/Kg	5
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	5
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	5
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	5
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	5
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	5
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	5
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	5
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	5
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	5
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	5
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	5
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	5
91-20-3	Naphthalene	BRL		ug/Kg	5
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	5
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	210
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	5
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	5
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	50	53	**107** %	70 - 130 %
1,2-Dichloroethane-d_4	50	49	**99** %	70 - 130 %
Toluene-d_8	50	51	**101** %	70 - 130 %
4-Bromofluorobenzene	50	57	**113** %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample preparation performed by EPA Method 5030B. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**Trip Blank**	Matrix:	**Soil**
Project:	**Normans Lakeville Gulf/60158261-300**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**NaHSO4 / Cool**
Laboratory ID:	**134421-5**	QC Batch ID:	**VM1-2864-S**
Sampled:	**06-29-10 00:00**	Instrument ID:	**MS-1 HP 5890**
Received:	**06-30-10 18:00**	Sample Weight:	**0.21 g**
Analyzed:	**07-04-10 16:02**	% Solids:	**100**
Analyst:	**LMG**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	240
74-87-3	Chloromethane	BRL		ug/Kg	240
75-01-4	Vinyl Chloride	BRL		ug/Kg	240
74-83-9	Bromomethane	BRL		ug/Kg	240
75-00-3	Chloroethane	BRL		ug/Kg	240
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	240
60-29-7	Diethyl Ether	BRL		ug/Kg	240
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	120
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	1,200
67-64-1	Acetone	BRL		ug/Kg	4,800
75-15-0	Carbon Disulfide	BRL		ug/Kg	1,200
75-09-2	Methylene Chloride	BRL		ug/Kg	1,200
107-13-1	Acrylonitrile	BRL		ug/Kg	120
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	120
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	120
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	120
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	120
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	120
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	1,200
74-97-5	Bromochloromethane	BRL		ug/Kg	120
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	1,200
67-66-3	Chloroform	BRL		ug/Kg	120
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	120
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	120
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	120
71-43-2	Benzene	BRL		ug/Kg	120
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	120
79-01-6	Trichloroethene	BRL		ug/Kg	120
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	120
74-95-3	Dibromomethane	BRL		ug/Kg	120
75-27-4	Bromodichloromethane	BRL		ug/Kg	120
123-91-1	1,4-Dioxane	BRL		ug/Kg	120,000
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	120
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	1,200
108-88-3	Toluene	BRL		ug/Kg	120
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	120
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	120
127-18-4	Tetrachloroethene	BRL		ug/Kg	120
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	120
591-78-6	2-Hexanone	BRL		ug/Kg	1,200
124-48-1	Dibromochloromethane	BRL		ug/Kg	120
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	120
108-90-7	Chlorobenzene	BRL		ug/Kg	120
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	120
100-41-4	Ethylbenzene	BRL		ug/Kg	120
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL		ug/Kg	120

GROUNDWATER ANALYTICAL

EPA Method 8260B (Continued)
Volatile Organics by GC/MS

Field ID:	**Trip Blank**	Matrix:	**Soil**
Project:	**Normans Lakeville Gulf/60158261-300**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**NaHSO4 / Cool**
Laboratory ID:	**134421-5**	QC Batch ID:	**VM1-2864-S**
Sampled:	**06-29-10 00:00**	Instrument ID:	**MS-1 HP 5890**
Received:	**06-30-10 18:00**	Sample Weight:	**0.21 g**
Analyzed:	**07-04-10 16:02**	% Solids:	**100**
Analyst:	**LMG**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
95-47-6	*ortho*-Xylene	BRL		ug/Kg	120
100-42-5	Styrene	BRL		ug/Kg	120
75-25-2	Bromoform	BRL		ug/Kg	120
98-82-8	Isopropylbenzene	BRL		ug/Kg	120
108-86-1	Bromobenzene	BRL		ug/Kg	120
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	120
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	120
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	1,200
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	120
95-49-8	2-Chlorotoluene	BRL		ug/Kg	120
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	120
106-43-4	4-Chlorotoluene	BRL		ug/Kg	120
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	120
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	120
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	120
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	120
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	120
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	120
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	120
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	120
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	120
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	120
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	120
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	120
91-20-3	Naphthalene	BRL		ug/Kg	120
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	120
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	4,800
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	120
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	120
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	120

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	50	58	**116** %	70 - 130 %
1,2-Dichloroethane-d_4	50	51	**102** %	70 - 130 %
Toluene-d_8	50	53	**106** %	70 - 130 %
4-Bromofluorobenzene	50	54	**108** %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample preparation performed by EPA Method 5030B. Results are reported on an as received basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

EPA Method 8270C
Semivolatile Organics by GC/MS

Field ID:	SBO1 (12.5-15)	Matrix:	Soil
Project:	Normans Lakeville Gulf/60158261-300	Container:	250 mL Amber Glass
Client:	AECOM Environment	Preservation:	Cool
Laboratory ID:	134421-06	QC Batch ID:	SV-2366-P
Sampled:	06-29-10 09:50	Instrument ID:	MS-12 Agilent 6890
Received:	06-30-10 18:00	Sample Weight:	16 g
Extracted:	07-13-10 17:00	Final Volume:	1 mL
Analyzed:	07-15-10 17:51	Percent Solids:	93
Analyst:	MJB	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	340
110-86-1	Pyridine	BRL		ug/Kg	340
108-95-2	Phenol	BRL		ug/Kg	340
62-53-3	Aniline	BRL		ug/Kg	340
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	340
95-57-8	2-Chlorophenol	BRL		ug/Kg	340
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	340
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	340
100-51-6	Benzyl Alcohol	BRL		ug/Kg	340
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	340
95-48-7	2-Methylphenol	BRL		ug/Kg	340
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	340
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	340
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	340
98-86-2	Acetophenone	BRL		ug/Kg	340
67-72-1	Hexachloroethane	BRL		ug/Kg	340
98-95-3	Nitrobenzene	BRL		ug/Kg	340
78-59-1	Isophorone	BRL		ug/Kg	340
88-75-5	2-Nitrophenol	BRL		ug/Kg	340
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	340
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	340
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	340
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	340
91-20-3	Naphthalene	BRL		ug/Kg	340
106-47-8	4-Chloroaniline	BRL		ug/Kg	340
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	340
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	340
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	340
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	340
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	340
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	340
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	340
88-74-4	2-Nitroaniline	BRL		ug/Kg	340
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	340
131-11-3	Dimethyl phthalate	BRL		ug/Kg	340
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	340
208-96-8	Acenaphthylene	BRL		ug/Kg	340
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	340
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	340
99-09-2	3-Nitroaniline	BRL		ug/Kg	340
83-32-9	Acenaphthene	BRL		ug/Kg	340
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	690
100-02-7	4-Nitrophenol	BRL		ug/Kg	340
132-64-9	Dibenzofuran	BRL		ug/Kg	340
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	340

GROUNDWATER ANALYTICAL

EPA Method 8270C (Continued)
Semivolatile Organics by GC/MS

Field ID:	**SBO1 (12.5-15)**	Matrix:	**Soil**
Project:	**Normans Lakeville Gulf/60158261-300**	Container:	**250 mL Amber Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**134421-06**	QC Batch ID:	**SV-2366-P**
Sampled:	**06-29-10 09:50**	Instrument ID:	**MS-12 Agilent 6890**
Received:	**06-30-10 18:00**	Sample Weight:	**16 g**
Extracted:	**07-13-10 17:00**	Final Volume:	**1 mL**
Analyzed:	**07-15-10 17:51**	Dilution Factor:	**1**
Analyst:	**MJB**		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
84-66-2	Diethyl phthalate	BRL		ug/Kg	340
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	340
86-73-7	Fluorene	BRL		ug/Kg	340
100-01-6	4-Nitroaniline	BRL		ug/Kg	340
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	690
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	340
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	340
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	340
118-74-1	Hexachlorobenzene	BRL		ug/Kg	340
87-86-5	Pentachlorophenol	BRL		ug/Kg	690
85-01-8	Phenanthrene	BRL		ug/Kg	340
120-12-7	Anthracene	BRL		ug/Kg	340
86-74-8	Carbazole	BRL		ug/Kg	340
84-74-2	Di-*n*-butyl phthalate	BRL		ug/Kg	340
206-44-0	Fluoranthene	BRL		ug/Kg	340
129-00-0	Pyrene	BRL		ug/Kg	340
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	340
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	340
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	340
218-01-9	Chrysene	BRL		ug/Kg	340
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	340
117-84-0	Di-*n*-octyl phthalate	BRL		ug/Kg	340
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	340
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	340
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	340
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	340
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	340
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	340

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	14,000	6,700	**49 %**	30 - 130 %
Phenol-d5	14,000	6,700	**49 %**	30 - 130 %
Nitrobenzene-d5	6,900	4,100	**60 %**	30 - 130 %
2-Fluorobiphenyl	6,900	3,900	**57 %**	30 - 130 %
2,4,6-Tribromophenol	14,000	7,500	**55 %**	30 - 130 %
Terphenyl-d14	6,900	3,900	**58 %**	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545. Results are reported on a dry weight basis.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

* Analyzed as 4-Methylphenol.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

EPA Method 8270C
Semivolatile Organics by GC/MS

Field ID:	SBO2 (12.5-15)	Matrix:	Soil
Project:	Normans Lakeville Gulf/60158261-300	Container:	250 mL Amber Glass
Client:	AECOM Environment	Preservation:	Cool
Laboratory ID:	134421-07	QC Batch ID:	SV-2367-P
Sampled:	06-29-10 11:45	Instrument ID:	MS-3 HP 5890
Received:	06-30-10 18:00	Sample Weight:	16 g
Extracted:	07-13-10 23:00	Final Volume:	1 mL
Analyzed:	07-15-10 12:42	Percent Solids:	97
Analyst:	MJB	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	330
110-86-1	Pyridine	BRL		ug/Kg	330
108-95-2	Phenol	BRL		ug/Kg	330
62-53-3	Aniline	BRL		ug/Kg	330
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	330
95-57-8	2-Chlorophenol	BRL		ug/Kg	330
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	330
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	330
100-51-6	Benzyl Alcohol	BRL		ug/Kg	330
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	330
95-48-7	2-Methylphenol	BRL		ug/Kg	330
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	330
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	330
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	330
98-86-2	Acetophenone	BRL		ug/Kg	330
67-72-1	Hexachloroethane	BRL		ug/Kg	330
98-95-3	Nitrobenzene	BRL		ug/Kg	330
78-59-1	Isophorone	BRL		ug/Kg	330
88-75-5	2-Nitrophenol	BRL		ug/Kg	330
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	330
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	330
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	330
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	330
91-20-3	Naphthalene	BRL		ug/Kg	330
106-47-8	4-Chloroaniline	BRL		ug/Kg	330
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	330
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	330
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	330
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	670
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	330
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	330
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	330
88-74-4	2-Nitroaniline	BRL		ug/Kg	330
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	330
131-11-3	Dimethyl phthalate	BRL		ug/Kg	330
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	330
208-96-8	Acenaphthylene	BRL		ug/Kg	330
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	330
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	330
99-09-2	3-Nitroaniline	BRL		ug/Kg	330
83-32-9	Acenaphthene	BRL		ug/Kg	330
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	670
100-02-7	4-Nitrophenol	BRL		ug/Kg	330
132-64-9	Dibenzofuran	BRL		ug/Kg	330
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	330

GROUNDWATER ANALYTICAL

EPA Method 8270C (Continued)
Semivolatile Organics by GC/MS

Field ID:	SBO2 (12.5-15)	Matrix:	Soil
Project:	Normans Lakeville Gulf/60158261-300	Container:	250 mL Amber Glass
Client:	AECOM Environment	Preservation:	Cool
Laboratory ID:	134421-07	QC Batch ID:	SV-2367-P
Sampled:	06-29-10 11:45	Instrument ID:	MS-3 HP 5890
Received:	06-30-10 18:00	Sample Weight:	16 g
Extracted:	07-13-10 23:00	Final Volume:	1 mL
Analyzed:	07-15-10 12:42	Dilution Factor:	1
Analyst:	MJB		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
84-66-2	Diethyl phthalate	BRL		ug/Kg	330
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	330
86-73-7	Fluorene	BRL		ug/Kg	330
100-01-6	4-Nitroaniline	BRL		ug/Kg	330
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	330
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	330
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	330
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	330
118-74-1	Hexachlorobenzene	BRL		ug/Kg	330
87-86-5	Pentachlorophenol	BRL		ug/Kg	330
85-01-8	Phenanthrene	BRL		ug/Kg	670
120-12-7	Anthracene	BRL		ug/Kg	330
86-74-8	Carbazole	BRL		ug/Kg	330
84-74-2	Di-*n*-butyl phthalate	BRL		ug/Kg	330
206-44-0	Fluoranthene	BRL		ug/Kg	330
129-00-0	Pyrene	BRL		ug/Kg	330
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	330
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	330
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	330
218-01-9	Chrysene	BRL		ug/Kg	330
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	330
117-84-0	Di-*n*-octyl phthalate	BRL		ug/Kg	330
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	330
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	330
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	330
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	330
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	330
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	330

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	13,000	8,600	65 %	30 - 130 %
Phenol-d5	13,000	9,700	72 %	30 - 130 %
Nitrobenzene-d5	6,700	4,900	73 %	30 - 130 %
2-Fluorobiphenyl	6,700	4,800	72 %	30 - 130 %
2,4,6-Tribromophenol	13,000	8,900	67 %	30 - 130 %
Terphenyl-d14	6,700	4,800	71 %	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545. Results are reported on a dry weight basis.

Report Notations:
- BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.
- * Analyzed as 4-Methylphenol.
- † Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.
- ◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

EPA Method 8270C
Semivolatile Organics by GC/MS

Field ID:	SBO3 (10-15)	Matrix:	Soil
Project:	Normans Lakeville Gulf/60158261-300	Container:	250 mL Amber Glass
Client:	AECOM Environment	Preservation:	Cool
Laboratory ID:	134421-08	QC Batch ID:	SV-2367-P
Sampled:	06-29-10 14:00	Instrument ID:	MS-3 HP 5890
Received:	06-30-10 18:00	Sample Weight:	15 g
Extracted:	07-13-10 23:00	Final Volume:	1 mL
Analyzed:	07-15-10 14:06	Percent Solids:	92
Analyst:	MJB	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	350
110-86-1	Pyridine	BRL		ug/Kg	350
108-95-2	Phenol	BRL		ug/Kg	350
62-53-3	Aniline	BRL		ug/Kg	350
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	350
95-57-8	2-Chlorophenol	BRL		ug/Kg	350
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	350
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	350
100-51-6	Benzyl Alcohol	BRL		ug/Kg	350
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	350
95-48-7	2-Methylphenol	BRL		ug/Kg	350
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	350
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	350
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	350
98-86-2	Acetophenone	BRL		ug/Kg	350
67-72-1	Hexachloroethane	BRL		ug/Kg	350
98-95-3	Nitrobenzene	BRL		ug/Kg	350
78-59-1	Isophorone	BRL		ug/Kg	350
88-75-5	2-Nitrophenol	BRL		ug/Kg	350
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	350
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	350
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	350
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	350
91-20-3	Naphthalene	BRL		ug/Kg	350
106-47-8	4-Chloroaniline	BRL		ug/Kg	350
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	350
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	350
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	350
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	720
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	350
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	350
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	350
88-74-4	2-Nitroaniline	BRL		ug/Kg	350
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	350
131-11-3	Dimethyl phthalate	BRL		ug/Kg	350
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	350
208-96-8	Acenaphthylene	BRL		ug/Kg	350
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	350
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	350
99-09-2	3-Nitroaniline	BRL		ug/Kg	350
83-32-9	Acenaphthene	BRL		ug/Kg	350
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	720
100-02-7	4-Nitrophenol	BRL		ug/Kg	350
132-64-9	Dibenzofuran	BRL		ug/Kg	350
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	350

GROUNDWATER ANALYTICAL

EPA Method 8270C (Continued)
Semivolatile Organics by GC/MS

Field ID:	SBO3 (10-15)	Matrix:	Soil
Project:	Normans Lakeville Gulf/60158261-300	Container:	250 mL Amber Glass
Client:	AECOM Environment	Preservation:	Cool
Laboratory ID:	134421-08	QC Batch ID:	SV-2367-P
Sampled:	06-29-10 14:00	Instrument ID:	MS-3 HP 5890
Received:	06-30-10 18:00	Sample Weight:	15 g
Extracted:	07-13-10 23:00	Final Volume:	1 mL
Analyzed:	07-15-10 14:06	Dilution Factor:	1
Analyst:	MJB		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
84-66-2	Diethyl phthalate	BRL		ug/Kg	350
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	350
86-73-7	Fluorene	BRL		ug/Kg	350
100-01-6	4-Nitroaniline	BRL		ug/Kg	350
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	350
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	350
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	350
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	350
118-74-1	Hexachlorobenzene	BRL		ug/Kg	350
87-86-5	Pentachlorophenol	BRL		ug/Kg	350
85-01-8	Phenanthrene	BRL		ug/Kg	720
120-12-7	Anthracene	BRL		ug/Kg	350
86-74-8	Carbazole	BRL		ug/Kg	350
84-74-2	Di-*n*-butyl phthalate	BRL		ug/Kg	350
206-44-0	Fluoranthene	BRL		ug/Kg	350
129-00-0	Pyrene	BRL		ug/Kg	350
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	350
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	350
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	350
218-01-9	Chrysene	BRL		ug/Kg	350
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	350
117-84-0	Di-*n*-octyl phthalate	BRL		ug/Kg	350
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	350
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	350
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	350
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	350
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	350
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	350

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	14,000	9,700	68 %	30 - 130 %
Phenol-d5	14,000	11,000	79 %	30 - 130 %
Nitrobenzene-d5	7,200	5,400	75 %	30 - 130 %
2-Fluorobiphenyl	7,200	5,600	78 %	30 - 130 %
2,4,6-Tribromophenol	14,000	10,000	72 %	30 - 130 %
Terphenyl-d14	7,200	5,400	75 %	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545. Results are reported on a dry weight basis.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

* Analyzed as 4-Methylphenol.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

EPA Method 8270C
Semivolatile Organics by GC/MS

Field ID:	SBO3 (35-40)	Matrix:	Soil
Project:	Normans Lakeville Gulf/60158261-300	Container:	250 mL Amber Glass
Client:	AECOM Environment	Preservation:	Cool
Laboratory ID:	134421-09	QC Batch ID:	SV-2367-P
Sampled:	06-29-10 15:00	Instrument ID:	MS-3 HP 5890
Received:	06-30-10 18:00	Sample Weight:	16 g
Extracted:	07-13-10 23:00	Final Volume:	1 mL
Analyzed:	07-15-10 15:30	Percent Solids:	93
Analyst:	MJB	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	340
110-86-1	Pyridine	BRL		ug/Kg	340
108-95-2	Phenol	BRL		ug/Kg	340
62-53-3	Aniline	BRL		ug/Kg	340
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	340
95-57-8	2-Chlorophenol	BRL		ug/Kg	340
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	340
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	340
100-51-6	Benzyl Alcohol	BRL		ug/Kg	340
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	340
95-48-7	2-Methylphenol	BRL		ug/Kg	340
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	340
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	340
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	340
98-86-2	Acetophenone	BRL		ug/Kg	340
67-72-1	Hexachloroethane	BRL		ug/Kg	340
98-95-3	Nitrobenzene	BRL		ug/Kg	340
78-59-1	Isophorone	BRL		ug/Kg	340
88-75-5	2-Nitrophenol	BRL		ug/Kg	340
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	340
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	340
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	340
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	340
91-20-3	Naphthalene	BRL		ug/Kg	340
106-47-8	4-Chloroaniline	BRL		ug/Kg	340
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	340
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	340
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	340
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	700
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	340
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	340
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	340
88-74-4	2-Nitroaniline	BRL		ug/Kg	340
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	340
131-11-3	Dimethyl phthalate	BRL		ug/Kg	340
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	340
208-96-8	Acenaphthylene	BRL		ug/Kg	340
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	340
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	340
99-09-2	3-Nitroaniline	BRL		ug/Kg	340
83-32-9	Acenaphthene	BRL		ug/Kg	340
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	700
100-02-7	4-Nitrophenol	BRL		ug/Kg	340
132-64-9	Dibenzofuran	BRL		ug/Kg	340
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	340

GROUNDWATER ANALYTICAL

EPA Method 8270C (Continued)
Semivolatile Organics by GC/MS

Field ID:	SBO3 (35-40)	Matrix:	Soil
Project:	Normans Lakeville Gulf/60158261-300	Container:	250 mL Amber Glass
Client:	AECOM Environment	Preservation:	Cool
Laboratory ID:	134421-09	QC Batch ID:	SV-2367-P
Sampled:	06-29-10 15:00	Instrument ID:	MS-3 HP 5890
Received:	06-30-10 18:00	Sample Weight:	16 g
Extracted:	07-13-10 23:00	Final Volume:	1 mL
Analyzed:	07-15-10 15:30	Dilution Factor:	1
Analyst:	MJB		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
84-66-2	Diethyl phthalate	BRL		ug/Kg	340
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	340
86-73-7	Fluorene	BRL		ug/Kg	340
100-01-6	4-Nitroaniline	BRL		ug/Kg	340
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	340
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	340
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	340
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	340
118-74-1	Hexachlorobenzene	BRL		ug/Kg	340
87-86-5	Pentachlorophenol	BRL		ug/Kg	700
85-01-8	Phenanthrene	BRL		ug/Kg	340
120-12-7	Anthracene	BRL		ug/Kg	340
86-74-8	Carbazole	BRL		ug/Kg	340
84-74-2	Di-*n*-butyl phthalate	BRL		ug/Kg	340
206-44-0	Fluoranthene	BRL		ug/Kg	340
129-00-0	Pyrene	BRL		ug/Kg	340
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	340
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	340
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	340
218-01-9	Chrysene	BRL		ug/Kg	340
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	340
117-84-0	Di-*n*-octyl phthalate	BRL		ug/Kg	340
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	340
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	340
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	340
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	340
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	340
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	340

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	14,000	9,600	69 %	30 - 130 %
Phenol-d5	14,000	10,000	75 %	30 - 130 %
Nitrobenzene-d5	6,900	5,100	74 %	30 - 130 %
2-Fluorobiphenyl	6,900	5,300	76 %	30 - 130 %
2,4,6-Tribromophenol	14,000	11,000	77 %	30 - 130 %
Terphenyl-d14	6,900	5,400	78 %	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545. Results are reported on a dry weight basis.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

* Analyzed as 4-Methylphenol.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

Trace Metals

Field ID:	**SBO1 (12.5-15)**	Matrix:	**Soil**
Project:	**Normans Lakeville Gulf/60158261-300**	Container:	**250 mL Amber Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**134421-6**	Percent Solids:	**93**
Sampled:	**06-29-10 09:50**		
Received:	**06-30-10 18:00**		

Analysis Method	QC Batch ID	Prep Method	Prepared	Sample Weight	Instrument ID	Analyst
EPA 6010B[1]	MB-01865-S	EPA 3050B	07-01-10 00:00	0.502 g	ICP-1 PE 3000	LMS

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit	DF	Analyzed	Method
7439-92-1	Lead, Total	BRL		mg/Kg	5.3	1	07-02-10 16:18	EPA 6010B[1]

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

DF Dilution Factor.

GROUNDWATER ANALYTICAL

Trace Metals

Field ID:	**SBO2 (12.5-15)**	Matrix:	**Soil**
Project:	**Normans Lakeville Gulf/60158261-300**	Container:	**250 mL Amber Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**134421-7**	Percent Solids:	**97**
Sampled:	**06-29-10 11:45**		
Received:	**06-30-10 18:00**		

Analysis Method	QC Batch ID	Prep Method	Prepared	Sample Weight	Instrument ID	Analyst
EPA 6010B[1]	MB-01865-S	EPA 3050B	07-01-10 00:00	0.517 g	ICP-1 PE 3000	LMS

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit	DF	Analyzed	Method
7439-92-1	Lead, Total	BRL		mg/Kg	5.0	1	07-02-10 16:22	EPA 6010B[1]

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

DF Dilution Factor.

GROUNDWATER ANALYTICAL

Trace Metals

Field ID:	**SBO3 (10-15)**	Matrix:	**Soil**
Project:	**Normans Lakeville Gulf/60158261-300**	Container:	**250 mL Amber Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**134421-8**	Percent Solids:	**92**
Sampled:	**06-29-10 14:00**		
Received:	**06-30-10 18:00**		

Analysis Method	QC Batch ID	Prep Method	Prepared	Sample Weight	Instrument ID	Analyst
EPA 6010B[1]	MB-01865-S	EPA 3050B	07-01-10 00:00	0.499 g	ICP-1 PE 3000	LMS

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit	DF	Analyzed	Method
7439-92-1	Lead, Total	BRL		mg/Kg	5.4	1	07-02-10 16:27	EPA 6010B[1]

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Results are reported on a dry weight basis.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

DF Dilution Factor.

GROUNDWATER ANALYTICAL

Trace Metals

Field ID:	**SBO3 (35-40)**	Matrix:	**Soil**
Project:	**Normans Lakeville Gulf/60158261-300**	Container:	**250 mL Amber Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**134421-9**	Percent Solids:	**93**
Sampled:	**06-29-10 15:00**		
Received:	**06-30-10 18:00**		

Analysis Method	QC Batch ID	Prep Method	Prepared	Sample Weight	Instrument ID	Analyst
EPA 6010B[1]	MB-01865-S	EPA 3050B	07-01-10 00:00	0.501 g	ICP-1 PE 3000	LMS

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit	DF	Analyzed	Method
7439-92-1	Lead, Total	BRL		mg/Kg	5.4	1	07-02-10 16:41	EPA 6010B[1]

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

DF Dilution Factor.

GROUNDWATER ANALYTICAL

Project Narrative

Project:	**Normans Lakeville Gulf/60158261-300**	Lab ID:	**134421**
Client:	**AECOM Environment**	Received:	**06-30-10 18:00**

A. Documentation and Client Communication

The following documentation discrepancies, and client changes or amendments were noted for this project:

1. No documentation discrepancies, changes, or amendments were noted.

B. Method Modifications, Non-Conformances and Observations

The sample(s) in this project were analyzed by the references analytical method(s), and no method modifications, non-conformances or analytical issues were noted, except as indicated below:

1. EPA 8270C Non-conformance: Laboratory control sample (LCS) analytes 4-Chloroaniline and 3,3'-Dichlorobenzidine were below recommended recovery limits for QC batch SV-2366-P.
2. EPA 8270C Non-conformance: Laboratory control sample (LCS) analyte 2,4-Dinitrophenol was below recommended recovery limits for QC batch SV-2367-P.
3. EPA 8270C Non-conformance: Laboratory control sample (LCS) analytes 2,4-Dinitrophenol and 4,6-Dinitro-2-methylphenol had RPD recoveries outside recommended recovery limits for QC batch SV-2367-P.
4. Sample 134421-5 was not received with sample collection time listed on the Chain of Custody. Sample was reported with a sampling collection time of 00:00 by the laboratory.

GROUNDWATER ANALYTICAL

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CHAIN-OF-CUSTODY RECORD AND WORK ORDER

Project Name: Norman's Lakeville Gulf New Hyde Park, NY	Firm: AECOM
Project Number: 60158361-300	Address: 2 Technology Park Drive
Sampler Name: Joanne Newell	City / State / Zip: Westford, MA 01886
Project Manager: Jen Hadden	Telephone: 978-589-3078

TURNAROUND

- ☐ 10 Business Days
- ☒ 5 Business Days
- ☐ RUSH (RAN- _____)
  (Rush requires Rush Authorization Number)
- ☒ Please Email to: jennifer.hadden@aecom.com
- ☐ Please FAX to: _____

BILLING

- ☐ Purchase Order No.: _____
- ☐ Third Party Billing: _____
- ☐ GWA Quote: _____

ANALYSIS REQUEST

OPTIONS: ☐ TRC Blanch

Volatiles: ☐ Ad Ltr/Wy ☐ BTEX Only ☐ TCE Extend

Semivolatiles: ☐ Ad Ltr/Wy ☐ BTEX Only ☐ TCE Extend

Pesticides/PCBs Extractable: ☐ 8081 PEST ☐ 608 Pesticides ☐ 8082 PCBs ☐ 608 PCBs

Pesticides/PCBs Vol.: ☐ 8011 ☐ 8015 ☐ 504.1/8260/CF ☐ Ethylene Dibromide

Metals: Specify for Water Samples ☐ Total ☐ Dissolved ☐ 13 Priority Pollutant ☐ Specify

Petroleum Hydrocarbon Ext. TPHs: ☐ Diesel Range Organics (DRO) ☐ MEPH ☐ EPH ☐ MADEP VPH (Aliphatics/Aromatics) ☐ Specify

Petroleum Hydrocarbon Vol. TPHs: ☐ Gasoline Range Organics (GRO) ☐ MTBE ☐ MADEP VPH (Aliphatics/Aromatics) ☐ VPH (Carbon Ranges only)

Haz. Waste: ☐ TCLP-Metals ☐ TCLP-VOA ☐ TCLP-SVOA ☐ Reactivity ☐ Ignitability ☐ Corrosivity ☐ Specify

General Chemistry: ☐ Alkalinity ☐ Ammonia ☐ Chloride ☐ Cyanide ☐ Fluoride ☐ Nitrate ☐ Nitrite ☐ Phosphorus ☐ Sulfate ☐ Sulfide ☐ TKN ☐ TOC ☐ TSS ☐ Turbidity ☐ Specify

Other: ☐ Hardness ☐ Perchlorate ☐ Specify

Sampling DATE	Sampling TIME	SAMPLE IDENTIFICATION	Matrix	Type	Container(s)	Preservation	Filtered	LABORATORY NUMBER (Lab Use Only)
6/28/10	0950	SB01(12.5-15)	SOIL	GRAB	5 / 4 / 1	ICE	N	
6/28/10	1145	SB02(12.5-15)	SOIL	GRAB	5 / 4 / 1	ICE	N	
6/28/10	1400	SB03(10-15)	SOIL	GRAB	5 / 4 / 1	ICE	N	
6/28/10	1500	SB03(35-40)	SOIL	GRAB	5 / 4	ICE	N	
6/28/10	LAB	Trip Blank	WATER	Trip Blank	4	HCl	N	

REMARKS / SPECIAL INSTRUCTIONS

- ☐ YES ☒ NO MCP Data Certification required.
- ☐ YES ☒ NO MCP Drinking Water Sample Included.
  (Volatile analyses require duplicate collection and Trip Blanks).
- ☐ Analyze Duplicates and Trips Blanks only if positive results.
- ☐ YES ☒ NO CT RCP Data Certification required.

Signature: Joanne Newell

DATA QUALITY OBJECTIVES

Regulatory Program

State	Standard	Deliverables
☐ CT	☐ MCP GW-1/S-1	☐ PWS Form
☐ ME	☐ MCP GW-2/S-2	☐ MWRA
☐ MA	☐ NY STARS	☐ _____
☐ NH	☐ Drinking Water	
☒ NY	☐ Wastewater	
☐ RI	☐ Waste Disposal	
☐ VT	☐ Dredge Material	
☐ ___	☐ _____	

Project Specific QC

Many regulatory programs and EPA methods require project specific QC. Project specific QC includes Sample Duplicates, Matrix Spikes, and/or Matrix Spike Duplicates. Laboratory QC is not project specific unless prearranged. Project specific QC samples are charged on a per sample basis. **Each MS, MSD and Sample Duplicate requires an additional sample aliquot.**

Project Specific QC Required
- ☐ Sample Duplicate
- ☐ Matrix Spike
- ☐ Matrix Spike Duplicate

Selection of QC Sample
- ☐ Please use sample: _____

CHAIN-OF-CUSTODY RECORD

NOTE: All samples submitted subject to Standard Terms and Conditions on reverse hereof.

	Date	Time		Receipt Temperature:
Relinquished by Sampler: Joanne Newell	6/28/10	1145	Received by: Alan Maddigan	☐ Ice ☐ Refrigerated 2.0°C
Relinquished by: Alan Maddigan	6/30/10	6:00	Received by:	Container Count: 24
Relinquished by:	Date	Time	Received by Laboratory:	Shipping/Airbill Number:

Method of Shipment: ☒ GWA Courier ☐ Express Mail ☐ Federal Express ☐ UPS ☐ Hand ☐ _____

Custody Seal Number:

Quality Assurance/Quality Control

A. Program Overview

Groundwater Analytical conducts an active Quality Assurance program to ensure the production of high quality, valid data. This program closely follows the guidance provided by *Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans,* US EPA QAMS-005/80 (1980), and *Test Methods for Evaluating Solid Waste,* US EPA, SW-846, Update III (1996).

Quality Control protocols include written Standard Operating Procedures (SOPs) developed for each analytical method. SOPs are derived from US EPA methodologies and other established references. Standards are prepared from commercially obtained reference materials of certified purity, and documented for traceability.

Quality Assessment protocols for most organic analyses include a minimum of one laboratory control sample, one method blank, one matrix spike sample, and one sample duplicate for each sample preparation batch. All samples, standards, blanks, laboratory control samples, matrix spikes and sample duplicates are spiked with internal standards and surrogate compounds. All instrument sequences begin with an initial calibration verification standard and a blank; and excepting GC/MS sequences, all sequences close with a continuing calibration standard. GC/MS systems are tuned to appropriate ion abundance criteria daily, or for each 12 hour operating period, whichever is more frequent.

Quality Assessment protocols for most inorganic analyses include a minimum of one laboratory control sample, one method blank, one matrix spike sample, and one sample duplicate for each sample preparation batch. Standard curves are derived from one reagent blank and four concentration levels. Curve validity is verified by standard recoveries within plus or minus ten percent of the curve.

B. Definitions

Batches are used as the basic unit for Quality Assessment. A Batch is defined as twenty or fewer samples of the same matrix which are prepared together for the same analysis, using the same lots of reagents and the same techniques or manipulations, all within the same continuum of time, up to but not exceeding 24 hours.

Laboratory Control Samples are used to assess the accuracy of the analytical method. A Laboratory Control Sample consists of reagent water or sodium sulfate spiked with a group of target analytes representative of the method analytes. Accuracy is defined as the degree of agreement of the measured value with the true or expected value. Percent Recoveries for the Laboratory Control Samples are calculated to assess accuracy.

Method Blanks are used to assess the level of contamination present in the analytical system. Method Blanks consist of reagent water or an aliquot of sodium sulfate. Method Blanks are taken through all the appropriate steps of an analytical method. Sample data reported is not corrected for blank contamination.

Surrogate Compounds are used to assess the effectiveness of an analytical method in dealing with each sample matrix. Surrogate Compounds are organic compounds which are similar to the target analytes of interest in chemical behavior, but which are not normally found in environmental samples. Percent Recoveries are calculated for each Surrogate Compound.

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

Category: **Metals**
Matrix: **Soil**
Units: **mg/Kg**

Sample Type	Method	QC Batch ID	Prep Method	Prepared	Analyzed	Instrument ID	Analyst
LCS	EPA 6010B	MB-1865-SL	EPA 3050B	07-01-10 00:00	07-02-10 15:27	ICP-1 PE 3000	JK
LCSD	EPA 6010B	MB-1865-SL	EPA 3050B	07-01-10 00:00	07-02-10 15:41	ICP-1 PE 3000	JK

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits		Method
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	LCS	RPD	
7439-92-1	Lead	140	130	87%	140	120	86%	1 %	81-119 %	30 %	EPA 6010B

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: **Metals**
Matrix: **Soil**

Analysis Method	QC Batch ID	Prep Method	Prepared	Sample Volume	Instrument ID	Analyst
EPA 6010B	MB-1865-SB	EPA 3050B	07-01-10 00:00	0.5 g	ICP-1 PE 3000	JK

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit	DF	Analyzed	Method
7439-92-1	Lead	BRL		mg/Kg	5.0	1	07-02-10 15:23	EPA 6010B

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).

Report Notations:
BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.
DF Dilution Factor.

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8260B	Instrument ID:	MS-1 HP 5890	Instrument ID:	MS-1 HP 5890
QC Batch ID:	VM1-2864-S	Analyzed:	07-04-10 09:55	Analyzed:	07-04-10 10:30
Matrix:	Soil	Analyst:	LMG	Analyst:	LMG
Units:	ug/kg				

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
75-71-8	Dichlorodifluoromethane	50	42	85 %	50	41	83 %	3 %	70 - 130 %	25%
74-87-3	Chloromethane	50	50	99 %	50	45	91 %	9 %	70 - 130 %	25%
75-01-4	Vinyl Chloride	50	50	99 %	50	51	102 %	3 %	70 - 130 %	25%
74-83-9	Bromomethane	50	48	95 %	50	48	96 %	1 %	70 - 130 %	25%
75-00-3	Chloroethane	50	54	108 %	50	57	113 %	5 %	70 - 130 %	25%
75-69-4	Trichlorofluoromethane	50	53	105 %	50	56	111 %	6 %	70 - 130 %	25%
60-29-7	Diethyl Ether	100	86	86 %	100	98	98 %	13 %	70 - 130 %	25%
75-35-4	1,1-Dichloroethene	50	49	97 %	50	52	104 %	6 %	70 - 130 %	25%
76-13-1	1,1,2-Trichlorotrifluoroethane	100	120	116 %	100	120	122 %	5 %	70 - 130 %	25%
67-64-1	Acetone	100	90	90 %	100	100	101 %	11 %	70 - 130 %	25%
75-15-0	Carbon Disulfide	100	88	88 %	100	91	91 %	3 %	70 - 130 %	25%
75-09-2	Methylene Chloride	50	45	90 %	50	52	105 %	15 %	70 - 130 %	25%
107-13-1	Acrylonitrile	50	43	86 %	50	50	100 %	15 %	70 - 130 %	25%
156-60-5	*trans*-1,2-Dichloroethene	50	47	94 %	50	57	114 %	20 %	70 - 130 %	25%
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	50	44	87 %	50	50	99 %	13 %	70 - 130 %	25%
75-34-3	1,1-Dichloroethane	50	48	96 %	50	53	105 %	9 %	70 - 130 %	25%
594-20-7	2,2-Dichloropropane	50	49	97 %	50	51	103 %	6 %	70 - 130 %	25%
156-59-2	*cis*-1,2-Dichloroethene	50	51	102 %	50	50	101 %	1 %	70 - 130 %	25%
78-93-3	2-Butanone (MEK)	100	94	94 %	100	100	100 %	6 %	70 - 130 %	25%
74-97-5	Bromochloromethane	50	53	106 %	50	52	103 %	3 %	70 - 130 %	25%
109-99-9	Tetrahydrofuran (THF)	100	91	91 %	100	98	98 %	8 %	70 - 130 %	25%
67-66-3	Chloroform	50	52	105 %	50	54	108 %	3 %	70 - 130 %	25%
71-55-6	1,1,1-Trichloroethane	50	55	111 %	50	54	108 %	3 %	70 - 130 %	25%
56-23-5	Carbon Tetrachloride	50	53	107 %	50	54	108 %	2 %	70 - 130 %	25%
563-58-6	1,1-Dichloropropene	50	49	97 %	50	50	101 %	4 %	70 - 130 %	25%
71-43-2	Benzene	50	49	98 %	50	53	107 %	9 %	70 - 130 %	25%
107-06-2	1,2-Dichloroethane	50	50	99 %	50	55	111 %	11 %	70 - 130 %	25%
79-01-6	Trichloroethene	50	52	105 %	50	54	109 %	4 %	70 - 130 %	25%
78-87-5	1,2-Dichloropropane	50	49	98 %	50	54	109 %	11 %	70 - 130 %	25%
74-95-3	Dibromomethane	50	47	94 %	50	46	92 %	2 %	70 - 130 %	25%
75-27-4	Bromodichloromethane	50	50	101 %	50	54	108 %	7 %	70 - 130 %	25%
123-91-1	1,4-Dioxane	1,000	710	71 %	1,000	780	78 %	10 %	70 - 130 %	25%
10061-01-5	*cis*-1,3-Dichloropropene	50	49	98 %	50	51	103 %	5 %	70 - 130 %	25%
108-10-1	4-Methyl-2-Pentanone (MIBK)	100	93	93 %	100	85	85 %	9 %	70 - 130 %	25%
108-88-3	Toluene	50	53	105 %	50	54	108 %	2 %	70 - 130 %	25%
10061-02-6	*trans*-1,3-Dichloropropene	50	47	94 %	50	46	91 %	4 %	70 - 130 %	25%
79-00-5	1,1,2-Trichloroethane	50	53	107 %	50	50	99 %	7 %	70 - 130 %	25%
127-18-4	Tetrachloroethene	50	59	118 %	50	55	110 %	7 %	70 - 130 %	25%
142-28-9	1,3-Dichloropropane	50	55	111 %	50	50	100 %	10 %	70 - 130 %	25%
591-78-6	2-Hexanone	100	96	96 %	100	94	94 %	2 %	70 - 130 %	25%
124-48-1	Dibromochloromethane	50	57	115 %	50	50	99 %	14 %	70 - 130 %	25%
106-93-4	1,2-Dibromoethane (EDB)	50	56	112 %	50	52	103 %	8 %	70 - 130 %	25%
108-90-7	Chlorobenzene	50	52	103 %	50	51	102 %	1 %	70 - 130 %	25%
630-20-6	1,1,1,2-Tetrachloroethane	50	58	115 %	50	54	108 %	7 %	70 - 130 %	25%
100-41-4	Ethylbenzene	50	54	107 %	50	51	103 %	4 %	70 - 130 %	25%
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	100	110	114 %	100	99	99 %	14 %	70 - 130 %	25%
95-47-6	*ortho*-Xylene	50	53	105 %	50	51	102 %	3 %	70 - 130 %	25%
100-42-5	Styrene	50	47	95 %	50	46	92 %	3 %	70 - 130 %	25%
75-25-2	Bromoform	50	58	116 %	50	53	107 %	8 %	70 - 130 %	25%

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8260B	Instrument ID:	MS-1 HP 5890	Instrument ID:	MS-1 HP 5890
QC Batch ID:	VM1-2864-S	Analyzed:	07-04-10 09:55	Analyzed:	07-04-10 10:30
Matrix:	Soil	Analyst:	LMG	Analyst:	LMG
Units:	ug/kg				

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
98-82-8	Isopropylbenzene	50	42	83 %	50	38	77 %	8 %	70 - 130 %	25%
108-86-1	Bromobenzene	50	55	109 %	50	50	99 %	10 %	70 - 130 %	25%
79-34-5	1,1,2,2-Tetrachloroethane	50	43	86 %	50	41	82 %	5 %	70 - 130 %	25%
96-18-4	1,2,3-Trichloropropane	50	50	101 %	50	47	93 %	8 %	70 - 130 %	25%
110-57-6	*trans*-1,4-Dichloro-2-butene	200	200	99 %	200	200	98 %	1 %	70 - 130 %	25%
103-65-1	*n*-Propylbenzene	50	50	100 %	50	46	92 %	8 %	70 - 130 %	25%
95-49-8	2-Chlorotoluene	50	48	96 %	50	46	91 %	6 %	70 - 130 %	25%
108-67-8	1,3,5-Trimethylbenzene	50	47	94 %	50	44	88 %	6 %	70 - 130 %	25%
106-43-4	4-Chlorotoluene	50	43	85 %	50	40	80 %	6 %	70 - 130 %	25%
98-06-6	*tert*-Butylbenzene	50	48	96 %	50	45	90 %	6 %	70 - 130 %	25%
95-63-6	1,2,4-Trimethylbenzene	50	51	103 %	50	49	98 %	4 %	70 - 130 %	25%
135-98-8	*sec*-Butylbenzene	50	48	95 %	50	44	88 %	7 %	70 - 130 %	25%
541-73-1	1,3-Dichlorobenzene	50	49	99 %	50	46	92 %	7 %	70 - 130 %	25%
99-87-6	4-Isopropyltoluene	50	50	100 %	50	46	92 %	8 %	70 - 130 %	25%
106-46-7	1,4-Dichlorobenzene	50	49	98 %	50	48	95 %	2 %	70 - 130 %	25%
95-50-1	1,2-Dichlorobenzene	50	50	100 %	50	45	90 %	10 %	70 - 130 %	25%
104-51-8	*n*-Butylbenzene	50	46	91 %	50	45	90 %	2 %	70 - 130 %	25%
96-12-8	1,2-Dibromo-3-chloropropane	50	37	74 %	50	40	79 %	7 %	70 - 130 %	25%
108-70-3	1,3,5-Trichlorobenzene	50	55	110 %	50	51	102 %	7 %	70 - 130 %	25%
120-82-1	1,2,4-Trichlorobenzene	50	54	107 %	50	52	105 %	2 %	70 - 130 %	25%
87-68-3	Hexachlorobutadiene	50	55	110 %	50	50	100 %	9 %	70 - 130 %	25%
91-20-3	Naphthalene	50	43	86 %	50	39	78 %	10 %	70 - 130 %	25%
87-61-6	1,2,3-Trichlorobenzene	50	43	86 %	50	37	75 %	14 %	70 - 130 %	25%
75-65-0	*tert*-Butyl Alcohol (TBA)	1,000	790	79 %	1,000	830	83 %	5 %	70 - 130 %	25%
108-20-3	Di-isopropyl Ether (DIPE)	50	45	90 %	50	44	89 %	1 %	70 - 130 %	25%
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	50	40	80 %	50	45	90 %	11 %	70 - 130 %	25%
994-05-8	*tert*-Amyl Methyl Ether (TAME)	50	43	86 %	50	45	91 %	5 %	70 - 130 %	25%

QC Surrogate Compound	Spiked	Measured	Recovery	Spiked	Measured	Recovery		QC Limits
Dibromofluoromethane	50	51	102 %	50	60	120 %		70 - 130 %
1,2-Dichloroethane-d_4	50	43	86 %	50	57	114 %		70 - 130 %
Toluene-d_8	50	52	105 %	50	59	117 %		70 - 130 %
4-Bromofluorobenzene	50	54	109 %	50	54	108 %		70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample preparation performed by EPA Method 5035A.

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: EPA Method 8260B
QC Batch ID: VM1-2864-S
Matrix: Soil

Instrument ID: MS-1 HP 5890
Analyzed: 07-04-10 11:17
Analyst: LMG

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	10
74-87-3	Chloromethane	BRL		ug/Kg	10
75-01-4	Vinyl Chloride	BRL		ug/Kg	10
74-83-9	Bromomethane	BRL		ug/Kg	10
75-00-3	Chloroethane	BRL		ug/Kg	10
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	10
60-29-7	Diethyl Ether	BRL		ug/Kg	10
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	50
67-64-1	Acetone	BRL		ug/Kg	200
75-15-0	Carbon Disulfide	BRL		ug/Kg	50
75-09-2	Methylene Chloride	BRL		ug/Kg	50
107-13-1	Acrylonitrile	BRL		ug/Kg	5
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	5
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	5
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	5
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	5
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	5
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	50
74-97-5	Bromochloromethane	BRL		ug/Kg	5
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	50
67-66-3	Chloroform	BRL		ug/Kg	5
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	5
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	5
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	5
71-43-2	Benzene	BRL		ug/Kg	5
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	5
79-01-6	Trichloroethene	BRL		ug/Kg	5
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	5
74-95-3	Dibromomethane	BRL		ug/Kg	5
75-27-4	Bromodichloromethane	BRL		ug/Kg	5,000
123-91-1	1,4-Dioxane	BRL		ug/Kg	5
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	50
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	5
108-88-3	Toluene	BRL		ug/Kg	5
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	5
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	5
127-18-4	Tetrachloroethene	BRL		ug/Kg	5
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	50
591-78-6	2-Hexanone	BRL		ug/Kg	5
124-48-1	Dibromochloromethane	BRL		ug/Kg	5
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	5
108-90-7	Chlorobenzene	BRL		ug/Kg	5
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	5
100-41-4	Ethylbenzene	BRL		ug/Kg	5
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL		ug/Kg	5
95-47-6	*ortho*-Xylene	BRL		ug/Kg	5
100-42-5	Styrene	BRL		ug/Kg	5
75-25-2	Bromoform	BRL		ug/Kg	5

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: **EPA Method 8260B**
QC Batch ID: **VM1-2864-S**
Matrix: **Soil**

Instrument ID: **MS-1 HP 5890**
Analyzed: **07-04-10 11:17**
Analyst: **LMG**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
98-82-8	Isopropylbenzene	BRL		ug/Kg	5
108-86-1	Bromobenzene	BRL		ug/Kg	5
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	5
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	5
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	50
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	5
95-49-8	2-Chlorotoluene	BRL		ug/Kg	5
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	5
106-43-4	4-Chlorotoluene	BRL		ug/Kg	5
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	5
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	5
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	5
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	5
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	5
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	5
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	5
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	5
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	5
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	5
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	5
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	5
91-20-3	Naphthalene	BRL		ug/Kg	5
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	5
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	200
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	5
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	5
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	50	48	**96** %	70 - 130 %
1,2-Dichloroethane-d_4	50	43	**85** %	70 - 130 %
Toluene-d_8	50	53	**107** %	70 - 130 %
4-Bromofluorobenzene	50	50	**100** %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample preparation performed by EPA Method 5035A.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8270C		MS-12 Agilent 6890	Instrument ID:	MS-12 Agilent 6890
QC Batch ID:	SV-2366-P	Extracted:	07-13-10 17:00	Extracted:	07-13-10 17:00
Matrix:	Soil	Analyzed:	07-15-10 15:36	Analyzed:	07-15-10 16:21
Units:	ug/Kg	Analyst:	MJB	Analyst:	MJB

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
62-75-9	N-Nitrosodimethylamine	3,300	2,000	61 %	3,300	2,100	63 %	3 %	40 - 140 %	25%
110-86-1	Pyridine	3,300	1,500	46 %	3,300	1,500	46 %	1 %	40 - 140 %	25%
108-95-2	Phenol	3,300	2,200	66 %	3,300	2,300	70 %	6 %	30 - 130 %	25%
62-53-3	Aniline	3,300	1,700	50 %	3,300	1,700	52 %	5 %	40 - 140 %	25%
111-44-4	Bis(2-chloroethyl) ether	3,300	2,200	66 %	3,300	2,300	69 %	5 %	40 - 140 %	25%
95-57-8	2-Chlorophenol	3,300	2,200	66 %	3,300	2,400	71 %	6 %	30 - 130 %	25%
541-73-1	1,3-Dichlorobenzene	3,300	2,000	61 %	3,300	2,100	64 %	5 %	40 - 140 %	25%
106-46-7	1,4-Dichlorobenzene	3,300	2,100	62 %	3,300	2,200	65 %	5 %	40 - 140 %	25%
100-51-6	Benzyl Alcohol	3,300	2,200	67 %	3,300	2,300	70 %	4 %	30 - 130 %	25%
95-50-1	1,2-Dichlorobenzene	3,300	2,100	63 %	3,300	2,200	67 %	5 %	40 - 140 %	25%
95-48-7	2-Methylphenol	3,300	2,100	62 %	3,300	2,200	67 %	7 %	30 - 130 %	25%
108-60-1	Bis(2-chloroisopropyl) ether	3,300	2,200	67 %	3,300	2,300	70 %	5 %	40 - 140 %	25%
106-44-5	4-Methylphenol	3,300	2,200	67 %	3,300	2,400	71 %	6 %	30 - 130 %	25%
621-64-7	N-Nitrosodi-n-propylamine	3,300	2,400	71 %	3,300	2,500	75 %	6 %	40 - 140 %	25%
98-86-2	Acetophenone	3,300	2,200	66 %	3,300	2,300	69 %	6 %	40 - 140 %	25%
67-72-1	Hexachloroethane	3,300	2,100	62 %	3,300	2,200	65 %	5 %	40 - 140 %	25%
98-95-3	Nitrobenzene	3,300	2,200	66 %	3,300	2,300	70 %	5 %	40 - 140 %	25%
78-59-1	Isophorone	3,300	2,300	68 %	3,300	2,400	71 %	4 %	40 - 140 %	25%
88-75-5	2-Nitrophenol	3,300	2,300	69 %	3,300	2,400	72 %	5 %	30 - 130 %	25%
105-67-9	2,4-Dimethylphenol	3,300	1,300	38 %	3,300	1,300	40 %	4 %	30 - 130 %	25%
111-91-1	Bis(2-chloroethoxy) methane	3,300	2,300	68 %	3,300	2,400	72 %	5 %	40 - 140 %	25%
120-83-2	2,4-Dichlorophenol	3,300	2,200	66 %	3,300	2,300	69 %	5 %	30 - 130 %	25%
120-82-1	1,2,4-Trichlorobenzene	3,300	2,200	65 %	3,300	2,300	69 %	5 %	40 - 140 %	25%
91-20-3	Naphthalene	3,300	2,200	67 %	3,300	2,400	71 %	5 %	40 - 140 %	25%
106-47-8	4-Chloroaniline	3,300	1,200	37 % q	3,300	1,300	39 % q	3 %	40 - 140 %	25%
87-68-3	Hexachlorobutadiene	3,300	2,100	64 %	3,300	2,300	68 %	5 %	40 - 140 %	25%
59-50-7	4-Chloro-3-methylphenol	3,300	2,400	73 %	3,300	2,500	76 %	4 %	30 - 130 %	25%
91-57-6	2-Methylnaphthalene	3,300	2,300	70 %	3,300	2,400	73 %	3 %	40 - 140 %	25%
77-47-4	Hexachlorocyclopentadiene	3,300	1,900	58 %	3,300	2,100	63 %	7 %	40 - 140 %	25%
88-06-2	2,4,6-Trichlorophenol	3,300	2,400	72 %	3,300	2,500	76 %	5 %	30 - 130 %	25%
95-95-4	2,4,5-Trichlorophenol	3,300	2,300	69 %	3,300	2,400	73 %	6 %	30 - 130 %	25%
91-58-7	2-Chloronaphthalene	3,300	2,400	73 %	3,300	2,600	77 %	5 %	40 - 140 %	25%
88-74-4	2-Nitroaniline	3,300	2,500	76 %	3,300	2,600	79 %	4 %	40 - 140 %	25%
100-25-4	1,4-Dinitrobenzene	3,300	2,600	79 %	3,300	2,800	83 %	6 %	40 - 140 %	25%
131-11-3	Dimethyl phthalate	3,300	2,600	77 %	3,300	2,700	81 %	5 %	40 - 140 %	25%
99-65-0	1,3-Dinitrobenzene	3,300	2,600	78 %	3,300	2,700	82 %	6 %	40 - 140 %	25%
208-96-8	Acenaphthylene	3,300	2,500	74 %	3,300	2,600	77 %	4 %	40 - 140 %	25%
606-20-2	2,6-Dinitrotoluene	3,300	2,600	77 %	3,300	2,700	82 %	6 %	40 - 140 %	25%
528-29-0	1,2-Dinitrobenzene	3,300	2,600	78 %	3,300	2,700	82 %	4 %	40 - 140 %	25%
99-09-2	3-Nitroaniline	3,300	1,800	55 %	3,300	1,900	57 %	4 %	40 - 140 %	25%
83-32-9	Acenaphthene	3,300	2,500	74 %	3,300	2,600	77 %	5 %	40 - 140 %	25%
51-28-5	2,4-Dinitrophenol	3,300	1,500	45 %	3,300	1,700	52 %	13 %	30 - 130 %	25%
100-02-7	4-Nitrophenol	3,300	2,500	74 %	3,300	2,600	78 %	5 %	30 - 130 %	25%
132-64-9	Dibenzofuran	3,300	2,500	74 %	3,300	2,600	78 %	5 %	40 - 140 %	25%
121-14-2	2,4-Dinitrotoluene	3,300	2,600	79 %	3,300	2,800	83 %	6 %	40 - 140 %	25%
84-66-2	Diethyl phthalate	3,300	2,600	78 %	3,300	2,700	81 %	4 %	40 - 140 %	25%
7005-72-3	4-Chlorophenyl phenyl ether	3,300	2,500	75 %	3,300	2,600	79 %	5 %	40 - 140 %	25%
86-73-7	Fluorene	3,300	2,500	76 %	3,300	2,600	79 %	3 %	40 - 140 %	25%

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

Category:	EPA Method 8270C
QC Batch ID:	SV-2366-P
Matrix:	Soil
Units:	ug/Kg

LCS	
Instrument ID:	MS-12 Agilent 6890
Extracted:	07-13-10 17:00
Analyzed:	07-15-10 15:36
Analyst:	MJB

LCSD	
Instrument ID:	MS-12 Agilent 6890
Extracted:	07-13-10 17:00
Analyzed:	07-15-10 16:21
Analyst:	MJB

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
100-01-6	4-Nitroaniline	3,300	2,000	60 %	3,300	2,100	62 %	2 %	40 - 140 %	25%
534-52-1	4,6-Dinitro-2-methylphenol	3,300	1,900	58 %	3,300	2,100	64 %	10 %	30 - 130 %	25%
86-30-6	N-Nitrosodiphenylamine †	3,300	2,500	74 %	3,300	2,500	76 %	3 %	40 - 140 %	25%
122-66-7	1,2-Diphenylhydrazine à	3,300	2,500	76 %	3,300	2,600	79 %	4 %	40 - 140 %	25%
101-55-3	4-Bromophenyl phenyl ether	3,300	2,500	76 %	3,300	2,700	80 %	4 %	40 - 140 %	25%
118-74-1	Hexachlorobenzene	3,300	2,500	76 %	3,300	2,700	80 %	5 %	40 - 140 %	25%
87-86-5	Pentachlorophenol	3,300	2,200	67 %	3,300	2,400	71 %	5 %	30 - 130 %	25%
85-01-8	Phenanthrene	3,300	2,500	76 %	3,300	2,600	79 %	3 %	40 - 140 %	25%
120-12-7	Anthracene	3,300	2,500	76 %	3,300	2,600	78 %	3 %	40 - 140 %	25%
86-74-8	Carbazole	3,300	2,700	82 %	3,300	2,700	82 %	1 %	40 - 140 %	25%
84-74-2	Di-n-butyl phthalate	3,300	2,600	77 %	3,300	2,700	80 %	4 %	40 - 140 %	25%
206-44-0	Fluoranthene	3,300	2,500	76 %	3,300	2,600	78 %	3 %	40 - 140 %	25%
129-00-0	Pyrene	3,300	2,500	75 %	3,300	2,600	78 %	4 %	40 - 140 %	25%
85-68-7	Butyl benzyl phthalate	3,300	2,500	76 %	3,300	2,700	80 %	4 %	40 - 140 %	25%
91-94-1	3,3'-Dichlorobenzidine	3,300	1,300	40 % q	3,300	1,600	47 %	18 %	40 - 140 %	25%
56-55-3	Benzo[a]anthracene	3,300	2,400	73 %	3,300	2,500	76 %	4 %	40 - 140 %	25%
218-01-9	Chrysene	3,300	2,500	75 %	3,300	2,600	78 %	4 %	40 - 140 %	25%
117-81-7	Bis(2-ethylhexyl) phthalate	3,300	2,600	77 %	3,300	2,700	80 %	5 %	40 - 140 %	25%
117-84-0	Di-n-octyl phthalate	3,300	2,800	85 %	3,300	2,900	88 %	3 %	40 - 140 %	25%
205-99-2	Benzo[b]fluoranthene	3,300	2,700	81 %	3,300	2,800	85 %	4 %	40 - 140 %	25%
207-08-9	Benzo[k]fluoranthene	3,300	2,800	83 %	3,300	2,900	86 %	3 %	40 - 140 %	25%
50-32-8	Benzo[a]pyrene	3,300	2,500	76 %	3,300	2,600	79 %	4 %	40 - 140 %	25%
193-39-5	Indeno[1,2,3-c,d]pyrene	3,300	2,700	80 %	3,300	2,800	85 %	7 %	40 - 140 %	25%
53-70-3	Dibenzo[a,h]anthracene	3,300	2,700	82 %	3,300	2,800	85 %	4 %	40 - 140 %	25%
191-24-2	Benzo[g,h,i]perylene	3,300	2,800	83 %	3,300	2,900	86 %	3 %	40 - 140 %	25%

QC Surrogate Compound	Spiked	Measured	Recovery	Spiked	Measured	Recovery		QC Limits
2-Fluorophenol	13,000	7,700	58 %	13,000	8,100	61 %		30 - 130 %
Phenol-d5	13,000	8,100	61 %	13,000	8,500	64 %		30 - 130 %
Nitrobenzene-d5	6,700	4,200	62 %	6,700	4,300	65 %		30 - 130 %
2-Fluorobiphenyl	6,700	4,400	67 %	6,700	4,600	69 %		30 - 130 %
2,4,6-Tribromophenol	13,000	9,700	73 %	13,000	10,000	77 %		30 - 130 %
Terphenyl-d14	6,700	4,300	64 %	6,700	4,400	65 %		30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545.

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

q Recovery outside recommended limits.

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: EPA Method 8270C
QC Batch ID: SV-2366-P
Matrix: Soil

Instrument ID: MS-12 Agilent 6890
Extracted: 07-13-10 17:00
Analyzed: 07-15-10 17:06
Analyst: MJB

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	330
110-86-1	Pyridine	BRL		ug/Kg	330
108-95-2	Phenol	BRL		ug/Kg	330
62-53-3	Aniline	BRL		ug/Kg	330
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	330
95-57-8	2-Chlorophenol	BRL		ug/Kg	330
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	330
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	330
100-51-6	Benzyl Alcohol	BRL		ug/Kg	330
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	330
95-48-7	2-Methylphenol	BRL		ug/Kg	330
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	330
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	330
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	330
98-86-2	Acetophenone	BRL		ug/Kg	330
67-72-1	Hexachloroethane	BRL		ug/Kg	330
98-95-3	Nitrobenzene	BRL		ug/Kg	330
78-59-1	Isophorone	BRL		ug/Kg	330
88-75-5	2-Nitrophenol	BRL		ug/Kg	330
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	330
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	330
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	330
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	330
91-20-3	Naphthalene	BRL		ug/Kg	330
106-47-8	4-Chloroaniline	BRL		ug/Kg	330
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	330
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	330
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	330
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	330
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	330
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	330
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	330
88-74-4	2-Nitroaniline	BRL		ug/Kg	330
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	330
131-11-3	Dimethyl phthalate	BRL		ug/Kg	330
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	330
208-96-8	Acenaphthylene	BRL		ug/Kg	330
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	330
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	330
99-09-2	3-Nitroaniline	BRL		ug/Kg	330
83-32-9	Acenaphthene	BRL		ug/Kg	330
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	670
100-02-7	4-Nitrophenol	BRL		ug/Kg	330
132-64-9	Dibenzofuran	BRL		ug/Kg	330
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	330
84-66-2	Diethyl phthalate	BRL		ug/Kg	330
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	330
86-73-7	Fluorene	BRL		ug/Kg	330
100-01-6	4-Nitroaniline	BRL		ug/Kg	330

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: **EPA Method 8270C**
QC Batch ID: **SV-2366-P**
Matrix: **Soil**

Instrument ID: **MS-12 Agilent 6890**
Extracted: **07-13-10 17:00**
Analyzed: **07-15-10 17:06**
Analyst: **MJB**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	670
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	330
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	330
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	330
118-74-1	Hexachlorobenzene	BRL		ug/Kg	330
87-86-5	Pentachlorophenol	BRL		ug/Kg	670
85-01-8	Phenanthrene	BRL		ug/Kg	330
120-12-7	Anthracene	BRL		ug/Kg	330
86-74-8	Carbazole	BRL		ug/Kg	330
84-74-2	Di-*n*-butyl phthalate	BRL		ug/Kg	330
206-44-0	Fluoranthene	BRL		ug/Kg	330
129-00-0	Pyrene	BRL		ug/Kg	330
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	330
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	330
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	330
218-01-9	Chrysene	BRL		ug/Kg	330
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	330
117-84-0	Di-*n*-octyl phthalate	BRL		ug/Kg	330
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	330
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	330
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	330
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	330
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	330
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	330

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	13,000	7,900	**60 %**	30 - 130 %
Phenol-d5	13,000	8,100	**61 %**	30 - 130 %
Nitrobenzene-d5	6,700	5,000	**76 %**	30 - 130 %
2-Fluorobiphenyl	6,700	4,800	**72 %**	30 - 130 %
2,4,6-Tribromophenol	13,000	8,300	**62 %**	30 - 130 %
Terphenyl-d14	6,700	4,500	**68 %**	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample extraction performed by EPA Method 3545.

Report Notations:
BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.
* Analyzed as 4-Methylphenol.
† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.
◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8270C		MS-3 HP 5890	Instrument ID:	MS-3 HP 5890
QC Batch ID:	SV-2367-P	Extracted:	07-13-10 23:00	Extracted:	07-13-10 23:00
Matrix:	Soil	Analyzed:	07-15-10 09:55	Analyzed:	07-15-10 10:37
Units:	ug/Kg	Analyst:	MJB	Analyst:	MJB

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
62-75-9	N-Nitrosodimethylamine	3,300	2,400	71 %	3,300	2,400	73 %	4 %	40 - 140 %	25%
110-86-1	Pyridine	3,300	1,700	50 %	3,300	1,800	53 %	6 %	40 - 140 %	25%
108-95-2	Phenol	3,300	3,000	89 %	3,300	3,000	89 %	0 %	30 - 130 %	25%
62-53-3	Aniline	3,300	2,300	70 %	3,300	2,500	76 %	9 %	40 - 140 %	25%
111-44-4	Bis(2-chloroethyl) ether	3,300	2,700	81 %	3,300	2,600	78 %	4 %	40 - 140 %	25%
95-57-8	2-Chlorophenol	3,300	2,800	84 %	3,300	2,800	83 %	1 %	30 - 130 %	25%
541-73-1	1,3-Dichlorobenzene	3,300	2,300	70 %	3,300	2,400	71 %	2 %	40 - 140 %	25%
106-46-7	1,4-Dichlorobenzene	3,300	2,400	71 %	3,300	2,400	73 %	3 %	40 - 140 %	25%
100-51-6	Benzyl Alcohol	3,300	3,200	96 %	3,300	3,300	99 %	3 %	30 - 130 %	25%
95-50-1	1,2-Dichlorobenzene	3,300	2,500	74 %	3,300	2,500	74 %	0 %	40 - 140 %	25%
95-48-7	2-Methylphenol	3,300	2,900	87 %	3,300	2,800	85 %	2 %	30 - 130 %	25%
108-60-1	Bis(2-chloroisopropyl) ether	3,300	2,600	79 %	3,300	2,700	80 %	1 %	40 - 140 %	25%
106-44-5	4-Methylphenol	3,300	3,000	89 %	3,300	3,000	89 %	0 %	30 - 130 %	25%
621-64-7	N-Nitrosodi-n-propylamine	3,300	2,800	84 %	3,300	2,700	82 %	2 %	40 - 140 %	25%
98-86-2	Acetophenone	3,300	2,600	77 %	3,300	2,600	77 %	1 %	40 - 140 %	25%
67-72-1	Hexachloroethane	3,300	2,400	72 %	3,300	2,400	72 %	1 %	40 - 140 %	25%
98-95-3	Nitrobenzene	3,300	2,800	84 %	3,300	2,700	82 %	3 %	40 - 140 %	25%
78-59-1	Isophorone	3,300	2,700	82 %	3,300	2,700	82 %	0 %	40 - 140 %	25%
88-75-5	2-Nitrophenol	3,300	2,700	82 %	3,300	2,700	82 %	0 %	30 - 130 %	25%
105-67-9	2,4-Dimethylphenol	3,300	2,800	85 %	3,300	2,700	81 %	4 %	30 - 130 %	25%
111-91-1	Bis(2-chloroethoxy) methane	3,300	2,800	85 %	3,300	2,800	84 %	2 %	40 - 140 %	25%
120-83-2	2,4-Dichlorophenol	3,300	2,900	87 %	3,300	2,900	88 %	0 %	30 - 130 %	25%
120-82-1	1,2,4-Trichlorobenzene	3,300	2,700	80 %	3,300	2,700	80 %	1 %	40 - 140 %	25%
91-20-3	Naphthalene	3,300	2,800	83 %	3,300	2,700	81 %	2 %	40 - 140 %	25%
106-47-8	4-Chloroaniline	3,300	2,500	75 %	3,300	2,600	77 %	3 %	40 - 140 %	25%
87-68-3	Hexachlorobutadiene	3,300	2,600	79 %	3,300	2,600	79 %	1 %	40 - 140 %	25%
59-50-7	4-Chloro-3-methylphenol	3,300	3,100	92 %	3,300	3,100	92 %	0 %	30 - 130 %	25%
91-57-6	2-Methylnaphthalene	3,300	2,800	84 %	3,300	2,800	84 %	0 %	40 - 140 %	25%
77-47-4	Hexachlorocyclopentadiene	3,300	1,700	50 %	3,300	1,600	49 %	3 %	40 - 140 %	25%
88-06-2	2,4,6-Trichlorophenol	3,300	2,900	88 %	3,300	2,900	88 %	0 %	30 - 130 %	25%
95-95-4	2,4,5-Trichlorophenol	3,300	3,000	90 %	3,300	3,000	91 %	1 %	30 - 130 %	25%
91-58-7	2-Chloronaphthalene	3,300	2,800	85 %	3,300	2,800	84 %	2 %	40 - 140 %	25%
88-74-4	2-Nitroaniline	3,300	3,000	91 %	3,300	3,000	91 %	0 %	40 - 140 %	25%
100-25-4	1,4-Dinitrobenzene	3,300	3,000	90 %	3,300	3,000	91 %	1 %	40 - 140 %	25%
131-11-3	Dimethyl phthalate	3,300	2,900	87 %	3,300	2,900	88 %	1 %	40 - 140 %	25%
99-65-0	1,3-Dinitrobenzene	3,300	3,000	90 %	3,300	3,000	90 %	0 %	40 - 140 %	25%
208-96-8	Acenaphthylene	3,300	2,900	87 %	3,300	2,800	85 %	1 %	40 - 140 %	25%
606-20-2	2,6-Dinitrotoluene	3,300	2,900	88 %	3,300	2,900	88 %	1 %	40 - 140 %	25%
528-29-0	1,2-Dinitrobenzene	3,300	2,900	88 %	3,300	2,900	88 %	1 %	40 - 140 %	25%
99-09-2	3-Nitroaniline	3,300	2,700	82 %	3,300	2,700	81 %	2 %	40 - 140 %	25%
83-32-9	Acenaphthene	3,300	2,800	85 %	3,300	2,800	85 %	0 %	40 - 140 %	25%
51-28-5	2,4-Dinitrophenol	3,300	1,300	38 %	3,300	880	26 % q	37 % q	30 - 130 %	25%
100-02-7	4-Nitrophenol	3,300	3,100	93 %	3,300	3,000	91 %	2 %	30 - 130 %	25%
132-64-9	Dibenzofuran	3,300	2,900	86 %	3,300	2,900	87 %	1 %	40 - 140 %	25%
121-14-2	2,4-Dinitrotoluene	3,300	3,000	90 %	3,300	3,000	91 %	1 %	40 - 140 %	25%
84-66-2	Diethyl phthalate	3,300	2,900	88 %	3,300	3,000	90 %	2 %	40 - 140 %	25%
7005-72-3	4-Chlorophenyl phenyl ether	3,300	2,900	88 %	3,300	2,900	88 %	1 %	40 - 140 %	25%
86-73-7	Fluorene	3,300	2,900	88 %	3,300	2,900	88 %	0 %	40 - 140 %	25%

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

Category:	EPA Method 8270C
QC Batch ID:	SV-2367-P
Matrix:	Soil
Units:	ug/Kg

LCS	
Instrument ID:	MS-3 HP 5890
Extracted:	07-13-10 23:00
Analyzed:	07-15-10 09:55
Analyst:	MJB

LCSD	
Instrument ID:	MS-3 HP 5890
Extracted:	07-13-10 23:00
Analyzed:	07-15-10 10:37
Analyst:	MJB

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
100-01-6	4-Nitroaniline	3,300	2,900	86 %	3,300	2,900	86 %	0 %	40 - 140 %	25%
534-52-1	4,6-Dinitro-2-methylphenol	3,300	2,100	63 %	3,300	1,500	46 %	33 % q	30 - 130 %	25%
86-30-6	N-Nitrosodiphenylamine †	3,300	2,900	87 %	3,300	3,000	89 %	2 %	40 - 140 %	25%
122-66-7	1,2-Diphenylhydrazine à	3,300	2,900	88 %	3,300	3,000	90 %	3 %	40 - 140 %	25%
101-55-3	4-Bromophenyl phenyl ether	3,300	2,800	85 %	3,300	3,000	89 %	4 %	40 - 140 %	25%
118-74-1	Hexachlorobenzene	3,300	2,800	85 %	3,300	3,000	90 %	6 %	40 - 140 %	25%
87-86-5	Pentachlorophenol	3,300	2,600	79 %	3,300	2,600	77 %	3 %	30 - 130 %	25%
85-01-8	Phenanthrene	3,300	2,900	87 %	3,300	3,000	89 %	3 %	40 - 140 %	25%
120-12-7	Anthracene	3,300	2,900	88 %	3,300	3,000	90 %	3 %	40 - 140 %	25%
86-74-8	Carbazole	3,300	2,900	87 %	3,300	3,000	89 %	3 %	40 - 140 %	25%
84-74-2	Di-*n*-butyl phthalate	3,300	3,000	90 %	3,300	3,000	91 %	1 %	40 - 140 %	25%
206-44-0	Fluoranthene	3,300	2,900	87 %	3,300	3,000	90 %	4 %	40 - 140 %	25%
129-00-0	Pyrene	3,300	3,100	92 %	3,300	3,000	91 %	2 %	40 - 140 %	25%
85-68-7	Butyl benzyl phthalate	3,300	3,100	92 %	3,300	3,000	90 %	2 %	40 - 140 %	25%
91-94-1	3,3'-Dichlorobenzidine	3,300	2,600	79 %	3,300	2,500	76 %	4 %	40 - 140 %	25%
56-55-3	Benzo[a]anthracene	3,300	2,900	88 %	3,300	2,900	87 %	1 %	40 - 140 %	25%
218-01-9	Chrysene	3,300	3,000	89 %	3,300	3,000	89 %	0 %	40 - 140 %	25%
117-81-7	Bis(2-ethylhexyl) phthalate	3,300	3,100	93 %	3,300	3,100	93 %	1 %	40 - 140 %	25%
117-84-0	Di-*n*-octyl phthalate	3,300	3,100	94 %	3,300	3,100	94 %	0 %	40 - 140 %	25%
205-99-2	Benzo[b]fluoranthene	3,300	2,900	87 %	3,300	2,900	86 %	1 %	40 - 140 %	25%
207-08-9	Benzo[k]fluoranthene	3,300	3,000	91 %	3,300	3,000	90 %	2 %	40 - 140 %	25%
50-32-8	Benzo[a]pyrene	3,300	2,900	88 %	3,300	2,900	87 %	1 %	40 - 140 %	25%
193-39-5	Indeno[1,2,3-c,d]pyrene	3,300	3,000	90 %	3,300	3,000	89 %	1 %	40 - 140 %	25%
53-70-3	Dibenzo[a,h]anthracene	3,300	2,900	88 %	3,300	2,900	87 %	1 %	40 - 140 %	25%
191-24-2	Benzo[g,h,i]perylene	3,300	2,800	84 %	3,300	2,800	83 %	1 %	40 - 140 %	25%

QC Surrogate Compound	Spiked	Measured	Recovery	Spiked	Measured	Recovery		QC Limits
2-Fluorophenol	13,000	10,000	75 %	13,000	9,800	74 %		30 - 130 %
Phenol-d5	13,000	11,000	82 %	13,000	11,000	81 %		30 - 130 %
Nitrobenzene-d5	6,700	5,700	85 %	6,700	5,300	79 %		30 - 130 %
2-Fluorobiphenyl	6,700	5,400	81 %	6,700	5,300	79 %		30 - 130 %
2,4,6-Tribromophenol	13,000	11,000	80 %	13,000	11,000	81 %		30 - 130 %
Terphenyl-d14	6,700	5,100	77 %	6,700	5,100	76 %		30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545.

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

q Recovery outside recommended limits.

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: EPA Method 8270C
QC Batch ID: SV-2367-P
Matrix: Soil

Instrument ID: MS-3 HP 5890
Extracted: 07-13-10 23:00
Analyzed: 07-15-10 13:24
Analyst: MJB

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	330
110-86-1	Pyridine	BRL		ug/Kg	330
108-95-2	Phenol	BRL		ug/Kg	330
62-53-3	Aniline	BRL		ug/Kg	330
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	330
95-57-8	2-Chlorophenol	BRL		ug/Kg	330
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	330
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	330
100-51-6	Benzyl Alcohol	BRL		ug/Kg	330
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	330
95-48-7	2-Methylphenol	BRL		ug/Kg	330
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	330
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	330
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	330
98-86-2	Acetophenone	BRL		ug/Kg	330
67-72-1	Hexachloroethane	BRL		ug/Kg	330
98-95-3	Nitrobenzene	BRL		ug/Kg	330
78-59-1	Isophorone	BRL		ug/Kg	330
88-75-5	2-Nitrophenol	BRL		ug/Kg	330
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	330
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	330
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	330
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	330
91-20-3	Naphthalene	BRL		ug/Kg	330
106-47-8	4-Chloroaniline	BRL		ug/Kg	330
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	330
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	330
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	330
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	670
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	330
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	330
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	330
88-74-4	2-Nitroaniline	BRL		ug/Kg	330
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	330
131-11-3	Dimethyl phthalate	BRL		ug/Kg	330
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	330
208-96-8	Acenaphthylene	BRL		ug/Kg	330
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	330
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	330
99-09-2	3-Nitroaniline	BRL		ug/Kg	330
83-32-9	Acenaphthene	BRL		ug/Kg	670
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	330
100-02-7	4-Nitrophenol	BRL		ug/Kg	330
132-64-9	Dibenzofuran	BRL		ug/Kg	330
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	330
84-66-2	Diethyl phthalate	BRL		ug/Kg	330
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	330
86-73-7	Fluorene	BRL		ug/Kg	330
100-01-6	4-Nitroaniline				

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: EPA Method 8270C
QC Batch ID: SV-2367-P
Matrix: Soil

Instrument ID: MS-3 HP 5890
Extracted: 07-13-10 23:00
Analyzed: 07-15-10 13:24
Analyst: MJB

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	330
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	330
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	330
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	330
118-74-1	Hexachlorobenzene	BRL		ug/Kg	330
87-86-5	Pentachlorophenol	BRL		ug/Kg	670
85-01-8	Phenanthrene	BRL		ug/Kg	330
120-12-7	Anthracene	BRL		ug/Kg	330
86-74-8	Carbazole	BRL		ug/Kg	330
84-74-2	Di-*n*-butyl phthalate	BRL		ug/Kg	330
206-44-0	Fluoranthene	BRL		ug/Kg	330
129-00-0	Pyrene	BRL		ug/Kg	330
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	330
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	330
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	330
218-01-9	Chrysene	BRL		ug/Kg	330
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	330
117-84-0	Di-*n*-octyl phthalate	BRL		ug/Kg	330
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	330
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	330
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	330
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	330
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	330
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	330

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	13,000	10,000	78 %	30 - 130 %
Phenol-d5	13,000	11,000	85 %	30 - 130 %
Nitrobenzene-d5	6,700	5,800	87 %	30 - 130 %
2-Fluorobiphenyl	6,700	5,700	86 %	30 - 130 %
2,4,6-Tribromophenol	13,000	10,000	78 %	30 - 130 %
Terphenyl-d14	6,700	5,600	85 %	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample extraction performed by EPA Method 3545.

Report Notations:
BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.
* Analyzed as 4-Methylphenol.
† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.
◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

Certifications and Approvals

Groundwater Analytical maintains environmental laboratory certification in a variety of states.
Copies of our current certificates may be obtained from our website:

http://www.groundwateranalytical.com/qualifications.htm

CONNECTICUT

Department of Health Services, PH-0586 — Potable Water, Wastewater, Solid Waste and Soil
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/Out_State.pdf

MASSACHUSETTS

Department of Environmental Protection, M-MA-103 — Potable Water and Non-Potable Water
http://public.dep.state.ma.us/labcert/labcert.aspx

Department of Labor,
Division of Occupational Safety, AA000195 — Asbestos Analytical Services, Class A
http://www.mass.gov/dos/forms/la-rpt_list_aa.pdf

NEW HAMPSHIRE

Department of Environmental Services, 202708 — Potable Water, Non-Potable Water, Solid and Chemical Materials
http://www4.egov.nh.gov/DES/NHELAP

NEW YORK

Department of Health, 11754 — Potable Water, Non-Potable Water, Solid and Hazardous Waste
http://www.wadsworth.org/labcert/elap/comm.html

RHODE ISLAND

Department of Health,
Division of Laboratories, LAO00054 — Potable and Non-Potable Water Microbiology, Organic and Inorganic Chemistry
http://www.health.ri.gov/labs/outofstatelabs.pdf

U.S. DEPARTMENT OF AGRICULTURE

USDA, Soil Permit, S-53921 — Foreign soil import permit

VERMONT

Department of Health, VT-87643 — Potable Water
http://healthvermont.gov/enviro/ph_lab/water_test.aspx#cert

GROUNDWATER ANALYTICAL

Certifications and Approvals

MASSACHUSETTS — Department of Environmental Protection, M-MA-103

Groundwater Analytical maintains MassDEP environmental laboratory certification for only the methods and analytes listed below. Analyses for certified analytes are conducted in accordance with MassDEP certification standards, except as may be specifically noted in the project narrative.

Potable Water (Drinking Water) Analyte	Method
1,2-Dibromo-3-Chloropropane	EPA 504.1
1,2-Dibromoethane	EPA 504.1
Alkalinity, Total	SM 2320-B
Antimony	EPA 200.8
Arsenic	EPA 200.8
Barium	EPA 200.7
Barium	EPA 200.8
Beryllium	EPA 200.7
Beryllium	EPA 200.8
Cadmium	EPA 200.7
Cadmium	EPA 200.8
Calcium	EPA 200.7
Chlorine, Residual Free	SM 4500-CL-G
Chromium	EPA 200.7
Cyanide, Total	Lachat 10-204-00-1-A
E. Coli (Treatment and Distribution)	Enz. Sub. SM 9223
E. Coli (Treatment and Distribution)	NA-MUG SM 9222-G
Fecal Coliform (Source Water)	MF SM 9222-D
Fluoride	EPA 300.0
Fluoride	SM 4500-F-C
Heterotrophic Plate Count	SM 9215-B
Lead	EPA 200.8
Mercury	EPA 245.1
Nickel	EPA 200.7
Nickel	EPA 200.8
Nitrate-N	EPA 300.0
Nitrate-N	Lachat 10-107-04-1-C
Nitrite-N	EPA 300.0
Nitrite-N	Lachat 10-107-04-1-C
pH	SM 4500-H-B
Selenium	EPA 200.8
Silver	EPA 200.7
Silver	EPA 200.8
Sodium	EPA 200.7
Sulfate	EPA 300.0
Thallium	EPA 200.8
Total Coliform (Treatment and Distribution)	Enz. Sub. SM 9223
Total Coliform (Treatment and Distribution)	MF SM 9222-B
Total Dissolved Solids	SM 2540-C
Trihalomethanes	EPA 524.2
Turbidity	SM 2130-B
Volatile Organic Compounds	EPA 524.2

Non-Potable Water (Wastewater) Analyte	Method
Aldrin	EPA 608
Alkalinity, Total	SM 2320-B
Alpha-BHC	EPA 608
Aluminum	EPA 200.7
Aluminum	EPA 200.8
Ammonia-N	Lachat 10-107-06-1-B
Antimony	EPA 200.7
Antimony	EPA 200.8
Arsenic	EPA 200.7
Arsenic	EPA 200.8
Beryllium	EPA 200.7
Beryllium	EPA 200.8
Beta-BHC	EPA 608
Biochemical Oxygen Demand	SM 5210-B
Cadmium	EPA 200.7
Cadmium	EPA 200.8
Calcium	EPA 200.7
Chemical Oxygen Demand	SM 5220-D
Chlordane	EPA 608
Chloride	EPA 300.0
Chlorine, Total Residual	SM 4500-CL-G
Chromium	EPA 200.7
Chromium	EPA 200.8
Cobalt	EPA 200.7
Cobalt	EPA 200.8
Copper	EPA 200.7
Copper	EPA 200.8
Cyanide, Total	Lachat 10-204-00-1-A
DDD	EPA 608
DDE	EPA 608
DDT	EPA 608
Delta-BHC	EPA 608
Dieldrin	EPA 608
Endosulfan I	EPA 608
Endosulfan II	EPA 608
Endosulfan Sulfate	EPA 608
Endrin	EPA 608
Endrin Aldehyde	EPA 608
Fluoride	EPA 300.0
Gamma-BHC	EPA 608
Hardness (CaCO3), Total	EPA 200.7
Hardness (CaCO3), Total	SM 2340-B
Heptachlor	EPA 608
Heptachlor Epoxide	EPA 608
Iron	EPA 200.7
Kjeldahl-N	Lachat 10-107-06-02-D
Lead	EPA 200.7
Magnesium	EPA 200.7
Manganese	EPA 200.7
Manganese	EPA 200.8
Mercury	EPA 245.1
Molybdenum	EPA 200.7
Molybdenum	EPA 200.8
Nickel	EPA 200.7
Nickel	EPA 200.8
Nitrate-N	EPA 300.0
Nitrate-N	Lachat 10-107-04-1-C
Non-Filterable Residue	SM 2540-D
Oil and Grease	EPA 1664

GROUNDWATER ANALYTICAL

Certifications and Approvals

MASSACHUSETTS — **Department of Environmental Protection, M-MA-103**

Groundwater Analytical maintains MassDEP environmental laboratory certification for only the methods and analytes listed below. Analyses for certified analytes are conducted in accordance with MassDEP certification standards, except as may be specifically noted in the project narrative.

Non-Potable Water (Wastewater) Analyte	Method
Orthophosphate	Lachat 10-115-01-1-A
pH	SM 4500-H-B
Phenolics, Total	EPA 420.4
Phenolics, Total	Lachat 10-210-00-1-B
Phosphorus, Total	Lachat 10-115-01-1-C
Phosphorus, Total	SM 4500-P-B,E
Polychlorinated Biphenyls (Oil)	EPA 600/4-81-045
Polychlorinated Biphenyls (Water)	EPA 608
Potassium	EPA 200.7
Selenium	EPA 200.7
Selenium	EPA 200.8
Silver	EPA 200.7
Sodium	EPA 200.7
Specific Conductivity	SM 2510-B
Strontium	EPA 200.7
Sulfate	EPA 300.0
SVOC-Acid Extractables	EPA 625
SVOC-Base/Neutral Extractables	EPA 625
Thallium	EPA 200.7
Thallium	EPA 200.8
Titanium	EPA 200.7
Total Dissolved Solids	SM 2540-C
Total Organic Carbon	SM 5310-B
Toxaphene	EPA 608
Vanadium	EPA 200.7
Vanadium	EPA 200.8
Volatile Aromatics	EPA 602
Volatile Aromatics	EPA 624
Volatile Halocarbons	EPA 624
Zinc	EPA 200.7
Zinc	EPA 200.8

* Pre-Classification *
& 4K UST Excav.
(08/10)

GROUNDWATER ANALYTICAL

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Buzzards Bay, MA 02532

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August 6, 2010

Ms. Jennifer Hadden
AECOM Environment
2 Technology Park Drive
Westford, MA 01886

LABORATORY REPORT

Project: **Gulf New Hyde Park/60158261**
Lab ID: **135294**
Received: **08-05-10**

Dear Jennifer:

Enclosed are the analytical results for the above referenced project. The project was processed for Rush 24 Hour turnaround.

This letter authorizes the release of the analytical results, and should be considered a part of this report. This report contains a sample receipt report detailing the samples received, a project narrative indicating project changes and non-conformances, a quality control report, and a statement of our state certifications.

The analytical results contained in this report meet all applicable NELAC or NVLAP standards, except as may be specifically noted, or described in the project narrative. The analytical results relate only to the samples received. This report may only be used or reproduced in its entirety.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Should you have any questions concerning this report, please do not hesitate to contact me.

Sincerely,

Eric H. Jensen
Operations Manager

EHJ/elm
Enclosures

GROUNDWATER ANALYTICAL

Sample Receipt Report

Project: **Gulf New Hyde Park/60158261**
Client: **AECOM Environment**
Lab ID: **135294**

Delivery: **FEDEX**
Airbill: **871741833718**
Lab Receipt: **08-05-10**

Temperature: **4.7°C**
Chain of Custody: **Present**
Custody Seal(s): **n/a**

Lab ID	Field ID		Matrix	Sampled	Method				Notes
135294-1	CS_BT2		Soil	8/4/10 12:00	EPA 8260B Volatile Organics with Oxygenates				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1280893	40 mL VOA Vial	Scientific	BX37079	n/a	R-6223C	07-16-10	n/a		
C1280887	40 mL VOA Vial	Scientific	BX37079	n/a	R-6223C	07-16-10	n/a		
C1276050	40 mL VOA Vial	Scientific	BX36954	Methanol	R-6137B	06-30-10	n/a		
C1275235	40 mL VOA Vial	Scientific	BX36963	n/a	R-6223C	07-16-10	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
135294-2	CS_BT2		Soil	8/4/10 12:00	EPA 6010B As Ba Cd Cu Ni Pb Sb Tl Zn EPA 8082 PCBs EPA 8270C Semivolatile Organics TPH by GC EPA 8015B Mod EPA 9095A Free Liquids				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1263805	250 mL Amber Glass	Scientific	BX36420	None	n/a	n/a	n/a		
C1231112	250 mL Amber Glass	Scientific	BX35902	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
135294-3	CS_BT2		Soil	8/4/10 12:00	EPA 6010B/7470A TCLP 8 RCRA Metals				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1281893	250 mL Amber Glass	n/a	n/a	None	n/a	n/a	n/a		

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	CS_BT2	Matrix:	Soil
Project:	Gulf New Hyde Park/60158261	Container:	40 mL VOA Vial
Client:	AECOM Environment	Preservation:	Methanol/ Cool
Laboratory ID:	135294-1	QC Batch ID:	VM1-2887-E
Sampled:	08-04-10 12:00	Instrument ID:	MS-1 HP 5890
Received:	08-05-10 16:25	Sample Weight:	16 g
Analyzed:	08-06-10 11:03	Final Volume:	15 mL
Analyst:	LMG	% Solids:	94
		Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	500
74-87-3	Chloromethane	BRL		ug/Kg	500
75-01-4	Vinyl Chloride	BRL		ug/Kg	500
74-83-9	Bromomethane	BRL		ug/Kg	500
75-00-3	Chloroethane	BRL		ug/Kg	500
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	500
60-29-7	Diethyl Ether	BRL		ug/Kg	500
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	250
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	2,500
67-64-1	Acetone	BRL		ug/Kg	2,500
75-15-0	Carbon Disulfide	BRL		ug/Kg	2,500
75-09-2	Methylene Chloride	BRL		ug/Kg	1,000
107-13-1	Acrylonitrile	BRL		ug/Kg	250
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	250
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	250
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	250
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	250
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	250
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	2,500
74-97-5	Bromochloromethane	BRL		ug/Kg	250
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	2,500
67-66-3	Chloroform	BRL		ug/Kg	250
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	250
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	250
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	250
71-43-2	Benzene	BRL		ug/Kg	250
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	250
79-01-6	Trichloroethene	BRL		ug/Kg	250
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	250
74-95-3	Dibromomethane	BRL		ug/Kg	250
75-27-4	Bromodichloromethane	BRL		ug/Kg	250,000
123-91-1	1,4-Dioxane	BRL		ug/Kg	250
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	2,500
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	250
108-88-3	Toluene	BRL		ug/Kg	250
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	250
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	250
127-18-4	Tetrachloroethene	BRL		ug/Kg	250
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	2,500
591-78-6	2-Hexanone	BRL		ug/Kg	250
124-48-1	Dibromochloromethane	BRL		ug/Kg	250
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	250
108-90-7	Chlorobenzene	BRL		ug/Kg	250
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	250
100-41-4	Ethylbenzene	BRL		ug/Kg	250
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	1,400		ug/Kg	250

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	CS_BT2	Matrix:	Soil
Project:	Gulf New Hyde Park/60158261	Container:	40 mL VOA Vial
Client:	AECOM Environment	Preservation:	Methanol/ Cool
Laboratory ID:	135294-1	QC Batch ID:	VM1-2887-E
Sampled:	08-04-10 12:00	Instrument ID:	MS-1 HP 5890
Received:	08-05-10 16:25	Sample Weight:	16 g
Analyzed:	08-06-10 11:03	Final Volume:	15 mL
Analyst:	LMG	% Solids:	94
		Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
95-47-6	*ortho*-Xylene	980		ug/Kg	250
100-42-5	Styrene	BRL		ug/Kg	250
75-25-2	Bromoform	BRL		ug/Kg	250
98-82-8	Isopropylbenzene	BRL		ug/Kg	250
108-86-1	Bromobenzene	BRL		ug/Kg	250
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	250
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	250
110-57-6	trans-1,4-Dichloro-2-butene	BRL		ug/Kg	2,500
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	250
95-49-8	2-Chlorotoluene	BRL		ug/Kg	250
108-67-8	1,3,5-Trimethylbenzene	2,600		ug/Kg	250
106-43-4	4-Chlorotoluene	BRL		ug/Kg	250
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	250
95-63-6	1,2,4-Trimethylbenzene	6,300		ug/Kg	250
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	250
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	250
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	250
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	250
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	250
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	250
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	250
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	250
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	250
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	250
91-20-3	Naphthalene	1,100		ug/Kg	250
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	250
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	10,000
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	250
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	250
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	250

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	2,500	2,500	98 %	70 - 130 %
1,2-Dichloroethane-d_4	2,500	2,300	92 %	70 - 130 %
Toluene-d_8	2,500	2,800	113 %	70 - 130 %
4-Bromofluorobenzene	2,500	2,800	113 %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample preparation performed by EPA Method 5035A and EPA Method 5030B. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

EPA Method 8015B (Modified)
Total Petroleum Hydrocarbons by GC/FID

Field ID:	CS_BT2	Matrix:	Soil
Project:	Gulf New Hyde Park/60158261	Container:	250 mL Amber Glass
Client:	AECOM Environment	Preservation:	Cool
Laboratory ID:	135294-2	QC Batch ID:	HF-3113-M
Sampled:	08-04-10 12:00	Instrument ID:	GC4 HP 5890
Received:	08-05-10 16:25	Sample Weight:	15 g
Extracted:	08-05-10 23:30	Final Volume:	1 mL
Analyzed:	08-06-10 11:12	Dilution Factor:	1
Analyst:	MB	% Solids:	94

Analyte	Concentration	Notes	Units	Reporting Limit
Total Petroleum Hydrocarbons	100		mg/Kg	62

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
ortho-Terphenyl	2.8	2.1	77 %	30 - 140 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Method modified to quantify total petroleum hydrocarbons in the range n-C 9 through n-C 36. Results are quantified on the basis of a series of aromatic and aliphatic hydrocarbons, using 5-alpha-androstane as an internal standard. Sample extraction performed by EPA Method 3546. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

Inorganic Chemistry

Field ID: **CS_BT2**
Project: **Gulf New Hyde Park/60158261**
Client: **AECOM Environment**

Matrix: **Soil**
Received: **08-05-10 16:25**

Lab ID: **135294-02** Sampled: **08-04-10 12:00** % Solids: **94** Container: **250 mL Amber Glass** Preservation: **Cool**

Analyte	Result	Units	RL	DF	Weight	Analyzed	QC Batch	Method	Inst	Analyst
Free Liquids	**Absent**	NA	NA	1	100 g	08-06-10 14:00	FL-0914-S	EPA 9095A	n/a	JK

Method Reference: Methods for Chemical Analysis of Water and Wastes, US EPA, EPA-600/4-790-020 (Revised 1983), and Methods for the Determination of Inorganic Substances in Environmental Samples, US EPA, EPA/600/R-93/100 (1993), and Standard Methods for the Examination of Water and Wastewater, APHA, Twentieth Edition (1998), and Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Results are reported on a dry weight basis.

Report Notations:
BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.
RL Reporting Limit.
DF Dilution Factor.

GROUNDWATER ANALYTICAL

Trace Metals

Field ID:	CS_BT2	Matrix:	Soil
Project:	Gulf New Hyde Park/60158261	Container:	250 mL Amber Glass
Client:	AECOM Environment	Preservation:	Cool
Laboratory ID:	135294-2	Percent Solids:	94
Sampled:	08-04-10 12:00		
Received:	08-05-10 16:25		

Analysis Method	QC Batch ID	Prep Method	Prepared	Sample Weight	Instrument ID	Analyst
EPA 6010B[1]	MB-01882-S	EPA 3050B	08-06-10 00:00	0.502 g	ICP-1 PE 3000	LMS
EPA 7471A[2]	MP-2579-S	EPA 7471A	08-06-10 00:00	0.6 g	CVAA-1 PE FIMS	MP

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit	DF	Analyzed	Method
7440-36-0	Antimony, Total	BRL		mg/Kg	1.1	1	08-06-10 14:16	EPA 6010B[1]
7440-38-2	Arsenic, Total	BRL		mg/Kg	3.2	1	08-06-10 14:16	EPA 6010B[1]
7440-39-3	Barium, Total	BRL		mg/Kg	5.3	1	08-06-10 14:16	EPA 6010B[1]
7440-43-9	Cadmium, Total	BRL		mg/Kg	0.53	1	08-06-10 14:16	EPA 6010B[1]
7440-50-8	Copper, Total	BRL		mg/Kg	21	1	08-06-10 14:16	EPA 6010B[1]
7439-92-1	Lead, Total	BRL		mg/Kg	5.3	1	08-06-10 14:16	EPA 6010B[1]
7440-02-0	Nickel, Total	BRL		mg/Kg	5.3	1	08-06-10 14:16	EPA 6010B[1]
7440-28-0	Thallium, Total	BRL		mg/Kg	5.3	1	08-06-10 14:16	EPA 6010B[1]
7440-66-6	Zinc, Total	22		mg/Kg	5.3	1	08-06-10 14:16	EPA 6010B[1]

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

DF Dilution Factor.

GROUNDWATER ANALYTICAL

Toxicity Characteristic Leaching Procedure (TCLP)
Trace Metals

Field ID: **CS_BT2**
Project: **Gulf New Hyde Park/60158261**
Client: **AECOM Environment**

Laboratory ID: **135294-3**
Sampled: **08-04-10 12:00**
Received: **08-05-10 16:25**

Matrix: **TCLP Leachate**
Container: **250 mL Amber Glass**
Preservation: **Cool**

Date Leached: **08-05-10 17:00**
TCLP Fluid: **1**

Analysis Method	QC Batch ID	Prep Method	Prepared	Sample Volume	Instrument ID	Analyst
EPA 6010B[1]	MB-4151-W	EPA 3010A	08-06-10 00:00	50 mL	ICP-1 ICP-1 PE Optima 3000	LMS
EPA 7470A[2]	MP-2311-W	EPA 7470A	08-06-10 00:00	25 mL	CVAA-1 PE FIMS	LMS

CAS Number	Analyte	Concentration	Notes	Units	RCRA Limit	Reporting Limit	DF	Analyzed	Method
7440-38-2	Arsenic	BRL		mg/L	5.0	0.3	10	08-06-10 13:48	EPA 6010B[1]
7440-39-3	Barium	BRL		mg/L	100	2	10	08-06-10 13:48	EPA 6010B[1]
7440-43-9	Cadmium	BRL		mg/L	1.0	0.05	10	08-06-10 13:48	EPA 6010B[1]
7440-47-3	Chromium	BRL		mg/L	5.0	0.1	10	08-06-10 13:47	EPA 6010B[1]
7439-92-1	Lead	BRL		mg/L	5.0	0.3	10	08-06-10 13:48	EPA 6010B[1]
7439-97-6	Mercury	BRL		mg/L	0.2	0.0002	1	08-06-10 15:00	EPA 7470A[2]
7782-49-2	Selenium	BRL		mg/L	1.0	0.3	10	08-06-10 13:48	EPA 6010B[1]
7440-22-4	Silver	BRL		mg/L	5.0	0.1	10	08-06-10 13:47	EPA 6010B[1]

Method Reference: Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Revised (1983), and Methods for the Determination of Metals in Environmental Samples, Supplement I, EPA-600/R-94-111, (1994), and 40 C.F.R. 136, Appendix C (1990).
Sample leached in accordance with EPA Method 1311 prior to determinative analysis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

RCRA Limit indicates maximum concentration of contaminant under the TCLP Rule, as specified at 40 C.F.R. 261.24, Table 1.

DF Dilution Factor.

GROUNDWATER ANALYTICAL

Project Narrative

Project: **Gulf New Hyde Park/60158261**
Client: **AECOM Environment**

Lab ID: **135294**
Received: **08-05-10 16:25**

A. Documentation and Client Communication

The following documentation discrepancies, and client changes or amendments were noted for this project:

1. No documentation discrepancies, changes, or amendments were noted.

B. Method Modifications, Non-Conformances and Observations

The sample(s) in this project were analyzed by the references analytical method(s), and no method modifications, non-conformances or analytical issues were noted, except as indicated below:

1. No method modifications, non-conformances or analytical issues were noted.

GROUNDWATER ANALYTICAL

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Buzzards Bay, MA 02532
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CHAIN-OF-CUSTODY RECORD AND WORK ORDER

Project Name: Gulf New Hyde Park
Project Number: 60158261
Sampler Name: Julia Chamber
Project Manager: Jennifer Hadden

Firm: AECOM
Address: 2 Technology Park Drive
City / State / Zip:: Westford MA, 01886
Telephone: 978-589-3000

TURNAROUND

- ☐ 10 Business Days
- ☐ 5 Business Days
- ☒ RUSH (RAN- 203) (Rush requires Rush Authorization Number)
- ☐ Please Email to: _____
- ☐ Please FAX to: _____

BILLING

- ☐ Purchase Order No.: _____
- ☐ Third Party Billing: _____
- ☐ GWA Quote: _____

ANALYSIS REQUEST

OPTIONS: VOCs (☐ TCL Exterm); Semivolatiles (☐ Acid Only ☐ Base/Neu ☐ TIC Exterm); Pest/Herb/PCBs Extractable (☐ Vol.)
SDWA: ☐ 524.2; ☐ 502.2; ☐ 551.1; ☐ 552.2; ☐ 504.1 (EDB/DBCP)
NPDES: ☐ 624; ☐ 624-Methods; ☐ 625; ☐ 625-Methods; ☐ 608 Pesticides; ☐ 608 PCBs; ☐ 1631
RCRA/TCLP: ☐ 8260B TCL Metals; ☐ 8260B Aromatics; ☐ 8260B Halocarbons; ☐ 8270 TCL Base/neut.; ☐ 8260B; ☐ 8270C (BNA's only); ☐ 8081 Pesticides; ☐ 8082 PCBs; ☐ 8151 Herbicides; ☐ 8015 GRO/DRO
Metals: ☐ Specify for Water Samples; ☐ Irish; ☐ Dissolved; ☐ Leachate/Digests; ☐ 13 Priority Pollutant; ☐ 8 RCRA; ☐ 14 MassDEP Metals; ☐ 23 TAL; Speciation: As (III) / As (V); Sb (III) / Sb (V); Cr (III) / Cr (VI); Fe (II) / Fe (III)
Petroleum Hydrocarbon: Ext. TPH; Vol. TPH; ☐ Diesel Range Organics (DRO); ☐ TPH; ☐ MADEP EPH Analytes; ☐ EPH Carbon Ranges only; ☐ Priority Pollutants; ☐ EPH Carbon Fractions (Targeted); ☐ EPH Carbon Ranges (DRO); ☐ MADEP VPH; ☐ VPH Carbon Ranges only; ☐ TAL (Target Analyte List); ☐ TCL (Target Compound List); ☐ MCP 14 Priority Pollutant Metals; ☐ Gasoline Range Organics (GRO); ☐ MTBE; ☐ VPH (Carbon Ranges and Target Analytes); ☐ TPH by GC/FID (8015 Mod Quantitative Only); ☐ TPH by GC/FID (8015 Mod Screening); ☐ MADEP VPH (5030 Hybrid); ☐ TCL PCB's; ☐ EPH; ☐ Metals; ☐ Phenols; ☐ TCLP Leach; ☐ TCLP Zero VOA; ☐ Pesticides; ☐ Herbicides; ☐ Corrosivity (pH); ☐ Reactivity; ☐ Ignitability; ☐ Paint Filter; ☐ Conductivity; ☐ Percent Water; ☐ TAL Base/Neutrals (8260B/8270C); ☐ TAL Pesticides/Chlorinated Herbicides (8081A/8151A); ☐ TAL PCBs (as Aroclors) (8082); ☐ TAL (Extended) Organics (8260B, 8270C, TPH, PCBs, 8151A Herbicides, Corrosivity, Ignitability, Reactivity)
Raz. Waste: ☐ Nitrate; ☐ Nitrite; ☐ Chlorine; ☐ Fluoride; ☐ Sulfate; ☐ Dissolved Phosphate; ☐ Ammonia; ☐ TKN; ☐ Total Phosphorus; ☐ Total N (as NO3/NO2/TKN); ☐ COD; ☐ BOD; ☐ Sulfide; ☐ Alkalinity; ☐ TOC; ☐ TSS; ☐ VSS; ☐ Physiologically Available Cyanide; ☐ Reactive Cyanide; ☐ Total Cyanide; ☐ Physiologically Available Sulfide; ☐ Reactive Sulfide; ☐ pH; ☐ Dissolved Oxygen; ☐ Total Coliform; ☐ HPC; ☐ Total Residual Chlorine; ☐ Turbidity; ☐ 8310 PAH; ☐ Radioactive Sr; ☐ Asbestos (PLM); ☒ Perc Rate (Method 9040)
General Chemistry: ☐ Other
Other: ☐ Other

SAMPLING

DATE	TIME	SAMPLE IDENTIFICATION	LABORATORY NUMBER (Lab Use Only)
3/5/10	11:00	CS-BT2	

Matrix: ☒ WASTE WATER (☒ Soil)
Type: ☒ COMPOSITE ☒ GRAB
Container(s): 64 NUMBER; 2 250mL/8 oz Glass
Preservation: ☒ Methanol; ☒ Sodium Bisulfate
Filtered: ☐ YES ☒ NO

REMARKS / SPECIAL INSTRUCTIONS

- ☐ YES ☒ NO MCP Data Certification required.
- ☐ YES ☒ NO MCP Drinking Water Sample Included. (Volatile analyses require duplicate collection and Trip Blanks).
- ☐ Analyze Duplicates and Trips Blanks only if positive results.
- ☐ YES ☒ NO CT RCP Data Certification required.

Signature: _____

DATA QUALITY OBJECTIVES

Regulatory Program

State	Standard	Deliverables
☐ CT	☐ MCP GW-1/S-1	☐ PWS Form
☐ ME	☐ MCP GW-2/S-2	☐ MWRA
☐ MA	☐ NY STARS	☐ _____
☐ NH	☐ Drinking Water	
☒ NY	☒ Wastewater	
☐ RI	☒ Waste Disposal	
☐ VT	☐ Dredge Material	
☐ ___	☐ _____	

Project Specific QC

Many regulatory programs and EPA methods require project specific QC. Project specific QC includes Sample Duplicates, Matrix Spikes, and/or Matrix Spike Duplicates. Laboratory QC is not project specific unless prearranged. Project specific QC samples are charged on a per sample basis. **Each MS, MSD and Sample Duplicate requires an additional sample aliquot.**

Project Specific QC Required
- ☐ Sample Duplicate
- ☐ Matrix Spike
- ☐ Matrix Spike Duplicate

Selection of QC Sample
- ☐ Please use sample: _____

CHAIN-OF-CUSTODY RECORD

NOTE: All samples submitted subject to Standard Terms and Conditions on reverse hereof.

	Date	Time		
Relinquished by Sampler: Julia Chamber	3/4/10	1800	Received by:	Receipt Temperature: Ambient ☐ Refrigerated ☐ Ice ☐ Temperature Blank 4.7 °C
Relinquished by:	3/5/10	4:25	Received by:	Container Count:
Relinquished by:	Date	Time	Received by Laboratory:	Shipping/Airbill Number:

Method of Shipment: ☐ GWA Courier ☐ Express Mail ☒ Federal Express ☐ UPS ☐ Hand ☐ _____

Custody Seal Number:

Quality Assurance/Quality Control

A. Program Overview

Groundwater Analytical conducts an active Quality Assurance program to ensure the production of high quality, valid data. This program closely follows the guidance provided by *Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans,* US EPA QAMS-005/80 (1980), and *Test Methods for Evaluating Solid Waste,* US EPA, SW-846, Update III (1996).

Quality Control protocols include written Standard Operating Procedures (SOPs) developed for each analytical method. SOPs are derived from US EPA methodologies and other established references. Standards are prepared from commercially obtained reference materials of certified purity, and documented for traceability.

Quality Assessment protocols for most organic analyses include a minimum of one laboratory control sample, one method blank, one matrix spike sample, and one sample duplicate for each sample preparation batch. All samples, standards, blanks, laboratory control samples, matrix spikes and sample duplicates are spiked with internal standards and surrogate compounds. All instrument sequences begin with an initial calibration verification standard and a blank; and excepting GC/MS sequences, all sequences close with a continuing calibration standard. GC/MS systems are tuned to appropriate ion abundance criteria daily, or for each 12 hour operating period, whichever is more frequent.

Quality Assessment protocols for most inorganic analyses include a minimum of one laboratory control sample, one method blank, one matrix spike sample, and one sample duplicate for each sample preparation batch. Standard curves are derived from one reagent blank and four concentration levels. Curve validity is verified by standard recoveries within plus or minus ten percent of the curve.

B. Definitions

Batches are used as the basic unit for Quality Assessment. A Batch is defined as twenty or fewer samples of the same matrix which are prepared together for the same analysis, using the same lots of reagents and the same techniques or manipulations, all within the same continuum of time, up to but not exceeding 24 hours.

Laboratory Control Samples are used to assess the accuracy of the analytical method. A Laboratory Control Sample consists of reagent water or sodium sulfate spiked with a group of target analytes representative of the method analytes. Accuracy is defined as the degree of agreement of the measured value with the true or expected value. Percent Recoveries for the Laboratory Control Samples are calculated to assess accuracy.

Method Blanks are used to assess the level of contamination present in the analytical system. Method Blanks consist of reagent water or an aliquot of sodium sulfate. Method Blanks are taken through all the appropriate steps of an analytical method. Sample data reported is not corrected for blank contamination.

Surrogate Compounds are used to assess the effectiveness of an analytical method in dealing with each sample matrix. Surrogate Compounds are organic compounds which are similar to the target analytes of interest in chemical behavior, but which are not normally found in environmental samples. Percent Recoveries are calculated for each Surrogate Compound.

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Sample

Category:	**EPA 8015B Mod TPH**	Instrument ID:	**GC4 HP 5890**
QC Batch ID:	**HF-3113-M**	Extracted:	**08-05-10 23:30**
Matrix:	**Soil**	Analyzed:	**08-06-10 10:23**
Units:	**mg/Kg**	Analyst:	**MB**

Analyte	Spiked	Measured	Recovery	QC Limits
Fuel Oil No. 2	130	100	77 %	60 - 140 %

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
ortho-Terphenyl	2.7	2.4	89 %	30 - 140 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Method modified to quantify total petroleum hydrocarbons in the range n-C 9 through n-C 36. Results are quantified on the basis of a series of aromatic and aliphatic hydrocarbons, using 5-alpha-androstane as an internal standard.
Sample extraction performed by EPA Method 3546.

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category:	**EPA 8015B Mod TPH**	Instrument ID:	**GC4 HP 5890**
QC Batch ID:	**HF-3113-M**	Extracted:	**08-05-10 23:30**
Matrix:	**Soil**	Analyzed:	**08-06-10 10:21**
		Analyst:	**MB**

Analyte	Concentration	Notes	Units	Reporting Limit
Total Petroleum Hydrocarbons	BRL		mg/Kg	60

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
ortho-Terphenyl	2.7	2.2	**82 %**	30 - 140 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Method modified to quantify total petroleum hydrocarbons in the range n-C 9 through n-C 36. Results are quantified on the basis of a series of aromatic and aliphatic hydrocarbons, using 5-alpha-androstane as an internal standard.
Sample extraction performed by EPA Method 3546.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8260B	Instrument ID:	MS-1 HP 5890	Instrument ID:	MS-1 HP 5890
QC Batch ID:	VM1-2887-E	Analyzed:	08-06-10 07:17	Analyzed:	08-06-10 07:53
Matrix:	Soil	Analyst:	LMG	Analyst:	LMG
Units:	ug/kg				

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
75-71-8	Dichlorodifluoromethane	2,500	2,400	98 %	2,500	2,200	88 %	10 %	70 - 130 %	20%
74-87-3	Chloromethane	2,500	2,500	100 %	2,500	2,200	90 %	11 %	70 - 130 %	20%
75-01-4	Vinyl Chloride	2,500	2,400	95 %	2,500	2,200	89 %	7 %	70 - 130 %	20%
74-83-9	Bromomethane	2,500	2,400	98 %	2,500	2,300	93 %	5 %	70 - 130 %	20%
75-00-3	Chloroethane	2,500	2,500	101 %	2,500	2,400	95 %	5 %	70 - 130 %	20%
75-69-4	Trichlorofluoromethane	2,500	2,400	95 %	2,500	2,200	88 %	7 %	70 - 130 %	20%
60-29-7	Diethyl Ether	5,000	4,400	88 %	5,000	4,400	89 %	0 %	70 - 130 %	20%
75-35-4	1,1-Dichloroethene	2,500	2,500	101 %	2,500	2,300	92 %	9 %	70 - 130 %	20%
76-13-1	1,1,2-Trichlorotrifluoroethane	5,000	4,800	96 %	5,000	4,600	92 %	5 %	70 - 130 %	20%
67-64-1	Acetone	5,000	5,300	105 %	5,000	5,400	107 %	2 %	70 - 130 %	20%
75-15-0	Carbon Disulfide	5,000	3,900	78 %	5,000	3,700	74 %	6 %	70 - 130 %	20%
75-09-2	Methylene Chloride	2,500	2,700	107 %	2,500	2,500	100 %	7 %	70 - 130 %	20%
107-13-1	Acrylonitrile	2,500	2,500	100 %	2,500	2,400	97 %	3 %	70 - 130 %	20%
156-60-5	*trans*-1,2-Dichloroethene	2,500	2,700	108 %	2,500	2,500	99 %	9 %	70 - 130 %	20%
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	2,500	2,100	84 %	2,500	2,100	83 %	1 %	70 - 130 %	20%
75-34-3	1,1-Dichloroethane	2,500	2,400	96 %	2,500	2,400	96 %	1 %	70 - 130 %	20%
594-20-7	2,2-Dichloropropane	2,500	2,200	89 %	2,500	2,200	88 %	1 %	70 - 130 %	20%
156-59-2	*cis*-1,2-Dichloroethene	2,500	2,600	104 %	2,500	2,100	85 %	20 %	70 - 130 %	20%
78-93-3	2-Butanone (MEK)	5,000	4,700	95 %	5,000	4,200	85 %	11 %	70 - 130 %	20%
74-97-5	Bromochloromethane	2,500	2,600	106 %	2,500	2,700	108 %	2 %	70 - 130 %	20%
109-99-9	Tetrahydrofuran (THF)	5,000	4,700	94 %	5,000	4,600	93 %	1 %	70 - 130 %	20%
67-66-3	Chloroform	2,500	2,600	103 %	2,500	2,600	103 %	0 %	70 - 130 %	20%
71-55-6	1,1,1-Trichloroethane	2,500	2,600	103 %	2,500	2,600	102 %	1 %	70 - 130 %	20%
56-23-5	Carbon Tetrachloride	2,500	2,500	100 %	2,500	2,400	98 %	2 %	70 - 130 %	20%
563-58-6	1,1-Dichloropropene	2,500	2,400	95 %	2,500	2,300	91 %	4 %	70 - 130 %	20%
71-43-2	Benzene	2,500	2,500	99 %	2,500	2,400	97 %	3 %	70 - 130 %	20%
107-06-2	1,2-Dichloroethane	2,500	2,500	100 %	2,500	2,600	103 %	3 %	70 - 130 %	20%
79-01-6	Trichloroethene	2,500	2,700	108 %	2,500	2,300	94 %	14 %	70 - 130 %	20%
78-87-5	1,2-Dichloropropane	2,500	2,400	97 %	2,500	2,400	94 %	3 %	70 - 130 %	20%
74-95-3	Dibromomethane	2,500	2,400	95 %	2,500	2,400	96 %	1 %	70 - 130 %	20%
75-27-4	Bromodichloromethane	2,500	2,600	102 %	2,500	2,500	101 %	1 %	70 - 130 %	20%
123-91-1	1,4-Dioxane	50,000	41,000	82 %	50,000	44,000	87 %	6 %	70 - 130 %	20%
10061-01-5	*cis*-1,3-Dichloropropene	2,500	2,300	94 %	2,500	2,400	96 %	2 %	70 - 130 %	20%
108-10-1	4-Methyl-2-Pentanone (MIBK)	5,000	4,600	91 %	5,000	4,700	93 %	2 %	70 - 130 %	20%
108-88-3	Toluene	2,500	2,600	105 %	2,500	2,400	97 %	8 %	70 - 130 %	20%
10061-02-6	*trans*-1,3-Dichloropropene	2,500	2,100	83 %	2,500	2,200	87 %	4 %	70 - 130 %	20%
79-00-5	1,1,2-Trichloroethane	2,500	2,400	95 %	2,500	2,500	100 %	5 %	70 - 130 %	20%
127-18-4	Tetrachloroethene	2,500	2,900	115 %	2,500	2,700	107 %	7 %	70 - 130 %	20%
142-28-9	1,3-Dichloropropane	2,500	2,500	101 %	2,500	2,600	106 %	5 %	70 - 130 %	20%
591-78-6	2-Hexanone	5,000	4,500	90 %	5,000	4,400	87 %	3 %	70 - 130 %	20%
124-48-1	Dibromochloromethane	2,500	2,600	104 %	2,500	2,800	110 %	6 %	70 - 130 %	20%
106-93-4	1,2-Dibromoethane (EDB)	2,500	2,600	105 %	2,500	2,800	110 %	5 %	70 - 130 %	20%
108-90-7	Chlorobenzene	2,500	2,600	105 %	2,500	2,500	99 %	6 %	70 - 130 %	20%
630-20-6	1,1,1,2-Tetrachloroethane	2,500	2,900	116 %	2,500	2,600	106 %	9 %	70 - 130 %	20%
100-41-4	Ethylbenzene	2,500	2,700	107 %	2,500	2,500	99 %	7 %	70 - 130 %	20%
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	5,000	5,200	103 %	5,000	4,800	97 %	6 %	70 - 130 %	20%
95-47-6	*ortho*-Xylene	2,500	2,700	107 %	2,500	2,700	108 %	1 %	70 - 130 %	20%
100-42-5	Styrene	2,500	2,400	95 %	2,500	2,200	90 %	5 %	70 - 130 %	20%
75-25-2	Bromoform	2,500	2,800	113 %	2,500	2,700	109 %	3 %	70 - 130 %	20%

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8260B	Instrument ID:	MS-1 HP 5890	Instrument ID:	MS-1 HP 5890
QC Batch ID:	VM1-2887-E	Analyzed:	08-06-10 07:17	Analyzed:	08-06-10 07:53
Matrix:	Soil	Analyst:	LMG	Analyst:	LMG
Units:	ug/kg				

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
98-82-8	Isopropylbenzene	2,500	1,900	78 %	2,500	2,000	79 %	1 %	70 - 130 %	20%
108-86-1	Bromobenzene	2,500	2,600	103 %	2,500	2,700	107 %	4 %	70 - 130 %	20%
79-34-5	1,1,2,2-Tetrachloroethane	2,500	2,100	82 %	2,500	2,200	87 %	6 %	70 - 130 %	20%
96-18-4	1,2,3-Trichloropropane	2,500	2,400	96 %	2,500	2,600	103 %	7 %	70 - 130 %	20%
110-57-6	*trans*-1,4-Dichloro-2-butene	10,000	8,300	83 %	10,000	9,300	93 %	11 %	70 - 130 %	20%
103-65-1	*n*-Propylbenzene	2,500	2,200	90 %	2,500	2,100	86 %	4 %	70 - 130 %	20%
95-49-8	2-Chlorotoluene	2,500	2,200	89 %	2,500	2,300	93 %	4 %	70 - 130 %	20%
108-67-8	1,3,5-Trimethylbenzene	2,500	2,300	92 %	2,500	2,200	87 %	6 %	70 - 130 %	20%
106-43-4	4-Chlorotoluene	2,500	2,000	82 %	2,500	2,300	91 %	10 %	70 - 130 %	20%
98-06-6	*tert*-Butylbenzene	2,500	2,300	91 %	2,500	2,200	89 %	2 %	70 - 130 %	20%
95-63-6	1,2,4-Trimethylbenzene	2,500	2,400	94 %	2,500	2,500	98 %	4 %	70 - 130 %	20%
135-98-8	*sec*-Butylbenzene	2,500	2,100	86 %	2,500	2,100	86 %	0 %	70 - 130 %	20%
541-73-1	1,3-Dichlorobenzene	2,500	2,400	96 %	2,500	2,400	97 %	0 %	70 - 130 %	20%
99-87-6	4-Isopropyltoluene	2,500	2,300	93 %	2,500	2,500	99 %	6 %	70 - 130 %	20%
106-46-7	1,4-Dichlorobenzene	2,500	2,400	96 %	2,500	2,400	97 %	1 %	70 - 130 %	20%
95-50-1	1,2-Dichlorobenzene	2,500	2,400	96 %	2,500	2,400	96 %	0 %	70 - 130 %	20%
104-51-8	*n*-Butylbenzene	2,500	2,000	80 %	2,500	2,200	88 %	9 %	70 - 130 %	20%
96-12-8	1,2-Dibromo-3-chloropropane	2,500	1,900	77 %	2,500	2,100	84 %	9 %	70 - 130 %	20%
108-70-3	1,3,5-Trichlorobenzene	2,500	2,400	97 %	2,500	2,500	101 %	4 %	70 - 130 %	20%
120-82-1	1,2,4-Trichlorobenzene	2,500	2,500	101 %	2,500	2,300	93 %	9 %	70 - 130 %	20%
87-68-3	Hexachlorobutadiene	2,500	2,400	95 %	2,500	2,300	93 %	2 %	70 - 130 %	20%
91-20-3	Naphthalene	2,500	2,000	80 %	2,500	2,300	91 %	12 %	70 - 130 %	20%
87-61-6	1,2,3-Trichlorobenzene	2,500	2,700	107 %	2,500	2,500	98 %	9 %	70 - 130 %	20%
75-65-0	*tert*-Butyl Alcohol (TBA)	50,000	41,000	83 %	50,000	42,000	85 %	2 %	70 - 130 %	20%
108-20-3	Di-isopropyl Ether (DIPE)	2,500	2,300	93 %	2,500	2,200	87 %	6 %	70 - 130 %	20%
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	2,500	2,000	79 %	2,500	2,000	81 %	2 %	70 - 130 %	20%
994-05-8	*tert*-Amyl Methyl Ether (TAME)	2,500	2,000	80 %	2,500	2,000	81 %	1 %	70 - 130 %	20%

QC Surrogate Compound	Spiked	Measured	Recovery	Spiked	Measured	Recovery		QC Limits
Dibromofluoromethane	2,500	2,600	102 %	2,500	2,700	107 %		70 - 130 %
1,2-Dichloroethane-d_4	2,500	2,500	101 %	2,500	2,600	102 %		70 - 130 %
Toluene-d_8	2,500	2,800	113 %	2,500	2,700	107 %		70 - 130 %
4-Bromofluorobenzene	2,500	2,600	104 %	2,500	2,900	115 %		70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample preparation performed by EPA Method 5035A.

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: **EPA Method 8260B**
QC Batch ID: **VM1-2887-E**
Matrix: **Soil**

Instrument ID: **MS-1 HP 5890**
Analyzed: **08-06-10 08:30**
Analyst: **LMG**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	500
74-87-3	Chloromethane	BRL		ug/Kg	500
75-01-4	Vinyl Chloride	BRL		ug/Kg	500
74-83-9	Bromomethane	BRL		ug/Kg	500
75-00-3	Chloroethane	BRL		ug/Kg	500
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	500
60-29-7	Diethyl Ether	BRL		ug/Kg	500
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	250
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	2,500
67-64-1	Acetone	BRL		ug/Kg	2,500
75-15-0	Carbon Disulfide	BRL		ug/Kg	2,500
75-09-2	Methylene Chloride	BRL		ug/Kg	1,000
107-13-1	Acrylonitrile	BRL		ug/Kg	250
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	250
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	250
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	250
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	250
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	250
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	2,500
74-97-5	Bromochloromethane	BRL		ug/Kg	250
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	2,500
67-66-3	Chloroform	BRL		ug/Kg	250
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	250
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	250
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	250
71-43-2	Benzene	BRL		ug/Kg	250
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	250
79-01-6	Trichloroethene	BRL		ug/Kg	250
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	250
74-95-3	Dibromomethane	BRL		ug/Kg	250
75-27-4	Bromodichloromethane	BRL		ug/Kg	250
123-91-1	1,4-Dioxane	BRL		ug/Kg	250,000
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	250
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	2,500
108-88-3	Toluene	BRL		ug/Kg	250
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	250
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	250
127-18-4	Tetrachloroethene	BRL		ug/Kg	250
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	250
591-78-6	2-Hexanone	BRL		ug/Kg	2,500
124-48-1	Dibromochloromethane	BRL		ug/Kg	250
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	250
108-90-7	Chlorobenzene	BRL		ug/Kg	250
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	250
100-41-4	Ethylbenzene	BRL		ug/Kg	250
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL		ug/Kg	250
95-47-6	*ortho*-Xylene	BRL		ug/Kg	250
100-42-5	Styrene	BRL		ug/Kg	250
75-25-2	Bromoform	BRL		ug/Kg	250

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: EPA Method 8260B
QC Batch ID: VM1-2887-E
Matrix: Soil

Instrument ID: MS-1 HP 5890
Analyzed: 08-06-10 08:30
Analyst: LMG

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
98-82-8	Isopropylbenzene	BRL		ug/Kg	250
108-86-1	Bromobenzene	BRL		ug/Kg	250
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	250
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	250
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	2,500
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	250
95-49-8	2-Chlorotoluene	BRL		ug/Kg	250
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	250
106-43-4	4-Chlorotoluene	BRL		ug/Kg	250
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	250
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	250
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	250
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	250
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	250
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	250
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	250
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	250
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	250
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	250
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	250
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	250
91-20-3	Naphthalene	BRL		ug/Kg	250
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	250
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	10,000
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	250
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	250
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	250

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	2,500	2,600	**105** %	70 - 130 %
1,2-Dichloroethane-d_4	2,500	2,500	**99** %	70 - 130 %
Toluene-d_8	2,500	2,700	**109** %	70 - 130 %
4-Bromofluorobenzene	2,500	2,800	**113** %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample preparation performed by EPA Method 5035A.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

Certifications and Approvals

Groundwater Analytical maintains environmental laboratory certification in a variety of states.
Copies of our current certificates may be obtained from our website:

http://www.groundwateranalytical.com/qualifications.htm

CONNECTICUT

Department of Health Services, PH-0586 — Potable Water, Wastewater, Solid Waste and Soil
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/Out_State.pdf

MASSACHUSETTS

Department of Environmental Protection, M-MA-103 — Potable Water and Non-Potable Water
http://public.dep.state.ma.us/labcert/labcert.aspx

Department of Labor,
Division of Occupational Safety, AA000195 — Asbestos Analytical Services, Class A
http://www.mass.gov/dos/forms/la-rpt_list_aa.pdf

NEW HAMPSHIRE

Department of Environmental Services, 202708 — Potable Water, Non-Potable Water, Solid and Chemical Materials
http://www4.egov.nh.gov/DES/NHELAP

NEW YORK

Department of Health, 11754 — Potable Water, Non-Potable Water, Solid and Hazardous Waste
http://www.wadsworth.org/labcert/elap/comm.html

RHODE ISLAND

Department of Health,
Division of Laboratories, LAO00054 — Potable and Non-Potable Water Microbiology, Organic and Inorganic Chemistry
http://www.health.ri.gov/labs/outofstatelabs.pdf

U.S. DEPARTMENT OF AGRICULTURE

USDA, Soil Permit, S-53921 — Foreign soil import permit

VERMONT

Department of Health, VT-87643 — Potable Water
http://healthvermont.gov/enviro/ph_lab/water_test.aspx#cert

GROUNDWATER ANALYTICAL

Certifications and Approvals

MASSACHUSETTS — Department of Environmental Protection, M-MA-103

Groundwater Analytical maintains MassDEP environmental laboratory certification for only the methods and analytes listed below. Analyses for certified analytes are conducted in accordance with MassDEP certification standards, except as may be specifically noted in the project narrative.

Potable Water (Drinking Water) Analyte	Method
1,2-Dibromo-3-Chloropropane	EPA 504.1
1,2-Dibromoethane	EPA 504.1
Alkalinity, Total	SM 2320-B
Antimony	EPA 200.8
Arsenic	EPA 200.8
Barium	EPA 200.7
Barium	EPA 200.8
Beryllium	EPA 200.7
Beryllium	EPA 200.8
Cadmium	EPA 200.7
Cadmium	EPA 200.8
Calcium	EPA 200.7
Chlorine, Residual Free	SM 4500-CL-G
Chromium	EPA 200.7
Cyanide, Total	Lachat 10-204-00-1-A
E. Coli (Treatment and Distribution)	Enz. Sub. SM 9223
E. Coli (Treatment and Distribution)	NA-MUG SM 9222-G
Fecal Coliform (Source Water)	MF SM 9222-D
Fluoride	EPA 300.0
Fluoride	SM 4500-F-C
Heterotrophic Plate Count	SM 9215-B
Lead	EPA 200.8
Mercury	EPA 245.1
Nickel	EPA 200.7
Nickel	EPA 200.8
Nitrate-N	EPA 300.0
Nitrate-N	Lachat 10-107-04-1-C
Nitrite-N	EPA 300.0
Nitrite-N	Lachat 10-107-04-1-C
pH	SM 4500-H-B
Selenium	EPA 200.8
Silver	EPA 200.7
Silver	EPA 200.8
Sodium	EPA 200.7
Sulfate	EPA 300.0
Thallium	EPA 200.8
Total Coliform (Treatment and Distribution)	Enz. Sub. SM 9223
Total Coliform (Treatment and Distribution)	MF SM 9222-B
Total Dissolved Solids	SM 2540-C
Trihalomethanes	EPA 524.2
Turbidity	SM 2130-B
Volatile Organic Compounds	EPA 524.2

Non-Potable Water (Wastewater) Analyte	Method
Aldrin	EPA 608
Alkalinity, Total	SM 2320-B
Alpha-BHC	EPA 608
Aluminum	EPA 200.7
Aluminum	EPA 200.8
Ammonia-N	Lachat 10-107-06-1-B

Non-Potable Water (Wastewater) Analyte	Method
Antimony	EPA 200.7
Antimony	EPA 200.8
Arsenic	EPA 200.7
Arsenic	EPA 200.8
Beryllium	EPA 200.7
Beryllium	EPA 200.8
Beta-BHC	EPA 608
Biochemical Oxygen Demand	SM 5210-B
Cadmium	EPA 200.7
Cadmium	EPA 200.8
Calcium	EPA 200.7
Chemical Oxygen Demand	SM 5220-D
Chlordane	EPA 608
Chloride	EPA 300.0
Chlorine, Total Residual	SM 4500-CL-G
Chromium	EPA 200.7
Chromium	EPA 200.8
Cobalt	EPA 200.7
Cobalt	EPA 200.8
Copper	EPA 200.7
Copper	EPA 200.8
Cyanide, Total	Lachat 10-204-00-1-A
DDD	EPA 608
DDE	EPA 608
DDT	EPA 608
Delta-BHC	EPA 608
Dieldrin	EPA 608
Endosulfan I	EPA 608
Endosulfan II	EPA 608
Endosulfan Sulfate	EPA 608
Endrin	EPA 608
Endrin Aldehyde	EPA 608
Fluoride	EPA 300.0
Gamma-BHC	EPA 608
Hardness (CaCO3), Total	EPA 200.7
Hardness (CaCO3), Total	SM 2340-B
Heptachlor	EPA 608
Heptachlor Epoxide	EPA 608
Iron	EPA 200.7
Kjeldahl-N	Lachat 10-107-06-02-D
Lead	EPA 200.7
Magnesium	EPA 200.7
Manganese	EPA 200.7
Manganese	EPA 200.8
Mercury	EPA 245.1
Molybdenum	EPA 200.7
Molybdenum	EPA 200.8
Nickel	EPA 200.7
Nickel	EPA 200.8
Nitrate-N	EPA 300.0
Nitrate-N	Lachat 10-107-04-1-C
Non-Filterable Residue	SM 2540-D
Oil and Grease	EPA 1664

GROUNDWATER ANALYTICAL

Certifications and Approvals

MASSACHUSETTS — **Department of Environmental Protection, M-MA-103**

Groundwater Analytical maintains MassDEP environmental laboratory certification for only the methods and analytes listed below. Analyses for certified analytes are conducted in accordance with MassDEP certification standards, except as may be specifically noted in the project narrative.

Non-Potable Water (Wastewater)

Analyte	Method
Orthophosphate	Lachat 10-115-01-1-A
pH	SM 4500-H-B
Phenolics, Total	EPA 420.4
Phenolics, Total	Lachat 10-210-00-1-B
Phosphorus, Total	Lachat 10-115-01-1-C
Phosphorus, Total	SM 4500-P-B,E
Polychlorinated Biphenyls (Oil)	EPA 600/4-81-045
Polychlorinated Biphenyls (Water)	EPA 608
Potassium	EPA 200.7
Selenium	EPA 200.7
Selenium	EPA 200.8
Silver	EPA 200.7
Sodium	EPA 200.7
Specific Conductivity	SM 2510-B
Strontium	EPA 200.7
Sulfate	EPA 300.0
SVOC-Acid Extractables	EPA 625
SVOC-Base/Neutral Extractables	EPA 625
Thallium	EPA 200.7
Thallium	EPA 200.8
Titanium	EPA 200.7
Total Dissolved Solids	SM 2540-C
Total Organic Carbon	SM 5310-B
Toxaphene	EPA 608
Vanadium	EPA 200.7
Vanadium	EPA 200.8
Volatile Aromatics	EPA 602
Volatile Aromatics	EPA 624
Volatile Halocarbons	EPA 624
Zinc	EPA 200.7
Zinc	EPA 200.8

* 4k UST Area *
(08/10)

GROUNDWATER ANALYTICAL

Groundwater Analytical, Inc.
P.O. Box 1200
228 Main Street
Buzzards Bay, MA 02532

Telephone (508) 759-4441
FAX (508) 759-4475
www.groundwateranalytical.com

August 13, 2010

Ms. Jennifer Hadden
AECOM Environment
2 Technology Park Drive
Westford, MA 01886

LABORATORY REPORT

Project: **Gulf New Hyde Park/60158261**
Lab ID: **135345**
Received: **08-06-10**

Dear Jennifer:

Enclosed are the analytical results for the above referenced project. The project was processed for Priority turnaround.

This letter authorizes the release of the analytical results, and should be considered a part of this report. This report contains a sample receipt report detailing the samples received, a project narrative indicating project changes and non-conformances, a quality control report, and a statement of our state certifications.

The analytical results contained in this report meet all applicable NELAC or NVLAP standards, except as may be specifically noted, or described in the project narrative. The analytical results relate only to the samples received. This report may only be used or reproduced in its entirety.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Should you have any questions concerning this report, please do not hesitate to contact me.

Sincerely,

Eric H. Jensen
Operations Manager

EHJ/elm
Enclosures

GROUNDWATER ANALYTICAL

Sample Receipt Report

Project: **Gulf New Hyde Park/60158261**
Client: **AECOM Environment**
Lab ID: **135345**

Delivery: **GWA Courier**
Airbill: **n/a**
Lab Receipt: **08-06-10**

Temperature: **2.7°C**
Chain of Custody: **Present**
Custody Seal(s): **n/a**

Lab ID	Field ID		Matrix	Sampled	Method				Notes
135345-1	CS-BT1		Soil	8/4/10 10:35	EPA 8260B Volatile Organics with Oxygenates				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1276009	40 mL VOA Vial	Scientific Specialties	BX36954	Methanol	R-6137B	06-30-10	n/a		
C1275221	40 mL VOA Vial	Scientific Specialties	BX36963	n/a	R-6223C	07-16-10	n/a		
C1275206	40 mL VOA Vial	Scientific Specialties	BX36963	n/a	R-6223C	07-16-10	n/a		
C1275205	40 mL VOA Vial	Scientific Specialties	BX36963	n/a	R-6223C	07-16-10	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
135345-2	DISP #3		Soil	8/4/10 10:40	EPA 8260B Volatile Organics with Oxygenates				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1280871	40 mL VOA Vial	Scientific Specialties	BX37079	n/a	R-6223C	07-16-10	n/a		
C1280864	40 mL VOA Vial	Scientific Specialties	BX37079	n/a	R-6223C	07-16-10	n/a		
C1280862	40 mL VOA Vial	Scientific Specialties	BX37079	n/a	R-6223C	07-16-10	n/a		
C1276046	40 mL VOA Vial	Scientific Specialties	BX36954	Methanol	R-6137B	06-30-10	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
135345-3	DISP #4		Soil	8/4/10 10:50	EPA 8260B Volatile Organics with Oxygenates				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1276007	40 mL VOA Vial	Scientific Specialties	BX36954	Methanol	R-6137B	06-30-10	n/a		
C1275208	40 mL VOA Vial	Scientific Specialties	BX36963	n/a	R-6223C	07-16-10	n/a		
C1275188	40 mL VOA Vial	Scientific Specialties	BX36963	n/a	R-6223C	07-16-10	n/a		
C1275183	40 mL VOA Vial	Scientific Specialties	BX36963	n/a	R-6223C	07-16-10	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
135345-4	CS-W2		Soil	8/4/10 12:00	EPA 8260B Volatile Organics with Oxygenates				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1280848	40 mL VOA Vial	Scientific Specialties	BX37079	n/a	R-6223C	07-16-10	n/a		
C1280846	40 mL VOA Vial	Scientific Specialties	BX37079	n/a	R-6223C	07-16-10	n/a		
C1280834	40 mL VOA Vial	Scientific Specialties	BX37079	n/a	R-6223C	07-16-10	n/a		
C1276038	40 mL VOA Vial	Scientific Specialties	BX36954	Methanol	R-6137B	06-30-10	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
135345-5	CS-E		Soil	8/4/10 12:10	EPA 8260B Volatile Organics with Oxygenates				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1280840	40 mL VOA Vial	Scientific Specialties	BX37079	n/a	R-6223C	07-16-10	n/a		
C1280837	40 mL VOA Vial	Scientific Specialties	BX37079	n/a	R-6223C	07-16-10	n/a		
C1280836	40 mL VOA Vial	Scientific Specialties	BX37079	n/a	R-6223C	07-16-10	n/a		
C1276041	40 mL VOA Vial	Scientific Specialties	BX36954	Methanol	R-6137B	06-30-10	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
135345-6	CS-S		Soil	8/5/10 9:00	EPA 8260B Volatile Organics with Oxygenates				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1280857	40 mL VOA Vial	Scientific Specialties	BX37079	n/a	R-6223C	07-16-10	n/a		
C1280847	40 mL VOA Vial	Scientific Specialties	BX37079	n/a	R-6223C	07-16-10	n/a		
C1280843	40 mL VOA Vial	Scientific Specialties	BX37079	n/a	R-6223C	07-16-10	n/a		
C1276044	40 mL VOA Vial	Scientific Specialties	BX36954	Methanol	R-6137B	06-30-10	n/a		

GROUNDWATER ANALYTICAL

Sample Receipt Report (Continued)

Project: **Gulf New Hyde Park/60158261**
Client: **AECOM Environment**
Lab ID: **135345**

Delivery: **GWA Courier**
Airbill: **n/a**
Lab Receipt: **08-06-10**

Temperature: **2.7°C**
Chain of Custody: **Present**
Custody Seal(s): **n/a**

Lab ID	Field ID		Matrix	Sampled	Method				Notes
135345-7	CS-BT2		Soil	8/5/10 11:00	EPA 8260B Volatile Organics with Oxygenates				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1280876	40 mL VOA Vial	Scientific Specialties	BX37079	n/a	R-6223C	07-16-10	n/a		
C1280863	40 mL VOA Vial	Scientific Specialties	BX37079	n/a	R-6223C	07-16-10	n/a		
C1280856	40 mL VOA Vial	Scientific Specialties	BX37079	n/a	R-6223C	07-16-10	n/a		
C1276051	40 mL VOA Vial	Scientific Specialties	BX36954	Methanol	R-6137B	06-30-10	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
135345-8	CS-BT1		Soil	8/4/10 10:35	EPA 8270C Semivolatile Organics				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1231114	250 mL Amber Glass	Scientific Specialties	BX35902	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
135345-9	DISP #3		Soil	8/4/10 10:40	EPA 8270C Semivolatile Organics				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1204208	250 mL Amber Glass	Scientific Specialties	BX35699	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
135345-10	DISP #4		Soil	8/4/10 10:50	EPA 8270C Semivolatile Organics				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1231111	250 mL Amber Glass	Scientific Specialties	BX35902	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
135345-11	CS-W2		Soil	8/4/10 12:00	EPA 8270C Semivolatile Organics				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1263856	250 mL Amber Glass	Scientific Specialties	BX36423	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
135345-12	CS-E		Soil	8/4/10 12:10	EPA 8270C Semivolatile Organics				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1263852	250 mL Amber Glass	Scientific Specialties	BX36423	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
135345-13	CS-S		Soil	8/5/10 9:00	EPA 8270C Semivolatile Organics				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1263855	250 mL Amber Glass	Scientific Specialties	BX36423	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
135345-14	CS-BT2		Soil	8/5/10 11:00	EPA 8270C Semivolatile Organics				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1263853	250 mL Amber Glass	Scientific Specialties	BX36423	None	n/a	n/a	n/a		

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	CS-BT1	Matrix:	Soil
Project:	Gulf New Hyde Park/60158261	Container:	40 mL VOA Vial
Client:	AECOM Environment	Preservation:	Frozen
Laboratory ID:	135345-1	QC Batch ID:	VM1-2890-S
Sampled:	08-04-10 10:35	Instrument ID:	MS-1 HP 5890
Received:	08-06-10 18:25	Sample Weight:	5.2 g
Analyzed:	08-10-10 14:55	% Solids:	95
Analyst:	LMG	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	10
74-87-3	Chloromethane	BRL		ug/Kg	10
75-01-4	Vinyl Chloride	BRL		ug/Kg	10
74-83-9	Bromomethane	BRL		ug/Kg	10
75-00-3	Chloroethane	BRL		ug/Kg	10
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	10
60-29-7	Diethyl Ether	BRL		ug/Kg	10
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	50
67-64-1	Acetone	BRL		ug/Kg	200
75-15-0	Carbon Disulfide	BRL		ug/Kg	50
75-09-2	Methylene Chloride	BRL		ug/Kg	50
107-13-1	Acrylonitrile	BRL		ug/Kg	5
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	5
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	5
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	5
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	5
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	5
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	50
74-97-5	Bromochloromethane	BRL		ug/Kg	5
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	50
67-66-3	Chloroform	BRL		ug/Kg	5
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	5
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	5
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	5
71-43-2	Benzene	BRL		ug/Kg	5
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	5
79-01-6	Trichloroethene	BRL		ug/Kg	5
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	5
74-95-3	Dibromomethane	BRL		ug/Kg	5
75-27-4	Bromodichloromethane	BRL		ug/Kg	5
123-91-1	1,4-Dioxane	BRL		ug/Kg	5,000
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	50
108-88-3	Toluene	BRL		ug/Kg	5
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	5
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	5
127-18-4	Tetrachloroethene	BRL		ug/Kg	5
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	5
591-78-6	2-Hexanone	BRL		ug/Kg	50
124-48-1	Dibromochloromethane	BRL		ug/Kg	5
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	5
108-90-7	Chlorobenzene	BRL		ug/Kg	5
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	5
100-41-4	Ethylbenzene	BRL		ug/Kg	5
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL		ug/Kg	5

GROUNDWATER ANALYTICAL

EPA Method 8260B (Continued)
Volatile Organics by GC/MS

Field ID:	CS-BT1	Matrix:	Soil
Project:	Gulf New Hyde Park/60158261	Container:	40 mL VOA Vial
Client:	AECOM Environment	Preservation:	Frozen
Laboratory ID:	135345-1	QC Batch ID:	VM1-2890-5
Sampled:	08-04-10 10:35	Instrument ID:	MS-1 HP 5890
Received:	08-06-10 18:25	Sample Weight:	5.2 g
Analyzed:	08-10-10 14:55	% Solids:	95
Analyst:	LMG	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
95-47-6	*ortho*-Xylene	BRL		ug/Kg	5
100-42-5	Styrene	BRL		ug/Kg	5
75-25-2	Bromoform	BRL		ug/Kg	5
98-82-8	Isopropylbenzene	BRL		ug/Kg	5
108-86-1	Bromobenzene	BRL		ug/Kg	5
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	5
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	5
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	50
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	5
95-49-8	2-Chlorotoluene	BRL		ug/Kg	5
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	5
106-43-4	4-Chlorotoluene	BRL		ug/Kg	5
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	5
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	5
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	5
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	5
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	5
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	5
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	5
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	5
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	5
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	5
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	5
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	5
91-20-3	Naphthalene	BRL		ug/Kg	5
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	5
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	200
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	5
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	5
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	50	64	128 %	70 - 130 %
1,2-Dichloroethane-d_4	50	42	85 %	70 - 130 %
Toluene-d_8	50	56	111 %	70 - 130 %
4-Bromofluorobenzene	50	62	124 %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample preparation performed by EPA Method 5030B. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	DISP #3	Matrix:	Soil
Project:	Gulf New Hyde Park/60158261	Container:	40 mL VOA Vial
Client:	AECOM Environment	Preservation:	Frozen
Laboratory ID:	135345-2	QC Batch ID:	VM1-2890-S
Sampled:	08-04-10 10:40	Instrument ID:	MS-1 HP 5890
Received:	08-06-10 18:25	Sample Weight:	5.3 g
Analyzed:	08-10-10 15:31	% Solids:	95
Analyst:	LMG	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	10
74-87-3	Chloromethane	BRL		ug/Kg	10
75-01-4	Vinyl Chloride	BRL		ug/Kg	10
74-83-9	Bromomethane	BRL		ug/Kg	10
75-00-3	Chloroethane	BRL		ug/Kg	10
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	10
60-29-7	Diethyl Ether	BRL		ug/Kg	10
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	50
67-64-1	Acetone	BRL		ug/Kg	200
75-15-0	Carbon Disulfide	BRL		ug/Kg	50
75-09-2	Methylene Chloride	BRL		ug/Kg	50
107-13-1	Acrylonitrile	BRL		ug/Kg	5
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	5
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	6		ug/Kg	5
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	5
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	5
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	5
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	50
74-97-5	Bromochloromethane	BRL		ug/Kg	5
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	50
67-66-3	Chloroform	BRL		ug/Kg	5
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	5
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	5
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	5
71-43-2	Benzene	BRL		ug/Kg	5
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	5
79-01-6	Trichloroethene	BRL		ug/Kg	5
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	5
74-95-3	Dibromomethane	BRL		ug/Kg	5
75-27-4	Bromodichloromethane	BRL		ug/Kg	5
123-91-1	1,4-Dioxane	BRL		ug/Kg	5,000
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	50
108-88-3	Toluene	BRL		ug/Kg	5
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	5
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	5
127-18-4	Tetrachloroethene	BRL		ug/Kg	5
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	5
591-78-6	2-Hexanone	BRL		ug/Kg	50
124-48-1	Dibromochloromethane	BRL		ug/Kg	5
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	5
108-90-7	Chlorobenzene	BRL		ug/Kg	5
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	5
100-41-4	Ethylbenzene	BRL		ug/Kg	5
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL		ug/Kg	5

GROUNDWATER ANALYTICAL

EPA Method 8260B (Continued)
Volatile Organics by GC/MS

Field ID:	DISP #3	Matrix:	Soil
Project:	Gulf New Hyde Park/60158261	Container:	40 mL VOA Vial
Client:	AECOM Environment	Preservation:	Frozen
Laboratory ID:	135345-2	QC Batch ID:	VM1-2890-S
Sampled:	08-04-10 10:40	Instrument ID:	MS-1 HP 5890
Received:	08-06-10 18:25	Sample Weight:	5.3 g
Analyzed:	08-10-10 15:31	% Solids:	95
Analyst:	LMG	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
95-47-6	*ortho*-Xylene	BRL		ug/Kg	5
100-42-5	Styrene	BRL		ug/Kg	5
75-25-2	Bromoform	BRL		ug/Kg	5
98-82-8	Isopropylbenzene	BRL		ug/Kg	5
108-86-1	Bromobenzene	BRL		ug/Kg	5
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	5
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	5
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	50
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	5
95-49-8	2-Chlorotoluene	BRL		ug/Kg	5
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	5
106-43-4	4-Chlorotoluene	BRL		ug/Kg	5
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	5
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	5
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	5
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	5
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	5
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	5
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	5
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	5
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	5
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	5
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	5
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	5
91-20-3	Naphthalene	BRL		ug/Kg	5
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	5
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	200
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	5
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	5
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	50	61	122 %	70 - 130 %
1,2-Dichloroethane-d_4	50	52	103 %	70 - 130 %
Toluene-d_8	50	53	105 %	70 - 130 %
4-Bromofluorobenzene	50	62	125 %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample preparation performed by EPA Method 5030B. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**DISP #4**	Matrix:	**Soil**
Project:	**Gulf New Hyde Park/60158261**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**Frozen**
Laboratory ID:	**135345-3**	QC Batch ID:	**VM1-2890-S**
Sampled:	**08-04-10 10:50**	Instrument ID:	**MS-1 HP 5890**
Received:	**08-06-10 18:25**	Sample Weight:	**5.2 g**
Analyzed:	**08-10-10 16:07**	% Solids:	**90**
Analyst:	**LMG**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	11
74-87-3	Chloromethane	BRL		ug/Kg	11
75-01-4	Vinyl Chloride	BRL		ug/Kg	11
74-83-9	Bromomethane	BRL		ug/Kg	11
75-00-3	Chloroethane	BRL		ug/Kg	11
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	11
60-29-7	Diethyl Ether	BRL		ug/Kg	11
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	53
67-64-1	Acetone	BRL		ug/Kg	210
75-15-0	Carbon Disulfide	BRL		ug/Kg	53
75-09-2	Methylene Chloride	BRL		ug/Kg	53
107-13-1	Acrylonitrile	BRL		ug/Kg	5
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	5
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	5
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	5
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	5
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	5
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	53
74-97-5	Bromochloromethane	BRL		ug/Kg	5
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	53
67-66-3	Chloroform	BRL		ug/Kg	5
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	5
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	5
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	5
71-43-2	Benzene	BRL		ug/Kg	5
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	5
79-01-6	Trichloroethene	BRL		ug/Kg	5
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	5
74-95-3	Dibromomethane	BRL		ug/Kg	5
75-27-4	Bromodichloromethane	BRL		ug/Kg	5
123-91-1	1,4-Dioxane	BRL		ug/Kg	5,300
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	53
108-88-3	Toluene	BRL		ug/Kg	5
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	5
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	5
127-18-4	Tetrachloroethene	BRL		ug/Kg	5
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	5
591-78-6	2-Hexanone	BRL		ug/Kg	53
124-48-1	Dibromochloromethane	BRL		ug/Kg	5
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	5
108-90-7	Chlorobenzene	BRL		ug/Kg	5
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	5
100-41-4	Ethylbenzene	BRL		ug/Kg	5
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL		ug/Kg	5

GROUNDWATER ANALYTICAL

EPA Method 8260B (Continued)
Volatile Organics by GC/MS

Field ID:	**DISP #4**	Matrix:	**Soil**
Project:	**Gulf New Hyde Park/60158261**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**Frozen**
Laboratory ID:	**135345-3**	QC Batch ID:	**VM1-2890-S**
Sampled:	**08-04-10 10:50**	Instrument ID:	**MS-1 HP 5890**
Received:	**08-06-10 18:25**	Sample Weight:	**5.2 g**
Analyzed:	**08-10-10 16:07**	% Solids:	**90**
Analyst:	**LMG**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
95-47-6	*ortho*-Xylene	BRL		ug/Kg	5
100-42-5	Styrene	BRL		ug/Kg	5
75-25-2	Bromoform	BRL		ug/Kg	5
98-82-8	Isopropylbenzene	BRL		ug/Kg	5
108-86-1	Bromobenzene	BRL		ug/Kg	5
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	5
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	5
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	53
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	5
95-49-8	2-Chlorotoluene	BRL		ug/Kg	5
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	5
106-43-4	4-Chlorotoluene	BRL		ug/Kg	5
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	5
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	5
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	5
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	5
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	5
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	5
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	5
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	5
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	5
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	5
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	5
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	5
91-20-3	Naphthalene	BRL		ug/Kg	5
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	5
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	210
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	5
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	5
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	50	62	**123** %	70 - 130 %
1,2-Dichloroethane-d_4	50	48	**96** %	70 - 130 %
Toluene-d_8	50	42	**84** %	70 - 130 %
4-Bromofluorobenzene	50	58	**116** %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample preparation performed by EPA Method 5030B. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**CS-W2**	Matrix:	**Soil**
Project:	**Gulf New Hyde Park/60158261**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**Frozen**
Laboratory ID:	**135345-4**	QC Batch ID:	**VM1-2890-S**
Sampled:	**08-04-10 12:00**	Instrument ID:	**MS-1 HP 5890**
Received:	**08-06-10 18:25**	Sample Weight:	**5.4 g**
Analyzed:	**08-10-10 16:43**	% Solids:	**93**
Analyst:	**LMG**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	10
74-87-3	Chloromethane	BRL		ug/Kg	10
75-01-4	Vinyl Chloride	BRL		ug/Kg	10
74-83-9	Bromomethane	BRL		ug/Kg	10
75-00-3	Chloroethane	BRL		ug/Kg	10
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	10
60-29-7	Diethyl Ether	BRL		ug/Kg	10
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	50
67-64-1	Acetone	BRL		ug/Kg	200
75-15-0	Carbon Disulfide	BRL		ug/Kg	50
75-09-2	Methylene Chloride	BRL		ug/Kg	50
107-13-1	Acrylonitrile	BRL		ug/Kg	5
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	5
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	5
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	5
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	5
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	5
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	50
74-97-5	Bromochloromethane	BRL		ug/Kg	5
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	50
67-66-3	Chloroform	BRL		ug/Kg	5
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	5
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	5
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	5
71-43-2	Benzene	BRL		ug/Kg	5
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	5
79-01-6	Trichloroethene	BRL		ug/Kg	5
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	5
74-95-3	Dibromomethane	BRL		ug/Kg	5
75-27-4	Bromodichloromethane	BRL		ug/Kg	5
123-91-1	1,4-Dioxane	BRL		ug/Kg	5,000
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	50
108-88-3	Toluene	BRL		ug/Kg	5
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	5
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	5
127-18-4	Tetrachloroethene	BRL		ug/Kg	5
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	5
591-78-6	2-Hexanone	BRL		ug/Kg	50
124-48-1	Dibromochloromethane	BRL		ug/Kg	5
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	5
108-90-7	Chlorobenzene	BRL		ug/Kg	5
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	5
100-41-4	Ethylbenzene	BRL		ug/Kg	5
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL		ug/Kg	5

GROUNDWATER ANALYTICAL

EPA Method 8260B (Continued)
Volatile Organics by GC/MS

Field ID:	**CS-W2**	Matrix:	**Soil**
Project:	**Gulf New Hyde Park/60158261**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**Frozen**
Laboratory ID:	**135345-4**	QC Batch ID:	**VM1-2890-S**
Sampled:	**08-04-10 12:00**	Instrument ID:	**MS-1 HP 5890**
Received:	**08-06-10 18:25**	Sample Weight:	**5.4 g**
Analyzed:	**08-10-10 16:43**	% Solids:	**93**
Analyst:	**LMG**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
95-47-6	*ortho*-Xylene	BRL		ug/Kg	5
100-42-5	Styrene	BRL		ug/Kg	5
75-25-2	Bromoform	BRL		ug/Kg	5
98-82-8	Isopropylbenzene	BRL		ug/Kg	5
108-86-1	Bromobenzene	BRL		ug/Kg	5
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	5
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	5
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	50
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	5
95-49-8	2-Chlorotoluene	BRL		ug/Kg	5
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	5
106-43-4	4-Chlorotoluene	BRL		ug/Kg	5
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	5
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	5
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	5
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	5
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	5
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	5
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	5
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	5
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	5
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	5
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	5
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	5
91-20-3	Naphthalene	BRL		ug/Kg	5
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	5
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	200
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	5
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	5
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	50	61	**121 %**	70 - 130 %
1,2-Dichloroethane-d_4	50	45	**91 %**	70 - 130 %
Toluene-d_8	50	57	**115 %**	70 - 130 %
4-Bromofluorobenzene	50	61	**122 %**	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample preparation performed by EPA Method 5030B. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**CS-E**	Matrix:	**Soil**
Project:	**Gulf New Hyde Park/60158261**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**Frozen**
Laboratory ID:	**135345-5**	QC Batch ID:	**VM1-2891-S**
Sampled:	**08-04-10 12:10**	Instrument ID:	**MS-1 HP 5890**
Received:	**08-06-10 18:25**	Sample Weight:	**4.9 g**
Analyzed:	**08-11-10 12:21**	% Solids:	**96**
Analyst:	**LMG**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	11
74-87-3	Chloromethane	BRL		ug/Kg	11
75-01-4	Vinyl Chloride	BRL		ug/Kg	11
74-83-9	Bromomethane	BRL		ug/Kg	11
75-00-3	Chloroethane	BRL		ug/Kg	11
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	11
60-29-7	Diethyl Ether	BRL		ug/Kg	11
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	53
67-64-1	Acetone	BRL		ug/Kg	210
75-15-0	Carbon Disulfide	BRL		ug/Kg	53
75-09-2	Methylene Chloride	BRL		ug/Kg	53
107-13-1	Acrylonitrile	BRL		ug/Kg	5
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	5
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	5
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	5
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	5
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	5
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	53
74-97-5	Bromochloromethane	BRL		ug/Kg	5
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	53
67-66-3	Chloroform	BRL		ug/Kg	5
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	5
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	5
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	5
71-43-2	Benzene	BRL		ug/Kg	5
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	5
79-01-6	Trichloroethene	BRL		ug/Kg	5
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	5
74-95-3	Dibromomethane	BRL		ug/Kg	5
75-27-4	Bromodichloromethane	BRL		ug/Kg	5
123-91-1	1,4-Dioxane	BRL		ug/Kg	5,300
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	53
108-88-3	Toluene	BRL		ug/Kg	5
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	5
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	5
127-18-4	Tetrachloroethene	BRL		ug/Kg	5
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	5
591-78-6	2-Hexanone	BRL		ug/Kg	53
124-48-1	Dibromochloromethane	BRL		ug/Kg	5
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	5
108-90-7	Chlorobenzene	BRL		ug/Kg	5
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	5
100-41-4	Ethylbenzene	BRL		ug/Kg	5
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL		ug/Kg	5

GROUNDWATER ANALYTICAL

EPA Method 8260B (Continued)
Volatile Organics by GC/MS

Field ID:	**CS-E**	Matrix:	**Soil**
Project:	**Gulf New Hyde Park/60158261**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**Frozen**
Laboratory ID:	**135345-5**	QC Batch ID:	**VM1-2891-S**
Sampled:	**08-04-10 12:10**	Instrument ID:	**MS-1 HP 5890**
Received:	**08-06-10 18:25**	Sample Weight:	**4.9 g**
Analyzed:	**08-11-10 12:21**	% Solids:	**96**
Analyst:	**LMG**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
95-47-6	*ortho*-Xylene	BRL		ug/Kg	5
100-42-5	Styrene	BRL		ug/Kg	5
75-25-2	Bromoform	BRL		ug/Kg	5
98-82-8	Isopropylbenzene	BRL		ug/Kg	5
108-86-1	Bromobenzene	BRL		ug/Kg	5
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	5
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	5
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	53
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	5
95-49-8	2-Chlorotoluene	BRL		ug/Kg	5
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	5
106-43-4	4-Chlorotoluene	BRL		ug/Kg	5
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	5
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	5
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	5
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	5
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	5
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	5
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	5
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	5
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	5
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	5
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	5
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	5
91-20-3	Naphthalene	BRL		ug/Kg	5
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	5
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	210
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	5
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	5
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	50	62	**123 %**	70 - 130 %
1,2-Dichloroethane-d_4	50	52	**104 %**	70 - 130 %
Toluene-d_8	50	56	**111 %**	70 - 130 %
4-Bromofluorobenzene	50	56	**111 %**	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample preparation performed by EPA Method 5030B. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**CS-S**	Matrix:	**Soil**
Project:	**Gulf New Hyde Park/60158261**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**Frozen**
Laboratory ID:	**135345-6**	QC Batch ID:	**VM1-2891-S**
Sampled:	**08-05-10 09:00**	Instrument ID:	**MS-1 HP 5890**
Received:	**08-06-10 18:25**	Sample Weight:	**6.3 g**
Analyzed:	**08-11-10 13:34**	% Solids:	**81**
Analyst:	**LMG**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	10
74-87-3	Chloromethane	BRL		ug/Kg	10
75-01-4	Vinyl Chloride	BRL		ug/Kg	10
74-83-9	Bromomethane	BRL		ug/Kg	10
75-00-3	Chloroethane	BRL		ug/Kg	10
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	10
60-29-7	Diethyl Ether	BRL		ug/Kg	10
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	50
67-64-1	Acetone	BRL		ug/Kg	200
75-15-0	Carbon Disulfide	BRL		ug/Kg	50
75-09-2	Methylene Chloride	BRL		ug/Kg	50
107-13-1	Acrylonitrile	BRL		ug/Kg	5
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	5
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	5
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	5
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	5
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	5
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	50
74-97-5	Bromochloromethane	BRL		ug/Kg	5
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	50
67-66-3	Chloroform	BRL		ug/Kg	5
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	5
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	5
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	5
71-43-2	Benzene	BRL		ug/Kg	5
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	5
79-01-6	Trichloroethene	BRL		ug/Kg	5
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	5
74-95-3	Dibromomethane	BRL		ug/Kg	5
75-27-4	Bromodichloromethane	BRL		ug/Kg	5
123-91-1	1,4-Dioxane	BRL		ug/Kg	5,000
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	50
108-88-3	Toluene	BRL		ug/Kg	5
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	5
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	5
127-18-4	Tetrachloroethene	BRL		ug/Kg	5
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	5
591-78-6	2-Hexanone	BRL		ug/Kg	50
124-48-1	Dibromochloromethane	BRL		ug/Kg	5
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	5
108-90-7	Chlorobenzene	BRL		ug/Kg	5
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	5
100-41-4	Ethylbenzene	BRL		ug/Kg	5
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL		ug/Kg	5

GROUNDWATER ANALYTICAL

EPA Method 8260B (Continued)
Volatile Organics by GC/MS

Field ID:	**CS-S**	Matrix:	**Soil**
Project:	**Gulf New Hyde Park/60158261**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**Frozen**
Laboratory ID:	**135345-6**	QC Batch ID:	**VM1-2891-S**
Sampled:	**08-05-10 09:00**	Instrument ID:	**MS-1 HP 5890**
Received:	**08-06-10 18:25**	Sample Weight:	**6.3 g**
Analyzed:	**08-11-10 13:34**	% Solids:	**81**
Analyst:	**LMG**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
95-47-6	*ortho*-Xylene	BRL		ug/Kg	5
100-42-5	Styrene	BRL		ug/Kg	5
75-25-2	Bromoform	BRL		ug/Kg	5
98-82-8	Isopropylbenzene	BRL		ug/Kg	5
108-86-1	Bromobenzene	BRL		ug/Kg	5
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	5
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	5
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	50
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	5
95-49-8	2-Chlorotoluene	BRL		ug/Kg	5
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	5
106-43-4	4-Chlorotoluene	BRL		ug/Kg	5
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	5
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	5
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	5
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	5
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	5
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	5
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	5
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	5
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	5
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	5
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	5
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	5
91-20-3	Naphthalene	BRL		ug/Kg	5
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	5
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	200
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	5
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	5
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	50	58	**116** %	70 - 130 %
1,2-Dichloroethane-d_4	50	46	**93** %	70 - 130 %
Toluene-d_8	50	56	**113** %	70 - 130 %
4-Bromofluorobenzene	50	57	**115** %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample preparation performed by EPA Method 5030B. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	CS-BT2	Matrix:	Soil
Project:	Gulf New Hyde Park/60158261	Container:	40 mL VOA Vial
Client:	AECOM Environment	Preservation:	Frozen
Laboratory ID:	135345-7	QC Batch ID:	VM1-2891-S
Sampled:	08-05-10 11:00	Instrument ID:	MS-1 HP 5890
Received:	08-06-10 18:25	Sample Weight:	5.7 g
Analyzed:	08-11-10 14:10	% Solids:	96
Analyst:	LMG	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	10
74-87-3	Chloromethane	BRL		ug/Kg	10
75-01-4	Vinyl Chloride	BRL		ug/Kg	10
74-83-9	Bromomethane	BRL		ug/Kg	10
75-00-3	Chloroethane	BRL		ug/Kg	10
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	10
60-29-7	Diethyl Ether	BRL		ug/Kg	10
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	50
67-64-1	Acetone	BRL		ug/Kg	200
75-15-0	Carbon Disulfide	BRL		ug/Kg	50
75-09-2	Methylene Chloride	BRL		ug/Kg	50
107-13-1	Acrylonitrile	BRL		ug/Kg	5
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	5
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	5
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	5
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	5
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	5
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	50
74-97-5	Bromochloromethane	BRL		ug/Kg	5
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	50
67-66-3	Chloroform	BRL		ug/Kg	5
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	5
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	5
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	5
71-43-2	Benzene	BRL		ug/Kg	5
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	5
79-01-6	Trichloroethene	BRL		ug/Kg	5
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	5
74-95-3	Dibromomethane	BRL		ug/Kg	5
75-27-4	Bromodichloromethane	BRL		ug/Kg	5
123-91-1	1,4-Dioxane	BRL		ug/Kg	5,000
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	50
108-88-3	Toluene	BRL		ug/Kg	5
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	5
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	5
127-18-4	Tetrachloroethene	BRL		ug/Kg	5
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	5
591-78-6	2-Hexanone	BRL		ug/Kg	50
124-48-1	Dibromochloromethane	BRL		ug/Kg	5
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	5
108-90-7	Chlorobenzene	BRL		ug/Kg	5
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	5
100-41-4	Ethylbenzene	BRL		ug/Kg	5
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL		ug/Kg	5

GROUNDWATER ANALYTICAL

EPA Method 8260B (Continued)
Volatile Organics by GC/MS

Field ID:	**CS-BT2**	Matrix:	**Soil**
Project:	**Gulf New Hyde Park/60158261**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**Frozen**
Laboratory ID:	**135345-7**	QC Batch ID:	**VM1-2891-S**
Sampled:	**08-05-10 11:00**	Instrument ID:	**MS-1 HP 5890**
Received:	**08-06-10 18:25**	Sample Weight:	**5.7 g**
Analyzed:	**08-11-10 14:10**	% Solids:	**96**
Analyst:	**LMG**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
95-47-6	*ortho*-Xylene	BRL		ug/Kg	5
100-42-5	Styrene	BRL		ug/Kg	5
75-25-2	Bromoform	BRL		ug/Kg	5
98-82-8	Isopropylbenzene	BRL		ug/Kg	5
108-86-1	Bromobenzene	BRL		ug/Kg	5
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	5
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	5
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	50
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	5
95-49-8	2-Chlorotoluene	BRL		ug/Kg	5
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	5
106-43-4	4-Chlorotoluene	BRL		ug/Kg	5
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	5
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	5
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	5
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	5
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	5
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	5
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	5
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	5
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	5
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	5
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	5
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	5
91-20-3	Naphthalene	BRL		ug/Kg	5
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	5
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	200
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	5
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	5
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	50	65	**130** %	70 - 130 %
1,2-Dichloroethane-d_4	50	57	**115** %	70 - 130 %
Toluene-d_8	50	59	**118** %	70 - 130 %
4-Bromofluorobenzene	50	53	**106** %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample preparation performed by EPA Method 5030B. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

EPA Method 8270C (Continued)
Semivolatile Organics by GC/MS

Field ID:	**CS-BT1**	Matrix:	**Soil**
Project:	**Gulf New Hyde Park/60158261**	Container:	**250 mL Amber Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**135345-08**	QC Batch ID:	**SV-2381-P**
Sampled:	**08-04-10 10:35**	Instrument ID:	**MS-3 HP 5890**
Received:	**08-06-10 18:25**	Sample Weight:	**16 g**
Extracted:	**08-10-10 19:00**	Final Volume:	**1 mL**
Analyzed:	**08-11-10 13:53**	Dilution Factor:	**1**
Analyst:	**MJB**		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
84-66-2	Diethyl phthalate	BRL		ug/Kg	330
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	330
86-73-7	Fluorene	BRL		ug/Kg	330
100-01-6	4-Nitroaniline	BRL		ug/Kg	330
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	670
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	330
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	330
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	330
118-74-1	Hexachlorobenzene	BRL		ug/Kg	330
87-86-5	Pentachlorophenol	BRL		ug/Kg	670
85-01-8	Phenanthrene	BRL		ug/Kg	330
120-12-7	Anthracene	BRL		ug/Kg	330
86-74-8	Carbazole	BRL		ug/Kg	330
84-74-2	Di-*n*-butyl phthalate	BRL		ug/Kg	330
206-44-0	Fluoranthene	BRL		ug/Kg	330
129-00-0	Pyrene	BRL		ug/Kg	330
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	330
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	330
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	330
218-01-9	Chrysene	BRL		ug/Kg	330
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	330
117-84-0	Di-*n*-octyl phthalate	BRL		ug/Kg	330
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	330
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	330
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	330
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	330
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	330
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	330

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	13,000	10,000	**76** %	30 - 130 %
Phenol-d5	13,000	10,000	**78** %	30 - 130 %
Nitrobenzene-d5	6,700	6,200	**93** %	30 - 130 %
2-Fluorobiphenyl	6,700	6,500	**97** %	30 - 130 %
2,4,6-Tribromophenol	13,000	11,000	**80** %	30 - 130 %
Terphenyl-d14	6,700	7,100	**106** %	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545. Results are reported on a dry weight basis.

Report Notations:
BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

* Analyzed as 4-Methylphenol.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

EPA Method 8270C
Semivolatile Organics by GC/MS

Field ID:	**DISP #3**	Matrix:	**Soil**
Project:	**Gulf New Hyde Park/60158261**	Container:	**250 mL Amber Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**135345-09**	QC Batch ID:	**SV-2381-P**
Sampled:	**08-04-10 10:40**	Instrument ID:	**MS-3 HP 5890**
Received:	**08-06-10 18:25**	Sample Weight:	**15 g**
Extracted:	**08-10-10 19:00**	Final Volume:	**1 mL**
Analyzed:	**08-11-10 15:16**	Percent Solids:	**95**
Analyst:	**MJB**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	340
110-86-1	Pyridine	BRL		ug/Kg	340
108-95-2	Phenol	BRL		ug/Kg	340
62-53-3	Aniline	BRL		ug/Kg	340
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	340
95-57-8	2-Chlorophenol	BRL		ug/Kg	340
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	340
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	340
100-51-6	Benzyl Alcohol	BRL		ug/Kg	340
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	340
95-48-7	2-Methylphenol	BRL		ug/Kg	340
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	340
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	340
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	340
98-86-2	Acetophenone	BRL		ug/Kg	340
67-72-1	Hexachloroethane	BRL		ug/Kg	340
98-95-3	Nitrobenzene	BRL		ug/Kg	340
78-59-1	Isophorone	BRL		ug/Kg	340
88-75-5	2-Nitrophenol	BRL		ug/Kg	340
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	340
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	340
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	340
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	340
91-20-3	Naphthalene	BRL		ug/Kg	340
106-47-8	4-Chloroaniline	BRL		ug/Kg	340
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	340
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	340
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	340
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	340
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	340
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	340
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	340
88-74-4	2-Nitroaniline	BRL		ug/Kg	340
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	340
131-11-3	Dimethyl phthalate	BRL		ug/Kg	340
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	340
208-96-8	Acenaphthylene	BRL		ug/Kg	340
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	340
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	340
99-09-2	3-Nitroaniline	BRL		ug/Kg	340
83-32-9	Acenaphthene	BRL		ug/Kg	340
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	700
100-02-7	4-Nitrophenol	BRL		ug/Kg	340
132-64-9	Dibenzofuran	BRL		ug/Kg	340
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	340

GROUNDWATER ANALYTICAL

EPA Method 8270C (Continued)
Semivolatile Organics by GC/MS

Field ID:	**DISP #3**	Matrix:	**Soil**
Project:	**Gulf New Hyde Park/60158261**	Container:	**250 mL Amber Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**135345-09**	QC Batch ID:	**SV-2381-P**
Sampled:	**08-04-10 10:40**	Instrument ID:	**MS-3 HP 5890**
Received:	**08-06-10 18:25**	Sample Weight:	**15 g**
Extracted:	**08-10-10 19:00**	Final Volume:	**1 mL**
Analyzed:	**08-11-10 15:16**	Dilution Factor:	**1**
Analyst:	**MJB**		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
84-66-2	Diethyl phthalate	BRL		ug/Kg	340
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	340
86-73-7	Fluorene	BRL		ug/Kg	340
100-01-6	4-Nitroaniline	BRL		ug/Kg	340
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	700
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	340
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	340
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	340
118-74-1	Hexachlorobenzene	BRL		ug/Kg	340
87-86-5	Pentachlorophenol	BRL		ug/Kg	700
85-01-8	Phenanthrene	BRL		ug/Kg	340
120-12-7	Anthracene	BRL		ug/Kg	340
86-74-8	Carbazole	BRL		ug/Kg	340
84-74-2	Di-*n*-butyl phthalate	BRL		ug/Kg	340
206-44-0	Fluoranthene	BRL		ug/Kg	340
129-00-0	Pyrene	BRL		ug/Kg	340
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	340
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	340
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	340
218-01-9	Chrysene	BRL		ug/Kg	340
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	340
117-84-0	Di-*n*-octyl phthalate	BRL		ug/Kg	340
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	340
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	340
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	340
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	340
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	340
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	340

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	14,000	9,400	**68 %**	30 - 130 %
Phenol-d5	14,000	9,700	**70 %**	30 - 130 %
Nitrobenzene-d5	7,000	5,700	**83 %**	30 - 130 %
2-Fluorobiphenyl	7,000	6,100	**88 %**	30 - 130 %
2,4,6-Tribromophenol	14,000	9,300	**67 %**	30 - 130 %
Terphenyl-d14	7,000	6,300	**90 %**	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545. Results are reported on a dry weight basis.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

* Analyzed as 4-Methylphenol.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

EPA Method 8270C
Semivolatile Organics by GC/MS

Field ID:	**DISP #4**	Matrix:	**Soil**
Project:	**Gulf New Hyde Park/60158261**	Container:	**250 mL Amber Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**135345-10**	QC Batch ID:	**SV-2381-P**
Sampled:	**08-04-10 10:50**	Instrument ID:	**MS-3 HP 5890**
Received:	**08-06-10 18:25**	Sample Weight:	**15 g**
Extracted:	**08-10-10 19:00**	Final Volume:	**1 mL**
Analyzed:	**08-11-10 15:58**	Percent Solids:	**90**
Analyst:	**MJB**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	360
110-86-1	Pyridine	BRL		ug/Kg	360
108-95-2	Phenol	BRL		ug/Kg	360
62-53-3	Aniline	BRL		ug/Kg	360
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	360
95-57-8	2-Chlorophenol	BRL		ug/Kg	360
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	360
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	360
100-51-6	Benzyl Alcohol	BRL		ug/Kg	360
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	360
95-48-7	2-Methylphenol	BRL		ug/Kg	360
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	360
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	360
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	360
98-86-2	Acetophenone	BRL		ug/Kg	360
67-72-1	Hexachloroethane	BRL		ug/Kg	360
98-95-3	Nitrobenzene	BRL		ug/Kg	360
78-59-1	Isophorone	BRL		ug/Kg	360
88-75-5	2-Nitrophenol	BRL		ug/Kg	360
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	360
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	360
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	360
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	360
91-20-3	Naphthalene	BRL		ug/Kg	360
106-47-8	4-Chloroaniline	BRL		ug/Kg	360
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	360
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	360
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	360
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	360
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	360
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	360
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	360
88-74-4	2-Nitroaniline	BRL		ug/Kg	360
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	360
131-11-3	Dimethyl phthalate	BRL		ug/Kg	360
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	360
208-96-8	Acenaphthylene	BRL		ug/Kg	360
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	360
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	360
99-09-2	3-Nitroaniline	BRL		ug/Kg	360
83-32-9	Acenaphthene	BRL		ug/Kg	360
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	720
100-02-7	4-Nitrophenol	BRL		ug/Kg	360
132-64-9	Dibenzofuran	BRL		ug/Kg	360
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	360

GROUNDWATER ANALYTICAL

EPA Method 8270C (Continued)
Semivolatile Organics by GC/MS

Field ID:	**DISP #4**	Matrix:	**Soil**
Project:	**Gulf New Hyde Park/60158261**	Container:	**250 mL Amber Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**135345-10**	QC Batch ID:	**SV-2381-P**
Sampled:	**08-04-10 10:50**	Instrument ID:	**MS-3 HP 5890**
Received:	**08-06-10 18:25**	Sample Weight:	**15 g**
Extracted:	**08-10-10 19:00**	Final Volume:	**1 mL**
Analyzed:	**08-11-10 15:58**	Dilution Factor:	**1**
Analyst:	**MJB**		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
84-66-2	Diethyl phthalate	BRL		ug/Kg	360
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	360
86-73-7	Fluorene	BRL		ug/Kg	360
100-01-6	4-Nitroaniline	BRL		ug/Kg	360
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	720
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	360
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	360
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	360
118-74-1	Hexachlorobenzene	BRL		ug/Kg	360
87-86-5	Pentachlorophenol	BRL		ug/Kg	720
85-01-8	Phenanthrene	BRL		ug/Kg	360
120-12-7	Anthracene	BRL		ug/Kg	360
86-74-8	Carbazole	BRL		ug/Kg	360
84-74-2	Di-*n*-butyl phthalate	BRL		ug/Kg	360
206-44-0	Fluoranthene	BRL		ug/Kg	360
129-00-0	Pyrene	BRL		ug/Kg	360
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	360
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	360
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	360
218-01-9	Chrysene	BRL		ug/Kg	360
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	360
117-84-0	Di-*n*-octyl phthalate	BRL		ug/Kg	360
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	360
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	360
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	360
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	360
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	360
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	360

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	14,000	10,000	**73** %	30 - 130 %
Phenol-d5	14,000	10,000	**73** %	30 - 130 %
Nitrobenzene-d5	7,200	6,400	**88** %	30 - 130 %
2-Fluorobiphenyl	7,200	6,700	**93** %	30 - 130 %
2,4,6-Tribromophenol	14,000	11,000	**73** %	30 - 130 %
Terphenyl-d14	7,200	7,000	**97** %	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545. Results are reported on a dry weight basis.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

* Analyzed as 4-Methylphenol.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

EPA Method 8270C
Semivolatile Organics by GC/MS

Field ID:	**CS-W2**	Matrix:	**Soil**
Project:	**Gulf New Hyde Park/60158261**	Container:	**250 mL Amber Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**135345-11**	QC Batch ID:	**SV-2380-P**
Sampled:	**08-04-10 12:00**	Instrument ID:	**MS-3 HP 5890**
Received:	**08-06-10 18:25**	Sample Weight:	**15 g**
Extracted:	**08-06-10 11:15**	Final Volume:	**1 mL**
Analyzed:	**08-12-10 12:25**	Percent Solids:	**93**
Analyst:	**MJB**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	340
110-86-1	Pyridine	BRL		ug/Kg	340
108-95-2	Phenol	BRL		ug/Kg	340
62-53-3	Aniline	BRL		ug/Kg	340
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	340
95-57-8	2-Chlorophenol	BRL		ug/Kg	340
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	340
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	340
100-51-6	Benzyl Alcohol	BRL		ug/Kg	340
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	340
95-48-7	2-Methylphenol	BRL		ug/Kg	340
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	340
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	340
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	340
98-86-2	Acetophenone	BRL		ug/Kg	340
67-72-1	Hexachloroethane	BRL		ug/Kg	340
98-95-3	Nitrobenzene	BRL		ug/Kg	340
78-59-1	Isophorone	BRL		ug/Kg	340
88-75-5	2-Nitrophenol	BRL		ug/Kg	340
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	340
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	340
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	340
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	340
91-20-3	Naphthalene	BRL		ug/Kg	340
106-47-8	4-Chloroaniline	BRL		ug/Kg	340
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	340
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	340
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	340
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	340
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	340
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	340
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	340
88-74-4	2-Nitroaniline	BRL		ug/Kg	340
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	340
131-11-3	Dimethyl phthalate	BRL		ug/Kg	340
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	340
208-96-8	Acenaphthylene	BRL		ug/Kg	340
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	340
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	340
99-09-2	3-Nitroaniline	BRL		ug/Kg	340
83-32-9	Acenaphthene	BRL		ug/Kg	340
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	700
100-02-7	4-Nitrophenol	BRL		ug/Kg	340
132-64-9	Dibenzofuran	BRL		ug/Kg	340
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	340

GROUNDWATER ANALYTICAL

EPA Method 8270C (Continued)
Semivolatile Organics by GC/MS

Field ID:	CS-W2	Matrix:	Soil
Project:	Gulf New Hyde Park/60158261	Container:	250 mL Amber Glass
Client:	AECOM Environment	Preservation:	Cool
Laboratory ID:	135345-11	QC Batch ID:	SV-2380-P
Sampled:	08-04-10 12:00	Instrument ID:	MS-3 HP 5890
Received:	08-06-10 18:25	Sample Weight:	15 g
Extracted:	08-06-10 11:15	Final Volume:	1 mL
Analyzed:	08-12-10 12:25	Dilution Factor:	1
Analyst:	MJB		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
84-66-2	Diethyl phthalate	BRL		ug/Kg	340
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	340
86-73-7	Fluorene	BRL		ug/Kg	340
100-01-6	4-Nitroaniline	BRL		ug/Kg	340
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	700
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	340
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	340
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	340
118-74-1	Hexachlorobenzene	BRL		ug/Kg	340
87-86-5	Pentachlorophenol	BRL		ug/Kg	700
85-01-8	Phenanthrene	BRL		ug/Kg	340
120-12-7	Anthracene	BRL		ug/Kg	340
86-74-8	Carbazole	BRL		ug/Kg	340
84-74-2	Di-*n*-butyl phthalate	BRL		ug/Kg	340
206-44-0	Fluoranthene	BRL		ug/Kg	340
129-00-0	Pyrene	BRL		ug/Kg	340
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	340
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	340
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	340
218-01-9	Chrysene	BRL		ug/Kg	340
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	340
117-84-0	Di-*n*-octyl phthalate	BRL		ug/Kg	340
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	340
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	340
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	340
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	340
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	340
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	340

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	14,000	8,700	63 %	30 - 130 %
Phenol-d5	14,000	9,800	71 %	30 - 130 %
Nitrobenzene-d5	7,000	5,900	85 %	30 - 130 %
2-Fluorobiphenyl	7,000	6,300	90 %	30 - 130 %
2,4,6-Tribromophenol	14,000	7,700	55 %	30 - 130 %
Terphenyl-d14	7,000	6,300	91 %	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545. Results are reported on a dry weight basis.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

* Analyzed as 4-Methylphenol.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

EPA Method 8270C
Semivolatile Organics by GC/MS

Field ID:	CS-E	Matrix:	Soil
Project:	Gulf New Hyde Park/60158261	Container:	250 mL Amber Glass
Client:	AECOM Environment	Preservation:	Cool
Laboratory ID:	135345-12	QC Batch ID:	SV-2381-P
Sampled:	08-04-10 12:10	Instrument ID:	MS-3 HP 5890
Received:	08-06-10 18:25	Sample Weight:	15 g
Extracted:	08-10-10 19:00	Final Volume:	1 mL
Analyzed:	08-11-10 17:21	Percent Solids:	96
Analyst:	MJB	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	330
110-86-1	Pyridine	BRL		ug/Kg	330
108-95-2	Phenol	BRL		ug/Kg	330
62-53-3	Aniline	BRL		ug/Kg	330
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	330
95-57-8	2-Chlorophenol	BRL		ug/Kg	330
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	330
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	330
100-51-6	Benzyl Alcohol	BRL		ug/Kg	330
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	330
95-48-7	2-Methylphenol	BRL		ug/Kg	330
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	330
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	330
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	330
98-86-2	Acetophenone	BRL		ug/Kg	330
67-72-1	Hexachloroethane	BRL		ug/Kg	330
98-95-3	Nitrobenzene	BRL		ug/Kg	330
78-59-1	Isophorone	BRL		ug/Kg	330
88-75-5	2-Nitrophenol	BRL		ug/Kg	330
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	330
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	330
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	330
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	330
91-20-3	Naphthalene	BRL		ug/Kg	330
106-47-8	4-Chloroaniline	BRL		ug/Kg	330
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	330
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	330
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	330
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	330
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	330
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	330
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	330
88-74-4	2-Nitroaniline	BRL		ug/Kg	330
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	330
131-11-3	Dimethyl phthalate	BRL		ug/Kg	330
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	330
208-96-8	Acenaphthylene	BRL		ug/Kg	330
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	330
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	330
99-09-2	3-Nitroaniline	BRL		ug/Kg	330
83-32-9	Acenaphthene	BRL		ug/Kg	330
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	670
100-02-7	4-Nitrophenol	BRL		ug/Kg	330
132-64-9	Dibenzofuran	BRL		ug/Kg	330
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	330

GROUNDWATER ANALYTICAL

EPA Method 8270C (Continued)
Semivolatile Organics by GC/MS

Field ID:	CS-E	Matrix:	Soil
Project:	Gulf New Hyde Park/60158261	Container:	250 mL Amber Glass
Client:	AECOM Environment	Preservation:	Cool
Laboratory ID:	135345-12	QC Batch ID:	SV-2381-P
Sampled:	08-04-10 12:10	Instrument ID:	MS-3 HP 5890
Received:	08-06-10 18:25	Sample Weight:	15 g
Extracted:	08-10-10 19:00	Final Volume:	1 mL
Analyzed:	08-11-10 17:21	Dilution Factor:	1
Analyst:	MJB		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
84-66-2	Diethyl phthalate	BRL		ug/Kg	330
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	330
86-73-7	Fluorene	BRL		ug/Kg	330
100-01-6	4-Nitroaniline	BRL		ug/Kg	330
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	670
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	330
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	330
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	330
118-74-1	Hexachlorobenzene	BRL		ug/Kg	330
87-86-5	Pentachlorophenol	BRL		ug/Kg	670
85-01-8	Phenanthrene	BRL		ug/Kg	330
120-12-7	Anthracene	BRL		ug/Kg	330
86-74-8	Carbazole	BRL		ug/Kg	330
84-74-2	Di-*n*-butyl phthalate	BRL		ug/Kg	330
206-44-0	Fluoranthene	BRL		ug/Kg	330
129-00-0	Pyrene	BRL		ug/Kg	330
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	330
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	330
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	330
218-01-9	Chrysene	BRL		ug/Kg	330
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	330
117-84-0	Di-*n*-octyl phthalate	BRL		ug/Kg	330
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	330
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	330
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	330
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	330
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	330
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	330

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	13,000	8,600	64 %	30 - 130 %
Phenol-d5	13,000	8,900	67 %	30 - 130 %
Nitrobenzene-d5	6,700	5,400	80 %	30 - 130 %
2-Fluorobiphenyl	6,700	5,700	85 %	30 - 130 %
2,4,6-Tribromophenol	13,000	8,100	60 %	30 - 130 %
Terphenyl-d14	6,700	6,200	92 %	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545. Results are reported on a dry weight basis.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

* Analyzed as 4-Methylphenol.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

EPA Method 8270C
Semivolatile Organics by GC/MS

Field ID:	CS-S	Matrix:	Soil
Project:	Gulf New Hyde Park/60158261	Container:	250 mL Amber Glass
Client:	AECOM Environment	Preservation:	Cool
Laboratory ID:	135345-13	QC Batch ID:	SV-2381-P
Sampled:	08-05-10 09:00	Instrument ID:	MS-3 HP 5890
Received:	08-06-10 18:25	Sample Weight:	15 g
Extracted:	08-10-10 19:00	Final Volume:	1 mL
Analyzed:	08-11-10 18:03	Percent Solids:	81
Analyst:	MJB	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	400
110-86-1	Pyridine	BRL		ug/Kg	400
108-95-2	Phenol	BRL		ug/Kg	400
62-53-3	Aniline	BRL		ug/Kg	400
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	400
95-57-8	2-Chlorophenol	BRL		ug/Kg	400
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	400
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	400
100-51-6	Benzyl Alcohol	BRL		ug/Kg	400
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	400
95-48-7	2-Methylphenol	BRL		ug/Kg	400
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	400
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	400
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	400
98-86-2	Acetophenone	BRL		ug/Kg	400
67-72-1	Hexachloroethane	BRL		ug/Kg	400
98-95-3	Nitrobenzene	BRL		ug/Kg	400
78-59-1	Isophorone	BRL		ug/Kg	400
88-75-5	2-Nitrophenol	BRL		ug/Kg	400
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	400
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	400
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	400
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	400
91-20-3	Naphthalene	BRL		ug/Kg	400
106-47-8	4-Chloroaniline	BRL		ug/Kg	400
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	400
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	400
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	400
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	400
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	400
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	400
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	400
88-74-4	2-Nitroaniline	BRL		ug/Kg	400
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	400
131-11-3	Dimethyl phthalate	BRL		ug/Kg	400
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	400
208-96-8	Acenaphthylene	BRL		ug/Kg	400
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	400
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	400
99-09-2	3-Nitroaniline	BRL		ug/Kg	400
83-32-9	Acenaphthene	BRL		ug/Kg	400
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	820
100-02-7	4-Nitrophenol	BRL		ug/Kg	400
132-64-9	Dibenzofuran	BRL		ug/Kg	400
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	400

GROUNDWATER ANALYTICAL

EPA Method 8270C (Continued)
Semivolatile Organics by GC/MS

Field ID:	CS-S	Matrix:	Soil
Project:	Gulf New Hyde Park/60158261	Container:	250 mL Amber Glass
Client:	AECOM Environment	Preservation:	Cool
Laboratory ID:	135345-13	QC Batch ID:	SV-2381-P
Sampled:	08-05-10 09:00	Instrument ID:	MS-3 HP 5890
Received:	08-06-10 18:25	Sample Weight:	15 g
Extracted:	08-10-10 19:00	Final Volume:	1 mL
Analyzed:	08-11-10 18:03	Dilution Factor:	1
Analyst:	MJB		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
84-66-2	Diethyl phthalate	BRL		ug/Kg	400
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	400
86-73-7	Fluorene	BRL		ug/Kg	400
100-01-6	4-Nitroaniline	BRL		ug/Kg	400
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	820
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	400
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	400
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	400
118-74-1	Hexachlorobenzene	BRL		ug/Kg	400
87-86-5	Pentachlorophenol	BRL		ug/Kg	820
85-01-8	Phenanthrene	BRL		ug/Kg	400
120-12-7	Anthracene	BRL		ug/Kg	400
86-74-8	Carbazole	BRL		ug/Kg	400
84-74-2	Di-*n*-butyl phthalate	BRL		ug/Kg	400
206-44-0	Fluoranthene	BRL		ug/Kg	400
129-00-0	Pyrene	BRL		ug/Kg	400
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	400
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	400
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	400
218-01-9	Chrysene	BRL		ug/Kg	400
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	400
117-84-0	Di-*n*-octyl phthalate	BRL		ug/Kg	400
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	400
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	400
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	400
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	400
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	400
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	400

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	16,000	11,000	68 %	30 - 130 %
Phenol-d5	16,000	11,000	70 %	30 - 130 %
Nitrobenzene-d5	8,100	6,700	82 %	30 - 130 %
2-Fluorobiphenyl	8,100	7,200	89 %	30 - 130 %
2,4,6-Tribromophenol	16,000	8,400	52 %	30 - 130 %
Terphenyl-d14	8,100	7,700	95 %	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545. Results are reported on a dry weight basis.

Report Notations:
BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

* Analyzed as 4-Methylphenol.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

EPA Method 8270C
Semivolatile Organics by GC/MS

Field ID:	CS-BT2	Matrix:	Soil
Project:	Gulf New Hyde Park/60158261	Container:	250 mL Amber Glass
Client:	AECOM Environment	Preservation:	Cool
Laboratory ID:	135345-14	QC Batch ID:	SV-2381-P
Sampled:	08-05-10 11:00	Instrument ID:	MS-3 HP 5890
Received:	08-06-10 18:25	Sample Weight:	16 g
Extracted:	08-10-10 19:00	Final Volume:	1 mL
Analyzed:	08-11-10 18:44	Percent Solids:	96
Analyst:	MJB	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	330
110-86-1	Pyridine	BRL		ug/Kg	330
108-95-2	Phenol	BRL		ug/Kg	330
62-53-3	Aniline	BRL		ug/Kg	330
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	330
95-57-8	2-Chlorophenol	BRL		ug/Kg	330
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	330
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	330
100-51-6	Benzyl Alcohol	BRL		ug/Kg	330
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	330
95-48-7	2-Methylphenol	BRL		ug/Kg	330
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	330
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	330
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	330
98-86-2	Acetophenone	BRL		ug/Kg	330
67-72-1	Hexachloroethane	BRL		ug/Kg	330
98-95-3	Nitrobenzene	BRL		ug/Kg	330
78-59-1	Isophorone	BRL		ug/Kg	330
88-75-5	2-Nitrophenol	BRL		ug/Kg	330
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	330
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	330
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	330
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	330
91-20-3	Naphthalene	BRL		ug/Kg	330
106-47-8	4-Chloroaniline	BRL		ug/Kg	330
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	330
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	330
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	330
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	330
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	330
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	330
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	330
88-74-4	2-Nitroaniline	BRL		ug/Kg	330
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	330
131-11-3	Dimethyl phthalate	BRL		ug/Kg	330
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	330
208-96-8	Acenaphthylene	BRL		ug/Kg	330
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	330
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	330
99-09-2	3-Nitroaniline	BRL		ug/Kg	330
83-32-9	Acenaphthene	BRL		ug/Kg	330
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	670
100-02-7	4-Nitrophenol	BRL		ug/Kg	330
132-64-9	Dibenzofuran	BRL		ug/Kg	330
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	330

GROUNDWATER ANALYTICAL

EPA Method 8270C (Continued)
Semivolatile Organics by GC/MS

Field ID:	**CS-BT2**	Matrix:	**Soil**
Project:	**Gulf New Hyde Park/60158261**	Container:	**250 mL Amber Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**135345-14**	QC Batch ID:	**SV-2381-P**
Sampled:	**08-05-10 11:00**	Instrument ID:	**MS-3 HP 5890**
Received:	**08-06-10 18:25**	Sample Weight:	**16 g**
Extracted:	**08-10-10 19:00**	Final Volume:	**1 mL**
Analyzed:	**08-11-10 18:44**	Dilution Factor:	**1**
Analyst:	**MJB**		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
84-66-2	Diethyl phthalate	BRL		ug/Kg	330
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	330
86-73-7	Fluorene	BRL		ug/Kg	330
100-01-6	4-Nitroaniline	BRL		ug/Kg	330
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	670
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	330
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	330
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	330
118-74-1	Hexachlorobenzene	BRL		ug/Kg	330
87-86-5	Pentachlorophenol	BRL		ug/Kg	670
85-01-8	Phenanthrene	BRL		ug/Kg	330
120-12-7	Anthracene	BRL		ug/Kg	330
86-74-8	Carbazole	BRL		ug/Kg	330
84-74-2	Di-*n*-butyl phthalate	BRL		ug/Kg	330
206-44-0	Fluoranthene	BRL		ug/Kg	330
129-00-0	Pyrene	BRL		ug/Kg	330
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	330
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	330
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	330
218-01-9	Chrysene	BRL		ug/Kg	330
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	330
117-84-0	Di-*n*-octyl phthalate	BRL		ug/Kg	330
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	330
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	330
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	330
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	330
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	330
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	330

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	13,000	9,100	**68 %**	30 - 130 %
Phenol-d5	13,000	9,800	**73 %**	30 - 130 %
Nitrobenzene-d5	6,700	6,000	**89 %**	30 - 130 %
2-Fluorobiphenyl	6,700	6,200	**93 %**	30 - 130 %
2,4,6-Tribromophenol	13,000	5,400	**40 %**	30 - 130 %
Terphenyl-d14	6,700	7,000	**105 %**	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545. Results are reported on a dry weight basis.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

* Analyzed as 4-Methylphenol.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

Project Narrative

Project: **Gulf New Hyde Park/60158261**
Client: **AECOM Environment**

Lab ID: **135345**
Received: **08-06-10 18:25**

A. Documentation and Client Communication

The following documentation discrepancies, and client changes or amendments were noted for this project:

1. No documentation discrepancies, changes, or amendments were noted.

B. Method Modifications, Non-Conformances and Observations

The sample(s) in this project were analyzed by the references analytical method(s), and no method modifications, non-conformances or analytical issues were noted, except as indicated below:

1. EPA 8270C Non-conformance: Laboratory control sample (LCS) analytes 2,4-Dinitrophenol and 4,6-Dinintro-2-methylphenol were below recommended recovery limits for QC batch SV-2381-P.
2. EPA 8270C Non-conformance: Laboratory control sample (LCS) analyte 2,4-Dinitrophenol was below recommended recovery limits for QC batch SV-2380-P.

GROUNDWATER ANALYTICAL

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CHAIN-OF-CUSTODY RECORD AND WORK ORDER

Project Name: Gulf New Hyde Park
Project Number: 6015 8261
Sampler Name: Julian Rambarat
Project Manager: Jennifer Hadden

Firm: AECOM
Address: 2 Technology Park Drive
City / State / Zip: Westford, MA 01886
Telephone: 978-589-3000

TURNAROUND

- [x] 10 Business Days
- [ ] 5 Business Days
- [ ] RUSH (RAN- _____)
  (Rush requires Rush Authorization Number)
- [x] Please Email to: jennifer.hadden@aecom.com
- [ ] Please FAX to: _____

BILLING

- [ ] Purchase Order No.: _____
- [ ] Third Party Billing: _____
- [ ] GWA Quote: _____

ANALYSIS REQUEST

OPTIONS / SDWA / NPDES / RCRA/21E

Volatiles: [ ] TICs Search
Semivolatiles: [ ] Acid Only [ ] 8270 Only [ ] TICs Search
Pest/Herb/PCBs Extractable: [ ] 8081 Pesticides [ ] 608 PCBs [ ] 8151 [ ] 8151 Ester [ ] 504.1 EDB/DBCP
Pest/Herb/PCBs Vol.: [ ] 504.1 EDB/DBCP
Metals: Specify for Water Samples: [ ] Total [ ] Dissolved; [ ] Lead and Copper; [ ] 13 Priority Pollutant; [ ] RCRA 8 Metals
Petroleum Hydrocarbon Ext. TPH: [ ] MA EPH; [ ] CT ETPH; [ ] MA EPH with Targets; [ ] TPH (Carbon Range only); [ ] Diesel Range Organics (DRO); [ ] MA EPH with Hydrocarbon Fractionation (Target analytes reported QA/QC by ADAM/2004 Guidance); [ ] TPH by SW-846 (8015 Modified) Quantitative Only; [ ] Gasoline Range Organics (GRO); [ ] MA VPH; [ ] VOA [ ] Semi-VOA [ ] Pesticides [ ] PCBs [ ] Herbicides [ ] Metals [ ] Dissolved Metals [ ] Total Metals [ ] Target Analytes Only
Petroleum Hydrocarbon Vol. TPH: [ ] MA VPH
Haz. Waste: [ ] Corrosivity (solids) [ ] Reactivity [ ] Ignitability [ ] Paint Filter [ ] Specific Gravity [ ] Basic Chemistry Parameters (TPH, PCBs, Metals, Corrosivity, Ignitability, Reactivity) [ ] TCLP [ ] SPLP [ ] Metals [ ] VOA [ ] Semi-VOA [ ] Pesticides [ ] Herbicides
General Chemistry: [ ] Anions [ ] Chloride [ ] Fluoride [ ] Sulfide [ ] Ammonia [ ] TKN [ ] Total Phosphorus [ ] Orthophosphate [ ] Nitrate-N [ ] Nitrite-N [ ] MBAS [ ] Oil & Grease [ ] COD [ ] TOC [ ] BOD [ ] TSS [ ] VSS [ ] Alkalinity [ ] Total Cyanide [ ] Physicochemical [ ] Available Cyanide [ ] Total Sulfide [ ] Reactive Sulfide [ ] Total Chromium [ ] Hexavalent Chromium [ ] Total Cr [ ] Dissolved Cr [ ] Trivalent Cr [ ] Ferrous Iron [ ] Color [ ] Turbidity [ ] Chemical Oxygen Demand [ ] Hardness [ ] Specific Conductance [ ] Chloride [ ] Sulfate [ ] Nitrate-N [ ] Nitrite-N [ ] Phosphate, Ortho [ ] Phosphate, Dissolved [ ] Phosphate, Total [ ] Ammonia [ ] TKN [ ] Total Phenolics [ ] Oil & Grease [ ] TPH (Gravimetric, 1664) [ ] COD [ ] TOC [ ] BOD [ ] TSS [ ] VSS [ ] Alkalinity [ ] Total Cyanide [ ] Amenable Cyanide [ ] Total Sulfide [ ] Reactive Sulfide [ ] Total Chromium [ ] Hexavalent Chromium [ ] Ferrous Iron [ ] Color [ ] Turbidity [ ] Specific Conductance [ ] Chloride [ ] Sulfate [ ] Nitrate-N [ ] Nitrite-N [ ] Phosphate, Ortho [ ] Phosphate, Dissolved [ ] Phosphate, Total [ ] Ammonia [ ] TKN [ ] Total Phenolics [ ] Oil & Grease [ ] TPH (Gravimetric, 1664) [ ] COD [ ] TOC [ ] BOD [ ] TSS [ ] VSS [ ] Alkalinity [ ] Total Cyanide [ ] Amenable Cyanide [ ] Total Sulfide [ ] Reactive Sulfide
Other: [ ] Perchlorate [ ] 8330 Explosives [ ] 8260 Fuel Additives [ ] Ethanol [ ] MTBE [ ] Fuel ID [ ] Fingerprint [ ] Hydrocarbon Characterization [ ] Chlorinated Hydrocarbons [ ] Dissolved Gases (RSK-175) [ ] Dissolved Gases (RSK-175 Modified) [ ] Dissolved Gases (Methane Only) [ ] Dissolved Gases (Ethane/Ethene Only) [ ] Dissolved Gases (Methane, Ethane, Ethene) [ ] Dissolved Gases (Methane, Ethane, Ethene, Propane) [ ] Dissolved Gases (Methane, Ethane, Ethene, Propane, Butane) [ ] Dissolved Gases (Methane, Ethane, Ethene, Propane, Butane, Isobutane) [ ] Dissolved Gases (Methane, Ethane, Ethene, Propane, Butane, Isobutane, Pentane, Isopentane) [ ] Dissolved Gases (Methane, Ethane, Ethene, Propane, Butane, Isobutane, Pentane, Isopentane, Hexane) [ ] Dissolved Gases (Methane, Ethane, Ethene, Propane, Butane, Isobutane, Pentane, Isopentane, Hexane, Heptane) [ ] Dissolved Gases (Methane, Ethane, Ethene, Propane, Butane, Isobutane, Pentane, Isopentane, Hexane, Heptane, Octane) [ ] Dissolved Gases (Methane, Ethane, Ethene, Propane, Butane, Isobutane, Pentane, Isopentane, Hexane, Heptane, Octane, Nonane) [ ] Dissolved Gases (Methane, Ethane, Ethene, Propane, Butane, Isobutane, Pentane, Isopentane, Hexane, Heptane, Octane, Nonane, Decane) [ ] Dissolved Gases (Methane, Ethane, Ethene, Propane, Butane, Isobutane, Pentane, Isopentane, Hexane, Heptane, Octane, Nonane, Decane, Undecane) [ ] Dissolved Gases (Methane, Ethane, Ethene, Propane, Butane, Isobutane, Pentane, Isopentane, Hexane, Heptane, Octane, Nonane, Decane, Undecane, Dodecane) [ ] Dissolved Gases (Methane, Ethane, Ethene, Propane, Butane, Isobutane, Pentane, Isopentane, Hexane, Heptane, Octane, Nonane, Decane, Undecane, Dodecane, Tridecane) [ ] Dissolved Gases (Methane, Ethane, Ethene, Propane, Butane, Isobutane, Pentane, Isopentane, Hexane, Heptane, Octane, Nonane, Decane, Undecane, Dodecane, Tridecane, Tetradecane) [ ] Dissolved Gases (Methane, Ethane, Ethene, Propane, Butane, Isobutane, Pentane, Isopentane, Hexane, Heptane, Octane, Nonane, Decane, Undecane, Dodecane, Tridecane, Tetradecane, Pentadecane) [ ] Dissolved Gases (Methane, Ethane, Ethene, Propane, Butane, Isobutane, Pentane, Isopentane, Hexane, Heptane, Octane, Nonane, Decane, Undecane, Dodecane, Tridecane, Tetradecane, Pentadecane, Hexadecane) [ ] Dissolved Gases (Methane, Ethane, Ethene, Propane, Butane, Isobutane, Pentane, Isopentane, Hexane, Heptane, Octane, Nonane, Decane, Undecane, Dodecane, Tridecane, Tetradecane, Pentadecane, Hexadecane, Heptadecane) [ ] Dissolved Gases (Methane, Ethane, Ethene, Propane, Butane, Isobutane, Pentane, Isopentane, Hexane, Heptane, Octane, Nonane, Decane, Undecane, Dodecane, Tridecane, Tetradecane, Pentadecane, Hexadecane, Heptadecane, Octadecane) [ ] Dissolved Gases (Methane, Ethane, Ethene, Propane, Butane, Isobutane, Pentane, Isopentane, Hexane, Heptane, Octane, Nonane, Decane, Undecane, Dodecane, Tridecane, Tetradecane, Pentadecane, Hexadecane, Heptadecane, Octadecane, Nonadecane) [ ] Dissolved Gases (Methane, Ethane, Ethene, Propane, Butane, Isobutane, Pentane, Isopentane, Hexane, Heptane, Octane, Nonane, Decane, Undecane, Dodecane, Tridecane, Tetradecane, Pentadecane, Hexadecane, Heptadecane, Octadecane, Nonadecane, Eicosane) [ ] Dissolved Gases (Methane, Ethane, Ethene, Propane, Butane, Isobutane, Pentane, Isopentane, Hexane, Heptane, Octane, Nonane, Decane, Undecane, Dodecane, Tridecane, Tetradecane, Pentadecane, Hexadecane, Heptadecane, Octadecane, Nonadecane, Eicosane, Heneicosane) [ ] Dissolved Gases (Methane, Ethane, Ethene, Propane, Butane, Isobutane, Pentane, Isopentane, Hexane, Heptane, Octane, Nonane, Decane, Undecane, Dodecane, Tridecane, Tetradecane, Pentadecane, Hexadecane, Heptadecane, Octadecane, Nonadecane, Eicosane, Heneicosane, Docosane) [ ] Dissolved Gases (Methane, Ethane, Ethene, Propane, Butane, Isobutane, Pentane, Isopentane, Hexane, Heptane, Octane, Nonane, Decane, Undecane, Dodecane, Tridecane, Tetradecane, Pentadecane, Hexadecane, Heptadecane, Octadecane, Nonadecane, Eicosane, Heneicosane, Docosane, Tricosane) [ ] Dissolved Gases (Methane, Ethane, Ethene, Propane, Butane, Isobutane, Pentane, Isopentane, Hexane, Heptane, Octane, Nonane, Decane, Undecane, Dodecane, Tridecane, Tetradecane, Pentadecane, Hexadecane, Heptadecane, Octadecane, Nonadecane, Eicosane, Heneicosane, Docosane, Tricosane, Tetracosane) [ ] Dissolved Gases (Methane, Ethane, Ethene, Propane, Butane, Isobutane, Pentane, Isopentane, Hexane, Heptane, Octane, Nonane, Decane, Undecane, Dodecane, Tridecane, Tetradecane, Pentadecane, Hexadecane, Heptadecane, Octadecane, Nonadecane, Eicosane, Heneicosane, Docosane, Tricosane, Tetracosane, Pentacosane) [ ] Dissolved Gases (Methane, Ethane, Ethene, Propane, Butane, Isobutane, Pentane, Isopentane, Hexane, Heptane, Octane, Nonane, Decane, Undecane, Dodecane, Tridecane, Tetradecane, Pentadecane, Hexadecane, Heptadecane, Octadecane, Nonadecane, Eicosane, Heneicosane, Docosane, Tricosane, Tetracosane, Pentacosane, Hexacosane) [ ] Dissolved Gases (Methane, Ethane, Ethene, Propane, Butane, Isobutane, Pentane, Isopentane, Hexane, Heptane, Octane, Nonane, Decane, Undecane, Dodecane, Tridecane, Tetradecane, Pentadecane, Hexadecane, Heptadecane, Octadecane, Nonadecane, Eicosane, Heneicosane, Docosane, Tricosane, Tetracosane, Pentacosane, Hexacosane, Heptacosane) [ ] Dissolved Gases (Methane, Ethane, Ethene, Propane, Butane, Isobutane, Pentane, Isopentane, Hexane, Heptane, Octane, Nonane, Decane, Undecane, Dodecane, Tridecane, Tetradecane, Pentadecane, Hexadecane, Heptadecane, Octadecane, Nonadecane, Eicosane, Heneicosane, Docosane, Tricosane, Tetracosane, Pentacosane, Hexacosane, Heptacosane, Octacosane) [ ] Dissolved Gases (Methane, Ethane, Ethene, Propane, Butane, Isobutane, Pentane, Isopentane, Hexane, Heptane, Octane, Nonane, Decane, Undecane, Dodecane, Tridecane, Tetradecane, Pentadecane, Hexadecane, Heptadecane, Octadecane, Nonadecane, Eicosane, Heneicosane, Docosane, Tricosane, Tetracosane, Pentacosane, Hexacosane, Heptacosane, Octacosane, Nonacosane) [ ] Dissolved Gases (Methane, Ethane, Ethene, Propane, Butane, Isobutane, Pentane, Isopentane, Hexane, Heptane, Octane, Nonane, Decane, Undecane, Dodecane, Tridecane, Tetradecane, Pentadecane, Hexadecane, Heptadecane, Octadecane, Nonadecane, Eicosane, Heneicosane, Docosane, Tricosane, Tetracosane, Pentacosane, Hexacosane, Heptacosane, Octacosane, Nonacosane, Triacontane) [ ] Dissolved Gases (Methane, Ethane, Ethene, Propane, Butane, Isobutane, Pentane, Isopentane, Hexane, Heptane, Octane, Nonane, Decane, Undecane, Dodecane, Tridecane, Tetradecane, Pentadecane, Hexadecane, Heptadecane, Octadecane, Nonadecane, Eicosane, Heneicosane, Docosane, Tricosane, Tetracosane, Pentacosane, Hexacosane, Heptacosane, Octacosane, Nonacosane, Triacontane, Hentriacontane) [ ] Dissolved Gases (Methane, Ethane, Ethene, Propane, Butane, Isobutane, Pentane, Isopentane, Hexane, Heptane, Octane, Nonane, Decane, Undecane, Dodecane, Tridecane, Tetradecane, Pentadecane, Hexadecane, Heptadecane, Octadecane, Nonadecane, Eicosane, Heneicosane, Docosane, Tricosane, Tetracosane, Pentacosane, Hexacosane, Heptacosane, Octacosane, Nonacosane, Triacontane, Hentriacontane, Dotriacontane) [ ] Dissolved Gases (Methane, Ethane, Ethene, Propane, Butane, Isobutane, Pentane, Isopentane, Hexane, Heptane, Octane, Nonane, Decane, Undecane, Dodecane, Tridecane, Tetradecane, Pentadecane, Hexadecane, Heptadecane, Octadecane, Nonadecane, Eicosane, Heneicosane, Docosane, Tricosane, Tetracosane, Pentacosane, Hexacosane, Heptacosane, Octacosane, Nonacosane, Triacontane, Hentriacontane, Dotriacontane, Tritriacontane) [ ] Dissolved Gases (Methane, Ethane, Ethene, Propane, Butane, Isobutane, Pentane, Isopentane, Hexane, Heptane, Octane, Nonane, Decane, Undecane, Dodecane, Tridecane, Tetradecane, Pentadecane, Hexadecane, Heptadecane, Octadecane, Nonadecane, Eicosane, Heneicosane, Docosane, Tricosane, Tetracosane, Pentacosane, Hexacosane, Heptacosane, Octacosane, Nonacosane, Triacontane, Hentriacontane, Dotriacontane, Tritriacontane, Tetratriacontane) [ ] Dissolved Gases (Methane, Ethane, Ethene, Propane, Butane, Isobutane, Pentane, Isopentane, Hexane, Heptane, Octane, Nonane, Decane, Undecane, Dodecane, Tridecane, Tetradecane, Pentadecane, Hexadecane, Heptadecane, Octadecane, Nonadecane, Eicosane, Heneicosane, Docosane, Tricosane, Tetracosane, Pentacosane, Hexacosane, Heptacosane, Octacosane, Nonacosane, Triacontane, Hentriacontane, Dotriacontane, Tritriacontane, Tetratriacontane, Pentatriacontane) [ ] Dissolved Gases (Methane, Ethane, Ethene, Propane, Butane, Isobutane, Pentane, Isopentane, Hexane, Heptane, Octane, Nonane, Decane, Undecane, Dodecane, Tridecane, Tetradecane, Pentadecane, Hexadecane, Heptadecane, Octadecane, Nonadecane, Eicosane, Heneicosane, Docosane, Tricosane, Tetracosane, Pentacosane, Hexacosane, Heptacosane, Octacosane, Nonacosane, Triacontane, Hentriacontane, Dotriacontane, 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Pentacosane, Hexacosane, Heptacosane, Octacosane, Nonacosane, Triacontane, Hentriacontane, Dotriacontane, Tritriacontane, Tetratriacontane, Pentatriacontane, Hexatriacontane, Heptatriacontane, Octatriacontane, Nonatriacontane, Tetracontane, Hentetracontane, Dotetracontane) [ ] Dissolved Gases (Methane, Ethane, Ethene, Propane, Butane, Isobutane, Pentane, Isopentane, Hexane, Heptane, Octane, Nonane, Decane, Undecane, Dodecane, Tridecane, Tetradecane, Pentadecane, Hexadecane, Heptadecane, Octadecane, Nonadecane, Eicosane, Heneicosane, Docosane, Tricosane, Tetracosane, Pentacosane, Hexacosane, Heptacosane, Octacosane, Nonacosane, Triacontane, Hentriacontane, Dotriacontane, Tritriacontane, Tetratriacontane, Pentatriacontane, Hexatriacontane, Heptatriacontane, Octatriacontane, Nonatriacontane, Tetracontane, Hentetracontane, Dotetracontane, Tritetracontane) [ ] Dissolved Gases (Methane, Ethane, Ethene, Propane, Butane, Isobutane, Pentane, Isopentane, Hexane, Heptane, Octane, Nonane, Decane, 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Tetracontane, Hentetracontane, Dotetracontane, Tritetracontane, Pentatetracontane, Hexatetracontane) [ ] Dissolved Gases (Methane, Ethane, Ethene, Propane, Butane, Isobutane, Pentane, Isopentane, Hexane, Heptane, Octane, Nonane, Decane, Undecane, Dodecane, Tridecane, Tetradecane, Pentadecane, Hexadecane, Heptadecane, Octadecane, Nonadecane, Eicosane, Heneicosane, Docosane, Tricosane, Tetracosane, Pentacosane, Hexacosane, Heptacosane, Octacosane, Nonacosane, Triacontane, Hentriacontane, Dotriacontane, Tritriacontane, Tetratriacontane, Pentatriacontane, Hexatriacontane, Heptatriacontane, Octatriacontane, Nonatriacontane, Tetracontane, Hentetracontane, Dotetracontane, Tritetracontane, Pentatetracontane, Hexatetracontane, Heptatetracontane) [ ] Dissolved Gases (Methane, Ethane, Ethene, Propane, Butane, Isobutane, Pentane, Isopentane, Hexane, Heptane, Octane, Nonane, Decane, Undecane, Dodecane, Tridecane, Tetradecane, Pentadecane, Hexadecane, Heptadecane, Octadecane, Nonadecane, Eicosane, Heneicosane, Docosane, Tricosane, Tetracosane, Pentacosane, Hexacosane, Heptacosane, Octacosane, Nonacosane, Triacontane, Hentriacontane, Dotriacontane, Tritriacontane, Tetratriacontane, Pentatriacontane, Hexatriacontane, Heptatriacontane, Octatriacontane, Nonatriacontane, Tetracontane, Hentetracontane, Dotetracontane, Tritetracontane, Pentatetracontane, Hexatetracontane, Heptatetracontane, Octatetracontane) [ ] Dissolved Gases (Methane, Ethane, Ethene, Propane, Butane, Isobutane, Pentane, Isopentane, Hexane, Heptane, Octane, Nonane, Decane, Undecane, Dodecane, Tridecane, Tetradecane, Pentadecane, Hexadecane, Heptadecane, Octadecane, Nonadecane, Eicosane, Heneicosane, Docosane, Tricosane, Tetracosane, Pentacosane, Hexacosane, Heptacosane, Octacosane, Nonacosane, Triacontane, Hentriacontane, Dotriacontane, Tritriacontane, Tetratriacontane, Pentatriacontane, Hexatriacontane, Heptatriacontane, Octatriacontane, Nonatriacontane, Tetracontane, Hentetracontane, Dotetracontane, 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Hexadecane, Heptadecane, Octadecane, Nonadecane, Eicosane, Heneicosane, Docosane, Tricosane, Tetracosane, Pentacosane, Hexacosane, Heptacosane, Octacosane, Nonacosane, Triacontane, Hentriacontane, Dotriacontane, Tritriacontane, Tetratriacontane, Pentatriacontane, Hexatriacontane, Heptatriacontane, Octatriacontane, Nonatriacontane, Tetracontane, Hentetracontane, Dotetracontane, Tritetracontane, Pentatetracontane, Hexatetracontane, Heptatetracontane, Octatetracontane, Nonatetracontane, Pentacontane, Henpentacontane) [ ] Dissolved Gases (Methane, Ethane, Ethene, Propane, Butane, Isobutane, Pentane, Isopentane, Hexane, Heptane, Octane, Nonane, Decane, Undecane, Dodecane, Tridecane, Tetradecane, Pentadecane, Hexadecane, Heptadecane, Octadecane, Nonadecane, Eicosane, Heneicosane, Docosane, Tricosane, Tetracosane, Pentacosane, Hexacosane, Heptacosane, Octacosane, Nonacosane, Triacontane, Hentriacontane, Dotriacontane, Tritriacontane, Tetratriacontane, Pentatriacontane, Hexatriacontane, Heptatriacontane, Octatriacontane, Nonatriacontane, Tetracontane, Hentetracontane, Dotetracontane, Tritetracontane, Pentatetracontane, Hexatetracontane, Heptatetracontane, Octatetracontane, Nonatetracontane, Pentacontane, Henpentacontane, Dopentacontane) [ ] Dissolved Gases (Methane, Ethane, Ethene, Propane, Butane, Isobutane, Pentane, Isopentane, Hexane, Heptane, Octane, Nonane, Decane, Undecane, Dodecane, Tridecane, Tetradecane, Pentadecane, Hexadecane, Heptadecane, Octadecane, Nonadecane, Eicosane, Heneicosane, Docosane, Tricosane, Tetracosane, Pentacosane, Hexacosane, Heptacosane, Octacosane, Nonacosane, Triacontane, Hentriacontane, Dotriacontane, Tritriacontane, Tetratriacontane, Pentatriacontane, Hexatriacontane, Heptatriacontane, Octatriacontane, Nonatriacontane, Tetracontane, Hentetracontane, Dotetracontane, Tritetracontane, Pentatetracontane, Hexatetracontane, Heptatetracontane, Octatetracontane, Nonatetracontane, Pentacontane, Henpentacontane, Dopentacontane, Tripentacontane) 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Quality Assurance/Quality Control

A. Program Overview

Groundwater Analytical conducts an active Quality Assurance program to ensure the production of high quality, valid data. This program closely follows the guidance provided by *Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans,* US EPA QAMS-005/80 (1980), and *Test Methods for Evaluating Solid Waste,* US EPA, SW-846, Update III (1996).

Quality Control protocols include written Standard Operating Procedures (SOPs) developed for each analytical method. SOPs are derived from US EPA methodologies and other established references. Standards are prepared from commercially obtained reference materials of certified purity, and documented for traceability.

Quality Assessment protocols for most organic analyses include a minimum of one laboratory control sample, one method blank, one matrix spike sample, and one sample duplicate for each sample preparation batch. All samples, standards, blanks, laboratory control samples, matrix spikes and sample duplicates are spiked with internal standards and surrogate compounds. All instrument sequences begin with an initial calibration verification standard and a blank; and excepting GC/MS sequences, all sequences close with a continuing calibration standard. GC/MS systems are tuned to appropriate ion abundance criteria daily, or for each 12 hour operating period, whichever is more frequent.

Quality Assessment protocols for most inorganic analyses include a minimum of one laboratory control sample, one method blank, one matrix spike sample, and one sample duplicate for each sample preparation batch. Standard curves are derived from one reagent blank and four concentration levels. Curve validity is verified by standard recoveries within plus or minus ten percent of the curve.

B. Definitions

Batches are used as the basic unit for Quality Assessment. A Batch is defined as twenty or fewer samples of the same matrix which are prepared together for the same analysis, using the same lots of reagents and the same techniques or manipulations, all within the same continuum of time, up to but not exceeding 24 hours.

Laboratory Control Samples are used to assess the accuracy of the analytical method. A Laboratory Control Sample consists of reagent water or sodium sulfate spiked with a group of target analytes representative of the method analytes. Accuracy is defined as the degree of agreement of the measured value with the true or expected value. Percent Recoveries for the Laboratory Control Samples are calculated to assess accuracy.

Method Blanks are used to assess the level of contamination present in the analytical system. Method Blanks consist of reagent water or an aliquot of sodium sulfate. Method Blanks are taken through all the appropriate steps of an analytical method. Sample data reported is not corrected for blank contamination.

Surrogate Compounds are used to assess the effectiveness of an analytical method in dealing with each sample matrix. Surrogate Compounds are organic compounds which are similar to the target analytes of interest in chemical behavior, but which are not normally found in environmental samples. Percent Recoveries are calculated for each Surrogate Compound.

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8260B	Instrument ID:	MS-1 HP 5890	Instrument ID:	MS-1 HP 5890
QC Batch ID:	VM1-2890-S	Analyzed:	08-10-10 06:00	Analyzed:	08-10-10 06:36
Matrix:	Soil	Analyst:	LMG	Analyst:	LMG
Units:	ug/kg				

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
75-71-8	Dichlorodifluoromethane	50	40	79 %	50	35	71 %	12 %	70 - 130 %	20%
74-87-3	Chloromethane	50	45	89 %	50	42	84 %	6 %	70 - 130 %	20%
75-01-4	Vinyl Chloride	50	50	99 %	50	45	89 %	11 %	70 - 130 %	20%
74-83-9	Bromomethane	50	53	107 %	50	50	99 %	7 %	70 - 130 %	20%
75-00-3	Chloroethane	50	54	108 %	50	47	94 %	14 %	70 - 130 %	20%
75-69-4	Trichlorofluoromethane	50	52	104 %	50	47	93 %	10 %	70 - 130 %	20%
60-29-7	Diethyl Ether	100	99	99 %	100	97	97 %	1 %	70 - 130 %	20%
75-35-4	1,1-Dichloroethene	50	51	103 %	50	44	89 %	14 %	70 - 130 %	20%
76-13-1	1,1,2-Trichlorotrifluoroethane	100	110	114 %	100	100	100 %	13 %	70 - 130 %	20%
67-64-1	Acetone	100	110	115 %	100	110	111 %	4 %	70 - 130 %	20%
75-15-0	Carbon Disulfide	100	90	90 %	100	82	82 %	9 %	70 - 130 %	20%
75-09-2	Methylene Chloride	50	54	108 %	50	51	102 %	5 %	70 - 130 %	20%
107-13-1	Acrylonitrile	50	51	101 %	50	51	102 %	1 %	70 - 130 %	20%
156-60-5	*trans*-1,2-Dichloroethene	50	53	106 %	50	49	97 %	8 %	70 - 130 %	20%
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	50	49	98 %	50	47	94 %	5 %	70 - 130 %	20%
75-34-3	1,1-Dichloroethane	50	50	100 %	50	50	100 %	1 %	70 - 130 %	20%
594-20-7	2,2-Dichloropropane	50	48	97 %	50	45	90 %	8 %	70 - 130 %	20%
156-59-2	*cis*-1,2-Dichloroethene	50	50	99 %	50	48	96 %	3 %	70 - 130 %	20%
78-93-3	2-Butanone (MEK)	100	110	106 %	100	110	114 %	7 %	70 - 130 %	20%
74-97-5	Bromochloromethane	50	59	118 %	50	53	107 %	10 %	70 - 130 %	20%
109-99-9	Tetrahydrofuran (THF)	100	100	102 %	100	100	101 %	0 %	70 - 130 %	20%
67-66-3	Chloroform	50	54	107 %	50	51	102 %	5 %	70 - 130 %	20%
71-55-6	1,1,1-Trichloroethane	50	54	108 %	50	49	98 %	10 %	70 - 130 %	20%
56-23-5	Carbon Tetrachloride	50	51	101 %	50	47	94 %	7 %	70 - 130 %	20%
563-58-6	1,1-Dichloropropene	50	49	98 %	50	45	89 %	9 %	70 - 130 %	20%
71-43-2	Benzene	50	54	107 %	50	47	93 %	14 %	70 - 130 %	20%
107-06-2	1,2-Dichloroethane	50	53	107 %	50	51	102 %	5 %	70 - 130 %	20%
79-01-6	Trichloroethene	50	54	108 %	50	48	95 %	12 %	70 - 130 %	20%
78-87-5	1,2-Dichloropropane	50	49	98 %	50	50	100 %	2 %	70 - 130 %	20%
74-95-3	Dibromomethane	50	53	106 %	50	46	93 %	13 %	70 - 130 %	20%
75-27-4	Bromodichloromethane	50	55	110 %	50	51	101 %	8 %	70 - 130 %	20%
123-91-1	1,4-Dioxane	1,000	820	82 %	1,000	840	84 %	1 %	70 - 130 %	20%
10061-01-5	*cis*-1,3-Dichloropropene	50	51	103 %	50	49	99 %	4 %	70 - 130 %	20%
108-10-1	4-Methyl-2-Pentanone (MIBK)	100	110	106 %	100	110	108 %	1 %	70 - 130 %	20%
108-88-3	Toluene	50	56	113 %	50	51	102 %	10 %	70 - 130 %	20%
10061-02-6	*trans*-1,3-Dichloropropene	50	48	95 %	50	46	92 %	4 %	70 - 130 %	20%
79-00-5	1,1,2-Trichloroethane	50	54	107 %	50	53	106 %	2 %	70 - 130 %	20%
127-18-4	Tetrachloroethene	50	57	113 %	50	54	109 %	4 %	70 - 130 %	20%
142-28-9	1,3-Dichloropropane	50	56	111 %	50	55	109 %	2 %	70 - 130 %	20%
591-78-6	2-Hexanone	100	100	101 %	100	100	102 %	1 %	70 - 130 %	20%
124-48-1	Dibromochloromethane	50	54	107 %	50	54	109 %	1 %	70 - 130 %	20%
106-93-4	1,2-Dibromoethane (EDB)	50	57	114 %	50	57	114 %	1 %	70 - 130 %	20%
108-90-7	Chlorobenzene	50	54	108 %	50	54	107 %	0 %	70 - 130 %	20%
630-20-6	1,1,1,2-Tetrachloroethane	50	59	117 %	50	57	113 %	4 %	70 - 130 %	20%
100-41-4	Ethylbenzene	50	53	106 %	50	50	99 %	6 %	70 - 130 %	20%
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	100	110	108 %	100	96	96 %	12 %	70 - 130 %	20%
95-47-6	*ortho*-Xylene	50	52	104 %	50	52	104 %	0 %	70 - 130 %	20%
100-42-5	Styrene	50	56	111 %	50	51	102 %	9 %	70 - 130 %	20%
75-25-2	Bromoform	50	60	120 %	50	61	122 %	2 %	70 - 130 %	20%

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8260B	Instrument ID:	MS-1 HP 5890	Instrument ID:	MS-1 HP 5890
QC Batch ID:	VM1-2890-S	Analyzed:	08-10-10 06:00	Analyzed:	08-10-10 06:36
Matrix:	Soil	Analyst:	LMG	Analyst:	LMG
Units:	ug/kg				

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
98-82-8	Isopropylbenzene	50	38	76 %	50	36	73 %	5 %	70 - 130 %	20%
108-86-1	Bromobenzene	50	48	97 %	50	48	97 %	0 %	70 - 130 %	20%
79-34-5	1,1,2,2-Tetrachloroethane	50	42	83 %	50	42	84 %	1 %	70 - 130 %	20%
96-18-4	1,2,3-Trichloropropane	50	47	93 %	50	48	96 %	3 %	70 - 130 %	20%
110-57-6	trans-1,4-Dichloro-2-butene	200	190	97 %	200	190	96 %	1 %	70 - 130 %	20%
103-65-1	n-Propylbenzene	50	42	84 %	50	40	80 %	5 %	70 - 130 %	20%
95-49-8	2-Chlorotoluene	50	43	86 %	50	44	87 %	1 %	70 - 130 %	20%
108-67-8	1,3,5-Trimethylbenzene	50	41	81 %	50	42	84 %	3 %	70 - 130 %	20%
106-43-4	4-Chlorotoluene	50	42	84 %	50	43	87 %	4 %	70 - 130 %	20%
98-06-6	tert-Butylbenzene	50	42	83 %	50	41	83 %	1 %	70 - 130 %	20%
95-63-6	1,2,4-Trimethylbenzene	50	46	92 %	50	46	93 %	1 %	70 - 130 %	20%
135-98-8	sec-Butylbenzene	50	40	80 %	50	40	81 %	0 %	70 - 130 %	20%
541-73-1	1,3-Dichlorobenzene	50	44	89 %	50	45	90 %	2 %	70 - 130 %	20%
99-87-6	4-Isopropyltoluene	50	44	88 %	50	44	89 %	0 %	70 - 130 %	20%
106-46-7	1,4-Dichlorobenzene	50	43	86 %	50	44	88 %	3 %	70 - 130 %	20%
95-50-1	1,2-Dichlorobenzene	50	45	91 %	50	46	92 %	2 %	70 - 130 %	20%
104-51-8	n-Butylbenzene	50	40	81 %	50	38	77 %	6 %	70 - 130 %	20%
96-12-8	1,2-Dibromo-3-chloropropane	50	41	83 %	50	37	75 %	10 %	70 - 130 %	20%
108-70-3	1,3,5-Trichlorobenzene	50	49	99 %	50	52	104 %	5 %	70 - 130 %	20%
120-82-1	1,2,4-Trichlorobenzene	50	48	96 %	50	45	90 %	7 %	70 - 130 %	20%
87-68-3	Hexachlorobutadiene	50	41	83 %	50	42	84 %	2 %	70 - 130 %	20%
91-20-3	Naphthalene	50	41	82 %	50	43	85 %	4 %	70 - 130 %	20%
87-61-6	1,2,3-Trichlorobenzene	50	51	102 %	50	48	95 %	7 %	70 - 130 %	20%
75-65-0	tert-Butyl Alcohol (TBA)	1,000	990	99 %	1,000	970	97 %	2 %	70 - 130 %	20%
108-20-3	Di-isopropyl Ether (DIPE)	50	51	103 %	50	49	98 %	4 %	70 - 130 %	20%
637-92-3	Ethyl tert-butyl Ether (ETBE)	50	47	95 %	50	47	95 %	0 %	70 - 130 %	20%
994-05-8	tert-Amyl Methyl Ether (TAME)	50	48	96 %	50	44	87 %	10 %	70 - 130 %	20%

QC Surrogate Compound	Spiked	Measured	Recovery	Spiked	Measured	Recovery		QC Limits
Dibromofluoromethane	50	56	112 %	50	50	100 %		70 - 130 %
1,2-Dichloroethane-d_4	50	55	111 %	50	48	97 %		70 - 130 %
Toluene-d_8	50	59	118 %	50	51	102 %		70 - 130 %
4-Bromofluorobenzene	50	56	112 %	50	53	107 %		70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample preparation performed by EPA Method 5035A.

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: **EPA Method 8260B**
QC Batch ID: **VM1-2890-S**
Matrix: **Soil**

Instrument ID: **MS-1 HP 5890**
Analyzed: **08-10-10 08:00**
Analyst: **LMG**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	10
74-87-3	Chloromethane	BRL		ug/Kg	10
75-01-4	Vinyl Chloride	BRL		ug/Kg	10
74-83-9	Bromomethane	BRL		ug/Kg	10
75-00-3	Chloroethane	BRL		ug/Kg	10
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	10
60-29-7	Diethyl Ether	BRL		ug/Kg	10
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	50
67-64-1	Acetone	BRL		ug/Kg	200
75-15-0	Carbon Disulfide	BRL		ug/Kg	50
75-09-2	Methylene Chloride	BRL		ug/Kg	50
107-13-1	Acrylonitrile	BRL		ug/Kg	5
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	5
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	5
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	5
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	5
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	5
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	50
74-97-5	Bromochloromethane	BRL		ug/Kg	5
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	50
67-66-3	Chloroform	BRL		ug/Kg	5
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	5
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	5
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	5
71-43-2	Benzene	BRL		ug/Kg	5
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	5
79-01-6	Trichloroethene	BRL		ug/Kg	5
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	5
74-95-3	Dibromomethane	BRL		ug/Kg	5
75-27-4	Bromodichloromethane	BRL		ug/Kg	5
123-91-1	1,4-Dioxane	BRL		ug/Kg	5,000
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	50
108-88-3	Toluene	BRL		ug/Kg	5
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	5
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	5
127-18-4	Tetrachloroethene	BRL		ug/Kg	5
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	5
591-78-6	2-Hexanone	BRL		ug/Kg	50
124-48-1	Dibromochloromethane	BRL		ug/Kg	5
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	5
108-90-7	Chlorobenzene	BRL		ug/Kg	5
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	5
100-41-4	Ethylbenzene	BRL		ug/Kg	5
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL		ug/Kg	5
95-47-6	*ortho*-Xylene	BRL		ug/Kg	5
100-42-5	Styrene	BRL		ug/Kg	5
75-25-2	Bromoform	BRL		ug/Kg	5

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: **EPA Method 8260B**
QC Batch ID: **VM1-2890-S**
Matrix: **Soil**

Instrument ID: **MS-1 HP 5890**
Analyzed: **08-10-10 08:00**
Analyst: **LMG**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
98-82-8	Isopropylbenzene	BRL		ug/Kg	5
108-86-1	Bromobenzene	BRL		ug/Kg	5
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	5
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	5
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	50
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	5
95-49-8	2-Chlorotoluene	BRL		ug/Kg	5
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	5
106-43-4	4-Chlorotoluene	BRL		ug/Kg	5
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	5
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	5
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	5
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	5
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	5
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	5
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	5
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	5
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	5
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	5
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	5
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	5
91-20-3	Naphthalene	BRL		ug/Kg	5
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	5
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	200
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	5
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	5
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	50	55	**110** %	70 - 130 %
1,2-Dichloroethane-d_4	50	47	**94** %	70 - 130 %
Toluene-d_8	50	54	**108** %	70 - 130 %
4-Bromofluorobenzene	50	55	**109** %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample preparation performed by EPA Method 5035A.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8260B	Instrument ID:	MS-1 HP 5890	Instrument ID:	MS-1 HP 5890
QC Batch ID:	VM1-2891-S	Analyzed:	08-11-10 09:40	Analyzed:	08-11-10 10:16
Matrix:	Soil	Analyst:	LMG	Analyst:	LMG
Units:	ug/kg				

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
75-71-8	Dichlorodifluoromethane	50	60	121 %	50	63	127 %	5 %	70 - 130 %	20%
74-87-3	Chloromethane	50	51	101 %	50	53	106 %	5 %	70 - 130 %	20%
75-01-4	Vinyl Chloride	50	56	113 %	50	57	113 %	0 %	70 - 130 %	20%
74-83-9	Bromomethane	50	54	107 %	50	58	117 %	9 %	70 - 130 %	20%
75-00-3	Chloroethane	50	58	116 %	50	52	104 %	10 %	70 - 130 %	20%
75-69-4	Trichlorofluoromethane	50	57	114 %	50	57	114 %	0 %	70 - 130 %	20%
60-29-7	Diethyl Ether	100	96	96 %	100	97	97 %	1 %	70 - 130 %	20%
75-35-4	1,1-Dichloroethene	50	53	106 %	50	50	101 %	5 %	70 - 130 %	20%
76-13-1	1,1,2-Trichlorotrifluoroethane	100	130	125 %	100	120	124 %	1 %	70 - 130 %	20%
67-64-1	Acetone	100	100	100 %	100	110	110 %	9 %	70 - 130 %	20%
75-15-0	Carbon Disulfide	100	92	92 %	100	90	90 %	3 %	70 - 130 %	20%
75-09-2	Methylene Chloride	50	49	97 %	50	55	110 %	13 %	70 - 130 %	20%
107-13-1	Acrylonitrile	50	48	96 %	50	52	103 %	8 %	70 - 130 %	20%
156-60-5	*trans*-1,2-Dichloroethene	50	55	111 %	50	54	107 %	3 %	70 - 130 %	20%
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	50	44	88 %	50	47	93 %	5 %	70 - 130 %	20%
75-34-3	1,1-Dichloroethane	50	51	102 %	50	52	103 %	1 %	70 - 130 %	20%
594-20-7	2,2-Dichloropropane	50	49	98 %	50	51	103 %	5 %	70 - 130 %	20%
156-59-2	*cis*-1,2-Dichloroethene	50	51	103 %	50	54	108 %	5 %	70 - 130 %	20%
78-93-3	2-Butanone (MEK)	100	100	105 %	100	110	106 %	1 %	70 - 130 %	20%
74-97-5	Bromochloromethane	50	57	114 %	50	57	113 %	0 %	70 - 130 %	20%
109-99-9	Tetrahydrofuran (THF)	100	97	97 %	100	93	93 %	4 %	70 - 130 %	20%
67-66-3	Chloroform	50	53	106 %	50	55	110 %	4 %	70 - 130 %	20%
71-55-6	1,1,1-Trichloroethane	50	54	109 %	50	55	110 %	1 %	70 - 130 %	20%
56-23-5	Carbon Tetrachloride	50	55	111 %	50	51	103 %	8 %	70 - 130 %	20%
563-58-6	1,1-Dichloropropene	50	48	96 %	50	50	101 %	4 %	70 - 130 %	20%
71-43-2	Benzene	50	47	95 %	50	52	103 %	9 %	70 - 130 %	20%
107-06-2	1,2-Dichloroethane	50	51	102 %	50	53	106 %	4 %	70 - 130 %	20%
79-01-6	Trichloroethene	50	52	104 %	50	56	111 %	7 %	70 - 130 %	20%
78-87-5	1,2-Dichloropropane	50	48	97 %	50	48	95 %	2 %	70 - 130 %	20%
74-95-3	Dibromomethane	50	48	97 %	50	51	103 %	6 %	70 - 130 %	20%
75-27-4	Bromodichloromethane	50	52	104 %	50	56	111 %	7 %	70 - 130 %	20%
123-91-1	1,4-Dioxane	1,000	820	82 %	1,000	820	82 %	1 %	70 - 130 %	20%
10061-01-5	*cis*-1,3-Dichloropropene	50	47	94 %	50	50	99 %	6 %	70 - 130 %	20%
108-10-1	4-Methyl-2-Pentanone (MIBK)	100	91	91 %	100	95	95 %	4 %	70 - 130 %	20%
108-88-3	Toluene	50	50	100 %	50	53	105 %	5 %	70 - 130 %	20%
10061-02-6	*trans*-1,3-Dichloropropene	50	43	87 %	50	45	90 %	4 %	70 - 130 %	20%
79-00-5	1,1,2-Trichloroethane	50	43	86 %	50	46	93 %	8 %	70 - 130 %	20%
127-18-4	Tetrachloroethene	50	57	113 %	50	57	114 %	1 %	70 - 130 %	20%
142-28-9	1,3-Dichloropropane	50	45	90 %	50	48	96 %	6 %	70 - 130 %	20%
591-78-6	2-Hexanone	100	83	83 %	100	89	89 %	7 %	70 - 130 %	20%
124-48-1	Dibromochloromethane	50	48	97 %	50	53	106 %	9 %	70 - 130 %	20%
106-93-4	1,2-Dibromoethane (EDB)	50	46	93 %	50	49	99 %	7 %	70 - 130 %	20%
108-90-7	Chlorobenzene	50	49	98 %	50	50	100 %	2 %	70 - 130 %	20%
630-20-6	1,1,1,2-Tetrachloroethane	50	50	99 %	50	57	113 %	13 %	70 - 130 %	20%
100-41-4	Ethylbenzene	50	48	96 %	50	49	98 %	2 %	70 - 130 %	20%
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	100	95	95 %	100	99	99 %	4 %	70 - 130 %	20%
95-47-6	*ortho*-Xylene	50	47	94 %	50	49	98 %	5 %	70 - 130 %	20%
100-42-5	Styrene	50	43	87 %	50	44	88 %	1 %	70 - 130 %	20%
75-25-2	Bromoform	50	52	103 %	50	59	119 %	14 %	70 - 130 %	20%

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8260B	Instrument ID:	MS-1 HP 5890	Instrument ID:	MS-1 HP 5890
QC Batch ID:	VM1-2891-S	Analyzed:	08-11-10 09:40	Analyzed:	08-11-10 10:16
Matrix:	Soil	Analyst:	LMG	Analyst:	LMG
Units:	ug/kg				

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
98-82-8	Isopropylbenzene	50	41	82 %	50	36	72 %	12 %	70 - 130 %	20%
108-86-1	Bromobenzene	50	51	102 %	50	53	106 %	4 %	70 - 130 %	20%
79-34-5	1,1,2,2-Tetrachloroethane	50	40	80 %	50	40	80 %	0 %	70 - 130 %	20%
96-18-4	1,2,3-Trichloropropane	50	48	95 %	50	47	93 %	2 %	70 - 130 %	20%
110-57-6	trans-1,4-Dichloro-2-butene	200	180	92 %	200	180	92 %	0 %	70 - 130 %	20%
103-65-1	n-Propylbenzene	50	44	87 %	50	43	87 %	0 %	70 - 130 %	20%
95-49-8	2-Chlorotoluene	50	47	93 %	50	44	89 %	5 %	70 - 130 %	20%
108-67-8	1,3,5-Trimethylbenzene	50	44	88 %	50	43	87 %	1 %	70 - 130 %	20%
106-43-4	4-Chlorotoluene	50	44	89 %	50	46	92 %	4 %	70 - 130 %	20%
98-06-6	tert-Butylbenzene	50	45	89 %	50	44	88 %	1 %	70 - 130 %	20%
95-63-6	1,2,4-Trimethylbenzene	50	48	96 %	50	47	93 %	3 %	70 - 130 %	20%
135-98-8	sec-Butylbenzene	50	43	86 %	50	42	84 %	3 %	70 - 130 %	20%
541-73-1	1,3-Dichlorobenzene	50	49	97 %	50	47	95 %	3 %	70 - 130 %	20%
99-87-6	4-Isopropyltoluene	50	48	96 %	50	46	92 %	4 %	70 - 130 %	20%
106-46-7	1,4-Dichlorobenzene	50	50	100 %	50	43	87 %	14 %	70 - 130 %	20%
95-50-1	1,2-Dichlorobenzene	50	46	93 %	50	46	92 %	1 %	70 - 130 %	20%
104-51-8	n-Butylbenzene	50	41	83 %	50	42	83 %	0 %	70 - 130 %	20%
96-12-8	1,2-Dibromo-3-chloropropane	50	41	82 %	50	36	72 %	12 %	70 - 130 %	20%
108-70-3	1,3,5-Trichlorobenzene	50	54	109 %	50	58	117 %	7 %	70 - 130 %	20%
120-82-1	1,2,4-Trichlorobenzene	50	51	103 %	50	49	97 %	5 %	70 - 130 %	20%
87-68-3	Hexachlorobutadiene	50	53	106 %	50	50	100 %	6 %	70 - 130 %	20%
91-20-3	Naphthalene	50	42	84 %	50	42	84 %	1 %	70 - 130 %	20%
87-61-6	1,2,3-Trichlorobenzene	50	54	109 %	50	52	103 %	5 %	70 - 130 %	20%
75-65-0	tert-Butyl Alcohol (TBA)	1,000	860	86 %	1,000	900	90 %	5 %	70 - 130 %	20%
108-20-3	Di-isopropyl Ether (DIPE)	50	46	93 %	50	48	96 %	4 %	70 - 130 %	20%
637-92-3	Ethyl tert-butyl Ether (ETBE)	50	41	82 %	50	43	86 %	4 %	70 - 130 %	20%
994-05-8	tert-Amyl Methyl Ether (TAME)	50	42	84 %	50	45	89 %	6 %	70 - 130 %	20%

QC Surrogate Compound	Spiked	Measured	Recovery	Spiked	Measured	Recovery		QC Limits
Dibromofluoromethane	50	49	99 %	50	54	108 %		70 - 130 %
1,2-Dichloroethane-d_4	50	46	92 %	50	52	104 %		70 - 130 %
Toluene-d_8	50	50	99 %	50	53	106 %		70 - 130 %
4-Bromofluorobenzene	50	50	100 %	50	54	109 %		70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample preparation performed by EPA Method 5035A.

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: EPA Method 8260B
QC Batch ID: VM1-2891-S
Matrix: Soil

Instrument ID: MS-1 HP 5890
Analyzed: 08-11-10 10:53
Analyst: LMG

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	10
74-87-3	Chloromethane	BRL		ug/Kg	10
75-01-4	Vinyl Chloride	BRL		ug/Kg	10
74-83-9	Bromomethane	BRL		ug/Kg	10
75-00-3	Chloroethane	BRL		ug/Kg	10
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	10
60-29-7	Diethyl Ether	BRL		ug/Kg	10
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	50
67-64-1	Acetone	BRL		ug/Kg	200
75-15-0	Carbon Disulfide	BRL		ug/Kg	50
75-09-2	Methylene Chloride	BRL		ug/Kg	50
107-13-1	Acrylonitrile	BRL		ug/Kg	5
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	5
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	5
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	5
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	5
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	5
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	50
74-97-5	Bromochloromethane	BRL		ug/Kg	5
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	50
67-66-3	Chloroform	BRL		ug/Kg	5
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	5
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	5
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	5
71-43-2	Benzene	BRL		ug/Kg	5
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	5
79-01-6	Trichloroethene	BRL		ug/Kg	5
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	5
74-95-3	Dibromomethane	BRL		ug/Kg	5
75-27-4	Bromodichloromethane	BRL		ug/Kg	5
123-91-1	1,4-Dioxane	BRL		ug/Kg	5,000
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	50
108-88-3	Toluene	BRL		ug/Kg	5
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	5
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	5
127-18-4	Tetrachloroethene	BRL		ug/Kg	5
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	5
591-78-6	2-Hexanone	BRL		ug/Kg	50
124-48-1	Dibromochloromethane	BRL		ug/Kg	5
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	5
108-90-7	Chlorobenzene	BRL		ug/Kg	5
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	5
100-41-4	Ethylbenzene	BRL		ug/Kg	5
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL		ug/Kg	5
95-47-6	*ortho*-Xylene	BRL		ug/Kg	5
100-42-5	Styrene	BRL		ug/Kg	5
75-25-2	Bromoform	BRL		ug/Kg	5

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: **EPA Method 8260B**
QC Batch ID: **VM1-2891-S**
Matrix: **Soil**

Instrument ID: **MS-1 HP 5890**
Analyzed: **08-11-10 10:53**
Analyst: **LMG**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
98-82-8	Isopropylbenzene	BRL		ug/Kg	5
108-86-1	Bromobenzene	BRL		ug/Kg	5
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	5
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	5
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	50
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	5
95-49-8	2-Chlorotoluene	BRL		ug/Kg	5
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	5
106-43-4	4-Chlorotoluene	BRL		ug/Kg	5
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	5
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	5
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	5
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	5
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	5
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	5
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	5
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	5
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	5
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	5
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	5
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	5
91-20-3	Naphthalene	BRL		ug/Kg	5
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	5
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	200
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	5
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	5
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	50	59	**118** %	70 - 130 %
1,2-Dichloroethane-d_4	50	52	**104** %	70 - 130 %
Toluene-d_8	50	61	**122** %	70 - 130 %
4-Bromofluorobenzene	50	56	**112** %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample preparation performed by EPA Method 5035A.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
			MS-3 HP 5890	Instrument ID:	MS-3 HP 5890
Category:	EPA Method 8270C	Extracted:	08-06-10 11:15	Extracted:	08-06-10 11:15
QC Batch ID:	SV-2380-P	Analyzed:	08-06-10 14:33	Analyzed:	08-06-10 15:14
Matrix:	Soil	Analyst:	MJB	Analyst:	MJB
Units:	ug/Kg				

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
62-75-9	N-Nitrosodimethylamine	3,300	2,300	68 %	3,300	2,400	71 %	5 %	40 - 140 %	30%
110-86-1	Pyridine	3,300	1,600	49 %	3,300	1,800	54 %	10 %	40 - 140 %	30%
108-95-2	Phenol	3,300	2,800	85 %	3,300	2,900	88 %	4 %	30 - 130 %	30%
62-53-3	Aniline	3,300	1,900	58 %	3,300	2,100	64 %	9 %	40 - 140 %	30%
111-44-4	Bis(2-chloroethyl) ether	3,300	2,400	72 %	3,300	2,600	77 %	6 %	40 - 140 %	30%
95-57-8	2-Chlorophenol	3,300	2,600	79 %	3,300	2,700	81 %	3 %	30 - 130 %	30%
541-73-1	1,3-Dichlorobenzene	3,300	2,300	70 %	3,300	2,400	72 %	3 %	40 - 140 %	30%
106-46-7	1,4-Dichlorobenzene	3,300	2,300	70 %	3,300	2,400	73 %	4 %	40 - 140 %	30%
100-51-6	Benzyl Alcohol	3,300	2,800	83 %	3,300	2,500	75 %	10 %	30 - 130 %	30%
95-50-1	1,2-Dichlorobenzene	3,300	2,400	73 %	3,300	2,500	75 %	4 %	40 - 140 %	30%
95-48-7	2-Methylphenol	3,300	2,700	82 %	3,300	2,900	87 %	6 %	30 - 130 %	30%
108-60-1	Bis(2-chloroisopropyl) ether	3,300	2,400	73 %	3,300	2,500	76 %	5 %	40 - 140 %	30%
106-44-5	4-Methylphenol	3,300	2,700	82 %	3,300	2,900	86 %	5 %	30 - 130 %	30%
621-64-7	N-Nitrosodi-n-propylamine	3,300	2,500	76 %	3,300	2,600	79 %	4 %	40 - 140 %	30%
98-86-2	Acetophenone	3,300	2,500	75 %	3,300	2,600	79 %	4 %	40 - 140 %	30%
67-72-1	Hexachloroethane	3,300	2,400	71 %	3,300	2,500	75 %	6 %	40 - 140 %	30%
98-95-3	Nitrobenzene	3,300	2,600	78 %	3,300	2,700	81 %	3 %	40 - 140 %	30%
78-59-1	Isophorone	3,300	2,700	80 %	3,300	2,700	81 %	2 %	40 - 140 %	30%
88-75-5	2-Nitrophenol	3,300	2,700	80 %	3,300	2,700	82 %	2 %	30 - 130 %	30%
105-67-9	2,4-Dimethylphenol	3,300	2,600	79 %	3,300	2,600	79 %	0 %	30 - 130 %	30%
111-91-1	Bis(2-chloroethoxy) methane	3,300	2,600	77 %	3,300	2,700	82 %	5 %	40 - 140 %	30%
120-83-2	2,4-Dichlorophenol	3,300	2,700	82 %	3,300	2,800	85 %	4 %	30 - 130 %	30%
120-82-1	1,2,4-Trichlorobenzene	3,300	2,600	77 %	3,300	2,700	80 %	4 %	40 - 140 %	30%
91-20-3	Naphthalene	3,300	2,600	78 %	3,300	2,700	80 %	3 %	40 - 140 %	30%
106-47-8	4-Chloroaniline	3,300	1,500	45 %	3,300	1,900	58 %	24 %	40 - 140 %	30%
87-68-3	Hexachlorobutadiene	3,300	2,500	76 %	3,300	2,700	80 %	5 %	40 - 140 %	30%
59-50-7	4-Chloro-3-methylphenol	3,300	2,800	83 %	3,300	2,900	86 %	3 %	30 - 130 %	30%
91-57-6	2-Methylnaphthalene	3,300	2,600	79 %	3,300	2,800	84 %	5 %	40 - 140 %	30%
77-47-4	Hexachlorocyclopentadiene	3,300	2,200	66 %	3,300	2,200	66 %	0 %	40 - 140 %	30%
88-06-2	2,4,6-Trichlorophenol	3,300	2,800	84 %	3,300	2,900	87 %	4 %	30 - 130 %	30%
95-95-4	2,4,5-Trichlorophenol	3,300	2,800	84 %	3,300	2,800	83 %	1 %	30 - 130 %	30%
91-58-7	2-Chloronaphthalene	3,300	2,700	82 %	3,300	2,800	84 %	2 %	40 - 140 %	30%
88-74-4	2-Nitroaniline	3,300	2,900	86 %	3,300	2,900	87 %	1 %	40 - 140 %	30%
100-25-4	1,4-Dinitrobenzene	3,300	2,800	85 %	3,300	2,900	86 %	1 %	40 - 140 %	30%
131-11-3	Dimethyl phthalate	3,300	2,800	85 %	3,300	2,900	87 %	1 %	40 - 140 %	30%
99-65-0	1,3-Dinitrobenzene	3,300	2,900	86 %	3,300	2,900	88 %	2 %	40 - 140 %	30%
208-96-8	Acenaphthylene	3,300	2,800	84 %	3,300	2,800	85 %	2 %	40 - 140 %	30%
606-20-2	2,6-Dinitrotoluene	3,300	2,800	85 %	3,300	2,800	85 %	0 %	40 - 140 %	30%
528-29-0	1,2-Dinitrobenzene	3,300	2,700	81 %	3,300	2,800	83 %	2 %	40 - 140 %	30%
99-09-2	3-Nitroaniline	3,300	2,000	61 %	3,300	2,200	66 %	9 %	40 - 140 %	30%
83-32-9	Acenaphthene	3,300	2,800	83 %	3,300	2,800	85 %	2 %	40 - 140 %	30%
51-28-5	2,4-Dinitrophenol	3,300	620	19 % q	3,300	630	19 % q	1 %	30 - 130 %	30%
100-02-7	4-Nitrophenol	3,300	2,900	88 %	3,300	2,800	83 %	5 %	30 - 130 %	30%
132-64-9	Dibenzofuran	3,300	2,800	83 %	3,300	2,800	85 %	2 %	40 - 140 %	30%
121-14-2	2,4-Dinitrotoluene	3,300	2,800	84 %	3,300	2,900	86 %	2 %	40 - 140 %	30%
84-66-2	Diethyl phthalate	3,300	2,900	87 %	3,300	2,900	86 %	1 %	40 - 140 %	30%
7005-72-3	4-Chlorophenyl phenyl ether	3,300	2,800	85 %	3,300	2,900	87 %	1 %	40 - 140 %	30%
86-73-7	Fluorene	3,300	2,800	85 %	3,300	2,900	87 %	3 %	40 - 140 %	30%

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

Category:	EPA Method 8270C
QC Batch ID:	SV-2380-P
Matrix:	Soil
Units:	ug/Kg

LCS	
Instrument ID:	MS-3 HP 5890
Extracted:	08-06-10 11:15
Analyzed:	08-06-10 14:33
Analyst:	MJB

LCSD	
Instrument ID:	MS-3 HP 5890
Extracted:	08-06-10 11:15
Analyzed:	08-06-10 15:14
Analyst:	MJB

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
100-01-6	4-Nitroaniline	3,300	2,900	86 %	3,300	2,900	87 %	2 %	40 - 140 %	30%
534-52-1	4,6-Dinitro-2-methylphenol	3,300	1,100	34 %	3,300	1,200	35 %	2 %	30 - 130 %	30%
86-30-6	N-Nitrosodiphenylamine †	3,300	2,900	88 %	3,300	3,000	89 %	2 %	40 - 140 %	30%
122-66-7	1,2-Diphenylhydrazine à	3,300	3,000	89 %	3,300	3,000	90 %	1 %	40 - 140 %	30%
101-55-3	4-Bromophenyl phenyl ether	3,300	2,800	85 %	3,300	3,000	89 %	4 %	40 - 140 %	30%
118-74-1	Hexachlorobenzene	3,300	2,900	87 %	3,300	2,900	88 %	2 %	40 - 140 %	30%
87-86-5	Pentachlorophenol	3,300	2,600	77 %	3,300	2,600	79 %	2 %	30 - 130 %	30%
85-01-8	Phenanthrene	3,300	2,900	87 %	3,300	3,000	89 %	2 %	40 - 140 %	30%
120-12-7	Anthracene	3,300	2,900	87 %	3,300	3,000	91 %	4 %	40 - 140 %	30%
86-74-8	Carbazole	3,300	3,000	90 %	3,300	3,100	92 %	2 %	40 - 140 %	30%
84-74-2	Di-n-butyl phthalate	3,300	2,900	87 %	3,300	3,000	90 %	3 %	40 - 140 %	30%
206-44-0	Fluoranthene	3,300	2,900	88 %	3,300	3,000	90 %	2 %	40 - 140 %	30%
129-00-0	Pyrene	3,300	2,900	86 %	3,300	2,900	88 %	3 %	40 - 140 %	30%
85-68-7	Butyl benzyl phthalate	3,300	2,900	88 %	3,300	2,900	87 %	1 %	40 - 140 %	30%
91-94-1	3,3'-Dichlorobenzidine	3,300	1,600	47 %	3,300	2,000	59 %	23 %	40 - 140 %	30%
56-55-3	Benzo[a]anthracene	3,300	2,900	86 %	3,300	2,900	87 %	2 %	40 - 140 %	30%
218-01-9	Chrysene	3,300	2,900	88 %	3,300	3,000	89 %	1 %	40 - 140 %	30%
117-81-7	Bis(2-ethylhexyl) phthalate	3,300	2,900	88 %	3,300	3,000	90 %	2 %	40 - 140 %	30%
117-84-0	Di-n-octyl phthalate	3,300	3,000	89 %	3,300	3,000	91 %	3 %	40 - 140 %	30%
205-99-2	Benzo[b]fluoranthene	3,300	2,900	87 %	3,300	3,000	91 %	4 %	40 - 140 %	30%
207-08-9	Benzo[k]fluoranthene	3,300	3,000	90 %	3,300	3,100	92 %	2 %	40 - 140 %	30%
50-32-8	Benzo[a]pyrene	3,300	3,000	89 %	3,300	3,000	90 %	1 %	40 - 140 %	30%
193-39-5	Indeno[1,2,3-c,d]pyrene	3,300	2,900	87 %	3,300	3,100	92 %	6 %	40 - 140 %	30%
53-70-3	Dibenzo[a,h]anthracene	3,300	2,800	83 %	3,300	2,800	85 %	2 %	40 - 140 %	30%
191-24-2	Benzo[g,h,i]perylene	3,300	2,700	82 %	3,300	2,800	83 %	2 %	40 - 140 %	30%

QC Surrogate Compound	Spiked	Measured	Recovery	Spiked	Measured	Recovery		QC Limits
2-Fluorophenol	13,000	10,000	79 %	13,000	11,000	80 %		30 - 130 %
Phenol-d5	13,000	11,000	79 %	13,000	11,000	82 %		30 - 130 %
Nitrobenzene-d5	6,700	6,400	95 %	6,700	6,500	97 %		30 - 130 %
2-Fluorobiphenyl	6,700	6,600	99 %	6,700	6,600	100 %		30 - 130 %
2,4,6-Tribromophenol	13,000	11,000	85 %	13,000	11,000	86 %		30 - 130 %
Terphenyl-d14	6,700	7,100	107 %	6,700	7,200	108 %		30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample extraction performed by EPA Method 3545.

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

q Recovery outside recommended limits.

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: EPA Method 8270C
QC Batch ID: SV-2380-P
Matrix: Soil

Instrument ID: MS-3 HP 5890
Extracted: 08-06-10 11:15
Analyzed: 08-06-10 15:56
Analyst: MJB

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	330
110-86-1	Pyridine	BRL		ug/Kg	330
108-95-2	Phenol	BRL		ug/Kg	330
62-53-3	Aniline	BRL		ug/Kg	330
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	330
95-57-8	2-Chlorophenol	BRL		ug/Kg	330
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	330
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	330
100-51-6	Benzyl Alcohol	BRL		ug/Kg	330
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	330
95-48-7	2-Methylphenol	BRL		ug/Kg	330
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	330
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	330
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	330
98-86-2	Acetophenone	BRL		ug/Kg	330
67-72-1	Hexachloroethane	BRL		ug/Kg	330
98-95-3	Nitrobenzene	BRL		ug/Kg	330
78-59-1	Isophorone	BRL		ug/Kg	330
88-75-5	2-Nitrophenol	BRL		ug/Kg	330
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	330
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	330
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	330
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	330
91-20-3	Naphthalene	BRL		ug/Kg	330
106-47-8	4-Chloroaniline	BRL		ug/Kg	330
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	330
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	330
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	330
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	330
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	330
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	330
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	330
88-74-4	2-Nitroaniline	BRL		ug/Kg	330
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	330
131-11-3	Dimethyl phthalate	BRL		ug/Kg	330
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	330
208-96-8	Acenaphthylene	BRL		ug/Kg	330
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	330
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	330
99-09-2	3-Nitroaniline	BRL		ug/Kg	330
83-32-9	Acenaphthene	BRL		ug/Kg	330
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	670
100-02-7	4-Nitrophenol	BRL		ug/Kg	330
132-64-9	Dibenzofuran	BRL		ug/Kg	330
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	330
84-66-2	Diethyl phthalate	BRL		ug/Kg	330
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	330
86-73-7	Fluorene	BRL		ug/Kg	330
100-01-6	4-Nitroaniline	BRL		ug/Kg	330

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: EPA Method 8270C
QC Batch ID: SV-2380-P
Matrix: Soil

Instrument ID: MS-3 HP 5890
Extracted: 08-06-10 11:15
Analyzed: 08-06-10 15:56
Analyst: MJB

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	670
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	330
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	330
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	330
118-74-1	Hexachlorobenzene	BRL		ug/Kg	330
87-86-5	Pentachlorophenol	BRL		ug/Kg	670
85-01-8	Phenanthrene	BRL		ug/Kg	330
120-12-7	Anthracene	BRL		ug/Kg	330
86-74-8	Carbazole	BRL		ug/Kg	330
84-74-2	Di-*n*-butyl phthalate	BRL		ug/Kg	330
206-44-0	Fluoranthene	BRL		ug/Kg	330
129-00-0	Pyrene	BRL		ug/Kg	330
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	330
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	330
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	330
218-01-9	Chrysene	BRL		ug/Kg	330
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	330
117-84-0	Di-*n*-octyl phthalate	BRL		ug/Kg	330
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	330
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	330
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	330
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	330
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	330
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	330

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	13,000	10,000	77 %	30 - 130 %
Phenol-d5	13,000	10,000	76 %	30 - 130 %
Nitrobenzene-d5	6,700	6,200	94 %	30 - 130 %
2-Fluorobiphenyl	6,700	6,500	98 %	30 - 130 %
2,4,6-Tribromophenol	13,000	10,000	79 %	30 - 130 %
Terphenyl-d14	6,700	7,200	107 %	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample extraction performed by EPA Method 3545.

Report Notations:
BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.
+ Analyzed as 4-Methylphenol.
† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.
◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8270C		MS-3 HP 5890	Instrument ID:	MS-3 HP 5890
QC Batch ID:	SV-2381-P	Extracted:	08-10-10 19:00	Extracted:	08-10-10 19:00
Matrix:	Soil	Analyzed:	08-11-10 10:25	Analyzed:	08-11-10 11:06
Units:	ug/Kg	Analyst:	MJB	Analyst:	MJB

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
62-75-9	N-Nitrosodimethylamine	3,300	2,300	68 %	3,300	2,200	65 %	4 %	40 - 140 %	30%
110-86-1	Pyridine	3,300	1,500	45 %	3,300	1,600	48 %	7 %	40 - 140 %	30%
108-95-2	Phenol	3,300	3,000	89 %	3,300	2,800	83 %	7 %	30 - 130 %	30%
62-53-3	Aniline	3,300	2,800	84 %	3,300	2,400	73 %	15 %	40 - 140 %	30%
111-44-4	Bis(2-chloroethyl) ether	3,300	2,600	79 %	3,300	2,400	73 %	8 %	40 - 140 %	30%
95-57-8	2-Chlorophenol	3,300	2,900	86 %	3,300	2,700	82 %	5 %	30 - 130 %	30%
541-73-1	1,3-Dichlorobenzene	3,300	2,600	77 %	3,300	2,400	71 %	8 %	40 - 140 %	30%
106-46-7	1,4-Dichlorobenzene	3,300	2,600	78 %	3,300	2,400	73 %	7 %	40 - 140 %	30%
100-51-6	Benzyl Alcohol	3,300	3,100	92 %	3,300	2,800	85 %	7 %	30 - 130 %	30%
95-50-1	1,2-Dichlorobenzene	3,300	2,700	80 %	3,300	2,500	74 %	7 %	40 - 140 %	30%
95-48-7	2-Methylphenol	3,300	3,000	89 %	3,300	2,800	84 %	6 %	30 - 130 %	30%
108-60-1	Bis(2-chloroisopropyl) ether	3,300	2,600	78 %	3,300	2,400	73 %	7 %	40 - 140 %	30%
106-44-5	4-Methylphenol	3,300	3,000	89 %	3,300	2,800	85 %	5 %	30 - 130 %	30%
621-64-7	N-Nitrosodi-n-propylamine	3,300	2,700	81 %	3,300	2,500	76 %	6 %	40 - 140 %	30%
98-86-2	Acetophenone	3,300	2,800	83 %	3,300	2,600	78 %	6 %	40 - 140 %	30%
67-72-1	Hexachloroethane	3,300	2,600	78 %	3,300	2,300	70 %	10 %	40 - 140 %	30%
98-95-3	Nitrobenzene	3,300	2,900	86 %	3,300	2,600	77 %	10 %	40 - 140 %	30%
78-59-1	Isophorone	3,300	2,700	82 %	3,300	2,600	77 %	7 %	40 - 140 %	30%
88-75-5	2-Nitrophenol	3,300	2,900	87 %	3,300	2,700	81 %	7 %	30 - 130 %	30%
105-67-9	2,4-Dimethylphenol	3,300	2,800	84 %	3,300	2,600	78 %	8 %	30 - 130 %	30%
111-91-1	Bis(2-chloroethoxy) methane	3,300	2,700	80 %	3,300	2,600	78 %	3 %	40 - 140 %	30%
120-83-2	2,4-Dichlorophenol	3,300	2,900	88 %	3,300	2,700	82 %	6 %	30 - 130 %	30%
120-82-1	1,2,4-Trichlorobenzene	3,300	2,800	84 %	3,300	2,600	77 %	8 %	40 - 140 %	30%
91-20-3	Naphthalene	3,300	2,800	83 %	3,300	2,600	77 %	7 %	40 - 140 %	30%
106-47-8	4-Chloroaniline	3,300	2,600	79 %	3,300	2,400	73 %	8 %	40 - 140 %	30%
87-68-3	Hexachlorobutadiene	3,300	2,800	83 %	3,300	2,600	78 %	7 %	40 - 140 %	30%
59-50-7	4-Chloro-3-methylphenol	3,300	2,900	87 %	3,300	2,700	80 %	8 %	30 - 130 %	30%
91-57-6	2-Methylnaphthalene	3,300	2,800	85 %	3,300	2,700	80 %	6 %	40 - 140 %	30%
77-47-4	Hexachlorocyclopentadiene	3,300	2,300	70 %	3,300	2,200	67 %	6 %	40 - 140 %	30%
88-06-2	2,4,6-Trichlorophenol	3,300	3,000	90 %	3,300	2,800	84 %	7 %	30 - 130 %	30%
95-95-4	2,4,5-Trichlorophenol	3,300	3,000	90 %	3,300	2,900	87 %	3 %	30 - 130 %	30%
91-58-7	2-Chloronaphthalene	3,300	3,000	90 %	3,300	2,800	85 %	6 %	40 - 140 %	30%
88-74-4	2-Nitroaniline	3,300	2,900	88 %	3,300	2,800	83 %	6 %	40 - 140 %	30%
100-25-4	1,4-Dinitrobenzene	3,300	2,900	88 %	3,300	2,900	86 %	3 %	40 - 140 %	30%
131-11-3	Dimethyl phthalate	3,300	3,000	90 %	3,300	2,900	86 %	5 %	40 - 140 %	30%
99-65-0	1,3-Dinitrobenzene	3,300	2,900	88 %	3,300	2,900	86 %	2 %	40 - 140 %	30%
208-96-8	Acenaphthylene	3,300	3,000	89 %	3,300	2,800	85 %	5 %	40 - 140 %	30%
606-20-2	2,6-Dinitrotoluene	3,300	3,000	89 %	3,300	2,800	84 %	7 %	40 - 140 %	30%
528-29-0	1,2-Dinitrobenzene	3,300	2,900	87 %	3,300	2,800	85 %	2 %	40 - 140 %	30%
99-09-2	3-Nitroaniline	3,300	2,700	80 %	3,300	2,500	76 %	5 %	40 - 140 %	30%
83-32-9	Acenaphthene	3,300	3,000	89 %	3,300	2,900	87 %	3 %	40 - 140 %	30%
51-28-5	2,4-Dinitrophenol	3,300	0	0 % q	3,300	0	0 % q	n/a q	30 - 130 %	30%
100-02-7	4-Nitrophenol	3,300	2,800	85 %	3,300	2,600	78 %	8 %	30 - 130 %	30%
132-64-9	Dibenzofuran	3,300	3,000	90 %	3,300	2,900	86 %	4 %	40 - 140 %	30%
121-14-2	2,4-Dinitrotoluene	3,300	2,900	88 %	3,300	2,900	86 %	2 %	40 - 140 %	30%
84-66-2	Diethyl phthalate	3,300	3,000	89 %	3,300	2,800	85 %	4 %	40 - 140 %	30%
7005-72-3	4-Chlorophenyl phenyl ether	3,300	3,100	92 %	3,300	2,900	88 %	5 %	40 - 140 %	30%
86-73-7	Fluorene	3,300	3,000	91 %	3,300	2,900	87 %	5 %	40 - 140 %	30%

Quality Control Report
Laboratory Control Samples

Category: EPA Method 8270C
QC Batch ID: SV-2381-P
Matrix: Soil
Units: ug/Kg

LCS
Instrument ID: MS-3 HP 5890
Extracted: 08-10-10 19:00
Analyzed: 08-11-10 10:25
Analyst: MJB

LCSD
Instrument ID: MS-3 HP 5890
Extracted: 08-10-10 19:00
Analyzed: 08-11-10 11:06
Analyst: MJB

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
100-01-6	4-Nitroaniline	3,300	3,000	89 %	3,300	2,900	87 %	3 %	40 - 140 %	30%
534-52-1	4,6-Dinitro-2-methylphenol	3,300	750	23 % q	3,300	540	16 % q	32 % q	30 - 130 %	30%
86-30-6	N-Nitrosodiphenylamine †	3,300	3,000	91 %	3,300	3,000	89 %	2 %	40 - 140 %	30%
122-66-7	1,2-Diphenylhydrazine à	3,300	2,900	88 %	3,300	2,900	86 %	2 %	40 - 140 %	30%
101-55-3	4-Bromophenyl phenyl ether	3,300	3,000	90 %	3,300	2,900	87 %	4 %	40 - 140 %	30%
118-74-1	Hexachlorobenzene	3,300	3,000	90 %	3,300	2,900	88 %	3 %	40 - 140 %	30%
87-86-5	Pentachlorophenol	3,300	2,100	63 %	3,300	1,800	55 %	13 %	30 - 130 %	30%
85-01-8	Phenanthrene	3,300	3,000	91 %	3,300	2,900	88 %	3 %	40 - 140 %	30%
120-12-7	Anthracene	3,300	3,000	91 %	3,300	2,900	88 %	3 %	40 - 140 %	30%
86-74-8	Carbazole	3,300	3,000	91 %	3,300	2,900	88 %	3 %	40 - 140 %	30%
84-74-2	Di-n-butyl phthalate	3,300	3,000	89 %	3,300	2,900	86 %	3 %	40 - 140 %	30%
206-44-0	Fluoranthene	3,300	3,000	89 %	3,300	2,900	86 %	4 %	40 - 140 %	30%
129-00-0	Pyrene	3,300	3,000	90 %	3,300	2,900	87 %	3 %	40 - 140 %	30%
85-68-7	Butyl benzyl phthalate	3,300	2,900	88 %	3,300	2,900	86 %	2 %	40 - 140 %	30%
91-94-1	3,3'-Dichlorobenzidine	3,300	2,700	80 %	3,300	2,500	76 %	5 %	40 - 140 %	30%
56-55-3	Benzo[a]anthracene	3,300	3,000	91 %	3,300	2,900	86 %	5 %	40 - 140 %	30%
218-01-9	Chrysene	3,300	3,000	89 %	3,300	2,900	87 %	3 %	40 - 140 %	30%
117-81-7	Bis(2-ethylhexyl) phthalate	3,300	3,000	90 %	3,300	2,900	86 %	5 %	40 - 140 %	30%
117-84-0	Di-n-octyl phthalate	3,300	3,000	89 %	3,300	2,800	84 %	5 %	40 - 140 %	30%
205-99-2	Benzo[b]fluoranthene	3,300	3,000	90 %	3,300	2,900	87 %	4 %	40 - 140 %	30%
207-08-9	Benzo[k]fluoranthene	3,300	3,100	92 %	3,300	3,000	90 %	2 %	40 - 140 %	30%
50-32-8	Benzo[a]pyrene	3,300	3,000	91 %	3,300	2,900	88 %	3 %	40 - 140 %	30%
193-39-5	Indeno[1,2,3-c,d]pyrene	3,300	3,100	92 %	3,300	3,100	94 %	1 %	40 - 140 %	30%
53-70-3	Dibenzo[a,h]anthracene	3,300	2,900	86 %	3,300	2,800	84 %	3 %	40 - 140 %	30%
191-24-2	Benzo[g,h,i]perylene	3,300	2,800	85 %	3,300	2,800	85 %	0 %	40 - 140 %	30%

QC Surrogate Compound	Spiked	Measured	Recovery	Spiked	Measured	Recovery		QC Limits
2-Fluorophenol	13,000	11,000	85 %	13,000	10,000	79 %		30 - 130 %
Phenol-d5	13,000	12,000	89 %	13,000	11,000	82 %		30 - 130 %
Nitrobenzene-d5	6,700	6,600	100 %	6,700	6,200	92 %		30 - 130 %
2-Fluorobiphenyl	6,700	7,200	108 %	6,700	6,800	102 %		30 - 130 %
2,4,6-Tribromophenol	13,000	12,000	91 %	13,000	11,000	86 %		30 - 130 %
Terphenyl-d14	6,700	7,500	113 %	6,700	7,100	107 %		30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample extraction performed by EPA Method 3545.

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

q Recovery outside recommended limits.

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: **EPA Method 8270C**
QC Batch ID: **SV-2381-P**
Matrix: **Soil**

Instrument ID: **MS-3 HP 5890**
Extracted: **08-10-10 19:00**
Analyzed: **08-11-10 11:48**
Analyst: **MJB**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	330
110-86-1	Pyridine	BRL		ug/Kg	330
108-95-2	Phenol	BRL		ug/Kg	330
62-53-3	Aniline	BRL		ug/Kg	330
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	330
95-57-8	2-Chlorophenol	BRL		ug/Kg	330
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	330
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	330
100-51-6	Benzyl Alcohol	BRL		ug/Kg	330
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	330
95-48-7	2-Methylphenol	BRL		ug/Kg	330
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	330
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	330
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	330
98-86-2	Acetophenone	BRL		ug/Kg	330
67-72-1	Hexachloroethane	BRL		ug/Kg	330
98-95-3	Nitrobenzene	BRL		ug/Kg	330
78-59-1	Isophorone	BRL		ug/Kg	330
88-75-5	2-Nitrophenol	BRL		ug/Kg	330
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	330
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	330
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	330
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	330
91-20-3	Naphthalene	BRL		ug/Kg	330
106-47-8	4-Chloroaniline	BRL		ug/Kg	330
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	330
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	330
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	330
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	330
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	330
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	330
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	330
88-74-4	2-Nitroaniline	BRL		ug/Kg	330
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	330
131-11-3	Dimethyl phthalate	BRL		ug/Kg	330
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	330
208-96-8	Acenaphthylene	BRL		ug/Kg	330
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	330
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	330
99-09-2	3-Nitroaniline	BRL		ug/Kg	330
83-32-9	Acenaphthene	BRL		ug/Kg	330
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	670
100-02-7	4-Nitrophenol	BRL		ug/Kg	330
132-64-9	Dibenzofuran	BRL		ug/Kg	330
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	330
84-66-2	Diethyl phthalate	BRL		ug/Kg	330
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	330
86-73-7	Fluorene	BRL		ug/Kg	330
100-01-6	4-Nitroaniline	BRL		ug/Kg	330

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: **EPA Method 8270C**
QC Batch ID: **SV-2381-P**
Matrix: **Soil**

Instrument ID: **MS-3 HP 5890**
Extracted: **08-10-10 19:00**
Analyzed: **08-11-10 11:48**
Analyst: **MJB**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	670
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	330
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	330
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	330
118-74-1	Hexachlorobenzene	BRL		ug/Kg	330
87-86-5	Pentachlorophenol	BRL		ug/Kg	670
85-01-8	Phenanthrene	BRL		ug/Kg	330
120-12-7	Anthracene	BRL		ug/Kg	330
86-74-8	Carbazole	BRL		ug/Kg	330
84-74-2	Di-*n*-butyl phthalate	BRL		ug/Kg	330
206-44-0	Fluoranthene	BRL		ug/Kg	330
129-00-0	Pyrene	BRL		ug/Kg	330
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	330
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	330
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	330
218-01-9	Chrysene	BRL		ug/Kg	330
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	330
117-84-0	Di-*n*-octyl phthalate	BRL		ug/Kg	330
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	330
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	330
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	330
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	330
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	330
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	330

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	13,000	11,000	**84** %	30 - 130 %
Phenol-d5	13,000	11,000	**85** %	30 - 130 %
Nitrobenzene-d5	6,700	6,800	**101** %	30 - 130 %
2-Fluorobiphenyl	6,700	7,100	**107** %	30 - 130 %
2,4,6-Tribromophenol	13,000	12,000	**88** %	30 - 130 %
Terphenyl-d14	6,700	7,800	**117** %	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample extraction performed by EPA Method 3545.

Report Notations:
BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.
* Analyzed as 4-Methylphenol.
† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.
◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

Certifications and Approvals

Groundwater Analytical maintains environmental laboratory certification in a variety of states.
Copies of our current certificates may be obtained from our website:

http://www.groundwateranalytical.com/qualifications.htm

CONNECTICUT

Department of Health Services, PH-0586 — Potable Water, Wastewater, Solid Waste and Soil
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/Out_State.pdf

MASSACHUSETTS

Department of Environmental Protection, M-MA-103 — Potable Water and Non-Potable Water
http://public.dep.state.ma.us/labcert/labcert.aspx

Department of Labor,
Division of Occupational Safety, AA000195 — Asbestos Analytical Services, Class A
http://www.mass.gov/dos/forms/la-rpt_list_aa.pdf

NEW HAMPSHIRE

Department of Environmental Services, 202708 — Potable Water, Non-Potable Water, Solid and Chemical Materials
http://www4.egov.nh.gov/DES/NHELAP

NEW YORK

Department of Health, 11754 — Potable Water, Non-Potable Water, Solid and Hazardous Waste
http://www.wadsworth.org/labcert/elap/comm.html

RHODE ISLAND

Department of Health,
Division of Laboratories, LAO00054 — Potable and Non-Potable Water Microbiology, Organic and Inorganic Chemistry
http://www.health.ri.gov/labs/outofstatelabs.pdf

U.S. DEPARTMENT OF AGRICULTURE

USDA, Soil Permit, S-53921 — Foreign soil import permit

VERMONT

Department of Health, VT-87643 — Potable Water
http://healthvermont.gov/enviro/ph_lab/water_test.aspx#cert

GROUNDWATER ANALYTICAL

Certifications and Approvals

MASSACHUSETTS — Department of Environmental Protection, M-MA-103

Groundwater Analytical maintains MassDEP environmental laboratory certification for only the methods and analytes listed below. Analyses for certified analytes are conducted in accordance with MassDEP certification standards, except as may be specifically noted in the project narrative.

Potable Water (Drinking Water)

Analyte	Method
1,2-Dibromo-3-Chloropropane	EPA 504.1
1,2-Dibromoethane	EPA 504.1
Alkalinity, Total	SM 2320-B
Antimony	EPA 200.8
Arsenic	EPA 200.8
Barium	EPA 200.7
Barium	EPA 200.8
Beryllium	EPA 200.7
Beryllium	EPA 200.8
Cadmium	EPA 200.7
Cadmium	EPA 200.8
Calcium	EPA 200.7
Chlorine, Residual Free	SM 4500-CL-G
Chromium	EPA 200.7
Cyanide, Total	Lachat 10-204-00-1-A
E. Coli (Treatment and Distribution)	Enz. Sub. SM 9223
E. Coli (Treatment and Distribution)	NA-MUG SM 9222-G
Fecal Coliform (Source Water)	MF SM 9222-D
Fluoride	EPA 300.0
Fluoride	SM 4500-F-C
Heterotrophic Plate Count	SM 9215-B
Lead	EPA 200.8
Mercury	EPA 245.1
Nickel	EPA 200.7
Nickel	EPA 200.8
Nitrate-N	EPA 300.0
Nitrate-N	Lachat 10-107-04-1-C
Nitrite-N	EPA 300.0
Nitrite-N	Lachat 10-107-04-1-C
pH	SM 4500-H-B
Selenium	EPA 200.8
Silver	EPA 200.7
Silver	EPA 200.8
Sodium	EPA 200.7
Sulfate	EPA 300.0
Thallium	EPA 200.8
Total Coliform (Treatment and Distribution)	Enz. Sub. SM 9223
Total Coliform (Treatment and Distribution)	MF SM 9222-B
Total Dissolved Solids	SM 2540-C
Trihalomethanes	EPA 524.2
Turbidity	SM 2130-B
Volatile Organic Compounds	EPA 524.2

Non-Potable Water (Wastewater)

Analyte	Method
Aldrin	EPA 608
Alkalinity, Total	SM 2320-B
Alpha-BHC	EPA 608
Aluminum	EPA 200.7
Aluminum	EPA 200.8
Ammonia-N	Lachat 10-107-06-1-B

Non-Potable Water (Wastewater)

Analyte	Method
Antimony	EPA 200.7
Antimony	EPA 200.8
Arsenic	EPA 200.7
Arsenic	EPA 200.8
Beryllium	EPA 200.7
Beryllium	EPA 200.8
Beta-BHC	EPA 608
Biochemical Oxygen Demand	SM 5210-B
Cadmium	EPA 200.7
Cadmium	EPA 200.8
Calcium	EPA 200.7
Chemical Oxygen Demand	SM 5220-D
Chlordane	EPA 608
Chloride	EPA 300.0
Chlorine, Total Residual	SM 4500-CL-G
Chromium	LPA 200.7
Chromium	EPA 200.8
Cobalt	EPA 200.7
Cobalt	EPA 200.8
Copper	EPA 200.7
Copper	EPA 200.8
Cyanide, Total	Lachat 10-204-00-1-A
DDD	EPA 608
DDE	EPA 608
DDT	EPA 608
Delta-BHC	EPA 608
Dieldrin	EPA 608
Endosulfan I	EPA 608
Endosulfan II	EPA 608
Endosulfan Sulfate	EPA 608
Endrin	EPA 608
Endrin Aldehyde	EPA 608
Fluoride	EPA 300.0
Gamma-BHC	EPA 608
Hardness (CaCO3), Total	EPA 200.7
Hardness (CaCO3), Total	SM 2340-B
Heptachlor	EPA 608
Heptachlor Epoxide	EPA 608
Iron	EPA 200.7
Kjeldahl-N	Lachat 10-107-06-02-D
Lead	EPA 200.7
Magnesium	EPA 200.7
Manganese	EPA 200.7
Manganese	EPA 200.8
Mercury	EPA 245.1
Molybdenum	EPA 200.7
Molybdenum	EPA 200.8
Nickel	EPA 200.7
Nickel	EPA 200.8
Nitrate-N	EPA 300.0
Nitrate-N	Lachat 10-107-04-1-C
Non-Filterable Residue	SM 2540-D
Oil and Grease	EPA 1664

GROUNDWATER ANALYTICAL

Certifications and Approvals

MASSACHUSETTS — **Department of Environmental Protection, M-MA-103**

Groundwater Analytical maintains MassDEP environmental laboratory certification for only the methods and analytes listed below. Analyses for certified analytes are conducted in accordance with MassDEP certification standards, except as may be specifically noted in the project narrative.

Non-Potable Water (Wastewater) Analyte	Method
Orthophosphate	Lachat 10-115-01-1-A
pH	SM 4500-H-B
Phenolics, Total	EPA 420.4
Phenolics, Total	Lachat 10-210-00-1-B
Phosphorus, Total	Lachat 10-115-01-1-C
Phosphorus, Total	SM 4500-P-B,E
Polychlorinated Biphenyls (Oil)	EPA 600/4-81-045
Polychlorinated Biphenyls (Water)	EPA 608
Potassium	EPA 200.7
Selenium	EPA 200.7
Selenium	EPA 200.8
Silver	EPA 200.7
Sodium	EPA 200.7
Specific Conductivity	SM 2510-B
Strontium	EPA 200.7
Sulfate	EPA 300.0
SVOC-Acid Extractables	EPA 625
SVOC-Base/Neutral Extractables	EPA 625
Thallium	EPA 200.7
Thallium	EPA 200.8
Titanium	EPA 200.7
Total Dissolved Solids	SM 2540-C
Total Organic Carbon	SM 5310-B
Toxaphene	EPA 608
Vanadium	EPA 200.7
Vanadium	EPA 200.8
Volatile Aromatics	EPA 602
Volatile Aromatics	EPA 624
Volatile Halocarbons	EPA 624
Zinc	EPA 200.7
Zinc	EPA 200.8

A 4K UST Area
09/10

GROUNDWATER ANALYTICAL

Groundwater Analytical, Inc.
P.O. Box 1200
228 Main Street
Buzzards Bay, MA 02532

Telephone (508) 759-4441
FAX (508) 759-4475
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August 13, 2010

Ms. Jennifer Hadden
AECOM Environment
2 Technology Park Drive
Westford, MA 01886

LABORATORY REPORT

Project: **Gulf Oil Hyde Park/60158261**
Lab ID: **135425**
Received: **08-11-10**

Dear Jennifer:

Enclosed are the analytical results for the above referenced project. The project was processed for Rush 48 Hour turnaround.

This letter authorizes the release of the analytical results, and should be considered a part of this report. This report contains a sample receipt report detailing the samples received, a project narrative indicating project changes and non-conformances, a quality control report, and a statement of our state certifications.

The analytical results contained in this report meet all applicable NELAC or NVLAP standards, except as may be specifically noted, or described in the project narrative. The analytical results relate only to the samples received. This report may only be used or reproduced in its entirety.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Should you have any questions concerning this report, please do not hesitate to contact me.

Sincerely,

Eric H. Jensen
Operations Manager

EHJ/elm
Enclosures

GROUNDWATER ANALYTICAL

Sample Receipt Report

Project: **Gulf Oil Hyde Park/60158261**
Client: **AECOM Environment**
Lab ID: **135425**

Delivery: **GWA Courier**
Airbill: **n/a**
Lab Receipt: **08-11-10**

Temperature: **3.5°C**
Chain of Custody: **Present**
Custody Seal(s): **n/a**

Lab ID	Field ID		Matrix	Sampled	Method			Notes
135425-1	CS-W (8-10')		Soil	8/9/10 10:10	EPA 8260B Volatile Organics with Oxygenates			
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**	
C1276704	40 mL VOA Vial	Scientific Specialties	BX36977	NaHSO4	R-5468C	06-22-10	n/a	
C1276701	40 mL VOA Vial	Scientific Specialties	BX36977	NaHSO4	R-5468C	06-22-10	n/a	
C1276697	40 mL VOA Vial	Scientific Specialties	BX36977	NaHSO4	R-5468C	06-22-10	n/a	
C1255357	40 mL VOA Vial	Scientific Specialties	BX36537	Methanol	R-6158C	06-04-10	n/a	

Lab ID	Field ID		Matrix	Sampled	Method			Notes
135425-2	CS-N (8-10')		Soil	8/9/10 10:20	EPA 8260B Volatile Organics with Oxygenates			
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**	
C1276721	40 mL VOA Vial	Scientific Specialties	BX36977	NaHSO4	R-5468C	06-22-10	n/a	
C1276715	40 mL VOA Vial	Scientific Specialties	BX36977	NaHSO4	R-5468C	06-22-10	n/a	
C1276708	40 mL VOA Vial	Scientific Specialties	BX36977	NaHSO4	R-5468C	06-22-10	n/a	
C1255543	40 mL VOA Vial	Scientific Specialties	BX36564	Methanol	R-6187H	06-15-10	n/a	

Lab ID	Field ID		Matrix	Sampled	Method			Notes
135425-3	CS-BT 3 (14')		Soil	8/9/10 10:00	EPA 8260B Volatile Organics with Oxygenates			
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**	
C1267695	40 mL VOA Vial	Scientific Specialties	BX36341	NaHSO4	R-5468C	05-04-10	n/a	
C1267688	40 mL VOA Vial	Scientific Specialties	BX36341	NaHSO4	R-5468C	05-04-10	n/a	
C1267681	40 mL VOA Vial	Scientific Specialties	BX36341	NaHSO4	R-5468C	05-04-10	n/a	
C1208578	40 mL VOA Vial	Scientific Specialties	BX35939	Methanol	R-6092D	04-29-10	n/a	

Lab ID	Field ID		Matrix	Sampled	Method			Notes
135425-4	CS-BT 4 (15')		Soil	8/9/10 7:05	EPA 8260B Volatile Organics with Oxygenates			
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**	
C1280899	40 mL VOA Vial	Scientific Specialties	BX37079	n/a	R-6223C	07-16-10	n/a	
C1280882	40 mL VOA Vial	Scientific Specialties	BX37079	n/a	R-6223C	07-16-10	n/a	
C1280872	40 mL VOA Vial	Scientific Specialties	BX37079	n/a	R-6223C	07-16-10	n/a	
C1276049	40 mL VOA Vial	Scientific Specialties	BX36954	Methanol	R-6137B	06-30-10	n/a	

Lab ID	Field ID		Matrix	Sampled	Method			Notes
135425-5	CS-E2 (8-10')		Soil	8/9/10 8:15	EPA 8260B Volatile Organics with Oxygenates			
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**	
C1280875	40 mL VOA Vial	Scientific Specialties	BX37079	n/a	R-6223C	07-16-10	n/a	
C1280870	40 mL VOA Vial	Scientific Specialties	BX37079	n/a	R-6223C	07-16-10	n/a	
C1280861	40 mL VOA Vial	Scientific Specialties	BX37079	n/a	R-6223C	07-16-10	n/a	
C1276036	40 mL VOA Vial	Scientific Specialties	BX36954	Methanol	R-6137B	06-30-10	n/a	

Lab ID	Field ID		Matrix	Sampled	Method			Notes
135425-6	CS-S2 (8-10')		Soil	8/9/10 9:40	EPA 8260B Volatile Organics with Oxygenates			
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**	
C1280852	40 mL VOA Vial	Scientific Specialties	BX37079	n/a	R-6223C	07-16-10	n/a	
C1280851	40 mL VOA Vial	Scientific Specialties	BX37079	n/a	R-6223C	07-16-10	n/a	
C1280845	40 mL VOA Vial	Scientific Specialties	BX37079	n/a	R-6223C	07-16-10	n/a	
C1276039	40 mL VOA Vial	Scientific Specialties	BX36954	Methanol	R-6137B	06-30-10	n/a	

Lab ID	Field ID		Matrix	Sampled	Method			Notes
135425-7	CS-W (8-10')		Soil	8/9/10 10:10	EPA 8270C Semivolatile Organics			
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**	
C1263851	250 mL Amber Glass	Scientific Specialties	BX36423	None	n/a	n/a	n/a	

GROUNDWATER ANALYTICAL

Sample Receipt Report (Continued)

Project: **Gulf Oil Hyde Park/60158261**
Client: **AECOM Environment**
Lab ID: **135425**

Delivery: **GWA Courier**
Airbill: **n/a**
Lab Receipt: **08-11-10**

Temperature: **3.5°C**
Chain of Custody: **Present**
Custody Seal(s): **n/a**

Lab ID	Field ID		Matrix	Sampled	Method				Notes
135425-8	CS-N (8-10')		Soil	8/9/10 10:20	EPA 8270C Semivolatile Organics				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1263850	250 mL Amber Glass	Scientific Specialties	BX36423	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
135425-9	CS-BT 3 (14')		Soil	8/9/10 10:00	EPA 8270C Semivolatile Organics				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1263847	250 mL Amber Glass	Scientific Specialties	BX36423	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
135425-10	CS-BT 4 (15')		Soil	8/9/10 7:05	EPA 8270C Semivolatile Organics				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1263849	250 mL Amber Glass	Scientific Specialties	BX36423	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
135425-11	CS-E2 (8-10')		Soil	8/9/10 8:15	EPA 8270C Semivolatile Organics				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1263857	250 mL Amber Glass	Scientific Specialties	BX36423	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
135425-12	CS-S2 (8-10')		Soil	8/9/10 9:40	EPA 8270C Semivolatile Organics				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1231113	250 mL Amber Glass	Scientific Specialties	BX35902	None	n/a	n/a	n/a		

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID: **CS-W (8-10')**
Project: **Gulf Oil Hyde Park/60158261**
Client: **AECOM Environment**

Laboratory ID: **135425-1**
Sampled: **08-09-10 10:10**
Received: **08-11-10 18:05**
Analyzed: **08-12-10 13:39**
Analyst: **LMG**

Matrix: **Soil**
Container: **40 mL VOA Vial**
Preservation: **NaHSO4 / Cool**

QC Batch ID: **VM1-2892-S**
Instrument ID: **MS-1 HP 5890**
Sample Weight: **5.9 g**
% Solids: **83**
Dilution Factor: **1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	10
74-87-3	Chloromethane	BRL		ug/Kg	10
75-01-4	Vinyl Chloride	BRL		ug/Kg	10
74-83-9	Bromomethane	BRL		ug/Kg	10
75-00-3	Chloroethane	BRL		ug/Kg	10
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	10
60-29-7	Diethyl Ether	BRL		ug/Kg	10
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	52
67-64-1	Acetone	BRL		ug/Kg	250
75-15-0	Carbon Disulfide	BRL		ug/Kg	52
75-09-2	Methylene Chloride	BRL		ug/Kg	52
107-13-1	Acrylonitrile	BRL		ug/Kg	5
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	5
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	5
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	5
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	5
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	5
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	52
74-97-5	Bromochloromethane	BRL		ug/Kg	5
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	52
67-66-3	Chloroform	BRL		ug/Kg	5
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	5
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	5
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	5
71-43-2	Benzene	BRL		ug/Kg	5
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	5
79-01-6	Trichloroethene	BRL		ug/Kg	5
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	5
74-95-3	Dibromomethane	BRL		ug/Kg	5
75-27-4	Bromodichloromethane	BRL		ug/Kg	5
123-91-1	1,4-Dioxane	BRL		ug/Kg	5,200
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	52
108-88-3	Toluene	BRL		ug/Kg	5
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	5
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	5
127-18-4	Tetrachloroethene	BRL		ug/Kg	5
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	5
591-78-6	2-Hexanone	BRL		ug/Kg	52
124-48-1	Dibromochloromethane	BRL		ug/Kg	5
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	5
108-90-7	Chlorobenzene	BRL		ug/Kg	5
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	5
100-41-4	Ethylbenzene	BRL		ug/Kg	5
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL		ug/Kg	5

GROUNDWATER ANALYTICAL

EPA Method 8260B (Continued)
Volatile Organics by GC/MS

Field ID:	CS-W (8-10')	Matrix:	Soil
Project:	Gulf Oil Hyde Park/60158261	Container:	40 mL VOA Vial
Client:	AECOM Environment	Preservation:	NaHSO4 / Cool
Laboratory ID:	135425-1	QC Batch ID:	VM1-2892-S
Sampled:	08-09-10 10:10	Instrument ID:	MS-1 HP 5890
Received:	08-11-10 18:05	Sample Weight:	5.9 g
Analyzed:	08-12-10 13:39	% Solids:	83
Analyst:	LMG	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
95-47-6	*ortho*-Xylene	BRL		ug/Kg	5
100-42-5	Styrene	BRL		ug/Kg	5
75-25-2	Bromoform	BRL		ug/Kg	5
98-82-8	Isopropylbenzene	BRL		ug/Kg	5
108-86-1	Bromobenzene	BRL		ug/Kg	5
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	5
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	5
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	52
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	5
95-49-8	2-Chlorotoluene	BRL		ug/Kg	5
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	5
106-43-4	4-Chlorotoluene	BRL		ug/Kg	5
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	5
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	5
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	5
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	5
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	5
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	5
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	5
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	5
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	5
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	5
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	5
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	5
91-20-3	Naphthalene	BRL		ug/Kg	5
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	5
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	210
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	5
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	5
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	50	63	**126** %	70 - 130 %
1,2-Dichloroethane-d_4	50	55	**111** %	70 - 130 %
Toluene-d_8	50	54	**109** %	70 - 130 %
4-Bromofluorobenzene	50	61	**121** %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample preparation performed by EPA Method 5030B. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	CS-N (8-10')	Matrix:	Soil
Project:	Gulf Oil Hyde Park/60158261	Container:	40 mL VOA Vial
Client:	AECOM Environment	Preservation:	NaHSO4 / Cool
Laboratory ID:	135425-2	QC Batch ID:	VM1-2892-S
Sampled:	08-09-10 10:20	Instrument ID:	MS-1 HP 5890
Received:	08-11-10 18:05	Sample Weight:	4.9 g
Analyzed:	08-12-10 14:15	% Solids:	95
Analyst:	LMG	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	11
74-87-3	Chloromethane	BRL		ug/Kg	11
75-01-4	Vinyl Chloride	BRL		ug/Kg	11
74-83-9	Bromomethane	BRL		ug/Kg	11
75-00-3	Chloroethane	BRL		ug/Kg	11
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	11
60-29-7	Diethyl Ether	BRL		ug/Kg	11
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	53
67-64-1	Acetone	BRL		ug/Kg	210
75-15-0	Carbon Disulfide	BRL		ug/Kg	53
75-09-2	Methylene Chloride	BRL		ug/Kg	53
107-13-1	Acrylonitrile	BRL		ug/Kg	5
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	5
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	5
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	5
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	5
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	5
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	53
74-97-5	Bromochloromethane	BRL		ug/Kg	5
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	53
67-66-3	Chloroform	BRL		ug/Kg	5
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	5
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	5
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	5
71-43-2	Benzene	BRL		ug/Kg	5
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	5
79-01-6	Trichloroethene	BRL		ug/Kg	5
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	5
74-95-3	Dibromomethane	BRL		ug/Kg	5
75-27-4	Bromodichloromethane	BRL		ug/Kg	5
123-91-1	1,4-Dioxane	BRL		ug/Kg	5,300
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	53
108-88-3	Toluene	BRL		ug/Kg	5
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	5
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	5
127-18-4	Tetrachloroethene	BRL		ug/Kg	5
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	5
591-78-6	2-Hexanone	BRL		ug/Kg	53
124-48-1	Dibromochloromethane	BRL		ug/Kg	5
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	5
108-90-7	Chlorobenzene	BRL		ug/Kg	5
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	5
100-41-4	Ethylbenzene	BRL		ug/Kg	5
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL		ug/Kg	5

GROUNDWATER ANALYTICAL

EPA Method 8260B (Continued)
Volatile Organics by GC/MS

Field ID:	CS-N (8-10')	Matrix:	Soil
Project:	Gulf Oil Hyde Park/60158261	Container:	40 mL VOA Vial
Client:	AECOM Environment	Preservation:	NaHSO4 / Cool
Laboratory ID:	135425-2	QC Batch ID:	VM1-2892-S
Sampled:	08-09-10 10:20	Instrument ID:	MS-1 HP 5890
Received:	08-11-10 18:05	Sample Weight:	4.9 g
Analyzed:	08-12-10 14:15	% Solids:	95
Analyst:	LMG	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
95-47-6	*ortho*-Xylene	BRL		ug/Kg	5
100-42-5	Styrene	BRL		ug/Kg	5
75-25-2	Bromoform	BRL		ug/Kg	5
98-82-8	Isopropylbenzene	BRL		ug/Kg	5
108-86-1	Bromobenzene	BRL		ug/Kg	5
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	5
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	5
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	53
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	5
95-49-8	2-Chlorotoluene	BRL		ug/Kg	5
108-67-8	1,3,5-Trimethylbenzene	6		ug/Kg	5
106-43-4	4-Chlorotoluene	BRL		ug/Kg	5
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	5
95-63-6	1,2,4-Trimethylbenzene	7		ug/Kg	5
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	5
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	5
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	5
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	5
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	5
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	5
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	5
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	5
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	5
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	5
91-20-3	Naphthalene	BRL		ug/Kg	5
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	5
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	210
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	5
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	5
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	50	51	102 %	70 - 130 %
1,2-Dichloroethane-d_4	50	43	87 %	70 - 130 %
Toluene-d_8	50	51	102 %	70 - 130 %
4-Bromofluorobenzene	50	55	111 %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample preparation performed by EPA Method 5030B. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**CS-BT 3 (14')**	Matrix:	**Soil**
Project:	**Gulf Oil Hyde Park/60158261**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**NaHSO4 / Cool**
Laboratory ID:	**135425-3**	QC Batch ID:	**VM1-2892-S**
Sampled:	**08-09-10 10:00**	Instrument ID:	**MS-1 HP 5890**
Received:	**08-11-10 18:05**	Sample Weight:	**5.9 g**
Analyzed:	**08-12-10 14:52**	% Solids:	**86**
Analyst:	**LMG**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	10
74-87-3	Chloromethane	BRL		ug/Kg	10
75-01-4	Vinyl Chloride	BRL		ug/Kg	10
74-83-9	Bromomethane	BRL		ug/Kg	10
75-00-3	Chloroethane	BRL		ug/Kg	10
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	10
60-29-7	Diethyl Ether	BRL		ug/Kg	10
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	50
67-64-1	Acetone	BRL		ug/Kg	200
75-15-0	Carbon Disulfide	BRL		ug/Kg	50
75-09-2	Methylene Chloride	BRL		ug/Kg	50
107-13-1	Acrylonitrile	BRL		ug/Kg	5
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	5
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	5
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	5
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	5
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	5
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	50
74-97-5	Bromochloromethane	BRL		ug/Kg	5
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	50
67-66-3	Chloroform	BRL		ug/Kg	5
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	5
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	5
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	5
71-43-2	Benzene	BRL		ug/Kg	5
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	5
79-01-6	Trichloroethene	BRL		ug/Kg	5
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	5
74-95-3	Dibromomethane	BRL		ug/Kg	5
75-27-4	Bromodichloromethane	BRL		ug/Kg	5
123-91-1	1,4-Dioxane	BRL		ug/Kg	5,000
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	50
108-88-3	Toluene	BRL		ug/Kg	5
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	5
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	5
127-18-4	Tetrachloroethene	BRL		ug/Kg	5
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	5
591-78-6	2-Hexanone	BRL		ug/Kg	50
124-48-1	Dibromochloromethane	BRL		ug/Kg	5
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	5
108-90-7	Chlorobenzene	BRL		ug/Kg	5
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	5
100-41-4	Ethylbenzene	BRL		ug/Kg	5
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL		ug/Kg	5

GROUNDWATER ANALYTICAL

EPA Method 8260B (Continued)
Volatile Organics by GC/MS

Field ID:	CS-BT 3 (14')	Matrix:	Soil
Project:	Gulf Oil Hyde Park/60158261	Container:	40 mL VOA Vial
Client:	AECOM Environment	Preservation:	NaHSO4 / Cool
Laboratory ID:	135425-3	QC Batch ID:	VM1-2892-S
Sampled:	08-09-10 10:00	Instrument ID:	MS-1 HP 5890
Received:	08-11-10 18:05	Sample Weight:	5.9 g
Analyzed:	08-12-10 14:52	% Solids:	86
Analyst:	LMG	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
95-47-6	*ortho*-Xylene	BRL		ug/Kg	5
100-42-5	Styrene	BRL		ug/Kg	5
75-25-2	Bromoform	BRL		ug/Kg	5
98-82-8	Isopropylbenzene	BRL		ug/Kg	5
108-86-1	Bromobenzene	BRL		ug/Kg	5
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	5
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	5
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	50
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	5
95-49-8	2-Chlorotoluene	BRL		ug/Kg	5
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	5
106-43-4	4-Chlorotoluene	BRL		ug/Kg	5
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	5
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	5
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	5
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	5
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	5
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	5
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	5
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	5
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	5
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	5
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	5
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	5
91-20-3	Naphthalene	BRL		ug/Kg	5
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	5
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	200
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	5
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	5
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	50	55	**111 %**	70 - 130 %
1,2-Dichloroethane-d_4	50	49	**98 %**	70 - 130 %
Toluene-d_8	50	51	**102 %**	70 - 130 %
4-Bromofluorobenzene	50	52	**105 %**	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample preparation performed by EPA Method 5030B. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID: **CS-BT 4 (15')**
Project: **Gulf Oil Hyde Park/60158261**
Client: **AECOM Environment**

Laboratory ID: **135425-4**
Sampled: **08-09-10 07:05**
Received: **08-11-10 18:05**
Analyzed: **08-12-10 15:28**
Analyst: **LMG**

Matrix: **Soil**
Container: **40 mL VOA Vial**
Preservation: **Frozen**

QC Batch ID: **VM1-2892-S**
Instrument ID: **MS-1 HP 5890**
Sample Weight: **5.4 g**
% Solids: **91**
Dilution Factor: **1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	10
74-87-3	Chloromethane	BRL		ug/Kg	10
75-01-4	Vinyl Chloride	BRL		ug/Kg	10
74-83-9	Bromomethane	BRL		ug/Kg	10
75-00-3	Chloroethane	BRL		ug/Kg	10
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	10
60-29-7	Diethyl Ether	BRL		ug/Kg	10
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	50
67-64-1	Acetone	BRL		ug/Kg	200
75-15-0	Carbon Disulfide	BRL		ug/Kg	50
75-09-2	Methylene Chloride	BRL		ug/Kg	50
107-13-1	Acrylonitrile	BRL		ug/Kg	5
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	5
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	5
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	5
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	5
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	5
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	50
74-97-5	Bromochloromethane	BRL		ug/Kg	5
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	50
67-66-3	Chloroform	BRL		ug/Kg	5
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	5
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	5
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	5
71-43-2	Benzene	BRL		ug/Kg	5
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	5
79-01-6	Trichloroethene	BRL		ug/Kg	5
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	5
74-95-3	Dibromomethane	BRL		ug/Kg	5
75-27-4	Bromodichloromethane	BRL		ug/Kg	5
123-91-1	1,4-Dioxane	BRL		ug/Kg	5,000
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	50
108-88-3	Toluene	BRL		ug/Kg	5
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	5
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	5
127-18-4	Tetrachloroethene	BRL		ug/Kg	5
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	5
591-78-6	2-Hexanone	BRL		ug/Kg	50
124-48-1	Dibromochloromethane	BRL		ug/Kg	5
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	5
108-90-7	Chlorobenzene	BRL		ug/Kg	5
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	5
100-41-4	Ethylbenzene	BRL		ug/Kg	5
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL		ug/Kg	5

GROUNDWATER ANALYTICAL

EPA Method 8260B (Continued)
Volatile Organics by GC/MS

Field ID:	**CS-BT 4 (15')**	Matrix:	**Soil**
Project:	**Gulf Oil Hyde Park/60158261**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**Frozen**
Laboratory ID:	**135425-4**	QC Batch ID:	**VM1-2892-S**
Sampled:	**08-09-10 07:05**	Instrument ID:	**MS-1 HP 5890**
Received:	**08-11-10 18:05**	Sample Weight:	**5.4 g**
Analyzed:	**08-12-10 15:28**	% Solids:	**91**
Analyst:	**LMG**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
95-47-6	*ortho*-Xylene	BRL		ug/Kg	5
100-42-5	Styrene	BRL		ug/Kg	5
75-25-2	Bromoform	BRL		ug/Kg	5
98-82-8	Isopropylbenzene	BRL		ug/Kg	5
108-86-1	Bromobenzene	BRL		ug/Kg	5
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	5
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	5
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	50
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	5
95-49-8	2-Chlorotoluene	BRL		ug/Kg	5
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	5
106-43-4	4-Chlorotoluene	BRL		ug/Kg	5
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	5
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	5
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	5
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	5
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	5
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	5
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	5
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	5
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	5
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	5
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	5
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	5
91-20-3	Naphthalene	BRL		ug/Kg	5
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	5
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	200
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	5
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	5
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	50	54	**109 %**	70 - 130 %
1,2-Dichloroethane-d_4	50	41	**81 %**	70 - 130 %
Toluene-d_8	50	49	**98 %**	70 - 130 %
4-Bromofluorobenzene	50	60	**121 %**	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample preparation performed by EPA Method 5030B. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	CS-E2 (8-10')	Matrix:	Soil
Project:	Gulf Oil Hyde Park/60158261	Container:	40 mL VOA Vial
Client:	AECOM Environment	Preservation:	Frozen
Laboratory ID:	135425-5	QC Batch ID:	VM1-2892-S
Sampled:	08-09-10 08:15	Instrument ID:	MS-1 HP 5890
Received:	08-11-10 18:05	Sample Weight:	5.9 g
Analyzed:	08-12-10 16:04	% Solids:	91
Analyst:	LMG	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	10
74-87-3	Chloromethane	BRL		ug/Kg	10
75-01-4	Vinyl Chloride	BRL		ug/Kg	10
74-83-9	Bromomethane	BRL		ug/Kg	10
75-00-3	Chloroethane	BRL		ug/Kg	10
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	10
60-29-7	Diethyl Ether	BRL		ug/Kg	10
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	50
67-64-1	Acetone	BRL		ug/Kg	200
75-15-0	Carbon Disulfide	BRL		ug/Kg	50
75-09-2	Methylene Chloride	BRL		ug/Kg	50
107-13-1	Acrylonitrile	BRL		ug/Kg	5
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	5
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	5
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	5
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	5
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	5
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	50
74-97-5	Bromochloromethane	BRL		ug/Kg	5
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	50
67-66-3	Chloroform	BRL		ug/Kg	5
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	5
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	5
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	5
71-43-2	Benzene	BRL		ug/Kg	5
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	5
79-01-6	Trichloroethene	BRL		ug/Kg	5
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	5
74-95-3	Dibromomethane	BRL		ug/Kg	5
75-27-4	Bromodichloromethane	BRL		ug/Kg	5
123-91-1	1,4-Dioxane	BRL		ug/Kg	5,000
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	50
108-88-3	Toluene	BRL		ug/Kg	5
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	5
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	5
127-18-4	Tetrachloroethene	BRL		ug/Kg	5
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	5
591-78-6	2-Hexanone	BRL		ug/Kg	50
124-48-1	Dibromochloromethane	BRL		ug/Kg	5
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	5
108-90-7	Chlorobenzene	BRL		ug/Kg	5
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	5
100-41-4	Ethylbenzene	BRL		ug/Kg	5
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL		ug/Kg	5

GROUNDWATER ANALYTICAL

EPA Method 8260B (Continued)
Volatile Organics by GC/MS

Field ID:	CS-E2 (8-10')	Matrix:	Soil
Project:	Gulf Oil Hyde Park/60158261	Container:	40 mL VOA Vial
Client:	AECOM Environment	Preservation:	Frozen
Laboratory ID:	135425-5	QC Batch ID:	VM1-2892-S
Sampled:	08-09-10 08:15	Instrument ID:	MS-1 HP 5890
Received:	08-11-10 18:05	Sample Weight:	5.9 g
Analyzed:	08-12-10 16:04	% Solids:	91
Analyst:	LMG	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
95-47-6	*ortho*-Xylene	BRL		ug/Kg	5
100-42-5	Styrene	BRL		ug/Kg	5
75-25-2	Bromoform	BRL		ug/Kg	5
98-82-8	Isopropylbenzene	BRL		ug/Kg	5
108-86-1	Bromobenzene	BRL		ug/Kg	5
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	5
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	5
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	50
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	5
95-49-8	2-Chlorotoluene	BRL		ug/Kg	5
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	5
106-43-4	4-Chlorotoluene	BRL		ug/Kg	5
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	5
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	5
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	5
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	5
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	5
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	5
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	5
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	5
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	5
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	5
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	5
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	5
91-20-3	Naphthalene	BRL		ug/Kg	5
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	5
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	200
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	5
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	5
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	50	53	**107 %**	70 - 130 %
1,2-Dichloroethane-d_4	50	40	**79 %**	70 - 130 %
Toluene-d_8	50	52	**104 %**	70 - 130 %
4-Bromofluorobenzene	50	57	**115 %**	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample preparation performed by EPA Method 5030B. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID: **CS-S2 (8-10')**
Project: **Gulf Oil Hyde Park/60158261**
Client: **AECOM Environment**

Laboratory ID: **135425-6**
Sampled: **08-09-10 09:40**
Received: **08-11-10 18:05**
Analyzed: **08-12-10 16:41**
Analyst: **LMG**

Matrix: **Soil**
Container: **40 mL VOA Vial**
Preservation: **Frozen**

QC Batch ID: **VM1-2892-S**
Instrument ID: **MS-1 HP 5890**
Sample Weight: **5.1 g**
% Solids: **91**
Dilution Factor: **1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	11
74-87-3	Chloromethane	BRL		ug/Kg	11
75-01-4	Vinyl Chloride	BRL		ug/Kg	11
74-83-9	Bromomethane	BRL		ug/Kg	11
75-00-3	Chloroethane	BRL		ug/Kg	11
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	11
60-29-7	Diethyl Ether	BRL		ug/Kg	11
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	54
67-64-1	Acetone	BRL		ug/Kg	220
75-15-0	Carbon Disulfide	BRL		ug/Kg	54
75-09-2	Methylene Chloride	BRL		ug/Kg	54
107-13-1	Acrylonitrile	BRL		ug/Kg	5
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	5
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	5
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	5
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	5
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	5
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	54
74-97-5	Bromochloromethane	BRL		ug/Kg	5
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	54
67-66-3	Chloroform	BRL		ug/Kg	5
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	5
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	5
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	5
71-43-2	Benzene	BRL		ug/Kg	5
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	5
79-01-6	Trichloroethene	BRL		ug/Kg	5
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	5
74-95-3	Dibromomethane	BRL		ug/Kg	5
75-27-4	Bromodichloromethane	BRL		ug/Kg	5,400
123-91-1	1,4-Dioxane	BRL		ug/Kg	5
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	54
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	5
108-88-3	Toluene	BRL		ug/Kg	5
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	5
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	5
127-18-4	Tetrachloroethene	BRL		ug/Kg	5
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	54
591-78-6	2-Hexanone	BRL		ug/Kg	5
124-48-1	Dibromochloromethane	BRL		ug/Kg	5
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	5
108-90-7	Chlorobenzene	BRL		ug/Kg	5
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	5
100-41-4	Ethylbenzene	BRL		ug/Kg	5
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL		ug/Kg	5

GROUNDWATER ANALYTICAL

EPA Method 8260B (Continued)
Volatile Organics by GC/MS

Field ID: CS-S2 (8-10')
Project: Gulf Oil Hyde Park/60158261
Client: AECOM Environment

Laboratory ID: 135425-6
Sampled: 08-09-10 09:40
Received: 08-11-10 18:05
Analyzed: 08-12-10 16:41
Analyst: LMG

Matrix: Soil
Container: 40 mL VOA Vial
Preservation: Frozen

QC Batch ID: VM1-2892-S
Instrument ID: MS-1 HP 5890
Sample Weight: 5.1 g
% Solids: 91
Dilution Factor: 1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
95-47-6	*ortho*-Xylene	BRL		ug/Kg	5
100-42-5	Styrene	BRL		ug/Kg	5
75-25-2	Bromoform	BRL		ug/Kg	5
98-82-8	Isopropylbenzene	BRL		ug/Kg	5
108-86-1	Bromobenzene	BRL		ug/Kg	5
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	5
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	5
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	54
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	5
95-49-8	2-Chlorotoluene	BRL		ug/Kg	5
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	5
106-43-4	4-Chlorotoluene	BRL		ug/Kg	5
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	5
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	5
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	5
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	5
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	5
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	5
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	5
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	5
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	5
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	5
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	5
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	5
91-20-3	Naphthalene	BRL		ug/Kg	5
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	5
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	220
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	5
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	5
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	50	55	**110** %	70 - 130 %
1,2-Dichloroethane-d_4	50	43	**85** %	70 - 130 %
Toluene-d_8	50	46	**92** %	70 - 130 %
4-Bromofluorobenzene	50	64	**128** %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample preparation performed by EPA Method 5030B. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

EPA Method 8270C
Semivolatile Organics by GC/MS

Field ID: CS-W (8-10')
Project: Gulf Oil Hyde Park/60158261
Client: AECOM Environment

Laboratory ID: 135425-07
Sampled: 08-09-10 10:10
Received: 08-11-10 18:05
Extracted: 08-11-10 22:00
Analyzed: 08-12-10 13:06
Analyst: MJB

Matrix: Soil
Container: 250 mL Amber Glass
Preservation: Cool

QC Batch ID: SV-2382-P
Instrument ID: MS-3 HP 5890
Sample Weight: 16 g
Final Volume: 1 mL
Percent Solids: 83
Dilution Factor: 1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	380
110-86-1	Pyridine	BRL		ug/Kg	380
108-95-2	Phenol	BRL		ug/Kg	380
62-53-3	Aniline	BRL		ug/Kg	380
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	380
95-57-8	2-Chlorophenol	BRL		ug/Kg	380
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	380
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	380
100-51-6	Benzyl Alcohol	BRL		ug/Kg	380
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	380
95-48-7	2-Methylphenol	BRL		ug/Kg	380
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	380
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	380
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	380
98-86-2	Acetophenone	BRL		ug/Kg	380
67-72-1	Hexachloroethane	BRL		ug/Kg	380
98-95-3	Nitrobenzene	BRL		ug/Kg	380
78-59-1	Isophorone	BRL		ug/Kg	380
88-75-5	2-Nitrophenol	BRL		ug/Kg	380
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	380
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	380
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	380
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	380
91-20-3	Naphthalene	BRL		ug/Kg	380
106-47-8	4-Chloroaniline	BRL		ug/Kg	380
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	380
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	380
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	380
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	380
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	380
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	380
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	380
88-74-4	2-Nitroaniline	BRL		ug/Kg	380
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	380
131-11-3	Dimethyl phthalate	BRL		ug/Kg	380
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	380
208-96-8	Acenaphthylene	BRL		ug/Kg	380
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	380
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	380
99-09-2	3-Nitroaniline	BRL		ug/Kg	380
83-32-9	Acenaphthene	BRL		ug/Kg	780
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	380
100-02-7	4-Nitrophenol	BRL		ug/Kg	380
132-64-9	Dibenzofuran	BRL		ug/Kg	380
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	380

GROUNDWATER ANALYTICAL

EPA Method 8270C (Continued)
Semivolatile Organics by GC/MS

Field ID:	CS-W (8-10')	Matrix:	Soil
Project:	Gulf Oil Hyde Park/60158261	Container:	250 mL Amber Glass
Client:	AECOM Environment	Preservation:	Cool
Laboratory ID:	135425-07	QC Batch ID:	SV-2382-P
Sampled:	08-09-10 10:10	Instrument ID:	MS-3 HP 5890
Received:	08-11-10 18:05	Sample Weight:	16 g
Extracted:	08-11-10 22:00	Final Volume:	1 mL
Analyzed:	08-12-10 13:06	Dilution Factor:	1
Analyst:	MJB		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
84-66-2	Diethyl phthalate	BRL		ug/Kg	380
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	380
86-73-7	Fluorene	BRL		ug/Kg	380
100-01-6	4-Nitroaniline	BRL		ug/Kg	380
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	780
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	380
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	380
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	380
118-74-1	Hexachlorobenzene	BRL		ug/Kg	380
87-86-5	Pentachlorophenol	BRL		ug/Kg	780
85-01-8	Phenanthrene	BRL		ug/Kg	380
120-12-7	Anthracene	BRL		ug/Kg	380
86-74-8	Carbazole	BRL		ug/Kg	380
84-74-2	Di-*n*-butyl phthalate	BRL		ug/Kg	380
206-44-0	Fluoranthene	BRL		ug/Kg	380
129-00-0	Pyrene	BRL		ug/Kg	380
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	380
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	380
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	380
218-01-9	Chrysene	BRL		ug/Kg	380
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	380
117-84-0	Di-*n*-octyl phthalate	BRL		ug/Kg	380
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	380
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	380
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	380
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	380
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	380
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	380

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	16,000	10,000	66 %	30 - 130 %
Phenol-d5	16,000	11,000	68 %	30 - 130 %
Nitrobenzene-d5	7,800	6,200	80 %	30 - 130 %
2-Fluorobiphenyl	7,800	6,700	87 %	30 - 130 %
2,4,6-Tribromophenol	16,000	12,000	75 %	30 - 130 %
Terphenyl-d14	7,800	7,600	99 %	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545. Results are reported on a dry weight basis.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

* Analyzed as 4-Methylphenol.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

EPA Method 8270C
Semivolatile Organics by GC/MS

Field ID:	CS-N (8-10')	Matrix:	Soil
Project:	Gulf Oil Hyde Park/60158261	Container:	250 mL Amber Glass
Client:	AECOM Environment	Preservation:	Cool
Laboratory ID:	135425-08	QC Batch ID:	SV-2382-P
Sampled:	08-09-10 10:20	Instrument ID:	MS-3 HP 5890
Received:	08-11-10 18:05	Sample Weight:	16 g
Extracted:	08-11-10 22:00	Final Volume:	1 mL
Analyzed:	08-12-10 13:48	Percent Solids:	95
Analyst:	MJB	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	330
110-86-1	Pyridine	BRL		ug/Kg	330
108-95-2	Phenol	BRL		ug/Kg	330
62-53-3	Aniline	BRL		ug/Kg	330
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	330
95-57-8	2-Chlorophenol	BRL		ug/Kg	330
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	330
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	330
100-51-6	Benzyl Alcohol	BRL		ug/Kg	330
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	330
95-48-7	2-Methylphenol	BRL		ug/Kg	330
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	330
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	330
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	330
98-86-2	Acetophenone	BRL		ug/Kg	330
67-72-1	Hexachloroethane	BRL		ug/Kg	330
98-95-3	Nitrobenzene	BRL		ug/Kg	330
78-59-1	Isophorone	BRL		ug/Kg	330
88-75-5	2-Nitrophenol	BRL		ug/Kg	330
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	330
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	330
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	330
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	330
91-20-3	Naphthalene	BRL		ug/Kg	330
106-47-8	4-Chloroaniline	BRL		ug/Kg	330
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	330
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	330
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	330
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	330
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	330
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	330
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	330
88-74-4	2-Nitroaniline	BRL		ug/Kg	330
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	330
131-11-3	Dimethyl phthalate	BRL		ug/Kg	330
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	330
208-96-8	Acenaphthylene	BRL		ug/Kg	330
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	330
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	330
99-09-2	3-Nitroaniline	BRL		ug/Kg	330
83-32-9	Acenaphthene	BRL		ug/Kg	330
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	680
100-02-7	4-Nitrophenol	BRL		ug/Kg	330
132-64-9	Dibenzofuran	BRL		ug/Kg	330
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	330

GROUNDWATER ANALYTICAL

EPA Method 8270C (Continued)
Semivolatile Organics by GC/MS

Field ID:	CS-N (8-10')	Matrix:	Soil
Project:	Gulf Oil Hyde Park/60158261	Container:	250 mL Amber Glass
Client:	AECOM Environment	Preservation:	Cool
Laboratory ID:	135425-08	QC Batch ID:	SV-2382-P
Sampled:	08-09-10 10:20	Instrument ID:	MS-3 HP 5890
Received:	08-11-10 18:05	Sample Weight:	16 g
Extracted:	08-11-10 22:00	Final Volume:	1 mL
Analyzed:	08-12-10 13:48	Dilution Factor:	1
Analyst:	MJB		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
84-66-2	Diethyl phthalate	BRL		ug/Kg	330
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	330
86-73-7	Fluorene	BRL		ug/Kg	330
100-01-6	4-Nitroaniline	BRL		ug/Kg	330
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	680
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	330
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	330
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	330
118-74-1	Hexachlorobenzene	BRL		ug/Kg	330
87-86-5	Pentachlorophenol	BRL		ug/Kg	680
85-01-8	Phenanthrene	BRL		ug/Kg	330
120-12-7	Anthracene	BRL		ug/Kg	330
86-74-8	Carbazole	BRL		ug/Kg	330
84-74-2	Di-*n*-butyl phthalate	BRL		ug/Kg	330
206-44-0	Fluoranthene	BRL		ug/Kg	330
129-00-0	Pyrene	BRL		ug/Kg	330
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	330
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	330
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	330
218-01-9	Chrysene	BRL		ug/Kg	330
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	330
117-84-0	Di-*n*-octyl phthalate	BRL		ug/Kg	330
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	330
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	330
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	330
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	330
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	330
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	330

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	13,000	8,500	63 %	30 - 130 %
Phenol-d5	13,000	9,000	67 %	30 - 130 %
Nitrobenzene-d5	6,700	5,400	81 %	30 - 130 %
2-Fluorobiphenyl	6,700	5,700	84 %	30 - 130 %
2,4,6-Tribromophenol	13,000	9,500	70 %	30 - 130 %
Terphenyl-d14	6,700	6,400	95 %	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545. Results are reported on a dry weight basis.

Report Notations:
BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.
* Analyzed as 4-Methylphenol.
† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.
◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

EPA Method 8270C
Semivolatile Organics by GC/MS

Field ID:	CS-BT 3 (14')	Matrix:	Soil
Project:	Gulf Oil Hyde Park/60158261	Container:	250 mL Amber Glass
Client:	AECOM Environment	Preservation:	Cool
Laboratory ID:	135425-09	QC Batch ID:	SV-2382-P
Sampled:	08-09-10 10:00	Instrument ID:	MS-3 HP 5890
Received:	08-11-10 18:05	Sample Weight:	15 g
Extracted:	08-11-10 22:00	Final Volume:	1 mL
Analyzed:	08-12-10 14:30	Percent Solids:	86
Analyst:	MJB	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	380
110-86-1	Pyridine	BRL		ug/Kg	380
108-95-2	Phenol	BRL		ug/Kg	380
62-53-3	Aniline	BRL		ug/Kg	380
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	380
95-57-8	2-Chlorophenol	BRL		ug/Kg	380
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	380
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	380
100-51-6	Benzyl Alcohol	BRL		ug/Kg	380
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	380
95-48-7	2-Methylphenol	BRL		ug/Kg	380
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	380
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	380
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	380
98-86-2	Acetophenone	BRL		ug/Kg	380
67-72-1	Hexachloroethane	BRL		ug/Kg	380
98-95-3	Nitrobenzene	BRL		ug/Kg	380
78-59-1	Isophorone	BRL		ug/Kg	380
88-75-5	2-Nitrophenol	BRL		ug/Kg	380
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	380
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	380
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	380
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	380
91-20-3	Naphthalene	BRL		ug/Kg	380
106-47-8	4-Chloroaniline	BRL		ug/Kg	380
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	380
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	380
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	380
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	380
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	380
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	380
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	380
88-74-4	2-Nitroaniline	BRL		ug/Kg	380
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	380
131-11-3	Dimethyl phthalate	BRL		ug/Kg	380
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	380
208-96-8	Acenaphthylene	BRL		ug/Kg	380
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	380
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	380
99-09-2	3-Nitroaniline	BRL		ug/Kg	380
83-32-9	Acenaphthene	BRL		ug/Kg	380
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	770
100-02-7	4-Nitrophenol	BRL		ug/Kg	380
132-64-9	Dibenzofuran	BRL		ug/Kg	380
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	380

GROUNDWATER ANALYTICAL

EPA Method 8270C (Continued)
Semivolatile Organics by GC/MS

Field ID:	CS-BT 3 (14')	Matrix:	Soil
Project:	Gulf Oil Hyde Park/60158261	Container:	250 mL Amber Glass
Client:	AECOM Environment	Preservation:	Cool
Laboratory ID:	135425-09	QC Batch ID:	SV-2382-P
Sampled:	08-09-10 10:00	Instrument ID:	MS-3 HP 5890
Received:	08-11-10 18:05	Sample Weight:	15 g
Extracted:	08-11-10 22:00	Final Volume:	1 mL
Analyzed:	08-12-10 14:30	Dilution Factor:	1
Analyst:	MJB		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
84-66-2	Diethyl phthalate	BRL		ug/Kg	380
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	380
86-73-7	Fluorene	BRL		ug/Kg	380
100-01-6	4-Nitroaniline	BRL		ug/Kg	380
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	770
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	380
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	380
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	380
118-74-1	Hexachlorobenzene	BRL		ug/Kg	380
87-86-5	Pentachlorophenol	BRL		ug/Kg	770
85-01-8	Phenanthrene	BRL		ug/Kg	380
120-12-7	Anthracene	BRL		ug/Kg	380
86-74-8	Carbazole	BRL		ug/Kg	380
84-74-2	Di-n-butyl phthalate	BRL		ug/Kg	380
206-44-0	Fluoranthene	BRL		ug/Kg	380
129-00-0	Pyrene	BRL		ug/Kg	380
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	380
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	380
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	380
218-01-9	Chrysene	BRL		ug/Kg	380
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	380
117-84-0	Di-n-octyl phthalate	BRL		ug/Kg	380
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	380
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	380
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	380
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	380
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	380
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	380

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	15,000	6,100	40 %	30 - 130 %
Phenol-d5	15,000	6,500	43 %	30 - 130 %
Nitrobenzene-d5	7,600	4,000	53 %	30 - 130 %
2-Fluorobiphenyl	7,600	4,200	55 %	30 - 130 %
2,4,6-Tribromophenol	15,000	7,400	48 %	30 - 130 %
Terphenyl-d14	7,600	5,200	68 %	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545. Results are reported on a dry weight basis.

Report Notations:
BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

* Analyzed as 4-Methylphenol.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

EPA Method 8270C
Semivolatile Organics by GC/MS

Field ID:	CS-BT 4 (15')	Matrix:	Soil
Project:	Gulf Oil Hyde Park/60158261	Container:	250 mL Amber Glass
Client:	AECOM Environment	Preservation:	Cool
Laboratory ID:	135425-10	QC Batch ID:	SV-2382-P
Sampled:	08-09-10 07:05	Instrument ID:	MS-3 HP 5890
Received:	08-11-10 18:05	Sample Weight:	16 g
Extracted:	08-11-10 22:00	Final Volume:	1 mL
Analyzed:	08-12-10 15:11	Percent Solids:	91
Analyst:	MJB	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	350
110-86-1	Pyridine	BRL		ug/Kg	350
108-95-2	Phenol	BRL		ug/Kg	350
62-53-3	Aniline	BRL		ug/Kg	350
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	350
95-57-8	2-Chlorophenol	BRL		ug/Kg	350
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	350
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	350
100-51-6	Benzyl Alcohol	BRL		ug/Kg	350
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	350
95-48-7	2-Methylphenol	BRL		ug/Kg	350
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	350
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	350
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	350
98-86-2	Acetophenone	BRL		ug/Kg	350
67-72-1	Hexachloroethane	BRL		ug/Kg	350
98-95-3	Nitrobenzene	BRL		ug/Kg	350
78-59-1	Isophorone	BRL		ug/Kg	350
88-75-5	2-Nitrophenol	BRL		ug/Kg	350
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	350
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	350
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	350
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	350
91-20-3	Naphthalene	BRL		ug/Kg	350
106-47-8	4-Chloroaniline	BRL		ug/Kg	350
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	350
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	350
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	350
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	350
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	350
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	350
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	350
88-74-4	2-Nitroaniline	BRL		ug/Kg	350
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	350
131-11-3	Dimethyl phthalate	BRL		ug/Kg	350
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	350
208-96-8	Acenaphthylene	BRL		ug/Kg	350
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	350
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	350
99-09-2	3-Nitroaniline	BRL		ug/Kg	350
83-32-9	Acenaphthene	BRL		ug/Kg	710
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	350
100-02-7	4-Nitrophenol	BRL		ug/Kg	350
132-64-9	Dibenzofuran	BRL		ug/Kg	350
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	350

GROUNDWATER ANALYTICAL

EPA Method 8270C (Continued)
Semivolatile Organics by GC/MS

Field ID:	CS-BT 4 (15')	Matrix:	Soil
Project:	Gulf Oil Hyde Park/60158261	Container:	250 mL Amber Glass
Client:	AECOM Environment	Preservation:	Cool
Laboratory ID:	135425-10	QC Batch ID:	SV-2382-P
Sampled:	08-09-10 07:05	Instrument ID:	MS-3 HP 5890
Received:	08-11-10 18:05	Sample Weight:	16 g
Extracted:	08-11-10 22:00	Final Volume:	1 mL
Analyzed:	08-12-10 15:11	Dilution Factor:	1
Analyst:	MJB		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
84-66-2	Diethyl phthalate	BRL		ug/Kg	350
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	350
86-73-7	Fluorene	BRL		ug/Kg	350
100-01-6	4-Nitroaniline	BRL		ug/Kg	350
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	710
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	350
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	350
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	350
118-74-1	Hexachlorobenzene	BRL		ug/Kg	350
87-86-5	Pentachlorophenol	BRL		ug/Kg	710
85-01-8	Phenanthrene	BRL		ug/Kg	350
120-12-7	Anthracene	BRL		ug/Kg	350
86-74-8	Carbazole	BRL		ug/Kg	350
84-74-2	Di-n-butyl phthalate	BRL		ug/Kg	350
206-44-0	Fluoranthene	BRL		ug/Kg	350
129-00-0	Pyrene	BRL		ug/Kg	350
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	350
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	350
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	350
218-01-9	Chrysene	BRL		ug/Kg	350
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	350
117-84-0	Di-n-octyl phthalate	BRL		ug/Kg	350
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	350
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	350
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	350
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	350
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	350
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	350

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	14,000	8,400	59 %	30 - 130 %
Phenol-d5	14,000	9,100	64 %	30 - 130 %
Nitrobenzene-d5	7,100	5,300	75 %	30 - 130 %
2-Fluorobiphenyl	7,100	5,700	80 %	30 - 130 %
2,4,6-Tribromophenol	14,000	8,600	61 %	30 - 130 %
Terphenyl-d14	7,100	6,200	88 %	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545. Results are reported on a dry weight basis.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

\+ Analyzed as 4-Methylphenol.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

EPA Method 8270C
Semivolatile Organics by GC/MS

Field ID: CS-E2 (8-10')
Project: Gulf Oil Hyde Park/60158261
Client: AECOM Environment

Laboratory ID: 135425-11
Sampled: 08-09-10 08:15
Received: 08-11-10 18:05
Extracted: 08-11-10 22:00
Analyzed: 08-12-10 15:53
Analyst: MJB

Matrix: Soil
Container: 250 mL Amber Glass
Preservation: Cool

QC Batch ID: SV-2382-P
Instrument ID: MS-3 HP 5890
Sample Weight: 15 g
Final Volume: 1 mL
Percent Solids: 91
Dilution Factor: 1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	360
110-86-1	Pyridine	BRL		ug/Kg	360
108-95-2	Phenol	BRL		ug/Kg	360
62-53-3	Aniline	BRL		ug/Kg	360
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	360
95-57-8	2-Chlorophenol	BRL		ug/Kg	360
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	360
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	360
100-51-6	Benzyl Alcohol	BRL		ug/Kg	360
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	360
95-48-7	2-Methylphenol	BRL		ug/Kg	360
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	360
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	360
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	360
98-86-2	Acetophenone	BRL		ug/Kg	360
67-72-1	Hexachloroethane	BRL		ug/Kg	360
98-95-3	Nitrobenzene	BRL		ug/Kg	360
78-59-1	Isophorone	BRL		ug/Kg	360
88-75-5	2-Nitrophenol	BRL		ug/Kg	360
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	360
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	360
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	360
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	360
91-20-3	Naphthalene	BRL		ug/Kg	360
106-47-8	4-Chloroaniline	BRL		ug/Kg	360
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	360
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	360
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	360
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	360
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	360
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	360
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	360
88-74-4	2-Nitroaniline	BRL		ug/Kg	360
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	360
131-11-3	Dimethyl phthalate	BRL		ug/Kg	360
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	360
208-96-8	Acenaphthylene	BRL		ug/Kg	360
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	360
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	360
99-09-2	3-Nitroaniline	BRL		ug/Kg	360
83-32-9	Acenaphthene	BRL		ug/Kg	730
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	360
100-02-7	4-Nitrophenol	BRL		ug/Kg	360
132-64-9	Dibenzofuran	BRL		ug/Kg	360
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	360

GROUNDWATER ANALYTICAL

EPA Method 8270C (Continued)
Semivolatile Organics by GC/MS

Field ID:	**CS-E2 (8-10')**	Matrix:	**Soil**
Project:	**Gulf Oil Hyde Park/60158261**	Container:	**250 mL Amber Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**135425-11**	QC Batch ID:	**SV-2382-P**
Sampled:	**08-09-10 08:15**	Instrument ID:	**MS-3 HP 5890**
Received:	**08-11-10 18:05**	Sample Weight:	**15 g**
Extracted:	**08-11-10 22:00**	Final Volume:	**1 mL**
Analyzed:	**08-12-10 15:53**	Dilution Factor:	**1**
Analyst:	**MJB**		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
84-66-2	Diethyl phthalate	BRL		ug/Kg	360
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	360
86-73-7	Fluorene	BRL		ug/Kg	360
100-01-6	4-Nitroaniline	BRL		ug/Kg	360
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	730
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	360
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	360
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	360
118-74-1	Hexachlorobenzene	BRL		ug/Kg	360
87-86-5	Pentachlorophenol	BRL		ug/Kg	730
85-01-8	Phenanthrene	BRL		ug/Kg	360
120-12-7	Anthracene	BRL		ug/Kg	360
86-74-8	Carbazole	BRL		ug/Kg	360
84-74-2	Di-*n*-butyl phthalate	BRL		ug/Kg	360
206-44-0	Fluoranthene	BRL		ug/Kg	360
129-00-0	Pyrene	BRL		ug/Kg	360
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	360
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	360
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	360
218-01-9	Chrysene	BRL		ug/Kg	360
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	360
117-84-0	Di-*n*-octyl phthalate	BRL		ug/Kg	360
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	360
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	360
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	360
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	360
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	360
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	360

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	14,000	9,700	**67** %	30 - 130 %
Phenol-d5	14,000	10,000	**70** %	30 - 130 %
Nitrobenzene-d5	7,200	6,300	**87** %	30 - 130 %
2-Fluorobiphenyl	7,200	6,700	**92** %	30 - 130 %
2,4,6-Tribromophenol	14,000	9,800	**68** %	30 - 130 %
Terphenyl-d14	7,200	7,500	**103** %	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545. Results are reported on a dry weight basis.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

* Analyzed as 4-Methylphenol.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

EPA Method 8270C
Semivolatile Organics by GC/MS

Field ID: **CS-S2 (8-10')**
Project: **Gulf Oil Hyde Park/60158261**
Client: **AECOM Environment**

Laboratory ID: **135425-12**
Sampled: **08-09-10 09:40**
Received: **08-11-10 18:05**
Extracted: **08-11-10 22:00**
Analyzed: **08-12-10 16:34**
Analyst: **MJB**

Matrix: **Soil**
Container: **250 mL Amber Glass**
Preservation: **Cool**

QC Batch ID: **SV-2382-P**
Instrument ID: **MS-3 HP 5890**
Sample Weight: **15 g**
Final Volume: **1 mL**
Percent Solids: **91**
Dilution Factor: **1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	350
110-86-1	Pyridine	BRL		ug/Kg	350
108-95-2	Phenol	BRL		ug/Kg	350
62-53-3	Aniline	BRL		ug/Kg	350
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	350
95-57-8	2-Chlorophenol	BRL		ug/Kg	350
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	350
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	350
100-51-6	Benzyl Alcohol	BRL		ug/Kg	350
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	350
95-48-7	2-Methylphenol	BRL		ug/Kg	350
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	350
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	350
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	350
98-86-2	Acetophenone	BRL		ug/Kg	350
67-72-1	Hexachloroethane	BRL		ug/Kg	350
98-95-3	Nitrobenzene	BRL		ug/Kg	350
78-59-1	Isophorone	BRL		ug/Kg	350
88-75-5	2-Nitrophenol	BRL		ug/Kg	350
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	350
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	350
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	350
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	350
91-20-3	Naphthalene	BRL		ug/Kg	350
106-47-8	4-Chloroaniline	BRL		ug/Kg	350
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	350
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	350
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	350
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	350
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	350
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	350
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	350
88-74-4	2-Nitroaniline	BRL		ug/Kg	350
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	350
131-11-3	Dimethyl phthalate	BRL		ug/Kg	350
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	350
208-96-8	Acenaphthylene	BRL		ug/Kg	350
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	350
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	350
99-09-2	3-Nitroaniline	BRL		ug/Kg	350
83-32-9	Acenaphthene	BRL		ug/Kg	710
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	350
100-02-7	4-Nitrophenol	BRL		ug/Kg	350
132-64-9	Dibenzofuran	BRL		ug/Kg	350
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	350

GROUNDWATER ANALYTICAL

EPA Method 8270C (Continued)
Semivolatile Organics by GC/MS

Field ID:	CS-52 (8-10')	Matrix:	Soil
Project:	Gulf Oil Hyde Park/60158261	Container:	250 mL Amber Glass
Client:	AECOM Environment	Preservation:	Cool
Laboratory ID:	135425-12	QC Batch ID:	SV-2382-P
Sampled:	08-09-10 09:40	Instrument ID:	MS-3 HP 5890
Received:	08-11-10 18:05	Sample Weight:	15 g
Extracted:	08-11-10 22:00	Final Volume:	1 mL
Analyzed:	08-12-10 16:34	Dilution Factor:	1
Analyst:	MJB		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
84-66-2	Diethyl phthalate	BRL		ug/Kg	350
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	350
86-73-7	Fluorene	BRL		ug/Kg	350
100-01-6	4-Nitroaniline	BRL		ug/Kg	350
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	710
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	350
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	350
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	350
118-74-1	Hexachlorobenzene	BRL		ug/Kg	350
87-86-5	Pentachlorophenol	BRL		ug/Kg	710
85-01-8	Phenanthrene	BRL		ug/Kg	350
120-12-7	Anthracene	BRL		ug/Kg	350
86-74-8	Carbazole	BRL		ug/Kg	350
84-74-2	Di-n-butyl phthalate	BRL		ug/Kg	350
206-44-0	Fluoranthene	BRL		ug/Kg	350
129-00-0	Pyrene	BRL		ug/Kg	350
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	350
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	350
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	350
218-01-9	Chrysene	BRL		ug/Kg	350
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	350
117-84-0	Di-n-octyl phthalate	BRL		ug/Kg	350
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	350
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	350
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	350
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	350
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	350
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	350

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	14,000	8,200	58 %	30 - 130 %
Phenol-d5	14,000	8,900	62 %	30 - 130 %
Nitrobenzene-d5	7,100	5,000	71 %	30 - 130 %
2-Fluorobiphenyl	7,100	5,500	78 %	30 - 130 %
2,4,6-Tribromophenol	14,000	8,800	62 %	30 - 130 %
Terphenyl-d14	7,100	6,400	91 %	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545. Results are reported on a dry weight basis.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

* Analyzed as 4-Methylphenol.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

Project Narrative

Project: **Gulf Oil Hyde Park/60158261**
Client: **AECOM Environment**

Lab ID: **135425**
Received: **08-11-10 18:05**

A. Documentation and Client Communication

The following documentation discrepancies, and client changes or amendments were noted for this project:

1. No documentation discrepancies, changes, or amendments were noted.

B. Method Modifications, Non-Conformances and Observations

The sample(s) in this project were analyzed by the references analytical method(s), and no method modifications, non-conformances or analytical issues were noted, except as indicated below:

1. No method modifications, non-conformances or analytical issues were noted.

GROUNDWATER ANALYTICAL

228 Main Street, P.O. Box 1200
Buzzards Bay, MA 02532
Telephone (508) 759-4441 • FAX (508) 759-4475
www.groundwateranalytical.com

CHAIN-OF-CUSTODY RECORD AND WORK ORDER

Project Name: Gulf Oil - Hyde Park	Firm: AECOM - Westford, MA
Project Number: 60158261	Address: 2 Technology Park Dr.
Sampler Name: Jaime Hussey	City / State / Zip: Westford, MA 01886
Project Manager: Jen Hadden	Telephone: 978-589-3000

TURNAROUND

- ☐ 10 Business Days
- ☐ 5 Business Days 8/13/10
- ☒ RUSH (RAN- ~~8-16-10~~) (Rush requires Rush Authorization Number)
- ☒ Please Email to: Jennifer.Hadden@AECOM.com
- ☐ Please FAX to:

BILLING

- ☐ Purchase Order No.:
- ☐ Third Party Billing: Bill Gulf Oil Direct
- ☐ GWA Quote:

ANALYSIS REQUEST

OPTIONS: ☐ TRS Report

EDWA: ☐ EDWA

MPDES: ☐ 624 ☐ 608-PEST/PCB ☐ 625 ☐ 608 Pesticides ☐ 625 PCBs ☐ 608 Herbicides ☐ 625 Acid Extractables ☐ 625 Base/Neutrals

RCRA/TCLP: ☐ RCRA 8 TCLP MTBE ☐ RCRA 8 TCLP ☐ TCLP Pesticides ☐ TCLP Herbicides ☐ TCLP Semivolatiles ☐ TCLP Volatiles ☐ RCRA Reactivity ☐ RCRA Ignitability ☐ RCRA Corrosivity ☐ TCLP Metals ☐ TCLP Extraction

Volatiles: ☐ TRS Report

Semivolatiles: ☐ Acid Only ☐ BN Only ☐ SIM Only

Pest/Herb/PCBs Extractable: ☐ Pest/PCB ☐ Herb ☐ 8151 Herbicides ☐ 8081 Pesticides ☐ 8082 PCBs

Pest/Herb/PCBs Vol.: ☐ 8011 ☐ 8015 ☐ 8021 ☐ 8260 Fuel Oxygenates

Metals: ☐ Specify Metals Below ☐ Total ☐ Dissolved ☐ Lead and Copper

Petroleum Hydrocarbon Ext. TPH: ☐ Diesel Range Organics (DRO) (CT, ME, MA) ☐ CT ETPH ☐ MA EPH w/ Target Analytes ☐ Hydrocarbon Fingerprint (GC/FID by ASTM D3328-05 Mod.) ☐ TPH by SW8015B Mod. Quantitation Only ☐ Gasoline Range Organics (GRO) ☐ MA EPH

Petroleum Hydrocarbon Vol. TPH: ☐ EPH ☐ VPH ☐ Naphthalene ☐ Methylnaphthalene ☐ Fuel Fingerprint ☐ Oil Fingerprint ☐ Target Analytes Only ☐ Other

Haz. Waste: ☐ Ignitability ☐ Corrosivity ☐ Reactivity ☐ Cyanide ☐ Sulfide ☐ Flash Point

General Chemistry: ☐ Alkalinity ☐ Ammonia ☐ Biochemical Oxygen Demand (BOD) ☐ Chemical Oxygen Demand (COD) ☐ Chloride ☐ Chlorine ☐ Color ☐ Conductivity ☐ Cyanide ☐ Dissolved Oxygen ☐ Fluoride ☐ Hardness ☐ Nitrate ☐ Nitrite ☐ Nitrogen ☐ Oil & Grease ☐ pH ☐ Phenols ☐ Phosphorus ☐ Solids ☐ Sulfate ☐ Sulfide ☐ Total Kjeldahl Nitrogen (TKN) ☐ Total Organic Carbon (TOC) ☐ Total Petroleum Hydrocarbons (TPH)

Other: ☐ 8260 VOC ☐ 624 ☐ 8260 Full List ☐ 8260 Short List ☐ 524.2 ☐ 8260 Oxygenates ☐ 8260 Halocarbons ☐ 8260 Aromatics ☐ 8260 Naphthalene ☐ 8260 Ketones ☐ 8260 Alcohols ☐ 8260 Gases ☐ 8260 Target Analytes ☐ 8260 Custom ☐ 8270 SVOC ☐ 625 ☐ 8270 Full List ☐ 8270 Short List ☐ 8270 Target Analytes ☐ 8270 Custom ☐ 8270 SIM PAH ☐ 8270 SIM Pesticides ☐ 8270 SIM PCB ☐ 8270 SIM Custom ☐ 1,4-Dioxane (SIM) ☐ 8151 Herbicides ☐ 8081 Pesticides ☐ 8082 PCBs ☐ 8021 Aromatics & Halogenated Volatiles ☐ 8015 Non-Halogenated Volatiles ☐ 8011 EDB/DBCP ☐ 524.2 MTBE/BTEX/Naphthalene ☐ Asbestos ☐ Dioxin ☐ Percent Moisture ☐ Percent Solids ☐ Specific Gravity ☐ Tannins ☐ Turbidity ☐ Weight Loss-Ignition ☐ Other

Sampling DATE	Sampling TIME	SAMPLE IDENTIFICATION	Matrix	Type	Container(s)	Preservation	Filtered	LABORATORY NUMBER (Lab Use Only)
~~8/10~~	~~1035~~	CS-E2(8-10')	SOIL	COMPOSITE	5/4	Methanol		
8/10	1010	CS-W(8-10')	SOIL	COMPOSITE	5/4	Methanol		
8/10	1020	CS-N (8-10')	SOIL	COMPOSITE	5/4	Methanol		
8/10	1000	CS-BT 3(14')	SOIL	COMPOSITE	5/4	Methanol		
8/10	0705	CS-BT 4(15')	SOIL	COMPOSITE	5/4	Methanol		
8/10	0815	CS-E2(8-10')	SOIL	COMPOSITE	5/4	Methanol		
8/10	0940	CS-S2 (8-10')	SOIL	COMPOSITE	5/4	Methanol		

REMARKS / SPECIAL INSTRUCTIONS

- ☐ YES ☐ NO MCP Data Certification required.
- ☐ YES ☐ NO MCP Drinking Water Sample Included. (Volatile analyses require duplicate collection and Trip Blanks)
- ☐ Analyze Duplicates and Trips Blanks only if positive results.
- ☐ YES ☐ NO CT RCP Data Certification required.

Signature:

DATA QUALITY OBJECTIVES

Regulatory Program

State	Standard	Deliverables
☐ CT	☐ MCP GW-1/S-1	☐ PWS Form
☐ ME	☐ MCP GW-2/S-2	☐ MWRA
☐ MA	☐ NY STARS	☐ ____
☐ NH	☐ Drinking Water	
☒ NY	☐ Wastewater	
☐ RI	☐ Waste Disposal	
☐ VT	☐ Dredge Material	
☐ ____	☐ ____	

Project Specific QC

Many regulatory programs and EPA methods require project specific QC. Project specific QC includes Sample Duplicates, Matrix Spikes, and/or Matrix Spike Duplicates. Laboratory QC is not project specific unless prearranged. Project specific QC samples are charged on a per sample basis. **Each MS, MSD and Sample Duplicate requires an additional sample aliquot.**

Project Specific QC Requires

- ☐ Sample Duplicate
- ☐ Matrix Spike
- ☐ Matrix Spike Duplicate

Selection of QC Sample

- ☐ Please use sample:

CHAIN-OF-CUSTODY RECORD

NOTE: All samples submitted subject to Standard Terms and Conditions on reverse hereof.

Relinquished by Sampler:	Date 8/11/10 Time 1315	Received by:	
Relinquished by:	Date 8/11/10 Time 1605	Received by:	
Relinquished by:	Date Time	Received by Laboratory:	

Receipt Temperature: 3.5 (☐ Ice ☐ Refrigerated 2-6°C Received chilled)

Container Count: 30

Shipping/Airbill Number:

Method of Shipment: ☐ GWA Courier ☐ Express Mail ☐ Federal Express ☐ UPS ☐ Hand ☐ ____

Custody Seal Number:

Quality Assurance/Quality Control

A. Program Overview

Groundwater Analytical conducts an active Quality Assurance program to ensure the production of high quality, valid data. This program closely follows the guidance provided by *Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans,* US EPA QAMS-005/80 (1980), and *Test Methods for Evaluating Solid Waste,* US EPA, SW-846, Update III (1996).

Quality Control protocols include written Standard Operating Procedures (SOPs) developed for each analytical method. SOPs are derived from US EPA methodologies and other established references. Standards are prepared from commercially obtained reference materials of certified purity, and documented for traceability.

Quality Assessment protocols for most organic analyses include a minimum of one laboratory control sample, one method blank, one matrix spike sample, and one sample duplicate for each sample preparation batch. All samples, standards, blanks, laboratory control samples, matrix spikes and sample duplicates are spiked with internal standards and surrogate compounds. All instrument sequences begin with an initial calibration verification standard and a blank; and excepting GC/MS sequences, all sequences close with a continuing calibration standard. GC/MS systems are tuned to appropriate ion abundance criteria daily, or for each 12 hour operating period, whichever is more frequent.

Quality Assessment protocols for most inorganic analyses include a minimum of one laboratory control sample, one method blank, one matrix spike sample, and one sample duplicate for each sample preparation batch. Standard curves are derived from one reagent blank and four concentration levels. Curve validity is verified by standard recoveries within plus or minus ten percent of the curve.

B. Definitions

Batches are used as the basic unit for Quality Assessment. A Batch is defined as twenty or fewer samples of the same matrix which are prepared together for the same analysis, using the same lots of reagents and the same techniques or manipulations, all within the same continuum of time, up to but not exceeding 24 hours.

Laboratory Control Samples are used to assess the accuracy of the analytical method. A Laboratory Control Sample consists of reagent water or sodium sulfate spiked with a group of target analytes representative of the method analytes. Accuracy is defined as the degree of agreement of the measured value with the true or expected value. Percent Recoveries for the Laboratory Control Samples are calculated to assess accuracy.

Method Blanks are used to assess the level of contamination present in the analytical system. Method Blanks consist of reagent water or an aliquot of sodium sulfate. Method Blanks are taken through all the appropriate steps of an analytical method. Sample data reported is not corrected for blank contamination.

Surrogate Compounds are used to assess the effectiveness of an analytical method in dealing with each sample matrix. Surrogate Compounds are organic compounds which are similar to the target analytes of interest in chemical behavior, but which are not normally found in environmental samples. Percent Recoveries are calculated for each Surrogate Compound.

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

Category: **EPA Method 8260B**
QC Batch ID: **VM1-2892-S**
Matrix: **Soil**
Units: **ug/kg**

LCS
Instrument ID: **MS-1 HP 5890**
Analyzed: **08-12-10 08:02**
Analyst: **LMG**

LCSD
Instrument ID: **MS-1 HP 5890**
Analyzed: **08-12-10 08:38**
Analyst: **LMG**

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
75-71-8	Dichlorodifluoromethane	50	64	127 %	50	64	127 %	0 %	70 - 130 %	20%
74-87-3	Chloromethane	50	52	105 %	50	51	102 %	2 %	70 - 130 %	20%
75-01-4	Vinyl Chloride	50	53	105 %	50	53	106 %	0 %	70 - 130 %	20%
74-83-9	Bromomethane	50	55	110 %	50	52	103 %	7 %	70 - 130 %	20%
75-00-3	Chloroethane	50	53	106 %	50	50	99 %	6 %	70 - 130 %	20%
75-69-4	Trichlorofluoromethane	50	58	116 %	50	52	104 %	11 %	70 - 130 %	20%
60-29-7	Diethyl Ether	100	91	91 %	100	92	92 %	1 %	70 - 130 %	20%
75-35-4	1,1-Dichloroethene	50	52	103 %	50	47	94 %	9 %	70 - 130 %	20%
76-13-1	1,1,2-Trichlorotrifluoroethane	100	120	119 %	100	110	109 %	9 %	70 - 130 %	20%
67-64-1	Acetone	100	110	107 %	100	110	110 %	3 %	70 - 130 %	20%
75-15-0	Carbon Disulfide	100	88	88 %	100	84	84 %	6 %	70 - 130 %	20%
75-09-2	Methylene Chloride	50	50	99 %	50	48	96 %	3 %	70 - 130 %	20%
107-13-1	Acrylonitrile	50	44	87 %	50	47	95 %	8 %	70 - 130 %	20%
156-60-5	*trans*-1,2-Dichloroethene	50	53	106 %	50	48	95 %	11 %	70 - 130 %	20%
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	50	45	90 %	50	43	87 %	4 %	70 - 130 %	20%
75-34-3	1,1-Dichloroethane	50	49	98 %	50	47	95 %	4 %	70 - 130 %	20%
594-20-7	2,2-Dichloropropane	50	47	95 %	50	45	90 %	5 %	70 - 130 %	20%
156-59-2	*cis*-1,2-Dichloroethene	50	50	99 %	50	48	95 %	4 %	70 - 130 %	20%
78-93-3	2-Butanone (MEK)	100	96	96 %	100	99	99 %	3 %	70 - 130 %	20%
74-97-5	Bromochloromethane	50	58	116 %	50	53	106 %	9 %	70 - 130 %	20%
109-99-9	Tetrahydrofuran (THF)	100	96	96 %	100	96	96 %	1 %	70 - 130 %	20%
67-66-3	Chloroform	50	54	107 %	50	52	103 %	3 %	70 - 130 %	20%
71-55-6	1,1,1-Trichloroethane	50	55	110 %	50	52	105 %	5 %	70 - 130 %	20%
56-23-5	Carbon Tetrachloride	50	54	107 %	50	51	101 %	6 %	70 - 130 %	20%
563-58-6	1,1-Dichloropropene	50	49	98 %	50	43	85 %	14 %	70 - 130 %	20%
71-43-2	Benzene	50	50	99 %	50	48	96 %	4 %	70 - 130 %	20%
107-06-2	1,2-Dichloroethane	50	52	103 %	50	51	102 %	1 %	70 - 130 %	20%
79-01-6	Trichloroethene	50	52	104 %	50	50	101 %	3 %	70 - 130 %	20%
78-87-5	1,2-Dichloropropane	50	46	93 %	50	47	93 %	1 %	70 - 130 %	20%
74-95-3	Dibromomethane	50	50	101 %	50	48	96 %	5 %	70 - 130 %	20%
75-27-4	Bromodichloromethane	50	51	102 %	50	50	101 %	1 %	70 - 130 %	20%
123-91-1	1,4-Dioxane	1,000	740	74 %	1,000	760	76 %	3 %	70 - 130 %	20%
10061-01-5	*cis*-1,3-Dichloropropene	50	48	95 %	50	46	92 %	4 %	70 - 130 %	20%
108-10-1	4-Methyl-2-Pentanone (MIBK)	100	93	93 %	100	89	89 %	5 %	70 - 130 %	20%
108-88-3	Toluene	50	53	106 %	50	49	97 %	9 %	70 - 130 %	20%
10061-02-6	*trans*-1,3-Dichloropropene	50	42	84 %	50	43	86 %	2 %	70 - 130 %	20%
79-00-5	1,1,2-Trichloroethane	50	45	90 %	50	43	85 %	6 %	70 - 130 %	20%
127-18-4	Tetrachloroethene	50	59	117 %	50	53	106 %	10 %	70 - 130 %	20%
142-28-9	1,3-Dichloropropane	50	47	95 %	50	47	93 %	1 %	70 - 130 %	20%
591-78-6	2-Hexanone	100	83	83 %	100	87	87 %	4 %	70 - 130 %	20%
124-48-1	Dibromochloromethane	50	52	104 %	50	50	101 %	3 %	70 - 130 %	20%
106-93-4	1,2-Dibromoethane (EDB)	50	51	102 %	50	49	99 %	3 %	70 - 130 %	20%
108-90-7	Chlorobenzene	50	50	100 %	50	45	90 %	10 %	70 - 130 %	20%
630-20-6	1,1,1,2-Tetrachloroethane	50	57	115 %	50	53	105 %	8 %	70 - 130 %	20%
100-41-4	Ethylbenzene	50	50	100 %	50	45	89 %	11 %	70 - 130 %	20%
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	100	100	102 %	100	93	93 %	9 %	70 - 130 %	20%
95-47-6	*ortho*-Xylene	50	48	96 %	50	50	99 %	3 %	70 - 130 %	20%
100-42-5	Styrene	50	46	91 %	50	41	82 %	11 %	70 - 130 %	20%
75-25-2	Bromoform	50	57	114 %	50	54	109 %	4 %	70 - 130 %	20%

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8260B	Instrument ID:	MS-1 HP 5890	Instrument ID:	MS-1 HP 5890
QC Batch ID:	VM1-2892-S	Analyzed:	08-12-10 08:02	Analyzed:	08-12-10 08:38
Matrix:	Soil	Analyst:	LMG	Analyst:	LMG
Units:	ug/kg				

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
98-82-8	Isopropylbenzene	50	37	74 %	50	36	71 %	4 %	70 - 130 %	20%
108-86-1	Bromobenzene	50	51	102 %	50	49	98 %	4 %	70 - 130 %	20%
79-34-5	1,1,2,2-Tetrachloroethane	50	39	78 %	50	35	71 %	9 %	70 - 130 %	20%
96-18-4	1,2,3-Trichloropropane	50	45	89 %	50	46	92 %	3 %	70 - 130 %	20%
110-57-6	*trans*-1,4-Dichloro-2-butene	200	170	83 %	200	170	83 %	0 %	70 - 130 %	20%
103-65-1	*n*-Propylbenzene	50	40	81 %	50	39	77 %	4 %	70 - 130 %	20%
95-49-8	2-Chlorotoluene	50	45	90 %	50	42	84 %	7 %	70 - 130 %	20%
108-67-8	1,3,5-Trimethylbenzene	50	43	85 %	50	41	82 %	4 %	70 - 130 %	20%
106-43-4	4-Chlorotoluene	50	43	86 %	50	46	91 %	6 %	70 - 130 %	20%
98-06-6	*tert*-Butylbenzene	50	41	82 %	50	40	79 %	3 %	70 - 130 %	20%
95-63-6	1,2,4-Trimethylbenzene	50	45	91 %	50	42	84 %	8 %	70 - 130 %	20%
135-98-8	*sec*-Butylbenzene	50	44	88 %	50	37	73 %	19 %	70 - 130 %	20%
541-73-1	1,3-Dichlorobenzene	50	45	91 %	50	43	87 %	4 %	70 - 130 %	20%
99-87-6	4-Isopropyltoluene	50	43	85 %	50	41	82 %	4 %	70 - 130 %	20%
106-46-7	1,4-Dichlorobenzene	50	46	92 %	50	41	82 %	12 %	70 - 130 %	20%
95-50-1	1,2-Dichlorobenzene	50	44	88 %	50	45	90 %	2 %	70 - 130 %	20%
104-51-8	*n*-Butylbenzene	50	42	85 %	50	37	73 %	15 %	70 - 130 %	20%
96-12-8	1,2-Dibromo-3-chloropropane	50	37	73 %	50	37	75 %	2 %	70 - 130 %	20%
108-70-3	1,3,5-Trichlorobenzene	50	50	101 %	50	50	99 %	2 %	70 - 130 %	20%
120-82-1	1,2,4-Trichlorobenzene	50	49	97 %	50	46	91 %	6 %	70 - 130 %	20%
87-68-3	Hexachlorobutadiene	50	45	90 %	50	44	88 %	3 %	70 - 130 %	20%
91-20-3	Naphthalene	50	41	82 %	50	39	78 %	5 %	70 - 130 %	20%
87-61-6	1,2,3-Trichlorobenzene	50	51	103 %	50	48	97 %	6 %	70 - 130 %	20%
75-65-0	*tert*-Butyl Alcohol (TBA)	1,000	830	83 %	1,000	850	85 %	2 %	70 - 130 %	20%
108-20-3	Di-isopropyl Ether (DIPE)	50	47	95 %	50	44	88 %	8 %	70 - 130 %	20%
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	50	42	83 %	50	42	84 %	1 %	70 - 130 %	20%
994-05-8	*tert*-Amyl Methyl Ether (TAME)	50	43	86 %	50	43	86 %	1 %	70 - 130 %	20%

QC Surrogate Compound	Spiked	Measured	Recovery	Spiked	Measured	Recovery		QC Limits
Dibromofluoromethane	50	54	107 %	50	50	100 %		70 - 130 %
1,2-Dichloroethane-d_4	50	46	93 %	50	44	88 %		70 - 130 %
Toluene-d_8	50	52	103 %	50	51	102 %		70 - 130 %
4-Bromofluorobenzene	50	51	101 %	50	47	93 %		70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample preparation performed by EPA Method 5035A.

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: EPA Method 8260B
QC Batch ID: VM1-2892-S
Matrix: Soil

Instrument ID: MS-1 HP 5890
Analyzed: 08-12-10 09:14
Analyst: LMG

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	10
74-87-3	Chloromethane	BRL		ug/Kg	10
75-01-4	Vinyl Chloride	BRL		ug/Kg	10
74-83-9	Bromomethane	BRL		ug/Kg	10
75-00-3	Chloroethane	BRL		ug/Kg	10
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	10
60-29-7	Diethyl Ether	BRL		ug/Kg	10
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	50
67-64-1	Acetone	BRL		ug/Kg	200
75-15-0	Carbon Disulfide	BRL		ug/Kg	50
75-09-2	Methylene Chloride	BRL		ug/Kg	50
107-13-1	Acrylonitrile	BRL		ug/Kg	5
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	5
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	5
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	5
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	5
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	5
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	50
74-97-5	Bromochloromethane	BRL		ug/Kg	5
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	50
67-66-3	Chloroform	BRL		ug/Kg	5
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	5
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	5
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	5
71-43-2	Benzene	BRL		ug/Kg	5
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	5
79-01-6	Trichloroethene	BRL		ug/Kg	5
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	5
74-95-3	Dibromomethane	BRL		ug/Kg	5
75-27-4	Bromodichloromethane	BRL		ug/Kg	5
123-91-1	1,4-Dioxane	BRL		ug/Kg	5,000
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	50
108-88-3	Toluene	BRL		ug/Kg	5
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	5
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	5
127-18-4	Tetrachloroethene	BRL		ug/Kg	5
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	5
591-78-6	2-Hexanone	BRL		ug/Kg	50
124-48-1	Dibromochloromethane	BRL		ug/Kg	5
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	5
108-90-7	Chlorobenzene	BRL		ug/Kg	5
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	5
100-41-4	Ethylbenzene	BRL		ug/Kg	5
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL		ug/Kg	5
95-47-6	*ortho*-Xylene	BRL		ug/Kg	5
100-42-5	Styrene	BRL		ug/Kg	5
75-25-2	Bromoform	BRL		ug/Kg	5

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: **EPA Method 8260B**
QC Batch ID: **VM1-2892-S**
Matrix: **Soil**

Instrument ID: **MS-1 HP 5890**
Analyzed: **08-12-10 09:14**
Analyst: **LMG**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
98-82-8	Isopropylbenzene	BRL		ug/Kg	5
108-86-1	Bromobenzene	BRL		ug/Kg	5
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	5
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	5
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	50
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	5
95-49-8	2-Chlorotoluene	BRL		ug/Kg	5
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	5
106-43-4	4-Chlorotoluene	BRL		ug/Kg	5
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	5
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	5
135-98-8	sec-Butylbenzene	BRL		ug/Kg	5
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	5
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	5
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	5
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	5
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	5
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	5
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	5
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	5
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	5
91-20-3	Naphthalene	BRL		ug/Kg	5
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	5
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	200
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	5
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	5
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	50	53	**105** %	70 - 130 %
1,2-Dichloroethane-d_4	50	43	**87** %	70 - 130 %
Toluene-d_8	50	49	**99** %	70 - 130 %
4-Bromofluorobenzene	50	60	**119** %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample preparation performed by EPA Method 5035A.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8270C		MS-3 HP 5890	Instrument ID:	MS-3 HP 5890
QC Batch ID:	SV-2382-P	Extracted:	08-11-10 15:30	Extracted:	08-11-10 15:30
Matrix:	Soil	Analyzed:	08-12-10 10:20	Analyzed:	08-12-10 11:01
Units:	ug/Kg	Analyst:	MJB	Analyst:	MJB

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
62-75-9	N-Nitrosodimethylamine	3,300	2,300	69 %	3,300	2,300	70 %	2 %	40 - 140 %	30%
110-86-1	Pyridine	3,300	1,700	51 %	3,300	1,900	56 %	8 %	40 - 140 %	30%
108-95-2	Phenol	3,300	2,800	83 %	3,300	2,900	87 %	5 %	30 - 130 %	30%
62-53-3	Aniline	3,300	2,400	73 %	3,300	2,400	71 %	4 %	40 - 140 %	30%
111-44-4	Bis(2-chloroethyl) ether	3,300	2,400	72 %	3,300	2,400	73 %	1 %	40 - 140 %	30%
95-57-8	2-Chlorophenol	3,300	2,800	84 %	3,300	2,700	82 %	2 %	30 - 130 %	30%
541-73-1	1,3-Dichlorobenzene	3,300	2,500	75 %	3,300	2,500	74 %	0 %	40 - 140 %	30%
106-46-7	1,4-Dichlorobenzene	3,300	2,500	75 %	3,300	2,500	75 %	1 %	40 - 140 %	30%
100-51-6	Benzyl Alcohol	3,300	2,400	72 %	3,300	2,200	65 %	10 %	30 - 130 %	30%
95-50-1	1,2-Dichlorobenzene	3,300	2,600	77 %	3,300	2,600	77 %	0 %	40 - 140 %	30%
95-48-7	2-Methylphenol	3,300	2,800	84 %	3,300	2,800	85 %	1 %	30 - 130 %	30%
108-60-1	Bis(2-chloroisopropyl) ether	3,300	2,400	71 %	3,300	2,300	70 %	1 %	40 - 140 %	30%
106-44-5	4-Methylphenol	3,300	2,900	87 %	3,300	2,900	86 %	0 %	30 - 130 %	30%
621-64-7	N-Nitrosodi-n-propylamine	3,300	2,500	76 %	3,300	2,500	75 %	2 %	40 - 140 %	30%
98-86-2	Acetophenone	3,300	2,600	78 %	3,300	2,600	77 %	0 %	40 - 140 %	30%
67-72-1	Hexachloroethane	3,300	2,500	74 %	3,300	2,500	75 %	1 %	40 - 140 %	30%
98-95-3	Nitrobenzene	3,300	2,600	79 %	3,300	2,600	77 %	2 %	40 - 140 %	30%
78-59-1	Isophorone	3,300	2,600	79 %	3,300	2,600	77 %	3 %	40 - 140 %	30%
88-75-5	2-Nitrophenol	3,300	2,800	84 %	3,300	2,800	83 %	1 %	30 - 130 %	30%
105-67-9	2,4-Dimethylphenol	3,300	2,700	80 %	3,300	2,700	81 %	1 %	30 - 130 %	30%
111-91-1	Bis(2-chloroethoxy) methane	3,300	2,700	81 %	3,300	2,500	76 %	5 %	40 - 140 %	30%
120-83-2	2,4-Dichlorophenol	3,300	2,900	86 %	3,300	2,800	84 %	2 %	30 - 130 %	30%
120-82-1	1,2,4-Trichlorobenzene	3,300	2,700	81 %	3,300	2,700	81 %	0 %	40 - 140 %	30%
91-20-3	Naphthalene	3,300	2,700	82 %	3,300	2,700	80 %	2 %	40 - 140 %	30%
106-47-8	4-Chloroaniline	3,300	2,400	73 %	3,300	2,300	68 %	6 %	40 - 140 %	30%
87-68-3	Hexachlorobutadiene	3,300	2,700	81 %	3,300	2,600	79 %	3 %	40 - 140 %	30%
59-50-7	4-Chloro-3-methylphenol	3,300	2,800	83 %	3,300	2,800	83 %	0 %	30 - 130 %	30%
91-57-6	2-Methylnaphthalene	3,300	2,800	84 %	3,300	2,700	82 %	2 %	40 - 140 %	30%
77-47-4	Hexachlorocyclopentadiene	3,300	2,200	66 %	3,300	2,000	61 %	7 %	40 - 140 %	30%
88-06-2	2,4,6-Trichlorophenol	3,300	3,000	89 %	3,300	2,800	85 %	4 %	30 - 130 %	30%
95-95-4	2,4,5-Trichlorophenol	3,300	2,900	86 %	3,300	2,800	85 %	1 %	30 - 130 %	30%
91-58-7	2-Chloronaphthalene	3,300	2,900	86 %	3,300	2,800	83 %	3 %	40 - 140 %	30%
88-74-4	2-Nitroaniline	3,300	2,900	88 %	3,300	2,800	83 %	7 %	40 - 140 %	30%
100-25-4	1,4-Dinitrobenzene	3,300	3,000	91 %	3,300	2,800	84 %	8 %	40 - 140 %	30%
131-11-3	Dimethyl phthalate	3,300	2,900	88 %	3,300	2,800	85 %	3 %	40 - 140 %	30%
99-65-0	1,3-Dinitrobenzene	3,300	3,000	89 %	3,300	2,800	85 %	5 %	40 - 140 %	30%
208-96-8	Acenaphthylene	3,300	2,900	86 %	3,300	2,800	85 %	1 %	40 - 140 %	30%
606-20-2	2,6-Dinitrotoluene	3,300	2,900	88 %	3,300	2,800	85 %	3 %	40 - 140 %	30%
528-29-0	1,2-Dinitrobenzene	3,300	2,800	85 %	3,300	2,700	81 %	5 %	40 - 140 %	30%
99-09-2	3-Nitroaniline	3,300	2,600	79 %	3,300	2,500	74 %	6 %	40 - 140 %	30%
83-32-9	Acenaphthene	3,300	2,900	87 %	3,300	2,800	84 %	4 %	40 - 140 %	30%
51-28-5	2,4-Dinitrophenol	3,300	1,000	31 %	3,300	1,600	48 %	44 %	30 - 130 %	30%
100-02-7	4-Nitrophenol	3,300	3,000	89 %	3,300	2,900	86 %	3 %	30 - 130 %	30%
132-64-9	Dibenzofuran	3,300	3,000	89 %	3,300	2,800	84 %	5 %	40 - 140 %	30%
121-14-2	2,4-Dinitrotoluene	3,300	3,000	91 %	3,300	2,900	86 %	5 %	40 - 140 %	30%
84-66-2	Diethyl phthalate	3,300	3,000	90 %	3,300	2,900	87 %	3 %	40 - 140 %	30%
7005-72-3	4-Chlorophenyl phenyl ether	3,300	3,000	90 %	3,300	2,900	87 %	3 %	40 - 140 %	30%
86-73-7	Fluorene	3,300	3,000	90 %	3,300	2,900	86 %	4 %	40 - 140 %	30%

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8270C	Instrument ID:	MS-3 HP 5890	Instrument ID:	MS-3 HP 5890
QC Batch ID:	SV-2382-P	Extracted:	08-11-10 15:30	Extracted:	08-11-10 15:30
Matrix:	Soil	Analyzed:	08-12-10 10:20	Analyzed:	08-12-10 11:01
Units:	ug/Kg	Analyst:	MJB	Analyst:	MJB

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
100-01-6	4-Nitroaniline	3,300	3,100	92 %	3,300	2,900	88 %	5 %	40 - 140 %	30%
534-52-1	4,6-Dinitro-2-methylphenol	3,300	1,900	57 %	3,300	2,400	71 %	21 %	30 - 130 %	30%
86-30-6	N-Nitrosodiphenylamine †	3,300	3,000	89 %	3,300	2,900	87 %	3 %	40 - 140 %	30%
122-66-7	1,2-Diphenylhydrazine à	3,300	2,900	88 %	3,300	2,800	83 %	6 %	40 - 140 %	30%
101-55-3	4-Bromophenyl phenyl ether	3,300	3,000	90 %	3,300	2,900	87 %	4 %	40 - 140 %	30%
118-74-1	Hexachlorobenzene	3,300	3,000	89 %	3,300	2,800	85 %	4 %	40 - 140 %	30%
87-86-5	Pentachlorophenol	3,300	2,700	82 %	3,300	2,800	85 %	4 %	30 - 130 %	30%
85-01-8	Phenanthrene	3,300	3,000	89 %	3,300	2,900	87 %	2 %	40 - 140 %	30%
120-12-7	Anthracene	3,300	3,000	91 %	3,300	3,000	89 %	2 %	40 - 140 %	30%
86-74-8	Carbazole	3,300	3,000	90 %	3,300	3,000	90 %	0 %	40 - 140 %	30%
84-74-2	Di-n-butyl phthalate	3,300	3,100	92 %	3,300	2,900	88 %	4 %	40 - 140 %	30%
206-44-0	Fluoranthene	3,300	3,000	91 %	3,300	2,900	88 %	3 %	40 - 140 %	30%
129-00-0	Pyrene	3,300	2,900	87 %	3,300	2,800	84 %	4 %	40 - 140 %	30%
85-68-7	Butyl benzyl phthalate	3,300	2,900	88 %	3,300	2,800	84 %	5 %	40 - 140 %	30%
91-94-1	3,3'-Dichlorobenzidine	3,300	2,300	70 %	3,300	2,300	68 %	4 %	40 - 140 %	30%
56-55-3	Benzo[a]anthracene	3,300	2,900	88 %	3,300	2,800	85 %	3 %	40 - 140 %	30%
218-01-9	Chrysene	3,300	2,900	88 %	3,300	2,900	86 %	2 %	40 - 140 %	30%
117-81-7	Bis(2-ethylhexyl) phthalate	3,300	3,000	91 %	3,300	2,900	88 %	3 %	40 - 140 %	30%
117-84-0	Di-n-octyl phthalate	3,300	3,100	92 %	3,300	2,900	88 %	4 %	40 - 140 %	30%
205-99-2	Benzo[b]fluoranthene	3,300	3,100	92 %	3,300	2,900	86 %	7 %	40 - 140 %	30%
207-08-9	Benzo[k]fluoranthene	3,300	3,000	91 %	3,300	2,900	87 %	4 %	40 - 140 %	30%
50-32-8	Benzo[a]pyrene	3,300	3,000	90 %	3,300	2,900	86 %	4 %	40 - 140 %	30%
193-39-5	Indeno[1,2,3-c,d]pyrene	3,300	3,200	95 %	3,300	2,900	87 %	9 %	40 - 140 %	30%
53-70-3	Dibenzo[a,h]anthracene	3,300	2,900	86 %	3,300	2,700	80 %	8 %	40 - 140 %	30%
191-24-2	Benzo[g,h,i]perylene	3,300	2,800	83 %	3,300	2,600	78 %	6 %	40 - 140 %	30%

QC Surrogate Compound	Spiked	Measured	Recovery	Spiked	Measured	Recovery		QC Limits
2-Fluorophenol	13,000	11,000	82 %	13,000	10,000	77 %		30 - 130 %
Phenol-d5	13,000	11,000	81 %	13,000	11,000	80 %		30 - 130 %
Nitrobenzene-d5	6,700	6,300	94 %	6,700	6,100	91 %		30 - 130 %
2-Fluorobiphenyl	6,700	6,900	104 %	6,700	6,600	99 %		30 - 130 %
2,4,6-Tribromophenol	13,000	12,000	89 %	13,000	12,000	86 %		30 - 130 %
Terphenyl-d14	6,700	7,200	108 %	6,700	6,800	103 %		30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample extraction performed by EPA Method 3545.

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: EPA Method 8270C
QC Batch ID: SV-2382-P
Matrix: Soil

Instrument ID: MS-3 HP 5890
Extracted: 08-11-10 15:30
Analyzed: 08-12-10 11:43
Analyst: MJB

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	330
110-86-1	Pyridine	BRL		ug/Kg	330
108-95-2	Phenol	BRL		ug/Kg	330
62-53-3	Aniline	BRL		ug/Kg	330
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	330
95-57-8	2-Chlorophenol	BRL		ug/Kg	330
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	330
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	330
100-51-6	Benzyl Alcohol	BRL		ug/Kg	330
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	330
95-48-7	2-Methylphenol	BRL		ug/Kg	330
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	330
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	330
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	330
98-86-2	Acetophenone	BRL		ug/Kg	330
67-72-1	Hexachloroethane	BRL		ug/Kg	330
98-95-3	Nitrobenzene	BRL		ug/Kg	330
78-59-1	Isophorone	BRL		ug/Kg	330
88-75-5	2-Nitrophenol	BRL		ug/Kg	330
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	330
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	330
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	330
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	330
91-20-3	Naphthalene	BRL		ug/Kg	330
106-47-8	4-Chloroaniline	BRL		ug/Kg	330
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	330
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	330
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	330
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	330
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	330
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	330
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	330
88-74-4	2-Nitroaniline	BRL		ug/Kg	330
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	330
131-11-3	Dimethyl phthalate	BRL		ug/Kg	330
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	330
208-96-8	Acenaphthylene	BRL		ug/Kg	330
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	330
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	330
99-09-2	3-Nitroaniline	BRL		ug/Kg	330
83-32-9	Acenaphthene	BRL		ug/Kg	330
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	670
100-02-7	4-Nitrophenol	BRL		ug/Kg	330
132-64-9	Dibenzofuran	BRL		ug/Kg	330
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	330
84-66-2	Diethyl phthalate	BRL		ug/Kg	330
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	330
86-73-7	Fluorene	BRL		ug/Kg	330
100-01-6	4-Nitroaniline	BRL		ug/Kg	330

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: **EPA Method 8270C**
QC Batch ID: **SV-2382-P**
Matrix: **Soil**

Instrument ID: **MS-3 HP 5890**
Extracted: **08-11-10 15:30**
Analyzed: **08-12-10 11:43**
Analyst: **MJB**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	670
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	330
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	330
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	330
118-74-1	Hexachlorobenzene	BRL		ug/Kg	330
87-86-5	Pentachlorophenol	BRL		ug/Kg	670
85-01-8	Phenanthrene	BRL		ug/Kg	330
120-12-7	Anthracene	BRL		ug/Kg	330
86-74-8	Carbazole	BRL		ug/Kg	330
84-74-2	Di-*n*-butyl phthalate	BRL		ug/Kg	330
206-44-0	Fluoranthene	BRL		ug/Kg	330
129-00-0	Pyrene	BRL		ug/Kg	330
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	330
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	330
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	330
218-01-9	Chrysene	BRL		ug/Kg	330
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	330
117-84-0	Di-*n*-octyl phthalate	BRL		ug/Kg	330
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	330
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	330
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	330
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	330
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	330
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	330

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	13,000	12,000	**87 %**	30 - 130 %
Phenol-d5	13,000	12,000	**89 %**	30 - 130 %
Nitrobenzene-d5	6,700	6,800	**102 %**	30 - 130 %
2-Fluorobiphenyl	6,700	7,400	**112 %**	30 - 130 %
2,4,6-Tribromophenol	13,000	12,000	**92 %**	30 - 130 %
Terphenyl-d14	6,700	8,000	**120 %**	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample extraction performed by EPA Method 3545.

Report Notations:
BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

* Analyzed as 4-Methylphenol.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

Certifications and Approvals

Groundwater Analytical maintains environmental laboratory certification in a variety of states.
Copies of our current certificates may be obtained from our website:

http://www.groundwateranalytical.com/qualifications.htm

CONNECTICUT

Department of Health Services, PH-0586 — Potable Water, Wastewater, Solid Waste and Soil
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/Out_State.pdf

MASSACHUSETTS

Department of Environmental Protection, M-MA-103 — Potable Water and Non-Potable Water
http://public.dep.state.ma.us/labcert/labcert.aspx

Department of Labor,
Division of Occupational Safety, AA000195 — Asbestos Analytical Services, Class A
http://www.mass.gov/dos/forms/la-rpt_list_aa.pdf

NEW HAMPSHIRE

Department of Environmental Services, 202708 — Potable Water, Non-Potable Water, Solid and Chemical Materials
http://www4.egov.nh.gov/DES/NHELAP

NEW YORK

Department of Health, 11754 — Potable Water, Non-Potable Water, Solid and Hazardous Waste
http://www.wadsworth.org/labcert/elap/comm.html

RHODE ISLAND

Department of Health,
Division of Laboratories, LAO00054 — Potable and Non-Potable Water Microbiology, Organic and Inorganic Chemistry
http://www.health.ri.gov/labs/outofstatelabs.pdf

U.S. DEPARTMENT OF AGRICULTURE

USDA, Soil Permit, S-53921 — Foreign soil import permit

VERMONT

Department of Health, VT-87643 — Potable Water
http://healthvermont.gov/enviro/ph_lab/water_test.aspx#cert

GROUNDWATER ANALYTICAL

Certifications and Approvals

MASSACHUSETTS — **Department of Environmental Protection, M-MA-103**

Groundwater Analytical maintains MassDEP environmental laboratory certification for only the methods and analytes listed below. Analyses for certified analytes are conducted in accordance with MassDEP certification standards, except as may be specifically noted in the project narrative.

Potable Water (Drinking Water)

Analyte	Method
1,2-Dibromo-3-Chloropropane	EPA 504.1
1,2-Dibromoethane	EPA 504.1
Alkalinity, Total	SM 2320-B
Antimony	EPA 200.8
Arsenic	EPA 200.8
Barium	EPA 200.7
Barium	EPA 200.8
Beryllium	EPA 200.7
Beryllium	EPA 200.8
Cadmium	EPA 200.7
Cadmium	EPA 200.8
Calcium	EPA 200.7
Chlorine, Residual Free	SM 4500-CL-G
Chromium	EPA 200.7
Cyanide, Total	Lachat 10-204-00-1-A
E. Coli (Treatment and Distribution)	Enz. Sub. SM 9223
E. Coli (Treatment and Distribution)	NA-MUG SM 9222-G
Fecal Coliform (Source Water)	MF SM 9222-D
Fluoride	EPA 300.0
Fluoride	SM 4500-F-C
Heterotrophic Plate Count	SM 9215-B
Lead	EPA 200.8
Mercury	EPA 245.1
Nickel	EPA 200.7
Nickel	EPA 200.8
Nitrate-N	EPA 300.0
Nitrate-N	Lachat 10-107-04-1-C
Nitrite-N	EPA 300.0
Nitrite-N	Lachat 10-107-04-1-C
pH	SM 4500-H-B
Selenium	EPA 200.8
Silver	EPA 200.7
Silver	EPA 200.8
Sodium	EPA 200.7
Sulfate	EPA 300.0
Thallium	EPA 200.8
Total Coliform (Treatment and Distribution)	Enz. Sub. SM 9223
Total Coliform (Treatment and Distribution)	MF SM 9222-B
Total Dissolved Solids	SM 2540-C
Trihalomethanes	EPA 524.2
Turbidity	SM 2130-B
Volatile Organic Compounds	EPA 524.2

Non-Potable Water (Wastewater)

Analyte	Method
Aldrin	EPA 608
Alkalinity, Total	SM 2320-B
Alpha-BHC	EPA 608
Aluminum	EPA 200.7
Aluminum	EPA 200.8
Ammonia-N	Lachat 10-107-06-1-B

Non-Potable Water (Wastewater)

Analyte	Method
Antimony	EPA 200.7
Antimony	EPA 200.8
Arsenic	EPA 200.7
Arsenic	EPA 200.8
Beryllium	EPA 200.7
Beryllium	EPA 200.8
Beta-BHC	EPA 608
Biochemical Oxygen Demand	SM 5210-B
Cadmium	EPA 200.7
Cadmium	EPA 200.8
Calcium	EPA 200.7
Chemical Oxygen Demand	SM 5220-D
Chlordane	EPA 608
Chloride	EPA 300.0
Chlorine, Total Residual	SM 4500-CL-G
Chromium	EPA 200.7
Chromium	EPA 200.8
Cobalt	EPA 200.7
Cobalt	EPA 200.8
Copper	EPA 200.7
Copper	EPA 200.8
Cyanide, Total	Lachat 10-204-00-1-A
DDD	EPA 608
DDE	EPA 608
DDT	EPA 608
Delta-BHC	EPA 608
Dieldrin	EPA 608
Endosulfan I	EPA 608
Endosulfan II	EPA 608
Endosulfan Sulfate	EPA 608
Endrin	EPA 608
Endrin Aldehyde	EPA 608
Fluoride	EPA 300.0
Gamma-BHC	EPA 608
Hardness (CaCO3), Total	EPA 200.7
Hardness (CaCO3), Total	SM 2340-B
Heptachlor	EPA 608
Heptachlor Epoxide	EPA 608
Iron	EPA 200.7
Kjeldahl-N	Lachat 10-107-06-02-D
Lead	EPA 200.7
Magnesium	EPA 200.7
Manganese	EPA 200.7
Manganese	EPA 200.8
Mercury	EPA 245.1
Molybdenum	EPA 200.7
Molybdenum	EPA 200.8
Nickel	EPA 200.7
Nickel	EPA 200.8
Nitrate-N	EPA 300.0
Nitrate-N	Lachat 10-107-04-1-C
Non-Filterable Residue	SM 2540-D
Oil and Grease	EPA 1664

GROUNDWATER ANALYTICAL

Certifications and Approvals

MASSACHUSETTS — **Department of Environmental Protection, M-MA-103**

Groundwater Analytical maintains MassDEP environmental laboratory certification for only the methods and analytes listed below. Analyses for certified analytes are conducted in accordance with MassDEP certification standards, except as may be specifically noted in the project narrative.

Non-Potable Water (Wastewater)

Analyte	Method
Orthophosphate	Lachat 10-115-01-1-A
pH	SM 4500-H-B
Phenolics, Total	EPA 420.4
Phenolics, Total	Lachat 10-210-00-1-B
Phosphorus, Total	Lachat 10-115-01-1-C
Phosphorus, Total	SM 4500-P-B,E
Polychlorinated Biphenyls (Oil)	EPA 600/4-81-045
Polychlorinated Biphenyls (Water)	EPA 608
Potassium	EPA 200.7
Selenium	EPA 200.7
Selenium	EPA 200.8
Silver	EPA 200.7
Sodium	EPA 200.7
Specific Conductivity	SM 2510-B
Strontium	EPA 200.7
Sulfate	EPA 300.0
SVOC-Acid Extractables	EPA 625
SVOC-Base/Neutral Extractables	EPA 625
Thallium	EPA 200.7
Thallium	EPA 200.8
Titanium	EPA 200.7
Total Dissolved Solids	SM 2540-C
Total Organic Carbon	SM 5310-B
Toxaphene	EPA 608
Vanadium	EPA 200.7
Vanadium	EPA 200.8
Volatile Aromatics	EPA 602
Volatile Aromatics	EPA 624
Volatile Halocarbons	EPA 624
Zinc	EPA 200.7
Zinc	EPA 200.8

GROUNDWATER ANALYTICAL

EPA Method 8270C (Continued)
Semivolatile Organics by GC/MS

Field ID:	**CS-E2 (8-10')**	Matrix:	**Soil**
Project:	**Gulf Oil Hyde Park/60158261**	Container:	**250 mL Amber Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**135425-11**	QC Batch ID:	**SV-2382-P**
Sampled:	**08-09-10 08:15**	Instrument ID:	**MS-3 HP 5890**
Received:	**08-11-10 18:05**	Sample Weight:	**15 g**
Extracted:	**08-11-10 22:00**	Final Volume:	**1 mL**
Analyzed:	**08-12-10 15:53**	Dilution Factor:	**1**
Analyst:	**MJB**		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
84-66-2	Diethyl phthalate	BRL		ug/Kg	360
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	360
86-73-7	Fluorene	BRL		ug/Kg	360
100-01-6	4-Nitroaniline	BRL		ug/Kg	360
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	730
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	360
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	360
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	360
118-74-1	Hexachlorobenzene	BRL		ug/Kg	360
87-86-5	Pentachlorophenol	BRL		ug/Kg	730
85-01-8	Phenanthrene	BRL		ug/Kg	360
120-12-7	Anthracene	BRL		ug/Kg	360
86-74-8	Carbazole	BRL		ug/Kg	360
84-74-2	Di-*n*-butyl phthalate	BRL		ug/Kg	360
206-44-0	Fluoranthene	BRL		ug/Kg	360
129-00-0	Pyrene	BRL		ug/Kg	360
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	360
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	360
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	360
218-01-9	Chrysene	BRL		ug/Kg	360
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	360
117-84-0	Di-*n*-octyl phthalate	BRL		ug/Kg	360
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	360
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	360
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	360
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	360
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	360
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	360

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	14,000	9,700	**67** %	30 - 130 %
Phenol-d5	14,000	10,000	**70** %	30 - 130 %
Nitrobenzene-d5	7,200	6,300	**87** %	30 - 130 %
2-Fluorobiphenyl	7,200	6,700	**92** %	30 - 130 %
2,4,6-Tribromophenol	14,000	9,800	**68** %	30 - 130 %
Terphenyl-d14	7,200	7,500	**103** %	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545. Results are reported on a dry weight basis.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

* Analyzed as 4-Methylphenol.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

EPA Method 8270C
Semivolatile Organics by GC/MS

Field ID: **CS-S2 (8-10')**
Project: **Gulf Oil Hyde Park/60158261**
Client: **AECOM Environment**

Laboratory ID: **135425-12**
Sampled: **08-09-10 09:40**
Received: **08-11-10 18:05**
Extracted: **08-11-10 22:00**
Analyzed: **08-12-10 16:34**
Analyst: **MJB**

Matrix: **Soil**
Container: **250 mL Amber Glass**
Preservation: **Cool**

QC Batch ID: **SV-2382-P**
Instrument ID: **MS-3 HP 5890**
Sample Weight: **15 g**
Final Volume: **1 mL**
Percent Solids: **91**
Dilution Factor: **1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	350
110-86-1	Pyridine	BRL		ug/Kg	350
108-95-2	Phenol	BRL		ug/Kg	350
62-53-3	Aniline	BRL		ug/Kg	350
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	350
95-57-8	2-Chlorophenol	BRL		ug/Kg	350
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	350
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	350
100-51-6	Benzyl Alcohol	BRL		ug/Kg	350
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	350
95-48-7	2-Methylphenol	BRL		ug/Kg	350
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	350
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	350
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	350
98-86-2	Acetophenone	BRL		ug/Kg	350
67-72-1	Hexachloroethane	BRL		ug/Kg	350
98-95-3	Nitrobenzene	BRL		ug/Kg	350
78-59-1	Isophorone	BRL		ug/Kg	350
88-75-5	2-Nitrophenol	BRL		ug/Kg	350
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	350
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	350
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	350
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	350
91-20-3	Naphthalene	BRL		ug/Kg	350
106-47-8	4-Chloroaniline	BRL		ug/Kg	350
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	350
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	350
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	350
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	350
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	350
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	350
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	350
88-74-4	2-Nitroaniline	BRL		ug/Kg	350
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	350
131-11-3	Dimethyl phthalate	BRL		ug/Kg	350
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	350
208-96-8	Acenaphthylene	BRL		ug/Kg	350
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	350
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	350
99-09-2	3-Nitroaniline	BRL		ug/Kg	350
83-32-9	Acenaphthene	BRL		ug/Kg	710
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	350
100-02-7	4-Nitrophenol	BRL		ug/Kg	350
132-64-9	Dibenzofuran	BRL		ug/Kg	350
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	350

GROUNDWATER ANALYTICAL

EPA Method 8270C (Continued)
Semivolatile Organics by GC/MS

Field ID:	CS-52 (8-10')	Matrix:	Soil
Project:	Gulf Oil Hyde Park/60158261	Container:	250 mL Amber Glass
Client:	AECOM Environment	Preservation:	Cool
Laboratory ID:	135425-12	QC Batch ID:	SV-2382-P
Sampled:	08-09-10 09:40	Instrument ID:	MS-3 HP 5890
Received:	08-11-10 18:05	Sample Weight:	15 g
Extracted:	08-11-10 22:00	Final Volume:	1 mL
Analyzed:	08-12-10 16:34	Dilution Factor:	1
Analyst:	MJB		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
84-66-2	Diethyl phthalate	BRL		ug/Kg	350
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	350
86-73-7	Fluorene	BRL		ug/Kg	350
100-01-6	4-Nitroaniline	BRL		ug/Kg	350
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	710
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	350
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	350
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	350
118-74-1	Hexachlorobenzene	BRL		ug/Kg	350
87-86-5	Pentachlorophenol	BRL		ug/Kg	710
85-01-8	Phenanthrene	BRL		ug/Kg	350
120-12-7	Anthracene	BRL		ug/Kg	350
86-74-8	Carbazole	BRL		ug/Kg	350
84-74-2	Di-n-butyl phthalate	BRL		ug/Kg	350
206-44-0	Fluoranthene	BRL		ug/Kg	350
129-00-0	Pyrene	BRL		ug/Kg	350
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	350
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	350
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	350
218-01-9	Chrysene	BRL		ug/Kg	350
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	350
117-84-0	Di-n-octyl phthalate	BRL		ug/Kg	350
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	350
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	350
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	350
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	350
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	350
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	350

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	14,000	8,200	58 %	30 - 130 %
Phenol-d5	14,000	8,900	62 %	30 - 130 %
Nitrobenzene-d5	7,100	5,000	71 %	30 - 130 %
2-Fluorobiphenyl	7,100	5,500	78 %	30 - 130 %
2,4,6-Tribromophenol	14,000	8,800	62 %	30 - 130 %
Terphenyl-d14	7,100	6,400	91 %	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545. Results are reported on a dry weight basis.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

* Analyzed as 4-Methylphenol.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

Project Narrative

Project: **Gulf Oil Hyde Park/60158261**
Client: **AECOM Environment**

Lab ID: **135425**
Received: **08-11-10 18:05**

A. Documentation and Client Communication

The following documentation discrepancies, and client changes or amendments were noted for this project:

1. No documentation discrepancies, changes, or amendments were noted.

B. Method Modifications, Non-Conformances and Observations

The sample(s) in this project were analyzed by the references analytical method(s), and no method modifications, non-conformances or analytical issues were noted, except as indicated below:

1. No method modifications, non-conformances or analytical issues were noted.

GROUNDWATER ANALYTICAL

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Buzzards Bay, MA 02532
Telephone (508) 759-4441 • FAX (508) 759-4475
www.groundwateranalytical.com

CHAIN-OF-CUSTODY RECORD AND WORK ORDER

Project Name: Gulf Oil - Hyde Park	Firm: AECOM - Westford, MA
Project Number: 60158261	Address: 2 Technology Park Dr.
Sampler Name: Jaime Hussey	City / State / Zip: Westford, MA 01886
Project Manager: Jen Hadden	Telephone: 978-589-3000

TURNAROUND

- ☐ 10 Business Days
- ☐ 5 Business Days 8/13/10
- ☒ RUSH (RAN- ~~8-16-10~~) (Rush requires Rush Authorization Number)
- ☒ Please Email to: Jennifer.Hadden@AECOM.com
- ☐ Please FAX to:

BILLING

- ☐ Purchase Order No.:
- ☐ Third Party Billing: Bill Gulf Oil Direct
- ☐ GWA Quote:

ANALYSIS REQUEST

OPTIONS: ☐ TRS Report

EDWA: ☐ EDWA

MPDES: ☐ 624 ☐ 608-PEST/PCB ☐ 625 ☐ 608 Pesticides ☐ 625 PCBs ☐ 608 Herbicides ☐ 625 Acid Extractables ☐ 625 Base/Neutrals

RCRA/TCLP: ☐ RCRA 8 TCLP MTBE ☐ RCRA 8 TCLP ☐ TCLP Pesticides ☐ TCLP Herbicides ☐ TCLP Semivolatiles ☐ TCLP Volatiles ☐ RCRA Reactivity ☐ RCRA Ignitability ☐ RCRA Corrosivity ☐ TCLP Metals ☐ TCLP Extraction

Volatiles: ☐ TRS Report

Semivolatiles: ☐ Acid Only ☐ BN Only ☐ SIM Only

Pest/Herb/PCBs Extractable: ☐ Pest/PCB ☐ Herb ☐ 8151 Herbicides ☐ 8081 Pesticides ☐ 8082 PCBs

Pest/Herb/PCBs Vol.: ☐ 8011 ☐ 8015 ☐ 8021 ☐ 8260 Fuel Oxygenates

Metals: ☐ Specify Metals Below ☐ Total ☐ Dissolved ☐ Lead and Copper

Petroleum Hydrocarbon Ext. TPH: ☐ Diesel Range Organics (DRO) (CT, ME, MA) ☐ CT ETPH ☐ MA EPH w/ Target Analytes ☐ Hydrocarbon Fingerprint (GC/FID by ASTM D3328-05 Mod.) ☐ TPH by SW8015B Mod. Quantitation Only ☐ Gasoline Range Organics (GRO) ☐ MA EPH

Petroleum Hydrocarbon Vol. TPH: ☐ EPH ☐ VPH ☐ Naphthalene ☐ Methylnaphthalene ☐ Fuel Fingerprint ☐ Oil Fingerprint ☐ Target Analytes Only ☐ Other

Haz. Waste: ☐ Ignitability ☐ Corrosivity ☐ Reactivity ☐ Cyanide ☐ Sulfide ☐ Flash Point

General Chemistry: ☐ Alkalinity ☐ Ammonia ☐ Biochemical Oxygen Demand (BOD) ☐ Chemical Oxygen Demand (COD) ☐ Chloride ☐ Chlorine ☐ Color ☐ Conductivity ☐ Cyanide ☐ Dissolved Oxygen ☐ Fluoride ☐ Hardness ☐ Nitrate ☐ Nitrite ☐ Nitrogen ☐ Oil & Grease ☐ pH ☐ Phenols ☐ Phosphorus ☐ Solids ☐ Sulfate ☐ Sulfide ☐ Total Kjeldahl Nitrogen (TKN) ☐ Total Organic Carbon (TOC) ☐ Total Petroleum Hydrocarbons (TPH)

Other: ☐ 8260 VOC ☐ 624 ☐ 8260 Full List ☐ 8260 Short List ☐ 524.2 ☐ 8260 Oxygenates ☐ 8260 Halocarbons ☐ 8260 Aromatics ☐ 8260 Naphthalene ☐ 8260 Ketones ☐ 8260 Alcohols ☐ 8260 Gases ☐ 8260 Target Analytes ☐ 8260 Custom ☐ 8270 SVOC ☐ 625 ☐ 8270 Full List ☐ 8270 Short List ☐ 8270 Target Analytes ☐ 8270 Custom ☐ 8270 SIM PAH ☐ 8270 SIM Pesticides ☐ 8270 SIM PCB ☐ 8270 SIM Custom ☐ 1,4-Dioxane (SIM) ☐ 8151 Herbicides ☐ 8081 Pesticides ☐ 8082 PCBs ☐ 8021 Aromatics & Halogenated Volatiles ☐ 8015 Non-Halogenated Volatiles ☐ 8011 EDB/DBCP ☐ 524.2 MTBE/BTEX/Naphthalene ☐ Asbestos ☐ Dioxin ☐ Percent Moisture ☐ Percent Solids ☐ Specific Gravity ☐ Tannins ☐ Turbidity ☐ Weight Loss-Ignition ☐ Other

Sampling DATE	Sampling TIME	SAMPLE IDENTIFICATION	Matrix	Type	Container(s)	Preservation	Filtered	LABORATORY NUMBER (Lab Use Only)
~~8/10~~	~~1035~~	CS-E2(8-10')	SOIL	COMPOSITE	5/4	Methanol		
8/10	1010	CS-W(8-10')	SOIL	COMPOSITE	5/4	Methanol		
8/10	1020	CS-N (8-10')	SOIL	COMPOSITE	5/4	Methanol		
8/10	1000	CS-BT 3(14')	SOIL	COMPOSITE	5/4	Methanol		
8/10	0705	CS-BT 4(15')	SOIL	COMPOSITE	5/4	Methanol		
8/10	0815	CS-E2(8-10')	SOIL	COMPOSITE	5/4	Methanol		
8/10	0940	CS-S2 (8-10')	SOIL	COMPOSITE	5/4	Methanol		

REMARKS / SPECIAL INSTRUCTIONS

- ☐ YES ☐ NO MCP Data Certification required.
- ☐ YES ☐ NO MCP Drinking Water Sample Included. (Volatile analyses require duplicate collection and Trip Blanks)
- ☐ Analyze Duplicates and Trips Blanks only if positive results.
- ☐ YES ☐ NO CT RCP Data Certification required.

Signature:

DATA QUALITY OBJECTIVES

Regulatory Program

State	Standard	Deliverables
☐ CT	☐ MCP GW-1/S-1	☐ PWS Form
☐ ME	☐ MCP GW-2/S-2	☐ MWRA
☐ MA	☐ NY STARS	☐ ____
☐ NH	☐ Drinking Water	
☒ NY	☐ Wastewater	
☐ RI	☐ Waste Disposal	
☐ VT	☐ Dredge Material	
☐ ____	☐ ____	

Project Specific QC

Many regulatory programs and EPA methods require project specific QC. Project specific QC includes Sample Duplicates, Matrix Spikes, and/or Matrix Spike Duplicates. Laboratory QC is not project specific unless prearranged. Project specific QC samples are charged on a per sample basis. **Each MS, MSD and Sample Duplicate requires an additional sample aliquot.**

Project Specific QC Requires

- ☐ Sample Duplicate
- ☐ Matrix Spike
- ☐ Matrix Spike Duplicate

Selection of QC Sample

- ☐ Please use sample:

CHAIN-OF-CUSTODY RECORD

NOTE: All samples submitted subject to Standard Terms and Conditions on reverse hereof.

Relinquished by Sampler:	Date 8/11/10 Time 1315	Received by:	
Relinquished by:	Date 8/11/10 Time 1605	Received by:	
Relinquished by:	Date Time	Received by Laboratory:	

Receipt Temperature: 3.5 (☐ Ice ☐ Refrigerated 2-6°C Received chilled)

Container Count: 30

Shipping/Airbill Number:

Method of Shipment: ☐ GWA Courier ☐ Express Mail ☐ Federal Express ☐ UPS ☐ Hand ☐ ____

Custody Seal Number:

Quality Assurance/Quality Control

A. Program Overview

Groundwater Analytical conducts an active Quality Assurance program to ensure the production of high quality, valid data. This program closely follows the guidance provided by *Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans,* US EPA QAMS-005/80 (1980), and *Test Methods for Evaluating Solid Waste,* US EPA, SW-846, Update III (1996).

Quality Control protocols include written Standard Operating Procedures (SOPs) developed for each analytical method. SOPs are derived from US EPA methodologies and other established references. Standards are prepared from commercially obtained reference materials of certified purity, and documented for traceability.

Quality Assessment protocols for most organic analyses include a minimum of one laboratory control sample, one method blank, one matrix spike sample, and one sample duplicate for each sample preparation batch. All samples, standards, blanks, laboratory control samples, matrix spikes and sample duplicates are spiked with internal standards and surrogate compounds. All instrument sequences begin with an initial calibration verification standard and a blank; and excepting GC/MS sequences, all sequences close with a continuing calibration standard. GC/MS systems are tuned to appropriate ion abundance criteria daily, or for each 12 hour operating period, whichever is more frequent.

Quality Assessment protocols for most inorganic analyses include a minimum of one laboratory control sample, one method blank, one matrix spike sample, and one sample duplicate for each sample preparation batch. Standard curves are derived from one reagent blank and four concentration levels. Curve validity is verified by standard recoveries within plus or minus ten percent of the curve.

B. Definitions

Batches are used as the basic unit for Quality Assessment. A Batch is defined as twenty or fewer samples of the same matrix which are prepared together for the same analysis, using the same lots of reagents and the same techniques or manipulations, all within the same continuum of time, up to but not exceeding 24 hours.

Laboratory Control Samples are used to assess the accuracy of the analytical method. A Laboratory Control Sample consists of reagent water or sodium sulfate spiked with a group of target analytes representative of the method analytes. Accuracy is defined as the degree of agreement of the measured value with the true or expected value. Percent Recoveries for the Laboratory Control Samples are calculated to assess accuracy.

Method Blanks are used to assess the level of contamination present in the analytical system. Method Blanks consist of reagent water or an aliquot of sodium sulfate. Method Blanks are taken through all the appropriate steps of an analytical method. Sample data reported is not corrected for blank contamination.

Surrogate Compounds are used to assess the effectiveness of an analytical method in dealing with each sample matrix. Surrogate Compounds are organic compounds which are similar to the target analytes of interest in chemical behavior, but which are not normally found in environmental samples. Percent Recoveries are calculated for each Surrogate Compound.

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

Category: **EPA Method 8260B**
QC Batch ID: **VM1-2892-S**
Matrix: **Soil**
Units: **ug/kg**

LCS
Instrument ID: **MS-1 HP 5890**
Analyzed: **08-12-10 08:02**
Analyst: **LMG**

LCSD
Instrument ID: **MS-1 HP 5890**
Analyzed: **08-12-10 08:38**
Analyst: **LMG**

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
75-71-8	Dichlorodifluoromethane	50	64	127 %	50	64	127 %	0 %	70 - 130 %	20%
74-87-3	Chloromethane	50	52	105 %	50	51	102 %	2 %	70 - 130 %	20%
75-01-4	Vinyl Chloride	50	53	105 %	50	53	106 %	0 %	70 - 130 %	20%
74-83-9	Bromomethane	50	55	110 %	50	52	103 %	7 %	70 - 130 %	20%
75-00-3	Chloroethane	50	53	106 %	50	50	99 %	6 %	70 - 130 %	20%
75-69-4	Trichlorofluoromethane	50	58	116 %	50	52	104 %	11 %	70 - 130 %	20%
60-29-7	Diethyl Ether	100	91	91 %	100	92	92 %	1 %	70 - 130 %	20%
75-35-4	1,1-Dichloroethene	50	52	103 %	50	47	94 %	9 %	70 - 130 %	20%
76-13-1	1,1,2-Trichlorotrifluoroethane	100	120	119 %	100	110	109 %	9 %	70 - 130 %	20%
67-64-1	Acetone	100	110	107 %	100	110	110 %	3 %	70 - 130 %	20%
75-15-0	Carbon Disulfide	100	88	88 %	100	84	84 %	6 %	70 - 130 %	20%
75-09-2	Methylene Chloride	50	50	99 %	50	48	96 %	3 %	70 - 130 %	20%
107-13-1	Acrylonitrile	50	44	87 %	50	47	95 %	8 %	70 - 130 %	20%
156-60-5	*trans*-1,2-Dichloroethene	50	53	106 %	50	48	95 %	11 %	70 - 130 %	20%
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	50	45	90 %	50	43	87 %	4 %	70 - 130 %	20%
75-34-3	1,1-Dichloroethane	50	49	98 %	50	47	95 %	4 %	70 - 130 %	20%
594-20-7	2,2-Dichloropropane	50	47	95 %	50	45	90 %	5 %	70 - 130 %	20%
156-59-2	*cis*-1,2-Dichloroethene	50	50	99 %	50	48	95 %	4 %	70 - 130 %	20%
78-93-3	2-Butanone (MEK)	100	96	96 %	100	99	99 %	3 %	70 - 130 %	20%
74-97-5	Bromochloromethane	50	58	116 %	50	53	106 %	9 %	70 - 130 %	20%
109-99-9	Tetrahydrofuran (THF)	100	96	96 %	100	96	96 %	1 %	70 - 130 %	20%
67-66-3	Chloroform	50	54	107 %	50	52	103 %	3 %	70 - 130 %	20%
71-55-6	1,1,1-Trichloroethane	50	55	110 %	50	52	105 %	5 %	70 - 130 %	20%
56-23-5	Carbon Tetrachloride	50	54	107 %	50	51	101 %	6 %	70 - 130 %	20%
563-58-6	1,1-Dichloropropene	50	49	98 %	50	43	85 %	14 %	70 - 130 %	20%
71-43-2	Benzene	50	50	99 %	50	48	96 %	4 %	70 - 130 %	20%
107-06-2	1,2-Dichloroethane	50	52	103 %	50	51	102 %	1 %	70 - 130 %	20%
79-01-6	Trichloroethene	50	52	104 %	50	50	101 %	3 %	70 - 130 %	20%
78-87-5	1,2-Dichloropropane	50	46	93 %	50	47	93 %	1 %	70 - 130 %	20%
74-95-3	Dibromomethane	50	50	101 %	50	48	96 %	5 %	70 - 130 %	20%
75-27-4	Bromodichloromethane	50	51	102 %	50	50	101 %	1 %	70 - 130 %	20%
123-91-1	1,4-Dioxane	1,000	740	74 %	1,000	760	76 %	3 %	70 - 130 %	20%
10061-01-5	*cis*-1,3-Dichloropropene	50	48	95 %	50	46	92 %	4 %	70 - 130 %	20%
108-10-1	4-Methyl-2-Pentanone (MIBK)	100	93	93 %	100	89	89 %	5 %	70 - 130 %	20%
108-88-3	Toluene	50	53	106 %	50	49	97 %	9 %	70 - 130 %	20%
10061-02-6	*trans*-1,3-Dichloropropene	50	42	84 %	50	43	86 %	2 %	70 - 130 %	20%
79-00-5	1,1,2-Trichloroethane	50	45	90 %	50	43	85 %	6 %	70 - 130 %	20%
127-18-4	Tetrachloroethene	50	59	117 %	50	53	106 %	10 %	70 - 130 %	20%
142-28-9	1,3-Dichloropropane	50	47	95 %	50	47	93 %	1 %	70 - 130 %	20%
591-78-6	2-Hexanone	100	83	83 %	100	87	87 %	4 %	70 - 130 %	20%
124-48-1	Dibromochloromethane	50	52	104 %	50	50	101 %	3 %	70 - 130 %	20%
106-93-4	1,2-Dibromoethane (EDB)	50	51	102 %	50	49	99 %	3 %	70 - 130 %	20%
108-90-7	Chlorobenzene	50	50	100 %	50	45	90 %	10 %	70 - 130 %	20%
630-20-6	1,1,1,2-Tetrachloroethane	50	57	115 %	50	53	105 %	8 %	70 - 130 %	20%
100-41-4	Ethylbenzene	50	50	100 %	50	45	89 %	11 %	70 - 130 %	20%
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	100	100	102 %	100	93	93 %	9 %	70 - 130 %	20%
95-47-6	*ortho*-Xylene	50	48	96 %	50	50	99 %	3 %	70 - 130 %	20%
100-42-5	Styrene	50	46	91 %	50	41	82 %	11 %	70 - 130 %	20%
75-25-2	Bromoform	50	57	114 %	50	54	109 %	4 %	70 - 130 %	20%

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8260B	Instrument ID:	MS-1 HP 5890	Instrument ID:	MS-1 HP 5890
QC Batch ID:	VM1-2892-S	Analyzed:	08-12-10 08:02	Analyzed:	08-12-10 08:38
Matrix:	Soil	Analyst:	LMG	Analyst:	LMG
Units:	ug/kg				

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
98-82-8	Isopropylbenzene	50	37	74 %	50	36	71 %	4 %	70 - 130 %	20%
108-86-1	Bromobenzene	50	51	102 %	50	49	98 %	4 %	70 - 130 %	20%
79-34-5	1,1,2,2-Tetrachloroethane	50	39	78 %	50	35	71 %	9 %	70 - 130 %	20%
96-18-4	1,2,3-Trichloropropane	50	45	89 %	50	46	92 %	3 %	70 - 130 %	20%
110-57-6	*trans*-1,4-Dichloro-2-butene	200	170	83 %	200	170	83 %	0 %	70 - 130 %	20%
103-65-1	*n*-Propylbenzene	50	40	81 %	50	39	77 %	4 %	70 - 130 %	20%
95-49-8	2-Chlorotoluene	50	45	90 %	50	42	84 %	7 %	70 - 130 %	20%
108-67-8	1,3,5-Trimethylbenzene	50	43	85 %	50	41	82 %	4 %	70 - 130 %	20%
106-43-4	4-Chlorotoluene	50	43	86 %	50	46	91 %	6 %	70 - 130 %	20%
98-06-6	*tert*-Butylbenzene	50	41	82 %	50	40	79 %	3 %	70 - 130 %	20%
95-63-6	1,2,4-Trimethylbenzene	50	45	91 %	50	42	84 %	8 %	70 - 130 %	20%
135-98-8	*sec*-Butylbenzene	50	44	88 %	50	37	73 %	19 %	70 - 130 %	20%
541-73-1	1,3-Dichlorobenzene	50	45	91 %	50	43	87 %	4 %	70 - 130 %	20%
99-87-6	4-Isopropyltoluene	50	43	85 %	50	41	82 %	4 %	70 - 130 %	20%
106-46-7	1,4-Dichlorobenzene	50	46	92 %	50	41	82 %	12 %	70 - 130 %	20%
95-50-1	1,2-Dichlorobenzene	50	44	88 %	50	45	90 %	2 %	70 - 130 %	20%
104-51-8	*n*-Butylbenzene	50	42	85 %	50	37	73 %	15 %	70 - 130 %	20%
96-12-8	1,2-Dibromo-3-chloropropane	50	37	73 %	50	37	75 %	2 %	70 - 130 %	20%
108-70-3	1,3,5-Trichlorobenzene	50	50	101 %	50	50	99 %	2 %	70 - 130 %	20%
120-82-1	1,2,4-Trichlorobenzene	50	49	97 %	50	46	91 %	6 %	70 - 130 %	20%
87-68-3	Hexachlorobutadiene	50	45	90 %	50	44	88 %	3 %	70 - 130 %	20%
91-20-3	Naphthalene	50	41	82 %	50	39	78 %	5 %	70 - 130 %	20%
87-61-6	1,2,3-Trichlorobenzene	50	51	103 %	50	48	97 %	6 %	70 - 130 %	20%
75-65-0	*tert*-Butyl Alcohol (TBA)	1,000	830	83 %	1,000	850	85 %	2 %	70 - 130 %	20%
108-20-3	Di-isopropyl Ether (DIPE)	50	47	95 %	50	44	88 %	8 %	70 - 130 %	20%
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	50	42	83 %	50	42	84 %	1 %	70 - 130 %	20%
994-05-8	*tert*-Amyl Methyl Ether (TAME)	50	43	86 %	50	43	86 %	1 %	70 - 130 %	20%

QC Surrogate Compound	Spiked	Measured	Recovery	Spiked	Measured	Recovery		QC Limits
Dibromofluoromethane	50	54	107 %	50	50	100 %		70 - 130 %
1,2-Dichloroethane-d_4	50	46	93 %	50	44	88 %		70 - 130 %
Toluene-d_8	50	52	103 %	50	51	102 %		70 - 130 %
4-Bromofluorobenzene	50	51	101 %	50	47	93 %		70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample preparation performed by EPA Method 5035A.

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: EPA Method 8260B
QC Batch ID: VM1-2892-S
Matrix: Soil

Instrument ID: MS-1 HP 5890
Analyzed: 08-12-10 09:14
Analyst: LMG

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	10
74-87-3	Chloromethane	BRL		ug/Kg	10
75-01-4	Vinyl Chloride	BRL		ug/Kg	10
74-83-9	Bromomethane	BRL		ug/Kg	10
75-00-3	Chloroethane	BRL		ug/Kg	10
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	10
60-29-7	Diethyl Ether	BRL		ug/Kg	10
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	50
67-64-1	Acetone	BRL		ug/Kg	200
75-15-0	Carbon Disulfide	BRL		ug/Kg	50
75-09-2	Methylene Chloride	BRL		ug/Kg	50
107-13-1	Acrylonitrile	BRL		ug/Kg	5
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	5
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	5
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	5
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	5
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	5
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	50
74-97-5	Bromochloromethane	BRL		ug/Kg	5
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	50
67-66-3	Chloroform	BRL		ug/Kg	5
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	5
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	5
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	5
71-43-2	Benzene	BRL		ug/Kg	5
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	5
79-01-6	Trichloroethene	BRL		ug/Kg	5
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	5
74-95-3	Dibromomethane	BRL		ug/Kg	5
75-27-4	Bromodichloromethane	BRL		ug/Kg	5
123-91-1	1,4-Dioxane	BRL		ug/Kg	5,000
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	50
108-88-3	Toluene	BRL		ug/Kg	5
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	5
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	5
127-18-4	Tetrachloroethene	BRL		ug/Kg	5
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	5
591-78-6	2-Hexanone	BRL		ug/Kg	50
124-48-1	Dibromochloromethane	BRL		ug/Kg	5
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	5
108-90-7	Chlorobenzene	BRL		ug/Kg	5
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	5
100-41-4	Ethylbenzene	BRL		ug/Kg	5
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL		ug/Kg	5
95-47-6	*ortho*-Xylene	BRL		ug/Kg	5
100-42-5	Styrene	BRL		ug/Kg	5
75-25-2	Bromoform	BRL		ug/Kg	5

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: **EPA Method 8260B**
QC Batch ID: **VM1-2892-S**
Matrix: **Soil**

Instrument ID: **MS-1 HP 5890**
Analyzed: **08-12-10 09:14**
Analyst: **LMG**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
98-82-8	Isopropylbenzene	BRL		ug/Kg	5
108-86-1	Bromobenzene	BRL		ug/Kg	5
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	5
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	5
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	50
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	5
95-49-8	2-Chlorotoluene	BRL		ug/Kg	5
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	5
106-43-4	4-Chlorotoluene	BRL		ug/Kg	5
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	5
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	5
135-98-8	sec-Butylbenzene	BRL		ug/Kg	5
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	5
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	5
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	5
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	5
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	5
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	5
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	5
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	5
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	5
91-20-3	Naphthalene	BRL		ug/Kg	5
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	5
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	200
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	5
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	5
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	50	53	**105** %	70 - 130 %
1,2-Dichloroethane-d_4	50	43	**87** %	70 - 130 %
Toluene-d_8	50	49	**99** %	70 - 130 %
4-Bromofluorobenzene	50	60	**119** %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample preparation performed by EPA Method 5035A.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8270C		MS-3 HP 5890	Instrument ID:	MS-3 HP 5890
QC Batch ID:	SV-2382-P	Extracted:	08-11-10 15:30	Extracted:	08-11-10 15:30
Matrix:	Soil	Analyzed:	08-12-10 10:20	Analyzed:	08-12-10 11:01
Units:	ug/Kg	Analyst:	MJB	Analyst:	MJB

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
62-75-9	N-Nitrosodimethylamine	3,300	2,300	69 %	3,300	2,300	70 %	2 %	40 - 140 %	30%
110-86-1	Pyridine	3,300	1,700	51 %	3,300	1,900	56 %	8 %	40 - 140 %	30%
108-95-2	Phenol	3,300	2,800	83 %	3,300	2,900	87 %	5 %	30 - 130 %	30%
62-53-3	Aniline	3,300	2,400	73 %	3,300	2,400	71 %	4 %	40 - 140 %	30%
111-44-4	Bis(2-chloroethyl) ether	3,300	2,400	72 %	3,300	2,400	73 %	1 %	40 - 140 %	30%
95-57-8	2-Chlorophenol	3,300	2,800	84 %	3,300	2,700	82 %	2 %	30 - 130 %	30%
541-73-1	1,3-Dichlorobenzene	3,300	2,500	75 %	3,300	2,500	74 %	0 %	40 - 140 %	30%
106-46-7	1,4-Dichlorobenzene	3,300	2,500	75 %	3,300	2,500	75 %	1 %	40 - 140 %	30%
100-51-6	Benzyl Alcohol	3,300	2,400	72 %	3,300	2,200	65 %	10 %	30 - 130 %	30%
95-50-1	1,2-Dichlorobenzene	3,300	2,600	77 %	3,300	2,600	77 %	0 %	40 - 140 %	30%
95-48-7	2-Methylphenol	3,300	2,800	84 %	3,300	2,800	85 %	1 %	30 - 130 %	30%
108-60-1	Bis(2-chloroisopropyl) ether	3,300	2,400	71 %	3,300	2,300	70 %	1 %	40 - 140 %	30%
106-44-5	4-Methylphenol	3,300	2,900	87 %	3,300	2,900	86 %	0 %	30 - 130 %	30%
621-64-7	N-Nitrosodi-n-propylamine	3,300	2,500	76 %	3,300	2,500	75 %	2 %	40 - 140 %	30%
98-86-2	Acetophenone	3,300	2,600	78 %	3,300	2,600	77 %	0 %	40 - 140 %	30%
67-72-1	Hexachloroethane	3,300	2,500	74 %	3,300	2,500	75 %	1 %	40 - 140 %	30%
98-95-3	Nitrobenzene	3,300	2,600	79 %	3,300	2,600	77 %	2 %	40 - 140 %	30%
78-59-1	Isophorone	3,300	2,600	79 %	3,300	2,600	77 %	3 %	40 - 140 %	30%
88-75-5	2-Nitrophenol	3,300	2,800	84 %	3,300	2,800	83 %	1 %	30 - 130 %	30%
105-67-9	2,4-Dimethylphenol	3,300	2,700	80 %	3,300	2,700	81 %	1 %	30 - 130 %	30%
111-91-1	Bis(2-chloroethoxy) methane	3,300	2,700	81 %	3,300	2,500	76 %	5 %	40 - 140 %	30%
120-83-2	2,4-Dichlorophenol	3,300	2,900	86 %	3,300	2,800	84 %	2 %	30 - 130 %	30%
120-82-1	1,2,4-Trichlorobenzene	3,300	2,700	81 %	3,300	2,700	81 %	0 %	40 - 140 %	30%
91-20-3	Naphthalene	3,300	2,700	82 %	3,300	2,700	80 %	2 %	40 - 140 %	30%
106-47-8	4-Chloroaniline	3,300	2,400	73 %	3,300	2,300	68 %	6 %	40 - 140 %	30%
87-68-3	Hexachlorobutadiene	3,300	2,700	81 %	3,300	2,600	79 %	3 %	40 - 140 %	30%
59-50-7	4-Chloro-3-methylphenol	3,300	2,800	83 %	3,300	2,800	83 %	0 %	30 - 130 %	30%
91-57-6	2-Methylnaphthalene	3,300	2,800	84 %	3,300	2,700	82 %	2 %	40 - 140 %	30%
77-47-4	Hexachlorocyclopentadiene	3,300	2,200	66 %	3,300	2,000	61 %	7 %	40 - 140 %	30%
88-06-2	2,4,6-Trichlorophenol	3,300	3,000	89 %	3,300	2,800	85 %	4 %	30 - 130 %	30%
95-95-4	2,4,5-Trichlorophenol	3,300	2,900	86 %	3,300	2,800	85 %	1 %	30 - 130 %	30%
91-58-7	2-Chloronaphthalene	3,300	2,900	86 %	3,300	2,800	83 %	3 %	40 - 140 %	30%
88-74-4	2-Nitroaniline	3,300	2,900	88 %	3,300	2,800	83 %	7 %	40 - 140 %	30%
100-25-4	1,4-Dinitrobenzene	3,300	3,000	91 %	3,300	2,800	84 %	8 %	40 - 140 %	30%
131-11-3	Dimethyl phthalate	3,300	2,900	88 %	3,300	2,800	85 %	3 %	40 - 140 %	30%
99-65-0	1,3-Dinitrobenzene	3,300	3,000	89 %	3,300	2,800	85 %	5 %	40 - 140 %	30%
208-96-8	Acenaphthylene	3,300	2,900	86 %	3,300	2,800	85 %	1 %	40 - 140 %	30%
606-20-2	2,6-Dinitrotoluene	3,300	2,900	88 %	3,300	2,800	85 %	3 %	40 - 140 %	30%
528-29-0	1,2-Dinitrobenzene	3,300	2,800	85 %	3,300	2,700	81 %	5 %	40 - 140 %	30%
99-09-2	3-Nitroaniline	3,300	2,600	79 %	3,300	2,500	74 %	6 %	40 - 140 %	30%
83-32-9	Acenaphthene	3,300	2,900	87 %	3,300	2,800	84 %	4 %	40 - 140 %	30%
51-28-5	2,4-Dinitrophenol	3,300	1,000	31 %	3,300	1,600	48 %	44 %	30 - 130 %	30%
100-02-7	4-Nitrophenol	3,300	3,000	89 %	3,300	2,900	86 %	3 %	30 - 130 %	30%
132-64-9	Dibenzofuran	3,300	3,000	89 %	3,300	2,800	84 %	5 %	40 - 140 %	30%
121-14-2	2,4-Dinitrotoluene	3,300	3,000	91 %	3,300	2,900	86 %	5 %	40 - 140 %	30%
84-66-2	Diethyl phthalate	3,300	3,000	90 %	3,300	2,900	87 %	3 %	40 - 140 %	30%
7005-72-3	4-Chlorophenyl phenyl ether	3,300	3,000	90 %	3,300	2,900	87 %	3 %	40 - 140 %	30%
86-73-7	Fluorene	3,300	3,000	90 %	3,300	2,900	86 %	4 %	40 - 140 %	30%

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8270C	Instrument ID:	MS-3 HP 5890	Instrument ID:	MS-3 HP 5890
QC Batch ID:	SV-2382-P	Extracted:	08-11-10 15:30	Extracted:	08-11-10 15:30
Matrix:	Soil	Analyzed:	08-12-10 10:20	Analyzed:	08-12-10 11:01
Units:	ug/Kg	Analyst:	MJB	Analyst:	MJB

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
100-01-6	4-Nitroaniline	3,300	3,100	92 %	3,300	2,900	88 %	5 %	40 - 140 %	30%
534-52-1	4,6-Dinitro-2-methylphenol	3,300	1,900	57 %	3,300	2,400	71 %	21 %	30 - 130 %	30%
86-30-6	N-Nitrosodiphenylamine †	3,300	3,000	89 %	3,300	2,900	87 %	3 %	40 - 140 %	30%
122-66-7	1,2-Diphenylhydrazine à	3,300	2,900	88 %	3,300	2,800	83 %	6 %	40 - 140 %	30%
101-55-3	4-Bromophenyl phenyl ether	3,300	3,000	90 %	3,300	2,900	87 %	4 %	40 - 140 %	30%
118-74-1	Hexachlorobenzene	3,300	3,000	89 %	3,300	2,800	85 %	4 %	40 - 140 %	30%
87-86-5	Pentachlorophenol	3,300	2,700	82 %	3,300	2,800	85 %	4 %	30 - 130 %	30%
85-01-8	Phenanthrene	3,300	3,000	89 %	3,300	2,900	87 %	2 %	40 - 140 %	30%
120-12-7	Anthracene	3,300	3,000	91 %	3,300	3,000	89 %	2 %	40 - 140 %	30%
86-74-8	Carbazole	3,300	3,000	90 %	3,300	3,000	90 %	0 %	40 - 140 %	30%
84-74-2	Di-n-butyl phthalate	3,300	3,100	92 %	3,300	2,900	88 %	4 %	40 - 140 %	30%
206-44-0	Fluoranthene	3,300	3,000	91 %	3,300	2,900	88 %	3 %	40 - 140 %	30%
129-00-0	Pyrene	3,300	2,900	87 %	3,300	2,800	84 %	4 %	40 - 140 %	30%
85-68-7	Butyl benzyl phthalate	3,300	2,900	88 %	3,300	2,800	84 %	5 %	40 - 140 %	30%
91-94-1	3,3'-Dichlorobenzidine	3,300	2,300	70 %	3,300	2,300	68 %	4 %	40 - 140 %	30%
56-55-3	Benzo[a]anthracene	3,300	2,900	88 %	3,300	2,800	85 %	3 %	40 - 140 %	30%
218-01-9	Chrysene	3,300	2,900	88 %	3,300	2,900	86 %	2 %	40 - 140 %	30%
117-81-7	Bis(2-ethylhexyl) phthalate	3,300	3,000	91 %	3,300	2,900	88 %	3 %	40 - 140 %	30%
117-84-0	Di-n-octyl phthalate	3,300	3,100	92 %	3,300	2,900	88 %	4 %	40 - 140 %	30%
205-99-2	Benzo[b]fluoranthene	3,300	3,100	92 %	3,300	2,900	86 %	7 %	40 - 140 %	30%
207-08-9	Benzo[k]fluoranthene	3,300	3,000	91 %	3,300	2,900	87 %	4 %	40 - 140 %	30%
50-32-8	Benzo[a]pyrene	3,300	3,000	90 %	3,300	2,900	86 %	4 %	40 - 140 %	30%
193-39-5	Indeno[1,2,3-c,d]pyrene	3,300	3,200	95 %	3,300	2,900	87 %	9 %	40 - 140 %	30%
53-70-3	Dibenzo[a,h]anthracene	3,300	2,900	86 %	3,300	2,700	80 %	8 %	40 - 140 %	30%
191-24-2	Benzo[g,h,i]perylene	3,300	2,800	83 %	3,300	2,600	78 %	6 %	40 - 140 %	30%

QC Surrogate Compound	Spiked	Measured	Recovery	Spiked	Measured	Recovery		QC Limits
2-Fluorophenol	13,000	11,000	82 %	13,000	10,000	77 %		30 - 130 %
Phenol-d5	13,000	11,000	81 %	13,000	11,000	80 %		30 - 130 %
Nitrobenzene-d5	6,700	6,300	94 %	6,700	6,100	91 %		30 - 130 %
2-Fluorobiphenyl	6,700	6,900	104 %	6,700	6,600	99 %		30 - 130 %
2,4,6-Tribromophenol	13,000	12,000	89 %	13,000	12,000	86 %		30 - 130 %
Terphenyl-d14	6,700	7,200	108 %	6,700	6,800	103 %		30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample extraction performed by EPA Method 3545.

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: EPA Method 8270C
QC Batch ID: SV-2382-P
Matrix: Soil

Instrument ID: MS-3 HP 5890
Extracted: 08-11-10 15:30
Analyzed: 08-12-10 11:43
Analyst: MJB

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	330
110-86-1	Pyridine	BRL		ug/Kg	330
108-95-2	Phenol	BRL		ug/Kg	330
62-53-3	Aniline	BRL		ug/Kg	330
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	330
95-57-8	2-Chlorophenol	BRL		ug/Kg	330
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	330
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	330
100-51-6	Benzyl Alcohol	BRL		ug/Kg	330
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	330
95-48-7	2-Methylphenol	BRL		ug/Kg	330
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	330
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	330
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	330
98-86-2	Acetophenone	BRL		ug/Kg	330
67-72-1	Hexachloroethane	BRL		ug/Kg	330
98-95-3	Nitrobenzene	BRL		ug/Kg	330
78-59-1	Isophorone	BRL		ug/Kg	330
88-75-5	2-Nitrophenol	BRL		ug/Kg	330
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	330
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	330
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	330
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	330
91-20-3	Naphthalene	BRL		ug/Kg	330
106-47-8	4-Chloroaniline	BRL		ug/Kg	330
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	330
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	330
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	330
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	330
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	330
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	330
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	330
88-74-4	2-Nitroaniline	BRL		ug/Kg	330
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	330
131-11-3	Dimethyl phthalate	BRL		ug/Kg	330
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	330
208-96-8	Acenaphthylene	BRL		ug/Kg	330
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	330
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	330
99-09-2	3-Nitroaniline	BRL		ug/Kg	330
83-32-9	Acenaphthene	BRL		ug/Kg	330
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	670
100-02-7	4-Nitrophenol	BRL		ug/Kg	330
132-64-9	Dibenzofuran	BRL		ug/Kg	330
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	330
84-66-2	Diethyl phthalate	BRL		ug/Kg	330
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	330
86-73-7	Fluorene	BRL		ug/Kg	330
100-01-6	4-Nitroaniline	BRL		ug/Kg	330

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: **EPA Method 8270C**
QC Batch ID: **SV-2382-P**
Matrix: **Soil**

Instrument ID: **MS-3 HP 5890**
Extracted: **08-11-10 15:30**
Analyzed: **08-12-10 11:43**
Analyst: **MJB**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	670
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	330
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	330
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	330
118-74-1	Hexachlorobenzene	BRL		ug/Kg	330
87-86-5	Pentachlorophenol	BRL		ug/Kg	670
85-01-8	Phenanthrene	BRL		ug/Kg	330
120-12-7	Anthracene	BRL		ug/Kg	330
86-74-8	Carbazole	BRL		ug/Kg	330
84-74-2	Di-*n*-butyl phthalate	BRL		ug/Kg	330
206-44-0	Fluoranthene	BRL		ug/Kg	330
129-00-0	Pyrene	BRL		ug/Kg	330
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	330
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	330
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	330
218-01-9	Chrysene	BRL		ug/Kg	330
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	330
117-84-0	Di-*n*-octyl phthalate	BRL		ug/Kg	330
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	330
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	330
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	330
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	330
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	330
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	330

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	13,000	12,000	**87 %**	30 - 130 %
Phenol-d5	13,000	12,000	**89 %**	30 - 130 %
Nitrobenzene-d5	6,700	6,800	**102 %**	30 - 130 %
2-Fluorobiphenyl	6,700	7,400	**112 %**	30 - 130 %
2,4,6-Tribromophenol	13,000	12,000	**92 %**	30 - 130 %
Terphenyl-d14	6,700	8,000	**120 %**	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample extraction performed by EPA Method 3545.

Report Notations:
BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

* Analyzed as 4-Methylphenol.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

Certifications and Approvals

Groundwater Analytical maintains environmental laboratory certification in a variety of states.
Copies of our current certificates may be obtained from our website:

http://www.groundwateranalytical.com/qualifications.htm

CONNECTICUT

Department of Health Services, PH-0586 — Potable Water, Wastewater, Solid Waste and Soil
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/Out_State.pdf

MASSACHUSETTS

Department of Environmental Protection, M-MA-103 — Potable Water and Non-Potable Water
http://public.dep.state.ma.us/labcert/labcert.aspx

Department of Labor,
Division of Occupational Safety, AA000195 — Asbestos Analytical Services, Class A
http://www.mass.gov/dos/forms/la-rpt_list_aa.pdf

NEW HAMPSHIRE

Department of Environmental Services, 202708 — Potable Water, Non-Potable Water, Solid and Chemical Materials
http://www4.egov.nh.gov/DES/NHELAP

NEW YORK

Department of Health, 11754 — Potable Water, Non-Potable Water, Solid and Hazardous Waste
http://www.wadsworth.org/labcert/elap/comm.html

RHODE ISLAND

Department of Health,
Division of Laboratories, LAO00054 — Potable and Non-Potable Water Microbiology, Organic and Inorganic Chemistry
http://www.health.ri.gov/labs/outofstatelabs.pdf

U.S. DEPARTMENT OF AGRICULTURE

USDA, Soil Permit, S-53921 — Foreign soil import permit

VERMONT

Department of Health, VT-87643 — Potable Water
http://healthvermont.gov/enviro/ph_lab/water_test.aspx#cert

GROUNDWATER ANALYTICAL

Certifications and Approvals

MASSACHUSETTS — **Department of Environmental Protection, M-MA-103**

Groundwater Analytical maintains MassDEP environmental laboratory certification for only the methods and analytes listed below. Analyses for certified analytes are conducted in accordance with MassDEP certification standards, except as may be specifically noted in the project narrative.

Potable Water (Drinking Water)

Analyte	Method
1,2-Dibromo-3-Chloropropane	EPA 504.1
1,2-Dibromoethane	EPA 504.1
Alkalinity, Total	SM 2320-B
Antimony	EPA 200.8
Arsenic	EPA 200.8
Barium	EPA 200.7
Barium	EPA 200.8
Beryllium	EPA 200.7
Beryllium	EPA 200.8
Cadmium	EPA 200.7
Cadmium	EPA 200.8
Calcium	EPA 200.7
Chlorine, Residual Free	SM 4500-CL-G
Chromium	EPA 200.7
Cyanide, Total	Lachat 10-204-00-1-A
E. Coli (Treatment and Distribution)	Enz. Sub. SM 9223
E. Coli (Treatment and Distribution)	NA-MUG SM 9222-G
Fecal Coliform (Source Water)	MF SM 9222-D
Fluoride	EPA 300.0
Fluoride	SM 4500-F-C
Heterotrophic Plate Count	SM 9215-B
Lead	EPA 200.8
Mercury	EPA 245.1
Nickel	EPA 200.7
Nickel	EPA 200.8
Nitrate-N	EPA 300.0
Nitrate-N	Lachat 10-107-04-1-C
Nitrite-N	EPA 300.0
Nitrite-N	Lachat 10-107-04-1-C
pH	SM 4500-H-B
Selenium	EPA 200.8
Silver	EPA 200.7
Silver	EPA 200.8
Sodium	EPA 200.7
Sulfate	EPA 300.0
Thallium	EPA 200.8
Total Coliform (Treatment and Distribution)	Enz. Sub. SM 9223
Total Coliform (Treatment and Distribution)	MF SM 9222-B
Total Dissolved Solids	SM 2540-C
Trihalomethanes	EPA 524.2
Turbidity	SM 2130-B
Volatile Organic Compounds	EPA 524.2

Non-Potable Water (Wastewater)

Analyte	Method
Aldrin	EPA 608
Alkalinity, Total	SM 2320-B
Alpha-BHC	EPA 608
Aluminum	EPA 200.7
Aluminum	EPA 200.8
Ammonia-N	Lachat 10-107-06-1-B

Non-Potable Water (Wastewater)

Analyte	Method
Antimony	EPA 200.7
Antimony	EPA 200.8
Arsenic	EPA 200.7
Arsenic	EPA 200.8
Beryllium	EPA 200.7
Beryllium	EPA 200.8
Beta-BHC	EPA 608
Biochemical Oxygen Demand	SM 5210-B
Cadmium	EPA 200.7
Cadmium	EPA 200.8
Calcium	EPA 200.7
Chemical Oxygen Demand	SM 5220-D
Chlordane	EPA 608
Chloride	EPA 300.0
Chlorine, Total Residual	SM 4500-CL-G
Chromium	EPA 200.7
Chromium	EPA 200.8
Cobalt	EPA 200.7
Cobalt	EPA 200.8
Copper	EPA 200.7
Copper	EPA 200.8
Cyanide, Total	Lachat 10-204-00-1-A
DDD	EPA 608
DDE	EPA 608
DDT	EPA 608
Delta-BHC	EPA 608
Dieldrin	EPA 608
Endosulfan I	EPA 608
Endosulfan II	EPA 608
Endosulfan Sulfate	EPA 608
Endrin	EPA 608
Endrin Aldehyde	EPA 608
Fluoride	EPA 300.0
Gamma-BHC	EPA 608
Hardness (CaCO3), Total	EPA 200.7
Hardness (CaCO3), Total	SM 2340-B
Heptachlor	EPA 608
Heptachlor Epoxide	EPA 608
Iron	EPA 200.7
Kjeldahl-N	Lachat 10-107-06-02-D
Lead	EPA 200.7
Magnesium	EPA 200.7
Manganese	EPA 200.7
Manganese	EPA 200.8
Mercury	EPA 245.1
Molybdenum	EPA 200.7
Molybdenum	EPA 200.8
Nickel	EPA 200.7
Nickel	EPA 200.8
Nitrate-N	EPA 300.0
Nitrate-N	Lachat 10-107-04-1-C
Non-Filterable Residue	SM 2540-D
Oil and Grease	EPA 1664

GROUNDWATER ANALYTICAL

Certifications and Approvals

MASSACHUSETTS — **Department of Environmental Protection, M-MA-103**

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Non-Potable Water (Wastewater)

Analyte	Method
Orthophosphate	Lachat 10-115-01-1-A
pH	SM 4500-H-B
Phenolics, Total	EPA 420.4
Phenolics, Total	Lachat 10-210-00-1-B
Phosphorus, Total	Lachat 10-115-01-1-C
Phosphorus, Total	SM 4500-P-B,E
Polychlorinated Biphenyls (Oil)	EPA 600/4-81-045
Polychlorinated Biphenyls (Water)	EPA 608
Potassium	EPA 200.7
Selenium	EPA 200.7
Selenium	EPA 200.8
Silver	EPA 200.7
Sodium	EPA 200.7
Specific Conductivity	SM 2510-B
Strontium	EPA 200.7
Sulfate	EPA 300.0
SVOC-Acid Extractables	EPA 625
SVOC-Base/Neutral Extractables	EPA 625
Thallium	EPA 200.7
Thallium	EPA 200.8
Titanium	EPA 200.7
Total Dissolved Solids	SM 2540-C
Total Organic Carbon	SM 5310-B
Toxaphene	EPA 608
Vanadium	EPA 200.7
Vanadium	EPA 200.8
Volatile Aromatics	EPA 602
Volatile Aromatics	EPA 624
Volatile Halocarbons	EPA 624
Zinc	EPA 200.7
Zinc	EPA 200.8

* Remote Fills *
(08/10)

GROUNDWATER ANALYTICAL

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Buzzards Bay, MA 02532

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August 30, 2010

Ms. Jennifer Hadden
AECOM Environment
2 Technology Park Drive
Westford, MA 01886

LABORATORY REPORT

Project: **Gulf: New Hyde Park/60158261**
Lab ID: **135701**
Received: **08-23-10**

Dear Jennifer:

Enclosed are the analytical results for the above referenced project. The project was processed for Priority turnaround.

This letter authorizes the release of the analytical results, and should be considered a part of this report. This report contains a sample receipt report detailing the samples received, a project narrative indicating project changes and non-conformances, a quality control report, and a statement of our state certifications.

The analytical results contained in this report meet all applicable NELAC or NVLAP standards, except as may be specifically noted, or described in the project narrative. The analytical results relate only to the samples received. This report may only be used or reproduced in its entirety.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Should you have any questions concerning this report, please do not hesitate to contact me.

Sincerely,

Eric H. Jensen
Operations Manager

EHJ/elm
Enclosures

GROUNDWATER ANALYTICAL

Sample Receipt Report

Project: **Gulf: New Hyde Park/60158261**
Client: **AECOM Environment**
Lab ID: **135701**

Delivery: **Hand**
Airbill: **n/a**
Lab Receipt: **08-23-10**

Temperature: **2.0°C**
Chain of Custody: **Present**
Custody Seal(s): **n/a**

Lab ID	Field ID		Matrix	Sampled	Method				Notes
135701-1	RF-1		Soil	8/20/10 10:45	EPA 8260B Volatile Organics with Oxygenates				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1282994	40 mL VOA Vial	Scientific Specialties	BX37232	Methanol	R-6227B	08-05-10	n/a		
C1278577	40 mL VOA Vial	Scientific Specialties	BX37295	n/a	R-6223A	08-17-10	n/a		
C1278563	40 mL VOA Vial	Scientific Specialties	BX37295	n/a	R-6223A	08-17-10	n/a		
C1278559	40 mL VOA Vial	Scientific Specialties	BX37295	n/a	R-6223A	08-17-10	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
135701-2	RF-1		Soil	8/20/10 10:45	EPA 8270C Semivolatile Organics				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1285275	250 mL Amber Glass	Scientific Specialties	BX37328	None	n/a	n/a	n/a		
C1285274	250 mL Amber Glass	Scientific Specialties	BX37328	None	n/a	n/a	n/a		

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**RF-1**	Matrix:	**Soil**
Project:	**Gulf: New Hyde Park/60158261**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**Frozen**
Laboratory ID:	**135701-1**	QC Batch ID:	**VM1-2899-S**
Sampled:	**08-20-10 10:45**	Instrument ID:	**MS-1 HP 5890**
Received:	**08-23-10 19:30**	Sample Weight:	**5.7 g**
Analyzed:	**08-26-10 14:37**	% Solids:	**94**
Analyst:	**LMG**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	10
74-87-3	Chloromethane	BRL		ug/Kg	10
75-01-4	Vinyl Chloride	BRL		ug/Kg	10
74-83-9	Bromomethane	BRL		ug/Kg	10
75-00-3	Chloroethane	BRL		ug/Kg	10
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	10
60-29-7	Diethyl Ether	BRL		ug/Kg	10
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	50
67-64-1	Acetone	BRL		ug/Kg	200
75-15-0	Carbon Disulfide	BRL		ug/Kg	50
75-09-2	Methylene Chloride	BRL		ug/Kg	50
107-13-1	Acrylonitrile	BRL		ug/Kg	5
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	5
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	5
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	5
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	5
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	5
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	50
74-97-5	Bromochloromethane	BRL		ug/Kg	5
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	50
67-66-3	Chloroform	BRL		ug/Kg	5
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	5
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	5
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	5
71-43-2	Benzene	BRL		ug/Kg	5
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	5
79-01-6	Trichloroethene	BRL		ug/Kg	5
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	5
74-95-3	Dibromomethane	BRL		ug/Kg	5
75-27-4	Bromodichloromethane	BRL		ug/Kg	5
123-91-1	1,4-Dioxane	BRL		ug/Kg	5,000
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	50
108-88-3	Toluene	BRL		ug/Kg	5
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	5
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	5
127-18-4	Tetrachloroethene	BRL		ug/Kg	5
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	5
591-78-6	2-Hexanone	BRL		ug/Kg	50
124-48-1	Dibromochloromethane	BRL		ug/Kg	5
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	5
108-90-7	Chlorobenzene	BRL		ug/Kg	5
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	5
100-41-4	Ethylbenzene	BRL		ug/Kg	5
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL		ug/Kg	5

GROUNDWATER ANALYTICAL

EPA Method 8260B (Continued)
Volatile Organics by GC/MS

Field ID:	**RF-1**	Matrix:	**Soil**
Project:	**Gulf: New Hyde Park/60158261**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**Frozen**
Laboratory ID:	**135701-1**	QC Batch ID:	**VM1-2899-S**
Sampled:	**08-20-10 10:45**	Instrument ID:	**MS-1 HP 5890**
Received:	**08-23-10 19:30**	Sample Weight:	**5.7 g**
Analyzed:	**08-26-10 14:37**	% Solids:	**94**
Analyst:	**LMG**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
95-47-6	*ortho*-Xylene	BRL		ug/Kg	5
100-42-5	Styrene	BRL		ug/Kg	5
75-25-2	Bromoform	BRL		ug/Kg	5
98-82-8	Isopropylbenzene	BRL		ug/Kg	5
108-86-1	Bromobenzene	BRL		ug/Kg	5
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	5
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	5
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	50
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	5
95-49-8	2-Chlorotoluene	BRL		ug/Kg	5
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	5
106-43-4	4-Chlorotoluene	BRL		ug/Kg	5
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	5
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	5
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	5
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	5
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	5
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	5
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	5
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	5
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	5
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	5
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	5
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	5
91-20-3	Naphthalene	BRL		ug/Kg	5
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	5
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	200
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	5
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	5
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	50	43	**87 %**	70 - 130 %
1,2-Dichloroethane-d_4	50	41	**83 %**	70 - 130 %
Toluene-d_8	50	46	**91 %**	70 - 130 %
4-Bromofluorobenzene	50	61	**122 %**	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample preparation performed by EPA Method 5030B. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

EPA Method 8270C
Semivolatile Organics by GC/MS

Field ID:	**RF-1**	Matrix:	**Soil**
Project:	**Gulf: New Hyde Park/60158261**	Container:	**250 mL Amber Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**135701-02**	QC Batch ID:	**SV-2385-P**
Sampled:	**08-20-10 10:45**	Instrument ID:	**MS-3 HP 5890**
Received:	**08-23-10 19:30**	Sample Weight:	**16 g**
Extracted:	**08-23-10 22:30**	Final Volume:	**1 mL**
Analyzed:	**08-25-10 15:51**	Percent Solids:	**94**
Analyst:	**MJB**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	340
110-86-1	Pyridine	BRL		ug/Kg	340
108-95-2	Phenol	BRL		ug/Kg	340
62-53-3	Aniline	BRL		ug/Kg	340
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	340
95-57-8	2-Chlorophenol	BRL		ug/Kg	340
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	340
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	340
100-51-6	Benzyl Alcohol	BRL		ug/Kg	340
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	340
95-48-7	2-Methylphenol	BRL		ug/Kg	340
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	340
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	340
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	340
98-86-2	Acetophenone	BRL		ug/Kg	340
67-72-1	Hexachloroethane	BRL		ug/Kg	340
98-95-3	Nitrobenzene	BRL		ug/Kg	340
78-59-1	Isophorone	BRL		ug/Kg	340
88-75-5	2-Nitrophenol	BRL		ug/Kg	340
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	340
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	340
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	340
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	340
91-20-3	Naphthalene	BRL		ug/Kg	340
106-47-8	4-Chloroaniline	BRL		ug/Kg	340
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	340
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	340
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	340
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	680
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	340
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	340
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	340
88-74-4	2-Nitroaniline	BRL		ug/Kg	340
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	340
131-11-3	Dimethyl phthalate	BRL		ug/Kg	340
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	340
208-96-8	Acenaphthylene	BRL		ug/Kg	340
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	340
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	340
99-09-2	3-Nitroaniline	BRL		ug/Kg	340
83-32-9	Acenaphthene	BRL		ug/Kg	340
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	340
100-02-7	4-Nitrophenol	BRL		ug/Kg	340
132-64-9	Dibenzofuran	BRL		ug/Kg	340
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	340

GROUNDWATER ANALYTICAL

EPA Method 8270C (Continued)
Semivolatile Organics by GC/MS

Field ID:	**RF-1**	Matrix:	**Soil**
Project:	**Gulf: New Hyde Park/60158261**	Container:	**250 mL Amber Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**135701-02**	QC Batch ID:	**SV-2385-P**
Sampled:	**08-20-10 10:45**	Instrument ID:	**MS-3 HP 5890**
Received:	**08-23-10 19:30**	Sample Weight:	**16 g**
Extracted:	**08-23-10 22:30**	Final Volume:	**1 mL**
Analyzed:	**08-25-10 15:51**	Dilution Factor:	**1**
Analyst:	**MJB**		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
84-66-2	Diethyl phthalate	BRL		ug/Kg	340
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	340
86-73-7	Fluorene	BRL		ug/Kg	340
100-01-6	4-Nitroaniline	BRL		ug/Kg	340
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	340
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	340
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	340
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	340
118-74-1	Hexachlorobenzene	BRL		ug/Kg	340
87-86-5	Pentachlorophenol	BRL		ug/Kg	340
85-01-8	Phenanthrene	BRL		ug/Kg	340
120-12-7	Anthracene	BRL		ug/Kg	340
86-74-8	Carbazole	BRL		ug/Kg	340
84-74-2	Di-*n*-butyl phthalate	BRL		ug/Kg	340
206-44-0	Fluoranthene	BRL		ug/Kg	340
129-00-0	Pyrene	BRL		ug/Kg	340
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	340
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	340
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	340
218-01-9	Chrysene	BRL		ug/Kg	340
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	340
117-84-0	Di-*n*-octyl phthalate	BRL		ug/Kg	340
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	340
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	340
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	340
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	340
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	340
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	340

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	14,000	10,000	**77** %	30 - 130 %
Phenol-d5	14,000	10,000	**77** %	30 - 130 %
Nitrobenzene-d5	6,800	6,200	**91** %	30 - 130 %
2-Fluorobiphenyl	6,800	6,500	**96** %	30 - 130 %
2,4,6-Tribromophenol	14,000	9,900	**73** %	30 - 130 %
Terphenyl-d14	6,800	6,400	**94** %	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545. Results are reported on a dry weight basis.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

* Analyzed as 4-Methylphenol.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

Project Narrative

Project:	**Gulf: New Hyde Park/60158261**	Lab ID:	**135701**
Client:	**AECOM Environment**	Received:	**08-23-10 19:30**

A. Documentation and Client Communication

The following documentation discrepancies, and client changes or amendments were noted for this project:

1. No documentation discrepancies, changes, or amendments were noted.

B. Method Modifications, Non-Conformances and Observations

The sample(s) in this project were analyzed by the references analytical method(s), and no method modifications, non-conformances or analytical issues were noted, except as indicated below:

1. EPA 8270C Non-conformance: Laboratory control sample (LCS) analyte 2,4-Dinitrophenol was below recommended recovery limits for QC batch SV-2385-P.

GROUNDWATER ANALYTICAL

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Buzzards Bay, MA 02532
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www.groundwateranalytical.com

CHAIN-OF-CUSTODY RECORD AND WORK ORDER

Project Name: NF New Hyde Park	Firm: AECOM
Project Number: 60158261	Address: 2 Technology Park Dr
Sampler Name: Josh Smith	City / State / Zip: Westford Ma
Project Manager: Jen Hadden	Telephone: 978-589-3000

TURNAROUND

- ☐ 10 Business Days
- ☒ 5 Business Days
- ☐ RUSH (RAN-_____)
  (Rush requires Rush Authorization Number)
- ☒ Please Email to: Jennifer.Hadden@AECOM.com
- ☐ Please FAX to: _____

BILLING

- ☐ Purchase Order No.: _____
- ☐ Third Party Billing: _____
- ☐ GWA Quote: _____

ANALYSIS REQUEST

OPTIONS: ☐ TIC Search

Volatiles: ☐ 624.1 ☐ 524.2 ☐ 8260B ☐ 8260C ☐ 8260D ☐ 8260 SIM ☐ 8260 Soil ☐ 8260 Soil Waived ☐ 8260 Soil Extraction ☐ 5035 Soil Extraction ☐ 5035A Soil Extraction ☐ 5035 Low Soil Extraction ☐ 5035A Low Soil Extraction ☐ 5030B Aqueous ☐ 5030C Aqueous ☐ 5030B Low Aqueous ☐ 5030C Low Aqueous ☐ 5030B Soluble ☐ 5030C Soluble ☐ 5030B Low Soluble ☐ 5030C Low Soluble ☐ 5035 Field Kit ☐ 5035A Field Kit ☐ 5035 Low Field Kit ☐ 5035A Low Field Kit ☐ 8011 ☐ 8011 Soil ☐ 8011 Soil Waived ☐ 8011 Soil Extraction ☐ 8011 Aqueous ☐ 8011 Soluble ☐ 8011 Low Aqueous ☐ 8011 Low Soluble ☐ 8015B Aqueous ☐ 8015B Soluble ☐ 8015B Low Aqueous ☐ 8015B Low Soluble ☐ 8021B Aqueous ☐ 8021B Soluble ☐ 8021B Low Aqueous ☐ 8021B Low Soluble ☐ 8260 Full List ☐ 8260 Short List ☐ 8260 Custom List ☐ 624 Full List ☐ 624 Short List ☐ 624 Custom List ☐ 524 Full List ☐ 524 Short List ☐ 524 Custom List

Semivolatiles: ☐ 8270D ☐ 8270D SIM ☐ 8270D Soil ☐ 8270D Soil Waived ☐ 8270D Soil Extraction ☐ 8270D Aqueous ☐ 8270D Soluble ☐ 8270D Low Aqueous ☐ 8270D Low Soluble ☐ 8270D Full List ☐ 8270D Short List ☐ 8270D Custom List ☐ 625 ☐ 625 Full List ☐ 625 Short List ☐ 625 Custom List

Pest/Herb/PCBs: ☐ 8081B ☐ 8081B Soil ☐ 8081B Soil Waived ☐ 8081B Soil Extraction ☐ 8081B Aqueous ☐ 8081B Soluble ☐ 8081B Low Aqueous ☐ 8081B Low Soluble ☐ 8081B Full List ☐ 8081B Short List ☐ 8081B Custom List ☐ 608 ☐ 608 Soil ☐ 608 Soil Waived ☐ 608 Soil Extraction ☐ 608 Aqueous ☐ 608 Soluble ☐ 608 Low Aqueous ☐ 608 Low Soluble ☐ 608 Full List ☐ 608 Short List ☐ 608 Custom List ☐ 8151A ☐ 8151A Soil ☐ 8151A Soil Waived ☐ 8151A Soil Extraction ☐ 8151A Aqueous ☐ 8151A Soluble ☐ 8151A Low Aqueous ☐ 8151A Low Soluble ☐ 8151A Full List ☐ 8151A Short List ☐ 8151A Custom List ☐ 8151 ☐ 8151 Soil ☐ 8151 Soil Waived ☐ 8151 Soil Extraction ☐ 8151 Aqueous ☐ 8151 Soluble ☐ 8151 Low Aqueous ☐ 8151 Low Soluble ☐ 8151 Full List ☐ 8151 Short List ☐ 8151 Custom List ☐ 8082 ☐ 8082 Soil ☐ 8082 Soil Waived ☐ 8082 Soil Extraction ☐ 8082 Aqueous ☐ 8082 Soluble ☐ 8082 Low Aqueous ☐ 8082 Low Soluble ☐ 8082 Full List ☐ 8082 Short List ☐ 8082 Custom List

Metals: ☐ Specify For Water Samples ☐ Total ☐ Dissolved ☐ Lead and Copper ☐ Hg Priority Pollutant

Petroleum Hydrocarbon: Ext. TPH ☐ Mid. TPH ☐ EPH ☐ EPH w/ Target Analytes ☐ EPH w/ Carbon Ranges only ☐ VPH ☐ VPH w/ Target Analytes ☐ VPH w/ Carbon Ranges only ☐ MA DEP VPH Full Targets ☐ MA DEP VPH Short Targets ☐ MA DEP EPH Full Targets ☐ MA DEP EPH Short Targets ☐ Naphthalene Only ☐ Naphthalene Range Organics (GRO) ☐ Naphthalene Range Organics (DRO) ☐ MEPH ☐ TPH ☐ MA DEP VPH w/ Targets ☐ MA DEP EPH w/ Targets ☐ 1,3-Butadiene ☐ MTBE ☐ Naphthalene ☐ Naphthalene Range Organics (GRO) ☐ Naphthalene Range Organics (DRO)

Haz. Waste: ☐ TCLP VOA ☐ TCLP SVOA ☐ TCLP Metals ☐ TCLP Pesticides ☐ TCLP Herbicides ☐ Corrosivity ☐ Ignitability ☐ Reactivity ☐ Sulfide ☐ Cyanide ☐ Flashpoint ☐ Paint Filter ☐ TCLP Full List ☐ TCLP Short List ☐ TCLP Custom List ☐ 8260 TCLP ☐ 8270 TCLP ☐ 8081 TCLP ☐ 8151 TCLP ☐ 1311 Extraction ☐ 1312 Extraction ☐ Ignitability ☐ Corrosivity ☐ Reactivity ☐ Paint Filter

General Chemistry: ☐ Nitrate ☐ Nitrite ☐ Chloride ☐ Fluoride ☐ Sulfate ☐ Total Phosphorous ☐ Total Kjeldahl Nitrogen ☐ Ammonia ☐ TOC ☐ COD ☐ Alkalinity ☐ Hardness ☐ Total Solids ☐ Total Suspended Solids ☐ Total Dissolved Solids ☐ Turbidity ☐ Color ☐ Specific Conductance ☐ Chlorine Residual ☐ Dissolved Oxygen ☐ Biochemical Oxygen Demand ☐ Chemical Oxygen Demand ☐ Oil & Grease ☐ Cyanide ☐ Sulfide ☐ Sulfite ☐ Phenols ☐ Perchlorate ☐ Hexavalent Chromium ☐ Total Chromium ☐ Ferrous Iron ☐ Dissolved Iron ☐ Total Iron ☐ Dissolved Manganese ☐ Total Manganese ☐ Dissolved Calcium ☐ Total Calcium ☐ Dissolved Magnesium ☐ Total Magnesium ☐ Dissolved Sodium ☐ Total Sodium ☐ Dissolved Potassium ☐ Total Potassium ☐ Dissolved Aluminum ☐ Total Aluminum ☐ Dissolved Antimony ☐ Total Antimony ☐ Dissolved Arsenic ☐ Total Arsenic ☐ Dissolved Barium ☐ Total Barium ☐ Dissolved Beryllium ☐ Total Beryllium ☐ Dissolved Cadmium ☐ Total Cadmium ☐ Dissolved Chromium ☐ Total Chromium ☐ Dissolved Cobalt ☐ Total Cobalt ☐ Dissolved Copper ☐ Total Copper ☐ Dissolved Iron ☐ Total Iron ☐ Dissolved Lead ☐ Total Lead ☐ Dissolved Manganese ☐ Total Manganese ☐ Dissolved Mercury ☐ Total Mercury ☐ Dissolved Nickel ☐ Total Nickel ☐ Dissolved Selenium ☐ Total Selenium ☐ Dissolved Silver ☐ Total Silver ☐ Dissolved Thallium ☐ Total Thallium ☐ Dissolved Vanadium ☐ Total Vanadium ☐ Dissolved Zinc ☐ Total Zinc

Other: ☐ pH ☐ Specific Conductance ☐ Turbidity ☐ Color ☐ Total Solids ☐ Chlorine Residual ☐ Dissolved Oxygen ☐ Biochemical Oxygen Demand ☐ Chemical Oxygen Demand ☐ Oil & Grease ☐ Cyanide ☐ Sulfide ☐ Sulfite ☐ Phenols ☐ Perchlorate ☐ Hexavalent Chromium ☐ Available Cyanide ☐ Reactive Cyanide ☐ Reactive Sulfide ☐ Flashpoint ☐ Ignitability ☐ Corrosivity ☐ Paint Filter ☐ Free Liquids ☐ Percent Solids ☐ Chlorides ☐ Ferrous Iron ☐ Alkalinity ☐ Hardness ☐ Total Dissolved Solids ☐ Specific Gravity ☐ Viscosity ☐ Density ☐ API Gravity ☐ Molecular Weight ☐ Naphthalene ☐ 1,3-Butadiene ☐ MTBE ☐ Hydrocarbon Fingerprint (List Analytes in Job Comments) ☐ Naphthalene Only ☐ Naphthalene Range Organics (GRO) ☐ Naphthalene Range Organics (DRO) ☐ MEPH ☐ TPH ☐ MA DEP VPH Full Targets ☐ MA DEP VPH Short Targets ☐ MA DEP EPH Full Targets ☐ MA DEP EPH Short Targets ☐ 1,3-Butadiene ☐ MTBE ☐ Naphthalene ☐ Naphthalene Range Organics (GRO) ☐ Naphthalene Range Organics (DRO) ☐ MEPH ☐ TPH ☐ MA DEP VPH Full Targets ☐ MA DEP VPH Short Targets ☐ MA DEP EPH Full Targets ☐ MA DEP EPH Short Targets ☐ 1,3-Butadiene ☐ MTBE ☐ Naphthalene ☐ Naphthalene Range Organics (GRO) ☐ Naphthalene Range Organics (DRO) ☐ MEPH ☐ TPH ☐ MA DEP VPH Full Targets ☐ MA DEP VPH Short Targets ☐ MA DEP EPH Full Targets ☐ MA DEP EPH Short Targets

INSTRUCTIONS: Use separate line for each container (except replicates).

Sampling DATE	Sampling TIME	SAMPLE IDENTIFICATION	Matrix	Type	Container(s)	Preservation	Filtered	LABORATORY NUMBER (Lab Use Only)
			GRO-MeOH/WATER; Drinking WATER; WASTEWATER; SOIL; OTHER SOLID; OIL/CHEMICAL LIQUID	COMPOSITE; GRAB	NUMBER; 40mL VOA Vial; 60mL/2 oz Glass; 120mL/4 oz Amber Glass; 250mL/8 oz Glass; 500mL/16 oz Glass; 1L/32 oz Amber Glass; 250mL/8 oz Plastic; 500mL/16 oz Plastic; 1L/32 oz Plastic; 125mL Sterile	HCl; HNO3; H2SO4; NaOH; Methanol; Sodium Bisulfate; NONE	YES; NO	
8/23/16	1045	RF-1	X	X	6 4 2	1 5	N	

REMARKS / SPECIAL INSTRUCTIONS

- ☒ YES ☐ NO MCP Data Certification required.
- ☐ YES ☒ NO MCP Drinking Water Sample included.
  (Volatile analyses require duplicate collection and Trip Blanks).
- ☐ Analyze Duplicates and Trips Blanks only if positive results.
- ☐ YES ☒ NO CT RCP Data Certification required.

Signature: _____

DATA QUALITY OBJECTIVES

Regulatory Program

State	Standard	Deliverables
☐ CT	☐ MCP GW-1/S-1	☐ PWS Form
☐ ME	☐ MCP GW-2/S-2	☐ MWRA
☐ MA	☐ NY STARS	☐ _____
☐ NH	☐ Drinking Water	
☒ NY	☐ Wastewater	
☐ RI	☐ Waste Disposal	
☐ VT	☐ Dredge Material	
☐ ___	☐ _____	

Project Specific QC

Many regulatory programs and EPA methods require project specific QC. Project specific QC includes Sample Duplicates, Matrix Spikes, and/or Matrix Spike Duplicates. Laboratory QC is not project specific unless prearranged. Project specific QC samples are charged on a per sample basis. **Each MS, MSD and Sample Duplicate requires an additional sample allquot.**

Project Specific QC Required	Selection of QC Sample
☐ Sample Duplicate	☐ Please use sample: _____
☐ Matrix Spike	
☐ Matrix Spike Duplicate	

CHAIN-OF-CUSTODY RECORD

NOTE: All samples submitted subject to Standard Terms and Conditions on reverse hereof.

Relinquished by Sampler:	Date 8/23/16 Time 16:15	Received by: Alan Maddigan	Receipt Temperature: ☒ Ice ☐ Refrigerated ☐ Blue Recommended 2.0°C
Relinquished by: Alan Maddigan	Date 8/23/16 Time 17:30	Received by:	Container Count:
Relinquished by:	Date Time	Received by Laboratory:	Shipping/Airbill Number:

Method of Shipment: ☒ GWA Courier ☐ Express Mail ☐ Federal Express ☐ UPS ☐ Hand ☐ _____

Custody Seal Number:

Quality Assurance/Quality Control

A. Program Overview

Groundwater Analytical conducts an active Quality Assurance program to ensure the production of high quality, valid data. This program closely follows the guidance provided by *Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans,* US EPA QAMS-005/80 (1980), and *Test Methods for Evaluating Solid Waste,* US EPA, SW-846, Update III (1996).

Quality Control protocols include written Standard Operating Procedures (SOPs) developed for each analytical method. SOPs are derived from US EPA methodologies and other established references. Standards are prepared from commercially obtained reference materials of certified purity, and documented for traceability.

Quality Assessment protocols for most organic analyses include a minimum of one laboratory control sample, one method blank, one matrix spike sample, and one sample duplicate for each sample preparation batch. All samples, standards, blanks, laboratory control samples, matrix spikes and sample duplicates are spiked with internal standards and surrogate compounds. All instrument sequences begin with an initial calibration verification standard and a blank; and excepting GC/MS sequences, all sequences close with a continuing calibration standard. GC/MS systems are tuned to appropriate ion abundance criteria daily, or for each 12 hour operating period, whichever is more frequent.

Quality Assessment protocols for most inorganic analyses include a minimum of one laboratory control sample, one method blank, one matrix spike sample, and one sample duplicate for each sample preparation batch. Standard curves are derived from one reagent blank and four concentration levels. Curve validity is verified by standard recoveries within plus or minus ten percent of the curve.

B. Definitions

Batches are used as the basic unit for Quality Assessment. A Batch is defined as twenty or fewer samples of the same matrix which are prepared together for the same analysis, using the same lots of reagents and the same techniques or manipulations, all within the same continuum of time, up to but not exceeding 24 hours.

Laboratory Control Samples are used to assess the accuracy of the analytical method. A Laboratory Control Sample consists of reagent water or sodium sulfate spiked with a group of target analytes representative of the method analytes. Accuracy is defined as the degree of agreement of the measured value with the true or expected value. Percent Recoveries for the Laboratory Control Samples are calculated to assess accuracy.

Method Blanks are used to assess the level of contamination present in the analytical system. Method Blanks consist of reagent water or an aliquot of sodium sulfate. Method Blanks are taken through all the appropriate steps of an analytical method. Sample data reported is not corrected for blank contamination.

Surrogate Compounds are used to assess the effectiveness of an analytical method in dealing with each sample matrix. Surrogate Compounds are organic compounds which are similar to the target analytes of interest in chemical behavior, but which are not normally found in environmental samples. Percent Recoveries are calculated for each Surrogate Compound.

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

Category: EPA Method 8260B
QC Batch ID: VM1-2899-S
Matrix: Soil
Units: ug/kg

LCS
Instrument ID: MS-1 HP 5890
Analyzed: 08-26-10 07:44
Analyst: LMG

LCSD
Instrument ID: MS-1 HP 5890
Analyzed: 08-26-10 08:21
Analyst: LMG

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
75-71-8	Dichlorodifluoromethane	50	47	93 %	50	43	86 %	8 %	70 - 130 %	20%
74-87-3	Chloromethane	50	52	104 %	50	51	102 %	2 %	70 - 130 %	20%
75-01-4	Vinyl Chloride	50	59	118 %	50	56	111 %	6 %	70 - 130 %	20%
74-83-9	Bromomethane	50	47	95 %	50	43	86 %	10 %	70 - 130 %	20%
75-00-3	Chloroethane	50	47	95 %	50	45	91 %	5 %	70 - 130 %	20%
75-69-4	Trichlorofluoromethane	50	42	85 %	50	39	78 %	8 %	70 - 130 %	20%
60-29-7	Diethyl Ether	100	88	88 %	100	93	93 %	5 %	70 - 130 %	20%
75-35-4	1,1-Dichloroethene	50	47	94 %	50	45	89 %	6 %	70 - 130 %	20%
76-13-1	1,1,2-Trichlorotrifluoroethane	100	96	96 %	100	91	91 %	5 %	70 - 130 %	20%
67-64-1	Acetone	100	110	107 %	100	110	107 %	0 %	70 - 130 %	20%
75-15-0	Carbon Disulfide	100	81	81 %	100	75	75 %	7 %	70 - 130 %	20%
75-09-2	Methylene Chloride	50	50	100 %	50	48	95 %	5 %	70 - 130 %	20%
107-13-1	Acrylonitrile	50	52	105 %	50	55	111 %	5 %	70 - 130 %	20%
156-60-5	*trans*-1,2-Dichloroethene	50	47	94 %	50	45	90 %	4 %	70 - 130 %	20%
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	50	54	108 %	50	49	99 %	9 %	70 - 130 %	20%
75-34-3	1,1-Dichloroethane	50	49	99 %	50	46	91 %	8 %	70 - 130 %	20%
594-20-7	2,2-Dichloropropane	50	47	94 %	50	44	88 %	7 %	70 - 130 %	20%
156-59-2	*cis*-1,2-Dichloroethene	50	51	102 %	50	47	95 %	7 %	70 - 130 %	20%
78-93-3	2-Butanone (MEK)	100	100	103 %	100	100	102 %	0 %	70 - 130 %	20%
74-97-5	Bromochloromethane	50	46	93 %	50	46	92 %	0 %	70 - 130 %	20%
109-99-9	Tetrahydrofuran (THF)	100	110	109 %	100	130	128 %	16 %	70 - 130 %	20%
67-66-3	Chloroform	50	46	92 %	50	45	90 %	2 %	70 - 130 %	20%
71-55-6	1,1,1-Trichloroethane	50	44	87 %	50	41	82 %	6 %	70 - 130 %	20%
56-23-5	Carbon Tetrachloride	50	44	87 %	50	42	85 %	3 %	70 - 130 %	20%
563-58-6	1,1-Dichloropropene	50	48	97 %	50	45	90 %	7 %	70 - 130 %	20%
71-43-2	Benzene	50	49	98 %	50	49	98 %	0 %	70 - 130 %	20%
107-06-2	1,2-Dichloroethane	50	45	90 %	50	43	86 %	4 %	70 - 130 %	20%
79-01-6	Trichloroethene	50	51	102 %	50	50	99 %	3 %	70 - 130 %	20%
78-87-5	1,2-Dichloropropane	50	51	103 %	50	52	103 %	1 %	70 - 130 %	20%
74-95-3	Dibromomethane	50	46	92 %	50	45	90 %	3 %	70 - 130 %	20%
75-27-4	Bromodichloromethane	50	47	94 %	50	46	93 %	1 %	70 - 130 %	20%
123-91-1	1,4-Dioxane	1,000	1,100	107 %	1,000	1,100	110 %	3 %	70 - 130 %	20%
10061-01-5	*cis*-1,3-Dichloropropene	50	48	97 %	50	52	104 %	7 %	70 - 130 %	20%
108-10-1	4-Methyl-2-Pentanone (MIBK)	100	110	109 %	100	110	113 %	3 %	70 - 130 %	20%
108-88-3	Toluene	50	52	104 %	50	50	100 %	3 %	70 - 130 %	20%
10061-02-6	*trans*-1,3-Dichloropropene	50	45	91 %	50	47	94 %	4 %	70 - 130 %	20%
79-00-5	1,1,2-Trichloroethane	50	47	94 %	50	48	97 %	3 %	70 - 130 %	20%
127-18-4	Tetrachloroethene	50	41	82 %	50	42	83 %	1 %	70 - 130 %	20%
142-28-9	1,3-Dichloropropane	50	45	90 %	50	47	94 %	4 %	70 - 130 %	20%
591-78-6	2-Hexanone	100	110	107 %	100	120	117 %	9 %	70 - 130 %	20%
124-48-1	Dibromochloromethane	50	42	83 %	50	43	87 %	4 %	70 - 130 %	20%
106-93-4	1,2-Dibromoethane (EDB)	50	47	94 %	50	47	95 %	1 %	70 - 130 %	20%
108-90-7	Chlorobenzene	50	44	87 %	50	43	87 %	0 %	70 - 130 %	20%
630-20-6	1,1,1,2-Tetrachloroethane	50	44	89 %	50	43	87 %	2 %	70 - 130 %	20%
100-41-4	Ethylbenzene	50	46	92 %	50	45	89 %	2 %	70 - 130 %	20%
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	100	92	92 %	100	87	87 %	6 %	70 - 130 %	20%
95-47-6	*ortho*-Xylene	50	43	85 %	50	43	87 %	2 %	70 - 130 %	20%
100-42-5	Styrene	50	46	92 %	50	48	96 %	4 %	70 - 130 %	20%
75-25-2	Bromoform	50	46	93 %	50	49	99 %	6 %	70 - 130 %	20%

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8260B	Instrument ID:	MS-1 HP 5890	Instrument ID:	MS-1 HP 5890
QC Batch ID:	VM1-2899-S	Analyzed:	08-26-10 07:44	Analyzed:	08-26-10 08:21
Matrix:	Soil	Analyst:	LMG	Analyst:	LMG
Units:	ug/kg				

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
98-82-8	Isopropylbenzene	50	45	90 %	50	44	88 %	2 %	70 - 130 %	20%
108-86-1	Bromobenzene	50	45	90 %	50	45	90 %	0 %	70 - 130 %	20%
79-34-5	1,1,2,2-Tetrachloroethane	50	51	102 %	50	53	106 %	4 %	70 - 130 %	20%
96-18-4	1,2,3-Trichloropropane	50	48	96 %	50	49	98 %	2 %	70 - 130 %	20%
110-57-6	*trans*-1,4-Dichloro-2-butene	200	230	115 %	200	250	127 %	10 %	70 - 130 %	20%
103-65-1	*n*-Propylbenzene	50	49	99 %	50	49	98 %	1 %	70 - 130 %	20%
95-49-8	2-Chlorotoluene	50	49	98 %	50	47	94 %	3 %	70 - 130 %	20%
108-67-8	1,3,5-Trimethylbenzene	50	49	97 %	50	49	98 %	1 %	70 - 130 %	20%
106-43-4	4-Chlorotoluene	50	48	96 %	50	47	93 %	3 %	70 - 130 %	20%
98-06-6	*tert*-Butylbenzene	50	47	95 %	50	46	92 %	3 %	70 - 130 %	20%
95-63-6	1,2,4-Trimethylbenzene	50	51	102 %	50	52	105 %	3 %	70 - 130 %	20%
135-98-8	*sec*-Butylbenzene	50	50	100 %	50	49	98 %	2 %	70 - 130 %	20%
541-73-1	1,3-Dichlorobenzene	50	47	94 %	50	46	92 %	2 %	70 - 130 %	20%
99-87-6	4-Isopropyltoluene	50	51	101 %	50	49	98 %	3 %	70 - 130 %	20%
106-46-7	1,4-Dichlorobenzene	50	45	90 %	50	47	95 %	5 %	70 - 130 %	20%
95-50-1	1,2-Dichlorobenzene	50	48	97 %	50	47	94 %	3 %	70 - 130 %	20%
104-51-8	*n*-Butylbenzene	50	52	103 %	50	50	100 %	4 %	70 - 130 %	20%
96-12-8	1,2-Dibromo-3-chloropropane	50	48	96 %	50	49	99 %	3 %	70 - 130 %	20%
108-70-3	1,3,5-Trichlorobenzene	50	46	92 %	50	48	95 %	3 %	70 - 130 %	20%
120-82-1	1,2,4-Trichlorobenzene	50	49	99 %	50	47	94 %	5 %	70 - 130 %	20%
87-68-3	Hexachlorobutadiene	50	45	90 %	50	44	89 %	2 %	70 - 130 %	20%
91-20-3	Naphthalene	50	48	96 %	50	58	115 %	19 %	70 - 130 %	20%
87-61-6	1,2,3-Trichlorobenzene	50	49	98 %	50	46	93 %	5 %	70 - 130 %	20%
75-65-0	*tert*-Butyl Alcohol (TBA)	1,000	1,000	104 %	1,000	1,000	104 %	0 %	70 - 130 %	20%
108-20-3	Di-isopropyl Ether (DIPE)	50	55	110 %	50	52	104 %	6 %	70 - 130 %	20%
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	50	50	99 %	50	53	107 %	7 %	70 - 130 %	20%
994-05-8	*tert*-Amyl Methyl Ether (TAME)	50	52	103 %	50	54	108 %	4 %	70 - 130 %	20%

QC Surrogate Compound	Spiked	Measured	Recovery	Spiked	Measured	Recovery		QC Limits
Dibromofluoromethane	50	48	96 %	50	41	82 %		70 - 130 %
1,2-Dichloroethane-d_4	50	54	107 %	50	43	86 %		70 - 130 %
Toluene-d_8	50	54	109 %	50	46	92 %		70 - 130 %
4-Bromofluorobenzene	50	57	113 %	50	48	95 %		70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample preparation performed by EPA Method 5035A.

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: EPA Method 8260B
QC Batch ID: VM1-2899-S
Matrix: Soil

Instrument ID: MS-1 HP 5890
Analyzed: 08-26-10 08:57
Analyst: LMG

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	10
74-87-3	Chloromethane	BRL		ug/Kg	10
75-01-4	Vinyl Chloride	BRL		ug/Kg	10
74-83-9	Bromomethane	BRL		ug/Kg	10
75-00-3	Chloroethane	BRL		ug/Kg	10
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	10
60-29-7	Diethyl Ether	BRL		ug/Kg	10
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	50
67-64-1	Acetone	BRL		ug/Kg	200
75-15-0	Carbon Disulfide	BRL		ug/Kg	50
75-09-2	Methylene Chloride	BRL		ug/Kg	50
107-13-1	Acrylonitrile	BRL		ug/Kg	5
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	5
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	5
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	5
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	5
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	5
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	50
74-97-5	Bromochloromethane	BRL		ug/Kg	5
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	50
67-66-3	Chloroform	BRL		ug/Kg	5
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	5
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	5
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	5
71-43-2	Benzene	BRL		ug/Kg	5
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	5
79-01-6	Trichloroethene	BRL		ug/Kg	5
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	5
74-95-3	Dibromomethane	BRL		ug/Kg	5
75-27-4	Bromodichloromethane	BRL		ug/Kg	5
123-91-1	1,4-Dioxane	BRL		ug/Kg	5,000
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	50
108-88-3	Toluene	BRL		ug/Kg	5
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	5
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	5
127-18-4	Tetrachloroethene	BRL		ug/Kg	5
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	5
591-78-6	2-Hexanone	BRL		ug/Kg	50
124-48-1	Dibromochloromethane	BRL		ug/Kg	5
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	5
108-90-7	Chlorobenzene	BRL		ug/Kg	5
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	5
100-41-4	Ethylbenzene	BRL		ug/Kg	5
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL		ug/Kg	5
95-47-6	*ortho*-Xylene	BRL		ug/Kg	5
100-42-5	Styrene	BRL		ug/Kg	5
75-25-2	Bromoform	BRL		ug/Kg	5

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: **EPA Method 8260B**
QC Batch ID: **VM1-2899-S**
Matrix: **Soil**

Instrument ID: **MS-1 HP 5890**
Analyzed: **08-26-10 08:57**
Analyst: **LMG**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
98-82-8	Isopropylbenzene	BRL		ug/Kg	5
108-86-1	Bromobenzene	BRL		ug/Kg	5
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	5
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	5
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	50
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	5
95-49-8	2-Chlorotoluene	BRL		ug/Kg	5
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	5
106-43-4	4-Chlorotoluene	BRL		ug/Kg	5
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	5
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	5
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	5
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	5
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	5
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	5
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	5
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	5
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	5
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	5
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	5
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	5
91-20-3	Naphthalene	BRL		ug/Kg	5
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	5
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	200
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	5
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	5
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	50	45	**90** %	70 - 130 %
1,2-Dichloroethane-d_4	50	42	**85** %	70 - 130 %
Toluene-d_8	50	49	**97** %	70 - 130 %
4-Bromofluorobenzene	50	59	**118** %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample preparation performed by EPA Method 5035A.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8270C		MS-3 HP 5890	Instrument ID:	MS-3 HP 5890
QC Batch ID:	SV-2385-P	Extracted:	08-23-10 19:30	Extracted:	08-23-10 19:30
Matrix:	Soil	Analyzed:	08-25-10 11:39	Analyzed:	08-25-10 12:21
Units:	ug/Kg	Analyst:	MJB	Analyst:	MJB

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
62-75-9	N-Nitrosodimethylamine	3,300	2,100	64 %	3,300	2,300	69 %	7 %	40 - 140 %	30%
110-86-1	Pyridine	3,300	1,600	49 %	3,300	1,900	58 %	17 %	40 - 140 %	30%
108-95-2	Phenol	3,300	3,200	96 %	3,300	3,000	89 %	7 %	30 - 130 %	30%
62-53-3	Aniline	3,300	2,600	78 %	3,300	2,600	79 %	2 %	40 - 140 %	30%
111-44-4	Bis(2-chloroethyl) ether	3,300	2,500	74 %	3,300	2,500	74 %	0 %	40 - 140 %	30%
95-57-8	2-Chlorophenol	3,300	2,900	87 %	3,300	2,800	85 %	2 %	30 - 130 %	30%
541-73-1	1,3-Dichlorobenzene	3,300	2,500	75 %	3,300	2,500	74 %	0 %	40 - 140 %	30%
106-46-7	1,4-Dichlorobenzene	3,300	2,500	75 %	3,300	2,500	76 %	1 %	40 - 140 %	30%
100-51-6	Benzyl Alcohol	3,300	3,600	109 %	3,300	3,600	107 %	2 %	30 - 130 %	30%
95-50-1	1,2-Dichlorobenzene	3,300	2,600	77 %	3,300	2,600	77 %	0 %	40 - 140 %	30%
95-48-7	2-Methylphenol	3,300	3,000	89 %	3,300	2,900	88 %	0 %	30 - 130 %	30%
108-60-1	Bis(2-chloroisopropyl) ether	3,300	2,400	72 %	3,300	2,400	71 %	1 %	40 - 140 %	30%
106-44-5	4-Methylphenol	3,300	3,100	93 %	3,300	3,000	90 %	3 %	30 - 130 %	30%
621-64-7	N-Nitrosodi-n-propylamine	3,300	2,700	81 %	3,300	2,600	77 %	5 %	40 - 140 %	30%
98-86-2	Acetophenone	3,300	2,700	80 %	3,300	2,600	79 %	2 %	40 - 140 %	30%
67-72-1	Hexachloroethane	3,300	2,500	74 %	3,300	2,500	75 %	2 %	40 - 140 %	30%
98-95-3	Nitrobenzene	3,300	2,700	80 %	3,300	2,700	81 %	2 %	40 - 140 %	30%
78-59-1	Isophorone	3,300	2,700	82 %	3,300	2,700	80 %	2 %	40 - 140 %	30%
88-75-5	2-Nitrophenol	3,300	2,900	87 %	3,300	2,900	86 %	2 %	30 - 130 %	30%
105-67-9	2,4-Dimethylphenol	3,300	3,200	95 %	3,300	3,200	97 %	2 %	30 - 130 %	30%
111-91-1	Bis(2-chloroethoxy) methane	3,300	2,700	80 %	3,300	2,700	80 %	0 %	40 - 140 %	30%
120-83-2	2,4-Dichlorophenol	3,300	2,900	87 %	3,300	2,900	88 %	1 %	30 - 130 %	30%
120-82-1	1,2,4-Trichlorobenzene	3,300	2,700	82 %	3,300	2,700	82 %	0 %	40 - 140 %	30%
91-20-3	Naphthalene	3,300	2,800	84 %	3,300	2,700	81 %	3 %	40 - 140 %	30%
106-47-8	4-Chloroaniline	3,300	2,700	81 %	3,300	2,600	78 %	3 %	40 - 140 %	30%
87-68-3	Hexachlorobutadiene	3,300	2,700	81 %	3,300	2,700	80 %	1 %	40 - 140 %	30%
59-50-7	4-Chloro-3-methylphenol	3,300	3,000	89 %	3,300	3,000	90 %	1 %	30 - 130 %	30%
91-57-6	2-Methylnaphthalene	3,300	2,900	86 %	3,300	2,800	83 %	3 %	40 - 140 %	30%
77-47-4	Hexachlorocyclopentadiene	3,300	2,500	76 %	3,300	2,800	83 %	9 %	40 - 140 %	30%
88-06-2	2,4,6-Trichlorophenol	3,300	3,000	90 %	3,300	3,100	93 %	3 %	30 - 130 %	30%
95-95-4	2,4,5-Trichlorophenol	3,300	2,900	88 %	3,300	3,000	91 %	3 %	30 - 130 %	30%
91-58-7	2-Chloronaphthalene	3,300	2,900	87 %	3,300	2,900	87 %	0 %	40 - 140 %	30%
88-74-4	2-Nitroaniline	3,300	2,900	86 %	3,300	3,000	91 %	5 %	40 - 140 %	30%
100-25-4	1,4-Dinitrobenzene	3,300	3,000	91 %	3,300	3,100	94 %	4 %	40 - 140 %	30%
131-11-3	Dimethyl phthalate	3,300	3,000	89 %	3,300	3,100	94 %	5 %	40 - 140 %	30%
99-65-0	1,3-Dinitrobenzene	3,300	3,100	93 %	3,300	3,200	95 %	2 %	40 - 140 %	30%
208-96-8	Acenaphthylene	3,300	2,900	87 %	3,300	2,900	88 %	2 %	40 - 140 %	30%
606-20-2	2,6-Dinitrotoluene	3,300	3,000	90 %	3,300	3,000	91 %	2 %	40 - 140 %	30%
528-29-0	1,2-Dinitrobenzene	3,300	3,000	89 %	3,300	3,100	92 %	3 %	40 - 140 %	30%
99-09-2	3-Nitroaniline	3,300	2,800	83 %	3,300	3,000	89 %	6 %	40 - 140 %	30%
83-32-9	Acenaphthene	3,300	2,900	87 %	3,300	2,900	88 %	1 %	40 - 140 %	30%
51-28-5	2,4-Dinitrophenol	3,300	840	25 % q	3,300	800	24 % q	5 %	30 - 130 %	30%
100-02-7	4-Nitrophenol	3,300	2,600	78 %	3,300	2,800	84 %	8 %	30 - 130 %	30%
132-64-9	Dibenzofuran	3,300	2,900	88 %	3,300	3,000	89 %	1 %	40 - 140 %	30%
121-14-2	2,4-Dinitrotoluene	3,300	3,000	90 %	3,300	3,100	94 %	4 %	40 - 140 %	30%
84-66-2	Diethyl phthalate	3,300	3,000	90 %	3,300	3,100	94 %	4 %	40 - 140 %	30%
7005-72-3	4-Chlorophenyl phenyl ether	3,300	3,000	90 %	3,300	3,000	91 %	1 %	40 - 140 %	30%
86-73-7	Fluorene	3,300	3,000	90 %	3,300	3,100	93 %	4 %	40 - 140 %	30%

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8270C	Instrument ID:	MS-3 HP 5890	Instrument ID:	MS-3 HP 5890
QC Batch ID:	SV-2385-P	Extracted:	08-23-10 19:30	Extracted:	08-23-10 19:30
Matrix:	Soil	Analyzed:	08-25-10 11:39	Analyzed:	08-25-10 12:21
Units:	ug/Kg	Analyst:	MJB	Analyst:	MJB

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
100-01-6	4-Nitroaniline	3,300	3,000	90 %	3,300	3,100	93 %	3 %	40 - 140 %	30%
534-52-1	4,6-Dinitro-2-methylphenol	3,300	1,800	53 %	3,300	1,700	52 %	2 %	30 - 130 %	30%
86-30-6	N-Nitrosodiphenylamine †	3,300	3,000	91 %	3,300	3,100	92 %	2 %	40 - 140 %	30%
122-66-7	1,2-Diphenylhydrazine à	3,300	2,900	88 %	3,300	3,000	89 %	1 %	40 - 140 %	30%
101-55-3	4-Bromophenyl phenyl ether	3,300	3,000	89 %	3,300	3,100	92 %	2 %	40 - 140 %	30%
118-74-1	Hexachlorobenzene	3,300	2,900	88 %	3,300	3,000	90 %	3 %	40 - 140 %	30%
87-86-5	Pentachlorophenol	3,300	2,800	84 %	3,300	2,600	77 %	9 %	30 - 130 %	30%
85-01-8	Phenanthrene	3,300	3,100	92 %	3,300	3,100	93 %	1 %	40 - 140 %	30%
120-12-7	Anthracene	3,300	3,100	92 %	3,300	3,100	93 %	1 %	40 - 140 %	30%
86-74-8	Carbazole	3,300	3,000	90 %	3,300	3,100	93 %	3 %	40 - 140 %	30%
84-74-2	Di-*n*-butyl phthalate	3,300	3,100	92 %	3,300	3,100	94 %	2 %	40 - 140 %	30%
206-44-0	Fluoranthene	3,300	3,000	89 %	3,300	3,100	92 %	3 %	40 - 140 %	30%
129-00-0	Pyrene	3,300	3,200	96 %	3,300	3,100	94 %	2 %	40 - 140 %	30%
85-68-7	Butyl benzyl phthalate	3,300	3,100	94 %	3,300	3,200	95 %	1 %	40 - 140 %	30%
91-94-1	3,3'-Dichlorobenzidine	3,300	2,600	78 %	3,300	2,600	78 %	0 %	40 - 140 %	30%
56-55-3	Benzo[a]anthracene	3,300	3,000	90 %	3,300	3,000	91 %	1 %	40 - 140 %	30%
218-01-9	Chrysene	3,300	3,000	90 %	3,300	3,100	93 %	3 %	40 - 140 %	30%
117-81-7	Bis(2-ethylhexyl) phthalate	3,300	3,200	97 %	3,300	3,300	98 %	1 %	40 - 140 %	30%
117-84-0	Di-*n*-octyl phthalate	3,300	3,300	100 %	3,300	3,300	98 %	2 %	40 - 140 %	30%
205-99-2	Benzo[b]fluoranthene	3,300	3,200	95 %	3,300	3,100	94 %	1 %	40 - 140 %	30%
207-08-9	Benzo[k]fluoranthene	3,300	3,200	95 %	3,300	3,200	97 %	2 %	40 - 140 %	30%
50-32-8	Benzo[a]pyrene	3,300	3,100	94 %	3,300	3,100	94 %	0 %	40 - 140 %	30%
193-39-5	Indeno[1,2,3-c,d]pyrene	3,300	2,900	86 %	3,300	2,900	87 %	0 %	40 - 140 %	30%
53-70-3	Dibenzo[a,h]anthracene	3,300	3,000	89 %	3,300	3,000	90 %	1 %	40 - 140 %	30%
191-24-2	Benzo[g,h,i]perylene	3,300	2,900	88 %	3,300	3,000	91 %	3 %	40 - 140 %	30%

QC Surrogate Compound	Spiked	Measured	Recovery	Spiked	Measured	Recovery		QC Limits
2-Fluorophenol	13,000	11,000	84 %	13,000	11,000	83 %		30 - 130 %
Phenol-d5	13,000	12,000	88 %	13,000	11,000	85 %		30 - 130 %
Nitrobenzene-d5	6,700	6,400	96 %	6,700	6,400	96 %		30 - 130 %
2-Fluorobiphenyl	6,700	6,900	104 %	6,700	6,900	103 %		30 - 130 %
2,4,6-Tribromophenol	13,000	12,000	92 %	13,000	13,000	96 %		30 - 130 %
Terphenyl-d14	6,700	7,700	116 %	6,700	7,700	116 %		30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545.

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

q Recovery outside recommended limits.

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: **EPA Method 8270C**
QC Batch ID: **SV-2385-P**
Matrix: **Soil**

Instrument ID: **MS-3 HP 5890**
Extracted: **08-23-10 19:30**
Analyzed: **08-25-10 13:03**
Analyst: **MJB**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	330
110-86-1	Pyridine	BRL		ug/Kg	330
108-95-2	Phenol	BRL		ug/Kg	330
62-53-3	Aniline	BRL		ug/Kg	330
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	330
95-57-8	2-Chlorophenol	BRL		ug/Kg	330
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	330
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	330
100-51-6	Benzyl Alcohol	BRL		ug/Kg	330
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	330
95-48-7	2-Methylphenol	BRL		ug/Kg	330
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	330
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	330
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	330
98-86-2	Acetophenone	BRL		ug/Kg	330
67-72-1	Hexachloroethane	BRL		ug/Kg	330
98-95-3	Nitrobenzene	BRL		ug/Kg	330
78-59-1	Isophorone	BRL		ug/Kg	330
88-75-5	2-Nitrophenol	BRL		ug/Kg	330
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	330
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	330
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	330
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	330
91-20-3	Naphthalene	BRL		ug/Kg	330
106-47-8	4-Chloroaniline	BRL		ug/Kg	330
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	330
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	330
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	330
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	670
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	330
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	330
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	330
88-74-4	2-Nitroaniline	BRL		ug/Kg	330
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	330
131-11-3	Dimethyl phthalate	BRL		ug/Kg	330
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	330
208-96-8	Acenaphthylene	BRL		ug/Kg	330
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	330
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	330
99-09-2	3-Nitroaniline	BRL		ug/Kg	330
83-32-9	Acenaphthene	BRL		ug/Kg	330
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	330
100-02-7	4-Nitrophenol	BRL		ug/Kg	330
132-64-9	Dibenzofuran	BRL		ug/Kg	330
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	330
84-66-2	Diethyl phthalate	BRL		ug/Kg	330
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	330
86-73-7	Fluorene	BRL		ug/Kg	330
100-01-6	4-Nitroaniline	BRL		ug/Kg	330

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: **EPA Method 8270C**
QC Batch ID: **SV-2385-P**
Matrix: **Soil**

Instrument ID: **MS-3 HP 5890**
Extracted: **08-23-10 19:30**
Analyzed: **08-25-10 13:03**
Analyst: **MJB**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	330
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	330
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	330
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	330
118-74-1	Hexachlorobenzene	BRL		ug/Kg	330
87-86-5	Pentachlorophenol	BRL		ug/Kg	330
85-01-8	Phenanthrene	BRL		ug/Kg	330
120-12-7	Anthracene	BRL		ug/Kg	330
86-74-8	Carbazole	BRL		ug/Kg	330
84-74-2	Di-*n*-butyl phthalate	BRL		ug/Kg	330
206-44-0	Fluoranthene	BRL		ug/Kg	330
129-00-0	Pyrene	BRL		ug/Kg	330
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	330
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	330
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	330
218-01-9	Chrysene	BRL		ug/Kg	330
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	330
117-84-0	Di-*n*-octyl phthalate	BRL		ug/Kg	330
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	330
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	330
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	330
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	330
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	330
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	330

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	13,000	12,000	**89** %	30 - 130 %
Phenol-d5	13,000	12,000	**91** %	30 - 130 %
Nitrobenzene-d5	6,700	6,900	**104** %	30 - 130 %
2-Fluorobiphenyl	6,700	7,400	**111** %	30 - 130 %
2,4,6-Tribromophenol	13,000	13,000	**95** %	30 - 130 %
Terphenyl-d14	6,700	8,400	**126** %	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

* Analyzed as 4-Methylphenol.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

Certifications and Approvals

Groundwater Analytical maintains environmental laboratory certification in a variety of states. Copies of our current certificates may be obtained from our website:

http://www.groundwateranalytical.com/qualifications.htm

CONNECTICUT

Department of Health Services, PH-0586 — Potable Water, Wastewater, Solid Waste and Soil
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/Out_State.pdf

MASSACHUSETTS

Department of Environmental Protection, M-MA-103 — Potable Water and Non-Potable Water
http://public.dep.state.ma.us/labcert/labcert.aspx

Department of Labor, Division of Occupational Safety, AA000195 — Asbestos Analytical Services, Class A
http://www.mass.gov/dos/forms/la-rpt_list_aa.pdf

NEW HAMPSHIRE

Department of Environmental Services, 202708 — Potable Water, Non-Potable Water, Solid and Chemical Materials
http://www4.egov.nh.gov/DES/NHELAP

NEW YORK

Department of Health, 11754 — Potable Water, Non-Potable Water, Solid and Hazardous Waste
http://www.wadsworth.org/labcert/elap/comm.html

RHODE ISLAND

Department of Health, Division of Laboratories, LAO00054 — Potable and Non-Potable Water Microbiology, Organic and Inorganic Chemistry
http://www.health.ri.gov/labs/outofstatelabs.pdf

U.S. DEPARTMENT OF AGRICULTURE

USDA, Soil Permit, S-53921 — Foreign soil import permit

VERMONT

Department of Health, VT-87643 — Potable Water
http://healthvermont.gov/enviro/ph_lab/water_test.aspx#cert

GROUNDWATER ANALYTICAL

Certifications and Approvals

MASSACHUSETTS — Department of Environmental Protection, M-MA-103

Groundwater Analytical maintains MassDEP environmental laboratory certification for only the methods and analytes listed below. Analyses for certified analytes are conducted in accordance with MassDEP certification standards, except as may be specifically noted in the project narrative.

Potable Water (Drinking Water)

Analyte	Method
1,2-Dibromo-3-Chloropropane	EPA 504.1
1,2-Dibromoethane	EPA 504.1
Alkalinity, Total	SM 2320-B
Antimony	EPA 200.8
Arsenic	EPA 200.8
Barium	EPA 200.7
Barium	EPA 200.8
Beryllium	EPA 200.7
Beryllium	EPA 200.8
Cadmium	EPA 200.7
Cadmium	EPA 200.8
Calcium	EPA 200.7
Chlorine, Residual Free	SM 4500-Cl-G
Chromium	EPA 200.7
Cyanide, Total	Lachat 10-204-00-1-A
E. Coli (Treatment and Distribution)	Enz. Sub. SM 9223
E. Coli (Treatment and Distribution)	NA-MUG SM 9222-G
Fecal Coliform (Source Water)	MF SM 9222-D
Fluoride	EPA 300.0
Fluoride	SM 4500-F-C
Heterotrophic Plate Count	SM 9215-B
Lead	EPA 200.8
Mercury	EPA 245.1
Nickel	EPA 200.7
Nickel	EPA 200.8
Nitrate-N	EPA 300.0
Nitrate-N	Lachat 10-107-04-1-C
Nitrite-N	EPA 300.0
Nitrite-N	Lachat 10-107-04-1-C
pH	SM 4500-H-B
Selenium	EPA 200.8
Silver	EPA 200.7
Silver	EPA 200.8
Sodium	EPA 200.7
Sulfate	EPA 300.0
Thallium	EPA 200.8
Total Coliform (Treatment and Distribution)	Enz. Sub. SM 9223
Total Coliform (Treatment and Distribution)	MF SM 9222-B
Total Dissolved Solids	SM 2540-C
Trihalomethanes	EPA 524.2
Turbidity	SM 2130-B
Volatile Organic Compounds	EPA 524.2

Non-Potable Water (Wastewater)

Analyte	Method
Aldrin	EPA 608
Alkalinity, Total	SM 2320-B
Alpha-BHC	EPA 608
Aluminum	EPA 200.7
Aluminum	EPA 200.8
Ammonia-N	Lachat 10-107-06-1-B
Antimony	EPA 200.7
Antimony	EPA 200.8
Arsenic	EPA 200.7
Arsenic	EPA 200.8
Beryllium	EPA 200.7
Beryllium	EPA 200.8
Beta-BHC	EPA 608
Biochemical Oxygen Demand	SM 5210-B
Cadmium	EPA 200.7
Cadmium	EPA 200.8
Calcium	EPA 200.7
Chemical Oxygen Demand	SM 5220-D
Chlordane	EPA 608
Chloride	EPA 300.0
Chlorine, Total Residual	SM 4500-Cl-G
Chromium	EPA 200.7
Chromium	EPA 200.8
Cobalt	EPA 200.7
Cobalt	EPA 200.8
Copper	EPA 200.7
Copper	EPA 200.8
Cyanide, Total	Lachat 10-204-00-1-A
DDD	EPA 608
DDE	EPA 608
DDT	EPA 608
Delta-BHC	EPA 608
Dieldrin	EPA 608
Endosulfan I	EPA 608
Endosulfan II	EPA 608
Endosulfan Sulfate	EPA 608
Endrin	EPA 608
Endrin Aldehyde	EPA 608
Fluoride	EPA 300.0
Gamma-BHC	EPA 608
Hardness (CaCO3), Total	EPA 200.7
Hardness (CaCO3), Total	SM 2340-B
Heptachlor	EPA 608
Heptachlor Epoxide	EPA 608
Iron	EPA 200.7
Kjeldahl-N	Lachat 10-107-06-02-D
Lead	EPA 200.7
Magnesium	EPA 200.7
Manganese	EPA 200.7
Manganese	EPA 200.8
Mercury	EPA 245.1
Molybdenum	EPA 200.7
Molybdenum	EPA 200.8
Nickel	EPA 200.7
Nickel	EPA 200.8
Nitrate-N	EPA 300.0
Nitrate-N	Lachat 10-107-04-1-C
Non-Filterable Residue	SM 2540-D
Oil and Grease	EPA 1664

GROUNDWATER ANALYTICAL

Certifications and Approvals

MASSACHUSETTS — **Department of Environmental Protection, M-MA-103**

Groundwater Analytical maintains MassDEP environmental laboratory certification for only the methods and analytes listed below. Analyses for certified analytes are conducted in accordance with MassDEP certification standards, except as may be specifically noted in the project narrative.

Non-Potable Water (Wastewater)

Analyte	Method
Orthophosphate	Lachat 10-115-01-1-A
pH	SM 4500-H-B
Phenolics, Total	EPA 420.4
Phenolics, Total	Lachat 10-210-00-1-B
Phosphorus, Total	Lachat 10-115-01-1-C
Phosphorus, Total	SM 4500-P-B,E
Polychlorinated Biphenyls (Oil)	EPA 600/4-81-045
Polychlorinated Biphenyls (Water)	EPA 608
Potassium	EPA 200.7
Selenium	EPA 200.7
Selenium	EPA 200.8
Silver	EPA 200.7
Sodium	EPA 200.7
Specific Conductivity	SM 2510-B
Strontium	EPA 200.7
Sulfate	EPA 300.0
SVOC-Acid Extractables	EPA 625
SVOC-Base/Neutral Extractables	EPA 625
Thallium	EPA 200.7
Thallium	EPA 200.8
Titanium	EPA 200.7
Total Dissolved Solids	SM 2540-C
Total Organic Carbon	SM 5310-B
Toxaphene	EPA 608
Vanadium	EPA 200.7
Vanadium	EPA 200.8
Volatile Aromatics	EPA 602
Volatile Aromatics	EPA 624
Volatile Halocarbons	EPA 624
Zinc	EPA 200.7
Zinc	EPA 200.8

Prod. Disp #'s 1 & 2 Area
(09/10)

GROUNDWATER ANALYTICAL

Groundwater Analytical, Inc.
P.O. Box 1200
228 Main Street
Buzzards Bay, MA 02532

Telephone (508) 759-4441
FAX (508) 759-4475
www.groundwateranalytical.com

September 14, 2010

Ms. Jennifer Hadden
AECOM Environment
2 Technology Park Drive
Westford, MA 01886

LABORATORY REPORT

Project: **New Hyde Park**
Lab ID: **136036**
Received: **09-03-10**

Dear Jennifer:

Enclosed are the analytical results for the above referenced project. The project was processed for Priority turnaround.

This letter authorizes the release of the analytical results, and should be considered a part of this report. This report contains a sample receipt report detailing the samples received, a project narrative indicating project changes and non-conformances, a quality control report, and a statement of our state certifications.

The analytical results contained in this report meet all applicable NELAC or NVLAP standards, except as may be specifically noted, or described in the project narrative. The analytical results relate only to the samples received. This report may only be used or reproduced in its entirety.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Should you have any questions concerning this report, please do not hesitate to contact me.

Sincerely,

Eric H. Jensen
Operations Manager

EHJ/elm
Enclosures

GROUNDWATER ANALYTICAL

Sample Receipt Report

Project: **New Hyde Park**
Client: **AECOM Environment**
Lab ID: **136036**

Delivery: **Hand**
Airbill: **n/a**
Lab Receipt: **09-03-10**

Temperature: **4.1°C**
Chain of Custody: **Present**
Custody Seal(s): **n/a**

Lab ID	Field ID		Matrix	Sampled	Method				Notes
136036-1	B3		Soil	9/2/10 14:00	EPA 8260B Volatile Organics with Oxygenates				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1282978	40 mL VOA Vial	Scientific Specialties	BX37232	Methanol	R-6227B	08-05-10	n/a		
C1278553	40 mL VOA Vial	Scientific Specialties	BX37295	n/a	R-6223A	08-17-10	n/a		
C1278517	40 mL VOA Vial	Scientific Specialties	BX37295	n/a	R-6223A	08-17-10	n/a		
C1278511	40 mL VOA Vial	Scientific Specialties	BX37295	n/a	R-6223A	08-17-10	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
136036-2	B5/B7		Soil	9/2/10 14:30	EPA 8260B Volatile Organics with Oxygenates				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1282936	40 mL VOA Vial	Scientific Specialties	BX37232	Methanol	R-6227B	08-05-10	n/a		
C1278566	40 mL VOA Vial	Scientific Specialties	BX37295	n/a	R-6223A	08-17-10	n/a		
C1278554	40 mL VOA Vial	Scientific Specialties	BX37295	n/a	R-6223A	08-17-10	n/a		
C1278546	40 mL VOA Vial	Scientific Specialties	BX37295	n/a	R-6223A	08-17-10	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
136036-3	B/C9-5		Soil	9/2/10 15:00	EPA 8260B Volatile Organics with Oxygenates				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1282981	40 mL VOA Vial	Scientific Specialties	BX37232	Methanol	R-6227B	08-05-10	n/a		
C1278565	40 mL VOA Vial	Scientific Specialties	BX37295	n/a	R-6223A	08-17-10	n/a		
C1278557	40 mL VOA Vial	Scientific Specialties	BX37295	n/a	R-6223A	08-17-10	n/a		
C1278549	40 mL VOA Vial	Scientific Specialties	BX37295	n/a	R-6223A	08-17-10	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
136036-4	C4-5		Soil	9/2/10 16:00	EPA 8260B Volatile Organics with Oxygenates				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1282938	40 mL VOA Vial	Scientific Specialties	BX37232	Methanol	R-6227B	08-05-10	n/a		
C1278571	40 mL VOA Vial	Scientific Specialties	BX37295	n/a	R-6223A	08-17-10	n/a		
C1278570	40 mL VOA Vial	Scientific Specialties	BX37295	n/a	R-6223A	08-17-10	n/a		
C1278555	40 mL VOA Vial	Scientific Specialties	BX37295	n/a	R-6223A	08-17-10	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
136036-5	B3		Soil	9/2/10 14:00	EPA 8270C Semivolatile Organics				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1242148	250 mL Amber Glass	Proline	BX34700	None	n/a	n/a	n/a		
C1242144	250 mL Amber Glass	Proline	BX34700	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
136036-6	B5/B7		Soil	9/2/10 14:30	EPA 8270C Semivolatile Organics				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1285273	250 mL Amber Glass	Scientific Specialties	BX37328	None	n/a	n/a	n/a		
C1242153	250 mL Amber Glass	Proline	BX34700	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
136036-7	B/C9-5		Soil	9/2/10 15:00	EPA 8270C Semivolatile Organics				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1242147	250 mL Amber Glass	Proline	BX34700	None	n/a	n/a	n/a		
C1242146	250 mL Amber Glass	Proline	BX34700	None	n/a	n/a	n/a		

GROUNDWATER ANALYTICAL

Sample Receipt Report (Continued)

Project: **New Hyde Park**
Client: **AECOM Environment**
Lab ID: **136036**

Delivery: **Hand**
Airbill: **n/a**
Lab Receipt: **09-03-10**

Temperature: **4.1°C**
Chain of Custody: **Present**
Custody Seal(s): **n/a**

Lab ID	Field ID		Matrix	Sampled	Method				Notes
136036-8	C4-5		Soil	9/2/10 16:00	EPA 8270C Semivolatile Organics				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1242155	250 mL Amber Glass	Proline	BX34700	None	n/a	n/a	n/a		
C1242145	250 mL Amber Glass	Proline	BX34700	None	n/a	n/a	n/a		

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	B3	Matrix:	Soil
Project:	New Hyde Park	Container:	40 mL VOA Vial
Client:	AECOM Environment	Preservation:	Frozen
Laboratory ID:	136036-1	QC Batch ID:	VM1-2906-S
Sampled:	09-02-10 14:00	Instrument ID:	MS-1 HP 5890
Received:	09-03-10 17:00	Sample Weight:	5.6 g
Analyzed:	09-10-10 18:13	% Solids:	93
Analyst:	LMG	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	10
74-87-3	Chloromethane	BRL		ug/Kg	10
75-01-4	Vinyl Chloride	BRL		ug/Kg	10
74-83-9	Bromomethane	BRL		ug/Kg	10
75-00-3	Chloroethane	BRL		ug/Kg	10
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	10
60-29-7	Diethyl Ether	BRL		ug/Kg	10
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	50
67-64-1	Acetone	BRL		ug/Kg	200
75-15-0	Carbon Disulfide	BRL		ug/Kg	50
75-09-2	Methylene Chloride	BRL		ug/Kg	50
107-13-1	Acrylonitrile	BRL		ug/Kg	5
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	5
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	5
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	5
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	5
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	5
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	50
74-97-5	Bromochloromethane	BRL		ug/Kg	5
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	50
67-66-3	Chloroform	BRL		ug/Kg	5
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	5
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	5
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	5
71-43-2	Benzene	BRL		ug/Kg	5
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	5
79-01-6	Trichloroethene	BRL		ug/Kg	5
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	5
74-95-3	Dibromomethane	BRL		ug/Kg	5
75-27-4	Bromodichloromethane	BRL		ug/Kg	5
123-91-1	1,4-Dioxane	BRL		ug/Kg	5,000
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	50
108-88-3	Toluene	BRL		ug/Kg	5
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	5
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	5
127-18-4	Tetrachloroethene	BRL		ug/Kg	5
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	5
591-78-6	2-Hexanone	BRL		ug/Kg	50
124-48-1	Dibromochloromethane	BRL		ug/Kg	5
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	5
108-90-7	Chlorobenzene	BRL		ug/Kg	5
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	5
100-41-4	Ethylbenzene	BRL		ug/Kg	5
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL		ug/Kg	5

GROUNDWATER ANALYTICAL

EPA Method 8260B (Continued)
Volatile Organics by GC/MS

Field ID:	**B3**	Matrix:	**Soil**
Project:	**New Hyde Park**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**Frozen**
Laboratory ID:	**136036-1**	QC Batch ID:	**VM1-2906-S**
Sampled:	**09-02-10 14:00**	Instrument ID:	**MS-1 HP 5890**
Received:	**09-03-10 17:00**	Sample Weight:	**5.6 g**
Analyzed:	**09-10-10 18:13**	% Solids:	**93**
Analyst:	**LMG**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
95-47-6	*ortho*-Xylene	BRL		ug/Kg	5
100-42-5	Styrene	BRL		ug/Kg	5
75-25-2	Bromoform	BRL		ug/Kg	5
98-82-8	Isopropylbenzene	BRL		ug/Kg	5
108-86-1	Bromobenzene	BRL		ug/Kg	5
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	5
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	5
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	50
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	5
95-49-8	2-Chlorotoluene	BRL		ug/Kg	5
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	5
106-43-4	4-Chlorotoluene	BRL		ug/Kg	5
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	5
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	5
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	5
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	5
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	5
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	5
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	5
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	5
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	5
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	5
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	5
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	5
91-20-3	Naphthalene	BRL		ug/Kg	5
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	5
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	200
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	5
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	5
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	50	46	**92** %	70 - 130 %
1,2-Dichloroethane-d_4	50	49	**97** %	70 - 130 %
Toluene-d_8	50	50	**100** %	70 - 130 %
4-Bromofluorobenzene	50	54	**108** %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample preparation performed by EPA Method 5030B. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	B5/B7	Matrix:	Soil
Project:	New Hyde Park	Container:	40 mL VOA Vial
Client:	AECOM Environment	Preservation:	Frozen
Laboratory ID:	136036-2	QC Batch ID:	VM1-2907-S
Sampled:	09-02-10 14:30	Instrument ID:	MS-1 HP 5890
Received:	09-03-10 17:00	Sample Weight:	6.7 g
Analyzed:	09-11-10 16:05	% Solids:	89
Analyst:	LMG	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	10
74-87-3	Chloromethane	BRL		ug/Kg	10
75-01-4	Vinyl Chloride	BRL		ug/Kg	10
74-83-9	Bromomethane	BRL		ug/Kg	10
75-00-3	Chloroethane	BRL		ug/Kg	10
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	10
60-29-7	Diethyl Ether	BRL		ug/Kg	10
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	50
67-64-1	Acetone	BRL		ug/Kg	200
75-15-0	Carbon Disulfide	BRL		ug/Kg	50
75-09-2	Methylene Chloride	BRL		ug/Kg	50
107-13-1	Acrylonitrile	BRL		ug/Kg	5
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	5
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	5
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	5
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	5
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	5
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	50
74-97-5	Bromochloromethane	BRL		ug/Kg	5
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	50
67-66-3	Chloroform	BRL		ug/Kg	5
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	5
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	5
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	5
71-43-2	Benzene	BRL		ug/Kg	5
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	5
79-01-6	Trichloroethene	BRL		ug/Kg	5
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	5
74-95-3	Dibromomethane	BRL		ug/Kg	5
75-27-4	Bromodichloromethane	BRL		ug/Kg	5
123-91-1	1,4-Dioxane	BRL		ug/Kg	5,000
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	50
108-88-3	Toluene	BRL		ug/Kg	5
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	5
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	5
127-18-4	Tetrachloroethene	BRL		ug/Kg	5
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	5
591-78-6	2-Hexanone	BRL		ug/Kg	50
124-48-1	Dibromochloromethane	BRL		ug/Kg	5
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	5
108-90-7	Chlorobenzene	BRL		ug/Kg	5
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	5
100-41-4	Ethylbenzene	BRL		ug/Kg	5
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL		ug/Kg	5

GROUNDWATER ANALYTICAL

EPA Method 8260B (Continued)
Volatile Organics by GC/MS

Field ID:	**B5/B7**	Matrix:	**Soil**
Project:	**New Hyde Park**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**Frozen**
Laboratory ID:	**136036-2**	QC Batch ID:	**VM1-2907-S**
Sampled:	**09-02-10 14:30**	Instrument ID:	**MS-1 HP 5890**
Received:	**09-03-10 17:00**	Sample Weight:	**6.7 g**
Analyzed:	**09-11-10 16:05**	% Solids:	**89**
Analyst:	**LMG**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
95-47-6	*ortho*-Xylene	BRL		ug/Kg	5
100-42-5	Styrene	BRL		ug/Kg	5
75-25-2	Bromoform	BRL		ug/Kg	5
98-82-8	Isopropylbenzene	BRL		ug/Kg	5
108-86-1	Bromobenzene	BRL		ug/Kg	5
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	5
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	5
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	5
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	50
95-49-8	2-Chlorotoluene	BRL		ug/Kg	5
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	5
106-43-4	4-Chlorotoluene	BRL		ug/Kg	5
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	5
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	5
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	5
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	5
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	5
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	5
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	5
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	5
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	5
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	5
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	5
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	5
91-20-3	Naphthalene	BRL		ug/Kg	5
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	5
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	200
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	5
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	5
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	50	46	**92** %	70 - 130 %
1,2-Dichloroethane-d_4	50	45	**91** %	70 - 130 %
Toluene-d_8	50	50	**101** %	70 - 130 %
4-Bromofluorobenzene	50	46	**92** %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample preparation performed by EPA Method 5030B. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**B/C9-5**	Matrix:	**Soil**
Project:	**New Hyde Park**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**Methanol/ Cool**
Laboratory ID:	**136036-3**	QC Batch ID:	**VM1-2906-E**
Sampled:	**09-02-10 15:00**	Instrument ID:	**MS-1 HP 5890**
Received:	**09-03-10 17:00**	Sample Weight:	**19 g**
Analyzed:	**09-10-10 17:01**	Final Volume:	**15 mL**
Analyst:	**LMG**	% Solids:	**89**
		Dilution Factor:	**200**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	88,000
74-87-3	Chloromethane	BRL		ug/Kg	88,000
75-01-4	Vinyl Chloride	BRL		ug/Kg	88,000
74-83-9	Bromomethane	BRL		ug/Kg	88,000
75-00-3	Chloroethane	BRL		ug/Kg	88,000
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	88,000
60-29-7	Diethyl Ether	BRL		ug/Kg	88,000
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	44,000
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	440,000
67-64-1	Acetone	BRL		ug/Kg	440,000
75-15-0	Carbon Disulfide	BRL		ug/Kg	440,000
75-09-2	Methylene Chloride	BRL		ug/Kg	180,000
107-13-1	Acrylonitrile	BRL		ug/Kg	44,000
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	44,000
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	44,000
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	44,000
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	44,000
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	44,000
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	440,000
74-97-5	Bromochloromethane	BRL		ug/Kg	44,000
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	440,000
67-66-3	Chloroform	BRL		ug/Kg	44,000
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	44,000
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	44,000
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	44,000
71-43-2	Benzene	BRL		ug/Kg	44,000
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	44,000
79-01-6	Trichloroethene	BRL		ug/Kg	44,000
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	44,000
74-95-3	Dibromomethane	BRL		ug/Kg	44,000
75-27-4	Bromodichloromethane	BRL		ug/Kg	44,000
123-91-1	1,4-Dioxane	BRL		ug/Kg	44,000,000
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	44,000
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	440,000
108-88-3	Toluene	**460,000**		ug/Kg	44,000
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	44,000
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	44,000
127-18-4	Tetrachloroethene	BRL		ug/Kg	44,000
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	44,000
591-78-6	2-Hexanone	BRL		ug/Kg	440,000
124-48-1	Dibromochloromethane	BRL		ug/Kg	44,000
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	44,000
108-90-7	Chlorobenzene	BRL		ug/Kg	44,000
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	44,000
100-41-4	Ethylbenzene	**210,000**		ug/Kg	44,000
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	**1,000,000**		ug/Kg	44,000

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**B/C9-5**	Matrix:	**Soil**
Project:	**New Hyde Park**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**Methanol/ Cool**
Laboratory ID:	**136036-3**	QC Batch ID:	**VM1-2906-E**
Sampled:	**09-02-10 15:00**	Instrument ID:	**MS-1 HP 5890**
Received:	**09-03-10 17:00**	Sample Weight:	**19 g**
Analyzed:	**09-10-10 17:01**	Final Volume:	**15 mL**
Analyst:	**LMG**	% Solids:	**89**
		Dilution Factor:	**200**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
95-47-6	*ortho*-Xylene	**390,000**		ug/Kg	44,000
100-42-5	Styrene	BRL		ug/Kg	44,000
75-25-2	Bromoform	BRL		ug/Kg	44,000
98-82-8	Isopropylbenzene	**77,000**		ug/Kg	44,000
108-86-1	Bromobenzene	BRL		ug/Kg	44,000
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	44,000
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	44,000
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	440,000
103-65-1	*n*-Propylbenzene	**82,000**		ug/Kg	44,000
95-49-8	2-Chlorotoluene	BRL		ug/Kg	44,000
108-67-8	1,3,5-Trimethylbenzene	**250,000**		ug/Kg	44,000
106-43-4	4-Chlorotoluene	BRL		ug/Kg	44,000
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	44,000
95-63-6	1,2,4-Trimethylbenzene	**560,000**		ug/Kg	44,000
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	44,000
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	44,000
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	44,000
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	44,000
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	44,000
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	44,000
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	44,000
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	44,000
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	44,000
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	44,000
91-20-3	Naphthalene	**87,000**		ug/Kg	44,000
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	44,000
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	1,800,000
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	44,000
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	44,000
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	44,000

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	2,500	2,200	**89** %	70 - 130 %
1,2-Dichloroethane-d_4	2,500	1,900	**75** %	70 - 130 %
Toluene-d_8	2,500	2,600	**103** %	70 - 130 %
4-Bromofluorobenzene	2,500	2,600	**103** %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample preparation performed by EPA Method 5035A and EPA Method 5030B. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	C4-5	Matrix:	Soil
Project:	New Hyde Park	Container:	40 mL VOA Vial
Client:	AECOM Environment	Preservation:	Methanol/ Cool
Laboratory ID:	136036-4	QC Batch ID:	VM1-2906-E
Sampled:	09-02-10 16:00	Instrument ID:	MS-1 HP 5890
Received:	09-03-10 17:00	Sample Weight:	14 g
Analyzed:	09-10-10 17:37	Final Volume:	15 mL
Analyst:	LMG	% Solids:	91
		Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	570
74-87-3	Chloromethane	BRL		ug/Kg	570
75-01-4	Vinyl Chloride	BRL		ug/Kg	570
74-83-9	Bromomethane	BRL		ug/Kg	570
75-00-3	Chloroethane	BRL		ug/Kg	570
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	570
60-29-7	Diethyl Ether	BRL		ug/Kg	570
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	280
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	2,800
67-64-1	Acetone	BRL		ug/Kg	2,800
75-15-0	Carbon Disulfide	BRL		ug/Kg	2,800
75-09-2	Methylene Chloride	BRL		ug/Kg	1,100
107-13-1	Acrylonitrile	BRL		ug/Kg	280
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	280
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	280
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	280
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	280
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	280
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	2,800
74-97-5	Bromochloromethane	BRL		ug/Kg	280
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	2,800
67-66-3	Chloroform	BRL		ug/Kg	280
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	280
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	280
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	280
71-43-2	Benzene	BRL		ug/Kg	280
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	280
79-01-6	Trichloroethene	BRL		ug/Kg	280
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	280
74-95-3	Dibromomethane	BRL		ug/Kg	280
75-27-4	Bromodichloromethane	BRL		ug/Kg	280
123-91-1	1,4-Dioxane	BRL		ug/Kg	280,000
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	280
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	2,800
108-88-3	Toluene	320		ug/Kg	280
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	280
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	280
127-18-4	Tetrachloroethene	BRL		ug/Kg	280
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	280
591-78-6	2-Hexanone	BRL		ug/Kg	2,800
124-48-1	Dibromochloromethane	BRL		ug/Kg	280
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	280
108-90-7	Chlorobenzene	BRL		ug/Kg	280
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	280
100-41-4	Ethylbenzene	BRL		ug/Kg	280
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	990		ug/Kg	280

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	C4-5	Matrix:	Soil
Project:	New Hyde Park	Container:	40 mL VOA Vial
Client:	AECOM Environment	Preservation:	Methanol/ Cool
Laboratory ID:	136036-4	QC Batch ID:	VM1-2906-E
Sampled:	09-02-10 16:00	Instrument ID:	MS-1 HP 5890
Received:	09-03-10 17:00	Sample Weight:	14 g
Analyzed:	09-10-10 17:37	Final Volume:	15 mL
Analyst:	LMG	% Solids:	91
		Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
95-47-6	*ortho*-Xylene	900		ug/Kg	280
100-42-5	Styrene	BRL		ug/Kg	280
75-25-2	Bromoform	BRL		ug/Kg	280
98-82-8	Isopropylbenzene	BRL		ug/Kg	280
108-86-1	Bromobenzene	BRL		ug/Kg	280
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	280
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	280
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	280
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	2,800
95-49-8	2-Chlorotoluene	BRL		ug/Kg	280
108-67-8	1,3,5-Trimethylbenzene	1,200		ug/Kg	280
106-43-4	4-Chlorotoluene	BRL		ug/Kg	280
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	280
95-63-6	1,2,4-Trimethylbenzene	2,800		ug/Kg	280
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	280
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	280
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	280
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	280
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	280
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	280
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	280
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	280
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	280
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	280
91-20-3	Naphthalene	600		ug/Kg	280
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	280
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	11,000
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	280
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	280
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	280

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	2,500	2,400	95 %	70 - 130 %
1,2-Dichloroethane-d_4	2,500	2,400	96 %	70 - 130 %
Toluene-d_8	2,500	3,000	120 %	70 - 130 %
4-Bromofluorobenzene	2,500	2,900	117 %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample preparation performed by EPA Method 5035A and EPA Method 5030B. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

EPA Method 8270C
Semivolatile Organics by GC/MS

Field ID:	B3	Matrix:	Soil
Project:	New Hyde Park	Container:	250 mL Amber Glass
Client:	AECOM Environment	Preservation:	Cool
Laboratory ID:	136036-05	QC Batch ID:	SV-2388-P
Sampled:	09-02-10 14:00	Instrument ID:	MS-3 HP 5890
Received:	09-03-10 17:00	Sample Weight:	15 g
Extracted:	09-09-10 10:00	Final Volume:	1 mL
Analyzed:	09-10-10 11:45	Percent Solids:	93
Analyst:	MJB	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	340
110-86-1	Pyridine	BRL		ug/Kg	340
108-95-2	Phenol	BRL		ug/Kg	340
62-53-3	Aniline	BRL		ug/Kg	340
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	340
95-57-8	2-Chlorophenol	BRL		ug/Kg	340
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	340
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	340
100-51-6	Benzyl Alcohol	BRL		ug/Kg	340
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	340
95-48-7	2-Methylphenol	BRL		ug/Kg	340
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	340
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	340
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	340
98-86-2	Acetophenone	BRL		ug/Kg	340
67-72-1	Hexachloroethane	BRL		ug/Kg	340
98-95-3	Nitrobenzene	BRL		ug/Kg	340
78-59-1	Isophorone	BRL		ug/Kg	340
88-75-5	2-Nitrophenol	BRL		ug/Kg	340
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	340
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	340
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	340
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	340
91-20-3	Naphthalene	BRL		ug/Kg	340
106-47-8	4-Chloroaniline	BRL		ug/Kg	340
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	340
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	340
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	340
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	340
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	700
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	340
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	340
88-74-4	2-Nitroaniline	BRL		ug/Kg	340
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	340
131-11-3	Dimethyl phthalate	BRL		ug/Kg	340
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	340
208-96-8	Acenaphthylene	BRL		ug/Kg	340
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	340
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	340
99-09-2	3-Nitroaniline	BRL		ug/Kg	340
83-32-9	Acenaphthene	BRL		ug/Kg	340
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	340
100-02-7	4-Nitrophenol	BRL		ug/Kg	340
132-64-9	Dibenzofuran	BRL		ug/Kg	340
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	340

GROUNDWATER ANALYTICAL

EPA Method 8270C (Continued)
Semivolatile Organics by GC/MS

Field ID:	B3	Matrix:	Soil
Project:	New Hyde Park	Container:	250 mL Amber Glass
Client:	AECOM Environment	Preservation:	Cool
Laboratory ID:	136036-05	QC Batch ID:	SV-2388-P
Sampled:	09-02-10 14:00	Instrument ID:	MS-3 HP 5890
Received:	09-03-10 17:00	Sample Weight:	15 g
Extracted:	09-09-10 10:00	Final Volume:	1 mL
Analyzed:	09-10-10 11:45	Dilution Factor:	1
Analyst:	MJB		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
84-66-2	Diethyl phthalate	BRL		ug/Kg	340
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	340
86-73-7	Fluorene	BRL		ug/Kg	340
100-01-6	4-Nitroaniline	BRL		ug/Kg	340
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	700
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	340
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	340
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	340
118-74-1	Hexachlorobenzene	BRL		ug/Kg	340
87-86-5	Pentachlorophenol	BRL		ug/Kg	340
85-01-8	Phenanthrene	BRL		ug/Kg	340
120-12-7	Anthracene	BRL		ug/Kg	340
86-74-8	Carbazole	BRL		ug/Kg	340
84-74-2	Di-*n*-butyl phthalate	BRL		ug/Kg	340
206-44-0	Fluoranthene	BRL		ug/Kg	340
129-00-0	Pyrene	BRL		ug/Kg	340
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	340
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	340
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	340
218-01-9	Chrysene	BRL		ug/Kg	340
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	340
117-84-0	Di-*n*-octyl phthalate	BRL		ug/Kg	340
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	340
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	340
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	340
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	340
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	340
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	340

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	14,000	9,900	71 %	30 - 130 %
Phenol-d5	14,000	10,000	73 %	30 - 130 %
Nitrobenzene-d5	7,000	6,200	90 %	30 - 130 %
2-Fluorobiphenyl	7,000	7,200	103 %	30 - 130 %
2,4,6-Tribromophenol	14,000	12,000	88 %	30 - 130 %
Terphenyl-d14	7,000	7,300	105 %	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545. Results are reported on a dry weight basis.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

* Analyzed as 4-Methylphenol.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

EPA Method 8270C
Semivolatile Organics by GC/MS

Field ID:	B5/B7	Matrix:	Soil
Project:	New Hyde Park	Container:	250 mL Amber Glass
Client:	AECOM Environment	Preservation:	Cool
Laboratory ID:	136036-06	QC Batch ID:	SV-2388-P
Sampled:	09-02-10 14:30	Instrument ID:	MS-3 HP 5890
Received:	09-03-10 17:00	Sample Weight:	16 g
Extracted:	09-09-10 10:00	Final Volume:	1 mL
Analyzed:	09-10-10 13:08	Percent Solids:	89
Analyst:	MJB	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	350
110-86-1	Pyridine	BRL		ug/Kg	350
108-95-2	Phenol	BRL		ug/Kg	350
62-53-3	Aniline	BRL		ug/Kg	350
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	350
95-57-8	2-Chlorophenol	BRL		ug/Kg	350
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	350
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	350
100-51-6	Benzyl Alcohol	BRL		ug/Kg	350
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	350
95-48-7	2-Methylphenol	BRL		ug/Kg	350
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	350
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	350
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	350
98-86-2	Acetophenone	BRL		ug/Kg	350
67-72-1	Hexachloroethane	BRL		ug/Kg	350
98-95-3	Nitrobenzene	BRL		ug/Kg	350
78-59-1	Isophorone	BRL		ug/Kg	350
88-75-5	2-Nitrophenol	BRL		ug/Kg	350
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	350
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	350
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	350
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	350
91-20-3	Naphthalene	BRL		ug/Kg	350
106-47-8	4-Chloroaniline	BRL		ug/Kg	350
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	350
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	350
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	350
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	710
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	350
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	350
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	350
88-74-4	2-Nitroaniline	BRL		ug/Kg	350
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	350
131-11-3	Dimethyl phthalate	BRL		ug/Kg	350
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	350
208-96-8	Acenaphthylene	BRL		ug/Kg	350
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	350
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	350
99-09-2	3-Nitroaniline	BRL		ug/Kg	350
83-32-9	Acenaphthene	BRL		ug/Kg	350
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	350
100-02-7	4-Nitrophenol	BRL		ug/Kg	350
132-64-9	Dibenzofuran	BRL		ug/Kg	350
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	350

GROUNDWATER ANALYTICAL

EPA Method 8270C (Continued)
Semivolatile Organics by GC/MS

Field ID:	B5/B7	Matrix:	Soil
Project:	New Hyde Park	Container:	250 mL Amber Glass
Client:	AECOM Environment	Preservation:	Cool
Laboratory ID:	136036-06	QC Batch ID:	SV-2388-P
Sampled:	09-02-10 14:30	Instrument ID:	MS-3 HP 5890
Received:	09-03-10 17:00	Sample Weight:	16 g
Extracted:	09-09-10 10:00	Final Volume:	1 mL
Analyzed:	09-10-10 13:08	Dilution Factor:	1
Analyst:	MJB		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
84-66-2	Diethyl phthalate	BRL		ug/Kg	350
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	350
86-73-7	Fluorene	BRL		ug/Kg	350
100-01-6	4-Nitroaniline	BRL		ug/Kg	350
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	710
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	350
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	350
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	350
118-74-1	Hexachlorobenzene	BRL		ug/Kg	350
87-86-5	Pentachlorophenol	BRL		ug/Kg	350
85-01-8	Phenanthrene	BRL		ug/Kg	350
120-12-7	Anthracene	BRL		ug/Kg	350
86-74-8	Carbazole	BRL		ug/Kg	350
84-74-2	Di-*n*-butyl phthalate	BRL		ug/Kg	350
206-44-0	Fluoranthene	BRL		ug/Kg	350
129-00-0	Pyrene	BRL		ug/Kg	350
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	350
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	350
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	350
218-01-9	Chrysene	BRL		ug/Kg	350
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	350
117-84-0	Di-*n*-octyl phthalate	BRL		ug/Kg	350
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	350
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	350
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	350
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	350
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	350
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	350

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	14,000	12,000	**85** %	30 - 130 %
Phenol-d5	14,000	12,000	**84** %	30 - 130 %
Nitrobenzene-d5	7,100	7,400	**104** %	30 - 130 %
2-Fluorobiphenyl	7,100	8,300	**117** %	30 - 130 %
2,4,6-Tribromophenol	14,000	14,000	**100** %	30 - 130 %
Terphenyl-d14	7,100	8,300	**118** %	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545. Results are reported on a dry weight basis.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

* Analyzed as 4-Methylphenol.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

EPA Method 8270C
Semivolatile Organics by GC/MS

Field ID:	B/C9-5	Matrix:	Soil
Project:	New Hyde Park	Container:	250 mL Amber Glass
Client:	AECOM Environment	Preservation:	Cool
Laboratory ID:	136036-07	QC Batch ID:	SV-2388-P
Sampled:	09-02-10 15:00	Instrument ID:	MS-3 HP 5890
Received:	09-03-10 17:00	Sample Weight:	15 g
Extracted:	09-09-10 10:00	Final Volume:	1 mL
Analyzed:	09-10-10 18:00	Percent Solids:	89
Analyst:	MJB	Dilution Factor:	10

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	3,600
110-86-1	Pyridine	BRL		ug/Kg	3,600
108-95-2	Phenol	BRL		ug/Kg	3,600
62-53-3	Aniline	BRL		ug/Kg	3,600
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	3,600
95-57-8	2-Chlorophenol	BRL		ug/Kg	3,600
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	3,600
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	3,600
100-51-6	Benzyl Alcohol	BRL		ug/Kg	3,600
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	3,600
95-48-7	2-Methylphenol	BRL		ug/Kg	3,600
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	3,600
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	3,600
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	3,600
98-86-2	Acetophenone	BRL		ug/Kg	3,600
67-72-1	Hexachloroethane	BRL		ug/Kg	3,600
98-95-3	Nitrobenzene	BRL		ug/Kg	3,600
78-59-1	Isophorone	BRL		ug/Kg	3,600
88-75-5	2-Nitrophenol	BRL		ug/Kg	3,600
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	3,600
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	3,600
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	3,600
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	3,600
91-20-3	Naphthalene	62,000		ug/Kg	3,600
106-47-8	4-Chloroaniline	BRL		ug/Kg	3,600
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	3,600
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	3,600
91-57-6	2-Methylnaphthalene	63,000		ug/Kg	3,600
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	7,400
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	3,600
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	3,600
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	3,600
88-74-4	2-Nitroaniline	BRL		ug/Kg	3,600
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	3,600
131-11-3	Dimethyl phthalate	BRL		ug/Kg	3,600
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	3,600
208-96-8	Acenaphthylene	BRL		ug/Kg	3,600
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	3,600
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	3,600
99-09-2	3-Nitroaniline	BRL		ug/Kg	3,600
83-32-9	Acenaphthene	BRL		ug/Kg	3,600
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	3,600
100-02-7	4-Nitrophenol	BRL		ug/Kg	3,600
132-64-9	Dibenzofuran	BRL		ug/Kg	3,600
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	3,600

GROUNDWATER ANALYTICAL

EPA Method 8270C (Continued)
Semivolatile Organics by GC/MS

Field ID:	B/C9-5	Matrix:	Soil
Project:	New Hyde Park	Container:	250 mL Amber Glass
Client:	AECOM Environment	Preservation:	Cool
Laboratory ID:	136036-07	QC Batch ID:	SV-2388-P
Sampled:	09-02-10 15:00	Instrument ID:	MS-3 HP 5890
Received:	09-03-10 17:00	Sample Weight:	15 g
Extracted:	09-09-10 10:00	Final Volume:	1 mL
Analyzed:	09-10-10 18:00	Dilution Factor:	10
Analyst:	MJB		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
84-66-2	Diethyl phthalate	BRL		ug/Kg	3,600
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	3,600
86-73-7	Fluorene	BRL		ug/Kg	3,600
100-01-6	4-Nitroaniline	BRL		ug/Kg	3,600
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	7,400
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	3,600
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	3,600
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	3,600
118-74-1	Hexachlorobenzene	BRL		ug/Kg	3,600
87-86-5	Pentachlorophenol	BRL		ug/Kg	3,600
85-01-8	Phenanthrene	BRL		ug/Kg	3,600
120-12-7	Anthracene	BRL		ug/Kg	3,600
86-74-8	Carbazole	BRL		ug/Kg	3,600
84-74-2	Di-*n*-butyl phthalate	BRL		ug/Kg	3,600
206-44-0	Fluoranthene	BRL		ug/Kg	3,600
129-00-0	Pyrene	BRL		ug/Kg	3,600
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	3,600
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	3,600
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	3,600
218-01-9	Chrysene	BRL		ug/Kg	3,600
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	3,600
117-84-0	Di-*n*-octyl phthalate	BRL		ug/Kg	3,600
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	3,600
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	3,600
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	3,600
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	3,600
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	3,600
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	3,600

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	15,000	18,000	**126** %	30 - 130 %
Phenol-d5	15,000	16,000	**110** %	30 - 130 %
Nitrobenzene-d5	7,300	9,000	**123** %	30 - 130 %
2-Fluorobiphenyl	7,300	7,800	**106** %	30 - 130 %
2,4,6-Tribromophenol	15,000	12,000	**82** %	30 - 130 %
Terphenyl-d14	7,300	7,000	**95** %	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545. Results are reported on a dry weight basis.

Report Notations:
- BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.
- * Analyzed as 4-Methylphenol.
- † Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.
- ◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

EPA Method 8270C
Semivolatile Organics by GC/MS

Field ID:	C4-5	Matrix:	Soil
Project:	New Hyde Park	Container:	250 mL Amber Glass
Client:	AECOM Environment	Preservation:	Cool
Laboratory ID:	136036-08	QC Batch ID:	SV-2388-P
Sampled:	09-02-10 16:00	Instrument ID:	MS-3 HP 5890
Received:	09-03-10 17:00	Sample Weight:	16 g
Extracted:	09-09-10 10:00	Final Volume:	1 mL
Analyzed:	09-10-10 15:13	Percent Solids:	91
Analyst:	MJB	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	350
110-86-1	Pyridine	BRL		ug/Kg	350
108-95-2	Phenol	BRL		ug/Kg	350
62-53-3	Aniline	BRL		ug/Kg	350
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	350
95-57-8	2-Chlorophenol	BRL		ug/Kg	350
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	350
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	350
100-51-6	Benzyl Alcohol	BRL		ug/Kg	350
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	350
95-48-7	2-Methylphenol	BRL		ug/Kg	350
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	350
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	350
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	350
98-86-2	Acetophenone	BRL		ug/Kg	350
67-72-1	Hexachloroethane	BRL		ug/Kg	350
98-95-3	Nitrobenzene	BRL		ug/Kg	350
78-59-1	Isophorone	BRL		ug/Kg	350
88-75-5	2-Nitrophenol	BRL		ug/Kg	350
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	350
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	350
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	350
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	350
91-20-3	Naphthalene	BRL		ug/Kg	350
106-47-8	4-Chloroaniline	BRL		ug/Kg	350
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	350
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	350
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	350
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	710
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	350
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	350
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	350
88-74-4	2-Nitroaniline	BRL		ug/Kg	350
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	350
131-11-3	Dimethyl phthalate	BRL		ug/Kg	350
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	350
208-96-8	Acenaphthylene	BRL		ug/Kg	350
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	350
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	350
99-09-2	3-Nitroaniline	BRL		ug/Kg	350
83-32-9	Acenaphthene	BRL		ug/Kg	350
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	350
100-02-7	4-Nitrophenol	BRL		ug/Kg	350
132-64-9	Dibenzofuran	BRL		ug/Kg	350
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	350

GROUNDWATER ANALYTICAL

EPA Method 8270C (Continued)
Semivolatile Organics by GC/MS

Field ID:	**C4-5**	Matrix:	**Soil**
Project:	**New Hyde Park**	Container:	**250 mL Amber Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**136036-08**	QC Batch ID:	**SV-2388-P**
Sampled:	**09-02-10 16:00**	Instrument ID:	**MS-3 HP 5890**
Received:	**09-03-10 17:00**	Sample Weight:	**16 g**
Extracted:	**09-09-10 10:00**	Final Volume:	**1 mL**
Analyzed:	**09-10-10 15:13**	Dilution Factor:	**1**
Analyst:	**MJB**		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
84-66-2	Diethyl phthalate	BRL		ug/Kg	350
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	350
86-73-7	Fluorene	BRL		ug/Kg	350
100-01-6	4-Nitroaniline	BRL		ug/Kg	350
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	710
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	350
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	350
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	350
118-74-1	Hexachlorobenzene	BRL		ug/Kg	350
87-86-5	Pentachlorophenol	BRL		ug/Kg	350
85-01-8	Phenanthrene	BRL		ug/Kg	350
120-12-7	Anthracene	BRL		ug/Kg	350
86-74-8	Carbazole	BRL		ug/Kg	350
84-74-2	Di-*n*-butyl phthalate	BRL		ug/Kg	350
206-44-0	Fluoranthene	BRL		ug/Kg	350
129-00-0	Pyrene	BRL		ug/Kg	350
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	350
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	350
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	350
218-01-9	Chrysene	BRL		ug/Kg	350
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	350
117-84-0	Di-*n*-octyl phthalate	BRL		ug/Kg	350
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	350
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	350
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	350
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	350
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	350
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	350

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	14,000	9,700	**69** %	30 - 130 %
Phenol-d5	14,000	9,800	**70** %	30 - 130 %
Nitrobenzene-d5	7,000	6,300	**90** %	30 - 130 %
2-Fluorobiphenyl	7,000	6,900	**99** %	30 - 130 %
2,4,6-Tribromophenol	14,000	12,000	**85** %	30 - 130 %
Terphenyl-d14	7,000	6,800	**97** %	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545. Results are reported on a dry weight basis.

Report Notations:
BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

ª Analyzed as 4-Methylphenol.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

Project Narrative

Project:	**New Hyde Park**	Lab ID:	**136036**
Client:	**AECOM Environment**	Received:	**09-03-10 17:00**

A. Documentation and Client Communication

The following documentation discrepancies, and client changes or amendments were noted for this project:

1. No documentation discrepancies, changes, or amendments were noted.

B. Method Modifications, Non-Conformances and Observations

The sample(s) in this project were analyzed by the references analytical method(s), and no method modifications, non-conformances or analytical issues were noted, except as indicated below:

1. EPA 8260B Note: Sample 136036-3. Sample was diluted prior to analysis. Dilution was required to keep all target analytes within calibration.
2. EPA 8270C Note: Sample 136036-7. Sample was diluted prior to analysis. Dilution was required to keep all target analytes within calibration.

GROUNDWATER ANALYTICAL

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Buzzards Bay, MA 02532
Telephone (508) 759-4441 • FAX (508) 759-4475
www.groundwateranalytical.com

CHAIN-OF-CUSTODY RECORD AND WORK ORDER

Project Name: New Hyde Park
Project Number:
Sampler Name: JP & Smith
Project Manager: Jen Hodden
Firm: AECOM
Address: 2 Technology Park Dr
City / State / Zip: Westford Ma
Telephone: 978 589 3000

INSTRUCTIONS: Use separate line for each container (except replicates).

TURNAROUND

- ☐ STANDARD (10 Business Days)
- ☒ PRIORITY (5 Business Days)
- ☐ RUSH (RAN- _____)
  (Rush requires Rush Authorization Number)
- ☒ Please Email to: Jennifer.Hodden@AECOM.com
- ☐ Please FAX to: _____

BILLING

- ☐ Purchase Order No.: _____
- ☐ Third Party Billing: _____
- ☐ GWA Quote: _____

ANALYSIS REQUEST

OPTIONS / SDWA / NPDES / RCRA/GW1

Volatiles (TIC search) | Semivolatiles (Acid Only, B/N Only, TIC Search) | Pest/Herb/PCBs (Extractable, Wet) | Metals (Specify Total or Dissolved; Total; Dissolved) | Petroleum Hydrocarbon (Ext. TPH; Vol. TPH) | Haz. Waste | General Chemistry | Other

Sampling

DATE	TIME	SAMPLE IDENTIFICATION	LABORATORY NUMBER (Lab Use Only)
9-2	1400	B3	
	1430	B5/B7	
	1500	B9-5	
9-2	1600	C4-5	

Matrix: GROUNDWATER | DRINKING WATER | WASTEWATER | SOIL | OTHER SOLID | OIL/CHEMICAL LIQUID

Type: COMPOSITE | GRAB

Container(s): # of Containers | 40mL VOA Vial | 60mL/2 oz Glass | 125mL/4 oz Amber Glass | 250mL/8 oz Glass | 500mL/16 oz Glass | 1000mL/32 oz Plastic | 1L/32 oz Amber Glass | 1L/32 oz Plastic | 2.5mL Encore | 5mL Encore | 120mL Sterile

Preservation: NO | HCl | H2SO4 | HNO3 | NaOH | Methanol | Sodium Bisulfate | ICE

Filtered: YES | NO

Matrix	Type	# of Containers	40mL VOA Vial	60mL/2 oz Glass	125mL/4 oz Amber Glass	250mL/8 oz Glass	500mL/16 oz Glass	1000mL/32 oz Plastic	1L/32 oz Amber Glass	1L/32 oz Plastic	2.5mL Encore	5mL Encore	120mL Sterile	NO	HCl	H2SO4	HNO3	NaOH	Methanol	Sodium Bisulfate	ICE	Filtered YES	Filtered NO
SOIL	X	4		4			2												1		5		X
SOIL	X	2		1	1				1										1		1		1
SOIL	X	3		1	1				1										1		1		1
SOIL	X	4		4			2												1		5		X

Other		
4	1	Soil VOC ATV
1	1	Soil SVOC ATV
1	1	Dry Weight
4	1	
	1	

REMARKS / SPECIAL INSTRUCTIONS

MA DEP MCP Data Enhancement Affirmation

- ☒ YES ☐ NO MCP Data Certification required.
- ☐ YES ☒ NO MCP Drinking Water Sample included.

(Require collection of contingent duplicate sample. Trip blanks are also required if VOA sample collected).

Signature: _____

DATA QUALITY OBJECTIVES

Regulatory Program

State	Standard	Deliverables
☐ CT	☐ MCP GW-1/S-1	☐ PWS Form
☐ ME	☐ MCP GW-2/S-2	☐ MWRA
☐ MA	☐ NY STARS	☐ _____
☐ NH	☐ Drinking Water	
☒ NY	☐ Wastewater	
☐ RI	☐ Waste Disposal	
☐ VT	☐ Dredge Material	
☐ ___	☐ _____	

Project Specific QC

Many regulatory programs and EPA methods require project specific QC. Project specific QC includes Sample Duplicates, Matrix Spikes, and/or Matrix Spike Duplicates. Laboratory QC is not project specific unless prearranged. Project specific QC samples are charged on a per sample basis. **Each MS, MSD and Sample Duplicate requires an additional sample aliquot.**

Project Specific QC Required

- ☐ Sample Duplicate
- ☐ Matrix Spike
- ☐ Matrix Spike Duplicate

Selection of QC Sample

- ☐ Please use sample: _____

CHAIN-OF-CUSTODY RECORD

NOTE: All samples submitted subject to Standard Terms and Conditions on reverse hereof.

Relinquished by Sampler:	Date	Time	Received by:	Receipt Temperature:
	9-3-19	0645		9-3-19 1435 4.1
Relinquished by:	Date	Time	Received by:	Container Count:
	9/3/19	1700		24
Relinquished by:	Date	Time	Received by Laboratory:	Shipping/Airbill Number:

Method of Shipment: ☐ GWA Courier ☐ Express Mail ☐ Federal Express ☐ UPS ☐ Hand ☐ _____

Custody Seal Number:

Quality Assurance/Quality Control

A. Program Overview

Groundwater Analytical conducts an active Quality Assurance program to ensure the production of high quality, valid data. This program closely follows the guidance provided by *Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans,* US EPA QAMS-005/80 (1980), and *Test Methods for Evaluating Solid Waste,* US EPA, SW-846, Update III (1996).

Quality Control protocols include written Standard Operating Procedures (SOPs) developed for each analytical method. SOPs are derived from US EPA methodologies and other established references. Standards are prepared from commercially obtained reference materials of certified purity, and documented for traceability.

Quality Assessment protocols for most organic analyses include a minimum of one laboratory control sample, one method blank, one matrix spike sample, and one sample duplicate for each sample preparation batch. All samples, standards, blanks, laboratory control samples, matrix spikes and sample duplicates are spiked with internal standards and surrogate compounds. All instrument sequences begin with an initial calibration verification standard and a blank; and excepting GC/MS sequences, all sequences close with a continuing calibration standard. GC/MS systems are tuned to appropriate ion abundance criteria daily, or for each 12 hour operating period, whichever is more frequent.

Quality Assessment protocols for most inorganic analyses include a minimum of one laboratory control sample, one method blank, one matrix spike sample, and one sample duplicate for each sample preparation batch. Standard curves are derived from one reagent blank and four concentration levels. Curve validity is verified by standard recoveries within plus or minus ten percent of the curve.

B. Definitions

Batches are used as the basic unit for Quality Assessment. A Batch is defined as twenty or fewer samples of the same matrix which are prepared together for the same analysis, using the same lots of reagents and the same techniques or manipulations, all within the same continuum of time, up to but not exceeding 24 hours.

Laboratory Control Samples are used to assess the accuracy of the analytical method. A Laboratory Control Sample consists of reagent water or sodium sulfate spiked with a group of target analytes representative of the method analytes. Accuracy is defined as the degree of agreement of the measured value with the true or expected value. Percent Recoveries for the Laboratory Control Samples are calculated to assess accuracy.

Method Blanks are used to assess the level of contamination present in the analytical system. Method Blanks consist of reagent water or an aliquot of sodium sulfate. Method Blanks are taken through all the appropriate steps of an analytical method. Sample data reported is not corrected for blank contamination.

Surrogate Compounds are used to assess the effectiveness of an analytical method in dealing with each sample matrix. Surrogate Compounds are organic compounds which are similar to the target analytes of interest in chemical behavior, but which are not normally found in environmental samples. Percent Recoveries are calculated for each Surrogate Compound.

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8260B	Instrument ID:	MS-1 HP 5890	Instrument ID:	MS-1 HP 5890
QC Batch ID:	VM1-2906-S	Analyzed:	09-10-10 08:23	Analyzed:	09-10-10 08:59
Matrix:	Soil	Analyst:	LMG	Analyst:	LMG
Units:	ug/kg				

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
75-71-8	Dichlorodifluoromethane	50	38	76 %	50	39	77 %	2 %	70 - 130 %	20%
74-87-3	Chloromethane	50	48	96 %	50	47	95 %	2 %	70 - 130 %	20%
75-01-4	Vinyl Chloride	50	57	113 %	50	57	114 %	1 %	70 - 130 %	20%
74-83-9	Bromomethane	50	49	98 %	50	53	106 %	9 %	70 - 130 %	20%
75-00-3	Chloroethane	50	48	95 %	50	48	97 %	2 %	70 - 130 %	20%
75-69-4	Trichlorofluoromethane	50	42	84 %	50	42	84 %	1 %	70 - 130 %	20%
60-29-7	Diethyl Ether	100	100	100 %	100	100	104 %	4 %	70 - 130 %	20%
75-35-4	1,1-Dichloroethene	50	52	104 %	50	51	103 %	1 %	70 - 130 %	20%
76-13-1	1,1,2-Trichlorotrifluoroethane	100	110	109 %	100	110	110 %	2 %	70 - 130 %	20%
67-64-1	Acetone	100	110	105 %	100	100	104 %	1 %	70 - 130 %	20%
75-15-0	Carbon Disulfide	100	90	90 %	100	91	91 %	1 %	70 - 130 %	20%
75-09-2	Methylene Chloride	50	57	114 %	50	60	119 %	4 %	70 - 130 %	20%
107-13-1	Acrylonitrile	50	49	97 %	50	56	112 %	14 %	70 - 130 %	20%
156-60-5	*trans*-1,2-Dichloroethene	50	50	99 %	50	50	99 %	0 %	70 - 130 %	20%
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	50	52	104 %	50	54	109 %	4 %	70 - 130 %	20%
75-34-3	1,1-Dichloroethane	50	49	99 %	50	50	99 %	1 %	70 - 130 %	20%
594-20-7	2,2-Dichloropropane	50	48	96 %	50	49	97 %	1 %	70 - 130 %	20%
156-59-2	*cis*-1,2-Dichloroethene	50	53	106 %	50	55	109 %	3 %	70 - 130 %	20%
78-93-3	2-Butanone (MEK)	100	94	94 %	100	96	96 %	2 %	70 - 130 %	20%
74-97-5	Bromochloromethane	50	54	108 %	50	58	116 %	7 %	70 - 130 %	20%
109-99-9	Tetrahydrofuran (THF)	100	110	110 %	100	120	123 %	11 %	70 - 130 %	20%
67-66-3	Chloroform	50	48	96 %	50	50	100 %	3 %	70 - 130 %	20%
71-55-6	1,1,1-Trichloroethane	50	47	93 %	50	48	95 %	2 %	70 - 130 %	20%
56-23-5	Carbon Tetrachloride	50	47	93 %	50	49	98 %	4 %	70 - 130 %	20%
563-58-6	1,1-Dichloropropene	50	45	90 %	50	49	98 %	8 %	70 - 130 %	20%
71-43-2	Benzene	50	51	102 %	50	53	106 %	4 %	70 - 130 %	20%
107-06-2	1,2-Dichloroethane	50	43	86 %	50	46	93 %	7 %	70 - 130 %	20%
79-01-6	Trichloroethene	50	53	107 %	50	54	107 %	0 %	70 - 130 %	20%
78-87-5	1,2-Dichloropropane	50	53	105 %	50	53	106 %	1 %	70 - 130 %	20%
74-95-3	Dibromomethane	50	50	100 %	50	51	101 %	1 %	70 - 130 %	20%
75-27-4	Bromodichloromethane	50	49	97 %	50	53	106 %	8 %	70 - 130 %	20%
123-91-1	1,4-Dioxane	1,000	910	91 %	1,000	940	94 %	3 %	70 - 130 %	20%
10061-01-5	*cis*-1,3-Dichloropropene	50	51	101 %	50	54	109 %	7 %	70 - 130 %	20%
108-10-1	4-Methyl-2-Pentanone (MIBK)	100	110	113 %	100	130	129 %	14 %	70 - 130 %	20%
108-88-3	Toluene	50	52	104 %	50	53	106 %	2 %	70 - 130 %	20%
10061-02-6	*trans*-1,3-Dichloropropene	50	46	91 %	50	48	96 %	5 %	70 - 130 %	20%
79-00-5	1,1,2-Trichloroethane	50	49	98 %	50	49	99 %	1 %	70 - 130 %	20%
127-18-4	Tetrachloroethene	50	53	107 %	50	49	98 %	8 %	70 - 130 %	20%
142-28-9	1,3-Dichloropropane	50	50	100 %	50	49	98 %	1 %	70 - 130 %	20%
591-78-6	2-Hexanone	100	100	103 %	100	110	106 %	3 %	70 - 130 %	20%
124-48-1	Dibromochloromethane	50	51	102 %	50	50	101 %	1 %	70 - 130 %	20%
106-93-4	1,2-Dibromoethane (EDB)	50	51	101 %	50	51	101 %	0 %	70 - 130 %	20%
108-90-7	Chlorobenzene	50	51	102 %	50	48	96 %	6 %	70 - 130 %	20%
630-20-6	1,1,1,2-Tetrachloroethane	50	51	102 %	50	53	105 %	3 %	70 - 130 %	20%
100-41-4	Ethylbenzene	50	49	98 %	50	48	95 %	3 %	70 - 130 %	20%
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	100	110	106 %	100	100	102 %	3 %	70 - 130 %	20%
95-47-6	*ortho*-Xylene	50	49	98 %	50	49	99 %	1 %	70 - 130 %	20%
100-42-5	Styrene	50	49	99 %	50	52	105 %	6 %	70 - 130 %	20%
75-25-2	Bromoform	50	56	111 %	50	61	122 %	9 %	70 - 130 %	20%

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8260B	Instrument ID:	MS-1 HP 5890	Instrument ID:	MS-1 HP 5890
QC Batch ID:	VM1-2906-S	Analyzed:	09-10-10 08:23	Analyzed:	09-10-10 08:59
Matrix:	Soil	Analyst:	LMG	Analyst:	LMG
Units:	ug/kg				

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
98-82-8	Isopropylbenzene	50	42	85 %	50	38	75 %	12 %	70 - 130 %	20%
108-86-1	Bromobenzene	50	50	100 %	50	46	92 %	8 %	70 - 130 %	20%
79-34-5	1,1,2,2-Tetrachloroethane	50	43	86 %	50	43	86 %	0 %	70 - 130 %	20%
96-18-4	1,2,3-Trichloropropane	50	44	89 %	50	42	85 %	5 %	70 - 130 %	20%
110-57-6	*trans*-1,4-Dichloro-2-butene	200	200	99 %	200	220	109 %	10 %	70 - 130 %	20%
103-65-1	*n*-Propylbenzene	50	46	91 %	50	41	82 %	11 %	70 - 130 %	20%
95-49-8	2-Chlorotoluene	50	47	94 %	50	46	91 %	3 %	70 - 130 %	20%
108-67-8	1,3,5-Trimethylbenzene	50	49	98 %	50	42	84 %	15 %	70 - 130 %	20%
106-43-4	4-Chlorotoluene	50	51	101 %	50	46	93 %	9 %	70 - 130 %	20%
98-06-6	*tert*-Butylbenzene	50	47	93 %	50	43	85 %	9 %	70 - 130 %	20%
95-63-6	1,2,4-Trimethylbenzene	50	49	99 %	50	44	87 %	12 %	70 - 130 %	20%
135-98-8	*sec*-Butylbenzene	50	47	94 %	50	43	85 %	10 %	70 - 130 %	20%
541-73-1	1,3-Dichlorobenzene	50	49	98 %	50	44	89 %	9 %	70 - 130 %	20%
99-87-6	4-Isopropyltoluene	50	48	97 %	50	48	97 %	0 %	70 - 130 %	20%
106-46-7	1,4-Dichlorobenzene	50	49	99 %	50	46	91 %	8 %	70 - 130 %	20%
95-50-1	1,2-Dichlorobenzene	50	48	96 %	50	45	91 %	5 %	70 - 130 %	20%
104-51-8	*n*-Butylbenzene	50	48	95 %	50	43	86 %	10 %	70 - 130 %	20%
96-12-8	1,2-Dibromo-3-chloropropane	50	41	82 %	50	40	81 %	2 %	70 - 130 %	20%
108-70-3	1,3,5-Trichlorobenzene	50	56	111 %	50	49	98 %	12 %	70 - 130 %	20%
120-82-1	1,2,4-Trichlorobenzene	50	51	102 %	50	46	93 %	10 %	70 - 130 %	20%
87-68-3	Hexachlorobutadiene	50	42	85 %	50	37	74 %	13 %	70 - 130 %	20%
91-20-3	Naphthalene	50	51	103 %	50	45	90 %	13 %	70 - 130 %	20%
87-61-6	1,2,3-Trichlorobenzene	50	50	101 %	50	46	92 %	10 %	70 - 130 %	20%
75-65-0	*tert*-Butyl Alcohol (TBA)	1,000	900	90 %	1,000	1,000	105 %	15 %	70 - 130 %	20%
108-20-3	Di-isopropyl Ether (DIPE)	50	46	92 %	50	51	101 %	10 %	70 - 130 %	20%
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	50	46	93 %	50	53	106 %	13 %	70 - 130 %	20%
994-05-8	*tert*-Amyl Methyl Ether (TAME)	50	46	92 %	50	54	107 %	16 %	70 - 130 %	20%

QC Surrogate Compound	Spiked	Measured	Recovery	Spiked	Measured	Recovery		QC Limits
Dibromofluoromethane	50	44	88 %	50	44	89 %		70 - 130 %
1,2-Dichloroethane-d_4	50	48	95 %	50	46	93 %		70 - 130 %
Toluene-d_8	50	48	97 %	50	50	99 %		70 - 130 %
4-Bromofluorobenzene	50	47	93 %	50	43	87 %		70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample preparation performed by EPA Method 5035A.

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: **EPA Method 8260B**
QC Batch ID: **VM1-2906-S**
Matrix: **Soil**

Instrument ID: **MS-1 HP 5890**
Analyzed: **09-10-10 09:34**
Analyst: **LMG**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	10
74-87-3	Chloromethane	BRL		ug/Kg	10
75-01-4	Vinyl Chloride	BRL		ug/Kg	10
74-83-9	Bromomethane	BRL		ug/Kg	10
75-00-3	Chloroethane	BRL		ug/Kg	10
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	10
60-29-7	Diethyl Ether	BRL		ug/Kg	10
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	50
67-64-1	Acetone	BRL		ug/Kg	200
75-15-0	Carbon Disulfide	BRL		ug/Kg	50
75-09-2	Methylene Chloride	BRL		ug/Kg	50
107-13-1	Acrylonitrile	BRL		ug/Kg	5
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	5
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	5
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	5
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	5
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	5
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	50
74-97-5	Bromochloromethane	BRL		ug/Kg	5
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	50
67-66-3	Chloroform	BRL		ug/Kg	5
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	5
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	5
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	5
71-43-2	Benzene	BRL		ug/Kg	5
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	5
79-01-6	Trichloroethene	BRL		ug/Kg	5
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	5
74-95-3	Dibromomethane	BRL		ug/Kg	5
75-27-4	Bromodichloromethane	BRL		ug/Kg	5
123-91-1	1,4-Dioxane	BRL		ug/Kg	5,000
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	50
108-88-3	Toluene	BRL		ug/Kg	5
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	5
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	5
127-18-4	Tetrachloroethene	BRL		ug/Kg	5
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	5
591-78-6	2-Hexanone	BRL		ug/Kg	50
124-48-1	Dibromochloromethane	BRL		ug/Kg	5
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	5
108-90-7	Chlorobenzene	BRL		ug/Kg	5
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	5
100-41-4	Ethylbenzene	BRL		ug/Kg	5
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL		ug/Kg	5
95-47-6	*ortho*-Xylene	BRL		ug/Kg	5
100-42-5	Styrene	BRL		ug/Kg	5
75-25-2	Bromoform	BRL		ug/Kg	5

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category:	**EPA Method 8260B**	Instrument ID:	**MS-1 HP 5890**
QC Batch ID:	**VM1-2906-S**	Analyzed:	**09-10-10 09:34**
Matrix:	**Soil**	Analyst:	**LMG**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
98-82-8	Isopropylbenzene	BRL		ug/Kg	5
108-86-1	Bromobenzene	BRL		ug/Kg	5
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	5
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	5
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	50
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	5
95-49-8	2-Chlorotoluene	BRL		ug/Kg	5
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	5
106-43-4	4-Chlorotoluene	BRL		ug/Kg	5
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	5
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	5
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	5
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	5
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	5
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	5
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	5
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	5
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	5
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	5
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	5
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	5
91-20-3	Naphthalene	BRL		ug/Kg	5
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	5
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	200
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	5
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	5
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	50	47	**94** %	70 - 130 %
1,2-Dichloroethane-d_4	50	45	**91** %	70 - 130 %
Toluene-d_8	50	49	**99** %	70 - 130 %
4-Bromofluorobenzene	50	51	**103** %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample preparation performed by EPA Method 5035A.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8260B	Instrument ID:	MS-1 HP 5890	Instrument ID:	MS-1 HP 5890
QC Batch ID:	VM1-2907-S	Analyzed:	09-11-10 12:52	Analyzed:	09-11-10 13:27
Matrix:	Soil	Analyst:	LMG	Analyst:	LMG
Units:	ug/kg				

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
75-71-8	Dichlorodifluoromethane	50	38	76 %	50	36	72 %	6 %	70 - 130 %	20%
74-87-3	Chloromethane	50	48	96 %	50	39	78 %	20 %	70 - 130 %	20%
75-01-4	Vinyl Chloride	50	59	119 %	50	54	108 %	9 %	70 - 130 %	20%
74-83-9	Bromomethane	50	52	104 %	50	48	96 %	9 %	70 - 130 %	20%
75-00-3	Chloroethane	50	48	97 %	50	45	91 %	6 %	70 - 130 %	20%
75-69-4	Trichlorofluoromethane	50	41	81 %	50	38	76 %	6 %	70 - 130 %	20%
60-29-7	Diethyl Ether	100	110	110 %	100	98	98 %	11 %	70 - 130 %	20%
75-35-4	1,1-Dichloroethene	50	53	106 %	50	49	98 %	7 %	70 - 130 %	20%
76-13-1	1,1,2-Trichlorotrifluoroethane	100	110	110 %	100	100	102 %	8 %	70 - 130 %	20%
67-64-1	Acetone	100	98	98 %	100	90	90 %	9 %	70 - 130 %	20%
75-15-0	Carbon Disulfide	100	92	92 %	100	84	84 %	9 %	70 - 130 %	20%
75-09-2	Methylene Chloride	50	54	108 %	50	51	102 %	6 %	70 - 130 %	20%
107-13-1	Acrylonitrile	50	52	105 %	50	50	99 %	5 %	70 - 130 %	20%
156-60-5	*trans*-1,2-Dichloroethene	50	52	105 %	50	47	94 %	11 %	70 - 130 %	20%
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	50	54	107 %	50	47	95 %	12 %	70 - 130 %	20%
75-34-3	1,1-Dichloroethane	50	50	99 %	50	48	95 %	4 %	70 - 130 %	20%
594-20-7	2,2-Dichloropropane	50	45	91 %	50	42	83 %	8 %	70 - 130 %	20%
156-59-2	*cis*-1,2-Dichloroethene	50	54	108 %	50	52	104 %	4 %	70 - 130 %	20%
78-93-3	2-Butanone (MEK)	100	100	102 %	100	98	98 %	5 %	70 - 130 %	20%
74-97-5	Bromochloromethane	50	56	111 %	50	54	109 %	2 %	70 - 130 %	20%
109-99-9	Tetrahydrofuran (THF)	100	100	100 %	100	92	92 %	8 %	70 - 130 %	20%
67-66-3	Chloroform	50	46	92 %	50	46	92 %	0 %	70 - 130 %	20%
71-55-6	1,1,1-Trichloroethane	50	45	91 %	50	41	82 %	10 %	70 - 130 %	20%
56-23-5	Carbon Tetrachloride	50	47	94 %	50	43	86 %	8 %	70 - 130 %	20%
563-58-6	1,1-Dichloropropene	50	48	96 %	50	44	89 %	8 %	70 - 130 %	20%
71-43-2	Benzene	50	55	111 %	50	52	103 %	7 %	70 - 130 %	20%
107-06-2	1,2-Dichloroethane	50	44	89 %	50	39	78 %	13 %	70 - 130 %	20%
79-01-6	Trichloroethene	50	52	103 %	50	48	95 %	8 %	70 - 130 %	20%
78-87-5	1,2-Dichloropropane	50	53	107 %	50	49	97 %	10 %	70 - 130 %	20%
74-95-3	Dibromomethane	50	50	101 %	50	47	95 %	6 %	70 - 130 %	20%
75-27-4	Bromodichloromethane	50	50	99 %	50	47	95 %	5 %	70 - 130 %	20%
123-91-1	1,4-Dioxane	1,000	880	88 %	1,000	970	97 %	9 %	70 - 130 %	20%
10061-01-5	*cis*-1,3-Dichloropropene	50	53	107 %	50	48	96 %	10 %	70 - 130 %	20%
108-10-1	4-Methyl-2-Pentanone (MIBK)	100	110	109 %	100	110	110 %	1 %	70 - 130 %	20%
108-88-3	Toluene	50	52	104 %	50	50	100 %	4 %	70 - 130 %	20%
10061-02-6	*trans*-1,3-Dichloropropene	50	43	86 %	50	41	81 %	6 %	70 - 130 %	20%
79-00-5	1,1,2-Trichloroethane	50	46	92 %	50	44	89 %	4 %	70 - 130 %	20%
127-18-4	Tetrachloroethene	50	45	90 %	50	44	89 %	2 %	70 - 130 %	20%
142-28-9	1,3-Dichloropropane	50	46	93 %	50	45	91 %	2 %	70 - 130 %	20%
591-78-6	2-Hexanone	100	91	91 %	100	94	94 %	4 %	70 - 130 %	20%
124-48-1	Dibromochloromethane	50	48	95 %	50	46	91 %	4 %	70 - 130 %	20%
106-93-4	1,2-Dibromoethane (EDB)	50	48	95 %	50	47	94 %	1 %	70 - 130 %	20%
108-90-7	Chlorobenzene	50	47	94 %	50	42	85 %	10 %	70 - 130 %	20%
630-20-6	1,1,1,2-Tetrachloroethane	50	47	95 %	50	45	91 %	4 %	70 - 130 %	20%
100-41-4	Ethylbenzene	50	46	91 %	50	43	86 %	6 %	70 - 130 %	20%
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	100	96	96 %	100	89	89 %	8 %	70 - 130 %	20%
95-47-6	*ortho*-Xylene	50	46	91 %	50	41	83 %	10 %	70 - 130 %	20%
100-42-5	Styrene	50	50	100 %	50	48	97 %	4 %	70 - 130 %	20%
75-25-2	Bromoform	50	54	108 %	50	52	104 %	4 %	70 - 130 %	20%

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8260B	Instrument ID:	MS-1 HP 5890	Instrument ID:	MS-1 HP 5890
QC Batch ID:	VM1-2907-S	Analyzed:	09-11-10 12:52	Analyzed:	09-11-10 13:27
Matrix:	Soil	Analyst:	LMG	Analyst:	LMG
Units:	ug/kg				

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
98-82-8	Isopropylbenzene	50	39	79 %	50	38	77 %	2 %	70 - 130 %	20%
108-86-1	Bromobenzene	50	45	90 %	50	47	95 %	6 %	70 - 130 %	20%
79-34-5	1,1,2,2-Tetrachloroethane	50	40	80 %	50	45	90 %	11 %	70 - 130 %	20%
96-18-4	1,2,3-Trichloropropane	50	40	79 %	50	47	93 %	17 %	70 - 130 %	20%
110-57-6	*trans*-1,4-Dichloro-2-butene	200	190	95 %	200	200	99 %	5 %	70 - 130 %	20%
103-65-1	*n*-Propylbenzene	50	41	82 %	50	43	86 %	5 %	70 - 130 %	20%
95-49-8	2-Chlorotoluene	50	44	88 %	50	47	94 %	7 %	70 - 130 %	20%
108-67-8	1,3,5-Trimethylbenzene	50	43	87 %	50	45	90 %	4 %	70 - 130 %	20%
106-43-4	4-Chlorotoluene	50	44	87 %	50	46	92 %	5 %	70 - 130 %	20%
98-06-6	*tert*-Butylbenzene	50	42	84 %	50	44	89 %	5 %	70 - 130 %	20%
95-63-6	1,2,4-Trimethylbenzene	50	43	86 %	50	44	89 %	2 %	70 - 130 %	20%
135-98-8	*sec*-Butylbenzene	50	42	83 %	50	43	87 %	4 %	70 - 130 %	20%
541-73-1	1,3-Dichlorobenzene	50	43	86 %	50	44	89 %	3 %	70 - 130 %	20%
99-87-6	4-Isopropyltoluene	50	42	84 %	50	43	86 %	3 %	70 - 130 %	20%
106-46-7	1,4-Dichlorobenzene	50	42	83 %	50	42	85 %	2 %	70 - 130 %	20%
95-50-1	1,2-Dichlorobenzene	50	44	89 %	50	47	94 %	6 %	70 - 130 %	20%
104-51-8	*n*-Butylbenzene	50	41	82 %	50	42	83 %	2 %	70 - 130 %	20%
96-12-8	1,2-Dibromo-3-chloropropane	50	40	81 %	50	42	84 %	5 %	70 - 130 %	20%
108-70-3	1,3,5-Trichlorobenzene	50	48	95 %	50	48	95 %	0 %	70 - 130 %	20%
120-82-1	1,2,4-Trichlorobenzene	50	43	87 %	50	48	97 %	11 %	70 - 130 %	20%
87-68-3	Hexachlorobutadiene	50	37	75 %	50	37	73 %	2 %	70 - 130 %	20%
91-20-3	Naphthalene	50	47	94 %	50	49	98 %	4 %	70 - 130 %	20%
87-61-6	1,2,3-Trichlorobenzene	50	43	86 %	50	48	96 %	11 %	70 - 130 %	20%
75-65-0	*tert*-Butyl Alcohol (TBA)	1,000	940	94 %	1,000	880	88 %	6 %	70 - 130 %	20%
108-20-3	Di-isopropyl Ether (DIPE)	50	52	103 %	50	46	91 %	12 %	70 - 130 %	20%
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	50	51	102 %	50	43	87 %	16 %	70 - 130 %	20%
994-05-8	*tert*-Amyl Methyl Ether (TAME)	50	53	106 %	50	46	93 %	13 %	70 - 130 %	20%

QC Surrogate Compound	Spiked	Measured	Recovery	Spiked	Measured	Recovery		QC Limits
Dibromofluoromethane	50	44	88 %	50	43	86 %		70 - 130 %
1,2-Dichloroethane-d_4	50	51	101 %	50	44	88 %		70 - 130 %
Toluene-d_8	50	48	96 %	50	49	99 %		70 - 130 %
4-Bromofluorobenzene	50	43	85 %	50	46	92 %		70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample preparation performed by EPA Method 5035A.

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category:	**EPA Method 8260B**	Instrument ID:	**MS-1 HP 5890**
QC Batch ID:	**VM1-2907-S**	Analyzed:	**09-11-10 14:03**
Matrix:	**Soil**	Analyst:	**LMG**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	10
74-87-3	Chloromethane	BRL		ug/Kg	10
75-01-4	Vinyl Chloride	BRL		ug/Kg	10
74-83-9	Bromomethane	BRL		ug/Kg	10
75-00-3	Chloroethane	BRL		ug/Kg	10
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	10
60-29-7	Diethyl Ether	BRL		ug/Kg	10
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	50
67-64-1	Acetone	BRL		ug/Kg	200
75-15-0	Carbon Disulfide	BRL		ug/Kg	50
75-09-2	Methylene Chloride	BRL		ug/Kg	50
107-13-1	Acrylonitrile	BRL		ug/Kg	5
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	5
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	5
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	5
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	5
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	5
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	50
74-97-5	Bromochloromethane	BRL		ug/Kg	5
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	50
67-66-3	Chloroform	BRL		ug/Kg	5
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	5
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	5
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	5
71-43-2	Benzene	BRL		ug/Kg	5
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	5
79-01-6	Trichloroethene	BRL		ug/Kg	5
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	5
74-95-3	Dibromomethane	BRL		ug/Kg	5
75-27-4	Bromodichloromethane	BRL		ug/Kg	5
123-91-1	1,4-Dioxane	BRL		ug/Kg	5,000
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	50
108-88-3	Toluene	BRL		ug/Kg	5
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	5
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	5
127-18-4	Tetrachloroethene	BRL		ug/Kg	5
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	5
591-78-6	2-Hexanone	BRL		ug/Kg	50
124-48-1	Dibromochloromethane	BRL		ug/Kg	5
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	5
108-90-7	Chlorobenzene	BRL		ug/Kg	5
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	5
100-41-4	Ethylbenzene	BRL		ug/Kg	5
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL		ug/Kg	5
95-47-6	*ortho*-Xylene	BRL		ug/Kg	5
100-42-5	Styrene	BRL		ug/Kg	5
75-25-2	Bromoform	BRL		ug/Kg	5

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: **EPA Method 8260B**
QC Batch ID: **VM1-2907-S**
Matrix: **Soil**

Instrument ID: **MS-1 HP 5890**
Analyzed: **09-11-10 14:03**
Analyst: **LMG**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
98-82-8	Isopropylbenzene	BRL		ug/Kg	5
108-86-1	Bromobenzene	BRL		ug/Kg	5
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	5
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	5
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	50
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	5
95-49-8	2-Chlorotoluene	BRL		ug/Kg	5
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	5
106-43-4	4-Chlorotoluene	BRL		ug/Kg	5
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	5
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	5
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	5
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	5
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	5
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	5
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	5
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	5
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	5
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	5
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	5
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	5
91-20-3	Naphthalene	BRL		ug/Kg	5
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	5
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	200
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	5
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	5
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	50	46	**93** %	70 - 130 %
1,2-Dichloroethane-d_4	50	47	**93** %	70 - 130 %
Toluene-d_8	50	54	**108** %	70 - 130 %
4-Bromofluorobenzene	50	49	**98** %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample preparation performed by EPA Method 5035A.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8270C		MS-3 HP 5890	Instrument ID:	MS-3 HP 5890
QC Batch ID:	SV-2388-P	Extracted:	09-09-10 10:00	Extracted:	09-09-10 10:00
Matrix:	Soil	Analyzed:	09-10-10 09:00	Analyzed:	09-10-10 09:41
Units:	ug/Kg	Analyst:	MJB	Analyst:	MJB

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
62-75-9	N-Nitrosodimethylamine	3,300	2,100	62 %	3,300	2,100	63 %	2 %	40 - 140 %	30%
110-86-1	Pyridine	3,300	1,800	53 %	3,300	1,600	47 %	11 %	40 - 140 %	30%
108-95-2	Phenol	3,300	2,700	82 %	3,300	2,700	81 %	1 %	30 - 130 %	30%
62-53-3	Aniline	3,300	2,200	66 %	3,300	2,300	69 %	4 %	40 - 140 %	30%
111-44-4	Bis(2-chloroethyl) ether	3,300	2,400	71 %	3,300	2,300	68 %	4 %	40 - 140 %	30%
95-57-8	2-Chlorophenol	3,300	2,500	76 %	3,300	2,500	76 %	1 %	30 - 130 %	30%
541-73-1	1,3-Dichlorobenzene	3,300	2,200	67 %	3,300	2,200	66 %	1 %	40 - 140 %	30%
106-46-7	1,4-Dichlorobenzene	3,300	2,200	66 %	3,300	2,200	65 %	1 %	40 - 140 %	30%
100-51-6	Benzyl Alcohol	3,300	2,700	82 %	3,300	2,600	78 %	5 %	30 - 130 %	30%
95-50-1	1,2-Dichlorobenzene	3,300	2,200	67 %	3,300	2,300	69 %	2 %	40 - 140 %	30%
95-48-7	2-Methylphenol	3,300	2,600	79 %	3,300	2,600	79 %	1 %	30 - 130 %	30%
108-60-1	Bis(2-chloroisopropyl) ether	3,300	2,200	67 %	3,300	2,300	69 %	3 %	40 - 140 %	30%
106-44-5	4-Methylphenol	3,300	2,600	78 %	3,300	2,700	80 %	2 %	30 - 130 %	30%
621-64-7	N-Nitrosodi-n-propylamine	3,300	2,600	77 %	3,300	2,600	77 %	0 %	40 - 140 %	30%
98-86-2	Acetophenone	3,300	2,500	76 %	3,300	2,600	77 %	2 %	40 - 140 %	30%
67-72-1	Hexachloroethane	3,300	2,200	65 %	3,300	2,200	66 %	3 %	40 - 140 %	30%
98-95-3	Nitrobenzene	3,300	2,500	75 %	3,300	2,400	72 %	4 %	40 - 140 %	30%
78-59-1	Isophorone	3,300	2,500	74 %	3,300	2,600	77 %	4 %	40 - 140 %	30%
88-75-5	2-Nitrophenol	3,300	2,600	79 %	3,300	2,600	77 %	2 %	30 - 130 %	30%
105-67-9	2,4-Dimethylphenol	3,300	2,800	84 %	3,300	2,800	83 %	0 %	30 - 130 %	30%
111-91-1	Bis(2-chloroethoxy) methane	3,300	2,400	71 %	3,300	2,400	73 %	3 %	40 - 140 %	30%
120-83-2	2,4-Dichlorophenol	3,300	2,800	83 %	3,300	2,800	83 %	0 %	30 - 130 %	30%
120-82-1	1,2,4-Trichlorobenzene	3,300	2,400	73 %	3,300	2,400	73 %	0 %	40 - 140 %	30%
91-20-3	Naphthalene	3,300	2,500	74 %	3,300	2,500	75 %	1 %	40 - 140 %	30%
106-47-8	4-Chloroaniline	3,300	1,900	56 %	3,300	2,100	62 %	11 %	40 - 140 %	30%
87-68-3	Hexachlorobutadiene	3,300	2,400	72 %	3,300	2,400	71 %	1 %	40 - 140 %	30%
59-50-7	4-Chloro-3-methylphenol	3,300	2,700	80 %	3,300	2,700	81 %	2 %	30 - 130 %	30%
91-57-6	2-Methylnaphthalene	3,300	2,600	79 %	3,300	2,700	80 %	1 %	40 - 140 %	30%
77-47-4	Hexachlorocyclopentadiene	3,300	3,100	93 %	3,300	3,100	94 %	1 %	40 - 140 %	30%
88-06-2	2,4,6-Trichlorophenol	3,300	2,800	84 %	3,300	2,800	84 %	0 %	30 - 130 %	30%
95-95-4	2,4,5-Trichlorophenol	3,300	2,800	85 %	3,300	2,800	85 %	1 %	30 - 130 %	30%
91-58-7	2-Chloronaphthalene	3,300	2,700	82 %	3,300	2,700	82 %	0 %	40 - 140 %	30%
88-74-4	2-Nitroaniline	3,300	2,800	85 %	3,300	2,900	86 %	0 %	40 - 140 %	30%
100-25-4	1,4-Dinitrobenzene	3,300	2,900	86 %	3,300	2,800	85 %	1 %	40 - 140 %	30%
131-11-3	Dimethyl phthalate	3,300	2,900	86 %	3,300	2,800	84 %	3 %	40 - 140 %	30%
99-65-0	1,3-Dinitrobenzene	3,300	3,000	90 %	3,300	3,000	89 %	1 %	40 - 140 %	30%
208-96-8	Acenaphthylene	3,300	2,800	85 %	3,300	2,800	85 %	0 %	40 - 140 %	30%
606-20-2	2,6-Dinitrotoluene	3,300	2,900	87 %	3,300	2,800	84 %	4 %	40 - 140 %	30%
528-29-0	1,2-Dinitrobenzene	3,300	2,800	85 %	3,300	2,800	85 %	0 %	40 - 140 %	30%
99-09-2	3-Nitroaniline	3,300	2,500	76 %	3,300	2,600	78 %	1 %	40 - 140 %	30%
83-32-9	Acenaphthene	3,300	2,900	86 %	3,300	2,800	85 %	1 %	40 - 140 %	30%
51-28-5	2,4-Dinitrophenol	3,300	1,900	56 %	3,300	1,700	52 %	7 %	30 - 130 %	30%
100-02-7	4-Nitrophenol	3,300	3,000	89 %	3,300	2,800	83 %	7 %	30 - 130 %	30%
132-64-9	Dibenzofuran	3,300	2,900	86 %	3,300	2,800	84 %	3 %	40 - 140 %	30%
121-14-2	2,4-Dinitrotoluene	3,300	2,800	84 %	3,300	2,800	84 %	0 %	40 - 140 %	30%
84-66-2	Diethyl phthalate	3,300	2,900	86 %	3,300	2,800	84 %	2 %	40 - 140 %	30%
7005-72-3	4-Chlorophenyl phenyl ether	3,300	2,800	84 %	3,300	2,800	84 %	1 %	40 - 140 %	30%
86-73-7	Fluorene	3,300	2,900	86 %	3,300	2,800	83 %	3 %	40 - 140 %	30%

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8270C	Instrument ID:	MS-3 HP 5890	Instrument ID:	MS-3 HP 5890
QC Batch ID:	SV-2388-P	Extracted:	09-09-10 10:00	Extracted:	09-09-10 10:00
Matrix:	Soil	Analyzed:	09-10-10 09:00	Analyzed:	09-10-10 09:41
Units:	ug/Kg	Analyst:	MJB	Analyst:	MJB

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
100-01-6	4-Nitroaniline	3,300	2,900	86 %	3,300	2,700	82 %	5 %	40 - 140 %	30%
534-52-1	4,6-Dinitro-2-methylphenol	3,300	2,400	73 %	3,300	2,200	67 %	8 %	30 - 130 %	30%
86-30-6	N-Nitrosodiphenylamine †	3,300	3,000	90 %	3,300	2,800	85 %	5 %	40 - 140 %	30%
122-66-7	1,2-Diphenylhydrazine à	3,300	2,900	86 %	3,300	2,800	83 %	4 %	40 - 140 %	30%
101-55-3	4-Bromophenyl phenyl ether	3,300	2,900	87 %	3,300	2,900	86 %	1 %	40 - 140 %	30%
118-74-1	Hexachlorobenzene	3,300	2,800	84 %	3,300	2,800	83 %	1 %	40 - 140 %	30%
87-86-5	Pentachlorophenol	3,300	2,600	78 %	3,300	2,500	74 %	5 %	30 - 130 %	30%
85-01-8	Phenanthrene	3,300	2,900	87 %	3,300	2,800	83 %	4 %	40 - 140 %	30%
120-12-7	Anthracene	3,300	2,900	88 %	3,300	2,800	84 %	5 %	40 - 140 %	30%
86-74-8	Carbazole	3,300	2,900	87 %	3,300	2,700	82 %	6 %	40 - 140 %	30%
84-74-2	Di-n-butyl phthalate	3,300	2,900	86 %	3,300	2,800	83 %	4 %	40 - 140 %	30%
206-44-0	Fluoranthene	3,300	2,900	86 %	3,300	2,800	83 %	5 %	40 - 140 %	30%
129-00-0	Pyrene	3,300	3,000	91 %	3,300	2,900	87 %	4 %	40 - 140 %	30%
85-68-7	Butyl benzyl phthalate	3,300	3,000	89 %	3,300	2,900	86 %	3 %	40 - 140 %	30%
91-94-1	3,3'-Dichlorobenzidine	3,300	2,100	64 %	3,300	2,200	66 %	2 %	40 - 140 %	30%
56-55-3	Benzo[a]anthracene	3,300	2,900	87 %	3,300	2,800	84 %	3 %	40 - 140 %	30%
218-01-9	Chrysene	3,300	2,900	87 %	3,300	2,800	84 %	3 %	40 - 140 %	30%
117-81-7	Bis(2-ethylhexyl) phthalate	3,300	3,000	90 %	3,300	2,900	86 %	4 %	40 - 140 %	30%
117-84-0	Di-n-octyl phthalate	3,300	3,000	91 %	3,300	2,900	88 %	3 %	40 - 140 %	30%
205-99-2	Benzo[b]fluoranthene	3,300	2,900	88 %	3,300	2,900	88 %	1 %	40 - 140 %	30%
207-08-9	Benzo[k]fluoranthene	3,300	3,000	91 %	3,300	3,000	89 %	1 %	40 - 140 %	30%
50-32-8	Benzo[a]pyrene	3,300	2,900	88 %	3,300	2,900	86 %	2 %	40 - 140 %	30%
193-39-5	Indeno[1,2,3-c,d]pyrene	3,300	3,100	94 %	3,300	3,100	94 %	0 %	40 - 140 %	30%
53-70-3	Dibenzo[a,h]anthracene	3,300	3,300	100 %	3,300	3,300	99 %	1 %	40 - 140 %	30%
191-24-2	Benzo[g,h,i]perylene	3,300	3,100	92 %	3,300	3,000	90 %	2 %	40 - 140 %	30%

QC Surrogate Compound	Spiked	Measured	Recovery	Spiked	Measured	Recovery		QC Limits
2-Fluorophenol	13,000	10,000	77 %	13,000	9,800	73 %		30 - 130 %
Phenol-d5	13,000	11,000	79 %	13,000	11,000	80 %		30 - 130 %
Nitrobenzene-d5	6,700	6,000	90 %	6,700	6,000	90 %		30 - 130 %
2-Fluorobiphenyl	6,700	6,900	103 %	6,700	6,800	102 %		30 - 130 %
2,4,6-Tribromophenol	13,000	13,000	94 %	13,000	12,000	92 %		30 - 130 %
Terphenyl-d14	6,700	7,800	117 %	6,700	7,400	111 %		30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545.

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: **EPA Method 8270C**
QC Batch ID: **SV-2388-P**
Matrix: **Soil**

Instrument ID: **MS-3 HP 5890**
Extracted: **09-09-10 10:00**
Analyzed: **09-10-10 10:22**
Analyst: **MJB**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	330
110-86-1	Pyridine	BRL		ug/Kg	330
108-95-2	Phenol	BRL		ug/Kg	330
62-53-3	Aniline	BRL		ug/Kg	330
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	330
95-57-8	2-Chlorophenol	BRL		ug/Kg	330
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	330
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	330
100-51-6	Benzyl Alcohol	BRL		ug/Kg	330
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	330
95-48-7	2-Methylphenol	BRL		ug/Kg	330
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	330
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	330
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	330
98-86-2	Acetophenone	BRL		ug/Kg	330
67-72-1	Hexachloroethane	BRL		ug/Kg	330
98-95-3	Nitrobenzene	BRL		ug/Kg	330
78-59-1	Isophorone	BRL		ug/Kg	330
88-75-5	2-Nitrophenol	BRL		ug/Kg	330
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	330
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	330
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	330
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	330
91-20-3	Naphthalene	BRL		ug/Kg	330
106-47-8	4-Chloroaniline	BRL		ug/Kg	330
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	330
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	330
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	330
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	670
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	330
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	330
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	330
88-74-4	2-Nitroaniline	BRL		ug/Kg	330
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	330
131-11-3	Dimethyl phthalate	BRL		ug/Kg	330
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	330
208-96-8	Acenaphthylene	BRL		ug/Kg	330
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	330
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	330
99-09-2	3-Nitroaniline	BRL		ug/Kg	330
83-32-9	Acenaphthene	BRL		ug/Kg	330
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	330
100-02-7	4-Nitrophenol	BRL		ug/Kg	330
132-64-9	Dibenzofuran	BRL		ug/Kg	330
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	330
84-66-2	Diethyl phthalate	BRL		ug/Kg	330
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	330
86-73-7	Fluorene	BRL		ug/Kg	330
100-01-6	4-Nitroaniline	BRL		ug/Kg	330

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: **EPA Method 8270C**
QC Batch ID: **SV-2388-P**
Matrix: **Soil**

Instrument ID: **MS-3 HP 5890**
Extracted: **09-09-10 10:00**
Analyzed: **09-10-10 10:22**
Analyst: **MJB**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	670
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	330
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	330
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	330
118-74-1	Hexachlorobenzene	BRL		ug/Kg	330
87-86-5	Pentachlorophenol	BRL		ug/Kg	330
85-01-8	Phenanthrene	BRL		ug/Kg	330
120-12-7	Anthracene	BRL		ug/Kg	330
86-74-8	Carbazole	BRL		ug/Kg	330
84-74-2	Di-*n*-butyl phthalate	BRL		ug/Kg	330
206-44-0	Fluoranthene	BRL		ug/Kg	330
129-00-0	Pyrene	BRL		ug/Kg	330
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	330
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	330
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	330
218-01-9	Chrysene	BRL		ug/Kg	330
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	330
117-84-0	Di-*n*-octyl phthalate	BRL		ug/Kg	330
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	330
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	330
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	330
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	330
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	330
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	330

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	13,000	8,400	**63 %**	30 - 130 %
Phenol-d5	13,000	9,400	**70 %**	30 - 130 %
Nitrobenzene-d5	6,700	5,200	**77 %**	30 - 130 %
2-Fluorobiphenyl	6,700	5,700	**85 %**	30 - 130 %
2,4,6-Tribromophenol	13,000	9,600	**72 %**	30 - 130 %
Terphenyl-d14	6,700	6,200	**93 %**	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample extraction performed by EPA Method 3545.

Report Notations:
BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.
* Analyzed as 4-Methylphenol.
† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.
◊ Analyzed as Azobenzene.

Certifications and Approvals

Groundwater Analytical maintains environmental laboratory certification in a variety of states. Copies of our current certificates may be obtained from our website:

http://www.groundwateranalytical.com/qualifications.htm

CONNECTICUT

Department of Health Services, PH-0586 — Potable Water, Wastewater, Solid Waste and Soil
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/Out_State.pdf

MASSACHUSETTS

Department of Environmental Protection, M-MA-103 — Potable Water and Non-Potable Water
http://public.dep.state.ma.us/labcert/labcert.aspx

Department of Labor, Division of Occupational Safety, AA000195 — Asbestos Analytical Services, Class A
http://www.mass.gov/dos/forms/la-rpt_list_aa.pdf

NEW HAMPSHIRE

Department of Environmental Services, 202708 — Potable Water, Non-Potable Water, Solid and Chemical Materials
http://www4.egov.nh.gov/DES/NHELAP

NEW YORK

Department of Health, 11754 — Potable Water, Non-Potable Water, Solid and Hazardous Waste
http://www.wadsworth.org/labcert/elap/comm.html

RHODE ISLAND

Department of Health, Division of Laboratories, LAO00054 — Potable and Non-Potable Water Microbiology, Organic and Inorganic Chemistry
http://www.health.ri.gov/labs/outofstatelabs.pdf

U.S. DEPARTMENT OF AGRICULTURE

USDA, Soil Permit, S-53921 — Foreign soil import permit

VERMONT

Department of Health, VT-87643 — Potable Water
http://healthvermont.gov/enviro/ph_lab/water_test.aspx#cert

GROUNDWATER ANALYTICAL

Certifications and Approvals

MASSACHUSETTS — **Department of Environmental Protection, M-MA-103**

Groundwater Analytical maintains MassDEP environmental laboratory certification for only the methods and analytes listed below. Analyses for certified analytes are conducted in accordance with MassDEP certification standards, except as may be specifically noted in the project narrative.

Potable Water (Drinking Water)

Analyte	Method
1,2-Dibromo-3-Chloropropane	EPA 504.1
1,2-Dibromoethane	EPA 504.1
Alkalinity, Total	SM 2320-B
Antimony	EPA 200.8
Arsenic	EPA 200.8
Barium	EPA 200.7
Barium	EPA 200.8
Beryllium	EPA 200.7
Beryllium	EPA 200.8
Cadmium	EPA 200.7
Cadmium	EPA 200.8
Calcium	EPA 200.7
Chlorine, Residual Free	SM 4500-CL-G
Chromium	EPA 200.7
Cyanide, Total	Lachat 10-204-00-1-A
E. Coli (Treatment and Distribution)	Enz. Sub. SM 9223
E. Coli (Treatment and Distribution)	NA-MUG SM 9222-G
Fecal Coliform (Source Water)	MF SM 9222-D
Fluoride	EPA 300.0
Fluoride	SM 4500-F-C
Heterotrophic Plate Count	SM 9215-B
Lead	EPA 200.8
Mercury	EPA 245.1
Nickel	EPA 200.7
Nickel	EPA 200.8
Nitrate-N	EPA 300.0
Nitrate-N	Lachat 10-107-04-1-C
Nitrite-N	EPA 300.0
Nitrite-N	Lachat 10-107-04-1-C
pH	SM 4500-H-B
Selenium	EPA 200.8
Silver	EPA 200.7
Silver	EPA 200.8
Sodium	EPA 200.7
Sulfate	EPA 300.0
Thallium	EPA 200.8
Total Coliform (Treatment and Distribution)	Enz. Sub. SM 9223
Total Coliform (Treatment and Distribution)	MF SM 9222-B
Total Dissolved Solids	SM 2540-C
Trihalomethanes	EPA 524.2
Turbidity	SM 2130-B
Volatile Organic Compounds	EPA 524.2

Non-Potable Water (Wastewater)

Analyte	Method
Aldrin	EPA 608
Alkalinity, Total	SM 2320-B
Alpha-BHC	EPA 608
Aluminum	EPA 200.7
Aluminum	EPA 200.8
Ammonia-N	Lachat 10-107-06-1-B

Non-Potable Water (Wastewater)

Analyte	Method
Antimony	EPA 200.7
Antimony	EPA 200.8
Arsenic	EPA 200.7
Arsenic	EPA 200.8
Beryllium	EPA 200.7
Beryllium	EPA 200.8
Beta-BHC	EPA 608
Biochemical Oxygen Demand	SM 5210-B
Cadmium	EPA 200.7
Cadmium	EPA 200.8
Calcium	EPA 200.7
Chemical Oxygen Demand	SM 5220-D
Chlordane	EPA 608
Chloride	EPA 300.0
Chlorine, Total Residual	SM 4500-CL-G
Chromium	EPA 200.7
Chromium	EPA 200.8
Cobalt	EPA 200.7
Cobalt	EPA 200.8
Copper	EPA 200.7
Copper	EPA 200.8
Cyanide, Total	Lachat 10-204-00-1-A
DDD	EPA 608
DDE	EPA 608
DDT	EPA 608
Delta-BHC	EPA 608
Dieldrin	EPA 608
Endosulfan I	EPA 608
Endosulfan II	EPA 608
Endosulfan Sulfate	EPA 608
Endrin	EPA 608
Endrin Aldehyde	EPA 608
Fluoride	EPA 300.0
Gamma-BHC	EPA 608
Hardness ($CaCO_3$), Total	EPA 200.7
Hardness ($CaCO_3$), Total	SM 2340-B
Heptachlor	EPA 608
Heptachlor Epoxide	EPA 608
Iron	EPA 200.7
Kjeldahl-N	Lachat 10-107-06-02-D
Lead	EPA 200.7
Magnesium	EPA 200.7
Manganese	EPA 200.7
Manganese	EPA 200.8
Mercury	EPA 245.1
Molybdenum	EPA 200.7
Molybdenum	EPA 200.8
Nickel	EPA 200.7
Nickel	EPA 200.8
Nitrate-N	EPA 300.0
Nitrate-N	Lachat 10-107-04-1-C
Non-Filterable Residue	SM 2540-D
Oil and Grease	EPA 1664

GROUNDWATER ANALYTICAL

Certifications and Approvals

MASSACHUSETTS — **Department of Environmental Protection, M-MA-103**

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Non-Potable Water (Wastewater)

Analyte	Method
Orthophosphate	Lachat 10-115-01-1-A
pH	SM 4500-H-B
Phenolics, Total	EPA 420.4
Phenolics, Total	Lachat 10-210-00-1-B
Phosphorus, Total	Lachat 10-115-01-1-C
Phosphorus, Total	SM 4500-P-B,E
Polychlorinated Biphenyls (Oil)	EPA 600/4-81-045
Polychlorinated Biphenyls (Water)	EPA 608
Potassium	EPA 200.7
Selenium	EPA 200.7
Selenium	EPA 200.8
Silver	EPA 200.7
Sodium	EPA 200.7
Specific Conductivity	SM 2510-B
Strontium	EPA 200.7
Sulfate	EPA 300.0
SVOC-Acid Extractables	EPA 625
SVOC-Base/Neutral Extractables	EPA 625
Thallium	EPA 200.7
Thallium	EPA 200.8
Titanium	EPA 200.7
Total Dissolved Solids	SM 2540-C
Total Organic Carbon	SM 5310-B
Toxaphene	EPA 608
Vanadium	EPA 200.7
Vanadium	EPA 200.8
Volatile Aromatics	EPA 602
Volatile Aromatics	EPA 624
Volatile Halocarbons	EPA 624
Zinc	EPA 200.7
Zinc	EPA 200.8

Prod Disp Doc-Excavation
(09/10)

GROUNDWATER ANALYTICAL

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Buzzards Bay, MA 02532

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www.groundwateranalytical.com

September 15, 2010

Ms. Jennifer Hadden
AECOM Environment
2 Technology Park Drive
Westford, MA 01886

LABORATORY REPORT

Project: **Normans Lakeville Gulf/60158261-400**
Lab ID: **136124**
Received: **09-10-10**

Dear Jennifer:

Enclosed are the analytical results for the above referenced project. The project was processed for Rush 3 Business Day turnaround.

This letter authorizes the release of the analytical results, and should be considered a part of this report. This report contains a sample receipt report detailing the samples received, a project narrative indicating project changes and non-conformances, a quality control report, and a statement of our state certifications.

The analytical results contained in this report meet all applicable NELAC or NVLAP standards, except as may be specifically noted, or described in the project narrative. The analytical results relate only to the samples received. This report may only be used or reproduced in its entirety.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Should you have any questions concerning this report, please do not hesitate to contact me.

Sincerely,

Eric H. Jensen
Operations Manager

EHJ/elm
Enclosures

GROUNDWATER ANALYTICAL

Sample Receipt Report

Project: **Normans Lakeville Gulf/60158261-400**
Client: **AECOM Environment**
Lab ID: **136124**

Delivery: **GWA Courier**
Airbill: **n/a**
Lab Receipt: **09-10-10**

Temperature: **3.4°C**
Chain of Custody: **Present**
Custody Seal(s): **n/a**

Lab ID	Field ID		Matrix	Sampled	Method				Notes
136124-1	West Wall (5')		Soil	9/8/10 14:00	EPA 8260B Volatile Organics with Oxygenates				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1282847	40 mL VOA Vial	Scientific Specialties	BX37230	Methanol	R-6227A	08-18-10	n/a		
C1278552	40 mL VOA Vial	Scientific Specialties	BX37295	n/a	R-6223A	08-17-10	n/a		
C1278541	40 mL VOA Vial	Scientific Specialties	BX37295	n/a	R-6223A	08-17-10	n/a		
C1278530	40 mL VOA Vial	Scientific Specialties	BX37295	n/a	R-6223A	08-17-10	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
136124-2	North Wall (5')		Soil	9/8/10 14:15	EPA 8260B Volatile Organics with Oxygenates				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1280838	40 mL VOA Vial	Scientific Specialties	BX37079	n/a	R-6223C	07-16-10	n/a		
C1276006	40 mL VOA Vial	Scientific Specialties	BX36954	Methanol	R-6137B	06-30-10	n/a		
C1275182	40 mL VOA Vial	Scientific Specialties	BX36963	n/a	R-6223C	07-16-10	n/a		
C1275180	40 mL VOA Vial	Scientific Specialties	BX36963	n/a	R-6223C	07-16-10	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
136124-3	North & East Sidewall (5')		Soil	9/9/10 11:20	EPA 8260B Volatile Organics with Oxygenates				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1267718	40 mL VOA Vial	Scientific Specialties	BX36341	NaHSO4	R-5468C	05-04-10	n/a		
C1267717	40 mL VOA Vial	Scientific Specialties	BX36341	NaHSO4	R-5468C	05-04-10	n/a		
C1267716	40 mL VOA Vial	Scientific Specialties	BX36341	NaHSO4	R-5468C	05-04-10	n/a		
C1231953	40 mL VOA Vial	Scientific Specialties	BX35933	Methanol	R-6092D	03-22-10	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
136124-4	Bottom South (7')		Soil	9/9/10 11:30	EPA 8260B Volatile Organics with Oxygenates				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1208370	40 mL VOA Vial	Scientific Specialties	BX35941	Methanol	R-6092D	04-28-10	n/a		
C1234431	40 mL VOA Vial	Scientific Specialties	BX36069	NaHSO4	R-5468C	04-07-10	n/a		
C1234419	40 mL VOA Vial	Scientific Specialties	BX36069	NaHSO4	R-5468C	04-07-10	n/a		
C1234397	40 mL VOA Vial	Scientific Specialties	BX36069	NaHSO4	R-5468C	04-07-10	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
136124-5	Bottom North (7')		Soil	9/9/10 12:05	EPA 8260B Volatile Organics with Oxygenates				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1224969	40 mL VOA Vial	Scientific Specialties	BX35823	Methanol	R-6092H	03-17-10	n/a		
C1267731	40 mL VOA Vial	Scientific Specialties	BX36341	NaHSO4	R-5468C	05-04-10	n/a		
C1267730	40 mL VOA Vial	Scientific Specialties	BX36341	NaHSO4	R-5468C	05-04-10	n/a		
C1267729	40 mL VOA Vial	Scientific Specialties	BX36341	NaHSO4	R-5468C	05-04-10	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
136124-6	Trip Blank		Soil	9/9/10 0:00	EPA 8260B Volatile Organics with Oxygenates				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1231942	40 mL VOA Vial	Scientific Specialties	BX35933	Methanol	R-6092D	03-22-10	n/a		
C1234423	40 mL VOA Vial	Scientific Specialties	BX36069	NaHSO4	R-5468C	04-07-10	n/a		
C1234422	40 mL VOA Vial	Scientific Specialties	BX36069	NaHSO4	R-5468C	04-07-10	n/a		
C1234413	40 mL VOA Vial	Scientific Specialties	BX36069	NaHSO4	R-5468C	04-07-10	n/a		

GROUNDWATER ANALYTICAL

Sample Receipt Report (Continued)

Project: **Normans Lakeville Gulf/60158261-400**
Client: **AECOM Environment**
Lab ID: **136124**

Delivery: **GWA Courier**
Airbill: **n/a**
Lab Receipt: **09-10-10**

Temperature: **3.4°C**
Chain of Custody: **Present**
Custody Seal(s): **n/a**

Lab ID	Field ID		Matrix	Sampled	Method				Notes
136124-7	West Wall (5')		Soil	9/8/10 14:00	EPA 8270C Semivolatile Organics				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1290285	120 mL Amber Glass	Scientific Specialties	BX37016	None	n/a	n/a	n/a		
C1290283	120 mL Amber Glass	Scientific Specialties	BX37016	None	n/a	n/a	n/a		
C1290279	120 mL Amber Glass	Scientific Specialties	BX37016	None	n/a	n/a	n/a		
C1290277	120 mL Amber Glass	Scientific Specialties	BX37016	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
136124-8	North Wall (5')		Soil	9/8/10 14:15	EPA 8270C Semivolatile Organics				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1289800	250 mL Glass	n/a	n/a	None	n/a	n/a	n/a		
C1289799	250 mL Glass	n/a	n/a	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
136124-9	North & East Sidewall (5')		Soil	9/9/10 11:20	EPA 8270C Semivolatile Organics				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1289802	250 mL Glass	n/a	n/a	None	n/a	n/a	n/a		
C1289801	250 mL Glass	n/a	n/a	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
136124-10	Bottom South (7')		Soil	9/9/10 11:30	EPA 8270C Semivolatile Organics				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1289766	250 mL Glass	n/a	n/a	None	n/a	n/a	n/a		
C1289803	250 mL Glass	n/a	n/a	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
136124-11	Bottom North (7')		Soil	9/9/10 12:05	EPA 8270C Semivolatile Organics				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1289806	250 mL Glass	n/a	n/a	None	n/a	n/a	n/a		
C1289805	250 mL Glass	n/a	n/a	None	n/a	n/a	n/a		

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**West Wall (5')**	Matrix:	**Soil**
Project:	**Normans Lakeville Gulf/60158261-400**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**Methanol/ Cool**
Laboratory ID:	**136124-1**	QC Batch ID:	**VM1-2909-E**
Sampled:	**09-08-10 14:00**	Instrument ID:	**MS-1 HP 5890**
Received:	**09-10-10 17:30**	Sample Weight:	**17 g**
Analyzed:	**09-13-10 10:41**	Final Volume:	**15 mL**
Analyst:	**LMG**	% Solids:	**89**
		Dilution Factor:	**4**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	2,000
74-87-3	Chloromethane	BRL		ug/Kg	2,000
75-01-4	Vinyl Chloride	BRL		ug/Kg	2,000
74-83-9	Bromomethane	BRL		ug/Kg	2,000
75-00-3	Chloroethane	BRL		ug/Kg	2,000
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	2,000
60-29-7	Diethyl Ether	BRL		ug/Kg	2,000
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	980
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	9,800
67-64-1	Acetone	BRL		ug/Kg	9,800
75-15-0	Carbon Disulfide	BRL		ug/Kg	9,800
75-09-2	Methylene Chloride	BRL		ug/Kg	3,900
107-13-1	Acrylonitrile	BRL		ug/Kg	980
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	980
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	980
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	980
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	980
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	980
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	9,800
74-97-5	Bromochloromethane	BRL		ug/Kg	980
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	9,800
67-66-3	Chloroform	BRL		ug/Kg	980
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	980
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	980
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	980
71-43-2	Benzene	**1,700**		ug/Kg	980
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	980
79-01-6	Trichloroethene	BRL		ug/Kg	980
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	980
74-95-3	Dibromomethane	BRL		ug/Kg	980
75-27-4	Bromodichloromethane	BRL		ug/Kg	980
123-91-1	1,4-Dioxane	BRL		ug/Kg	980,000
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	980
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	9,800
108-88-3	Toluene	**16,000**		ug/Kg	980
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	980
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	980
127-18-4	Tetrachloroethene	BRL		ug/Kg	980
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	980
591-78-6	2-Hexanone	BRL		ug/Kg	9,800
124-48-1	Dibromochloromethane	BRL		ug/Kg	980
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	980
108-90-7	Chlorobenzene	BRL		ug/Kg	980
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	980
100-41-4	Ethylbenzene	**12,000**		ug/Kg	980
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	**61,000**		ug/Kg	980

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**West Wall (5')**	Matrix:	**Soil**
Project:	**Normans Lakeville Gulf/60158261-400**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**Methanol/ Cool**
Laboratory ID:	**136124-1**	QC Batch ID:	**VM1-2909-E**
Sampled:	**09-08-10 14:00**	Instrument ID:	**MS-1 HP 5890**
Received:	**09-10-10 17:30**	Sample Weight:	**17 g**
Analyzed:	**09-13-10 10:41**	Final Volume:	**15 mL**
Analyst:	**LMG**	% Solids:	**89**
		Dilution Factor:	**4**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
95-47-6	*ortho*-Xylene	**22,000**		ug/Kg	980
100-42-5	Styrene	BRL		ug/Kg	980
75-25-2	Bromoform	BRL		ug/Kg	980
98-82-8	Isopropylbenzene	**1,800**		ug/Kg	980
108-86-1	Bromobenzene	BRL		ug/Kg	980
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	980
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	980
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	9,800
103-65-1	*n*-Propylbenzene	**5,700**		ug/Kg	980
95-49-8	2-Chlorotoluene	BRL		ug/Kg	980
108-67-8	1,3,5-Trimethylbenzene	**18,000**		ug/Kg	980
106-43-4	4-Chlorotoluene	BRL		ug/Kg	980
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	980
95-63-6	1,2,4-Trimethylbenzene	**40,000**		ug/Kg	980
135-98-8	sec-Butylbenzene	BRL		ug/Kg	980
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	980
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	980
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	980
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	980
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	980
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	980
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	980
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	980
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	980
91-20-3	Naphthalene	**5,500**		ug/Kg	980
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	980
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	39,000
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	980
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	980
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	980

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	2,500	2,400	**98** %	70 - 130 %
1,2-Dichloroethane-d_4	2,500	2,100	**84** %	70 - 130 %
Toluene-d_8	2,500	2,700	**107** %	70 - 130 %
4-Bromofluorobenzene	2,500	2,500	**99** %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample preparation performed by EPA Method 5035A and EPA Method 5030B. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**North Wall (5')**	Matrix:	**Soil**
Project:	**Normans Lakeville Gulf/60158261-400**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**Methanol/ Cool**
Laboratory ID:	**136124-2**	QC Batch ID:	**VM1-2909-E**
Sampled:	**09-08-10 14:15**	Instrument ID:	**MS-1 HP 5890**
Received:	**09-10-10 17:30**	Sample Weight:	**18 g**
Analyzed:	**09-13-10 11:17**	Final Volume:	**15 mL**
Analyst:	**LMG**	% Solids:	**90**
		Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	500
74-87-3	Chloromethane	BRL		ug/Kg	500
75-01-4	Vinyl Chloride	BRL		ug/Kg	500
74-83-9	Bromomethane	BRL		ug/Kg	500
75-00-3	Chloroethane	BRL		ug/Kg	500
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	500
60-29-7	Diethyl Ether	BRL		ug/Kg	500
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	250
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	2,500
67-64-1	Acetone	BRL		ug/Kg	2,500
75-15-0	Carbon Disulfide	BRL		ug/Kg	2,500
75-09-2	Methylene Chloride	BRL		ug/Kg	1,000
107-13-1	Acrylonitrile	BRL		ug/Kg	250
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	250
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	250
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	250
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	250
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	250
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	2,500
74-97-5	Bromochloromethane	BRL		ug/Kg	250
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	2,500
67-66-3	Chloroform	BRL		ug/Kg	250
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	250
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	250
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	250
71-43-2	Benzene	**450**		ug/Kg	250
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	250
79-01-6	Trichloroethene	BRL		ug/Kg	250
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	250
74-95-3	Dibromomethane	BRL		ug/Kg	250
75-27-4	Bromodichloromethane	BRL		ug/Kg	250
123-91-1	1,4-Dioxane	BRL		ug/Kg	250,000
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	250
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	2,500
108-88-3	Toluene	**260**		ug/Kg	250
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	250
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	250
127-18-4	Tetrachloroethene	BRL		ug/Kg	250
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	250
591-78-6	2-Hexanone	BRL		ug/Kg	2,500
124-48-1	Dibromochloromethane	BRL		ug/Kg	250
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	250
108-90-7	Chlorobenzene	BRL		ug/Kg	250
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	250
100-41-4	Ethylbenzene	**300**		ug/Kg	250
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	**830**		ug/Kg	250

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**North Wall (5')**	Matrix:	**Soil**
Project:	**Normans Lakeville Gulf/60158261-400**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**Methanol/ Cool**
Laboratory ID:	**136124-2**	QC Batch ID:	**VM1-2909-E**
Sampled:	**09-08-10 14:15**	Instrument ID:	**MS-1 HP 5890**
Received:	**09-10-10 17:30**	Sample Weight:	**18 g**
Analyzed:	**09-13-10 11:17**	Final Volume:	**15 mL**
Analyst:	**LMG**	% Solids:	**90**
		Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
95-47-6	*ortho*-Xylene	**300**		ug/Kg	250
100-42-5	Styrene	BRL		ug/Kg	250
75-25-2	Bromoform	BRL		ug/Kg	250
98-82-8	Isopropylbenzene	BRL		ug/Kg	250
108-86-1	Bromobenzene	BRL		ug/Kg	250
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	250
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	250
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	2,500
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	250
95-49-8	2-Chlorotoluene	BRL		ug/Kg	250
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	250
106-43-4	4-Chlorotoluene	BRL		ug/Kg	250
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	250
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	250
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	250
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	250
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	250
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	250
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	250
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	250
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	250
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	250
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	250
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	250
91-20-3	Naphthalene	BRL		ug/Kg	250
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	250
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	10,000
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	250
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	250
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	250

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	2,500	2,000	**79 %**	70 - 130 %
1,2-Dichloroethane-d_4	2,500	1,800	**73 %**	70 - 130 %
Toluene-d_8	2,500	2,400	**95 %**	70 - 130 %
4-Bromofluorobenzene	2,500	2,400	**97 %**	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample preparation performed by EPA Method 5035A and EPA Method 5030B. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**North & East Sidewall (5')**	Matrix:	**Soil**
Project:	**Normans Lakeville Gulf/60158261-400**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**Methanol/ Cool**
Laboratory ID:	**136124-3**	QC Batch ID:	**VM1-2909-E**
Sampled:	**09-09-10 11:20**	Instrument ID:	**MS-1 HP 5890**
Received:	**09-10-10 17:30**	Sample Weight:	**18 g**
Analyzed:	**09-13-10 11:52**	Final Volume:	**15 mL**
Analyst:	**LMG**	% Solids:	**94**
		Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	500
74-87-3	Chloromethane	BRL		ug/Kg	500
75-01-4	Vinyl Chloride	BRL		ug/Kg	500
74-83-9	Bromomethane	BRL		ug/Kg	500
75-00-3	Chloroethane	BRL		ug/Kg	500
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	500
60-29-7	Diethyl Ether	BRL		ug/Kg	500
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	250
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	2,500
67-64-1	Acetone	BRL		ug/Kg	2,500
75-15-0	Carbon Disulfide	BRL		ug/Kg	2,500
75-09-2	Methylene Chloride	BRL		ug/Kg	1,000
107-13-1	Acrylonitrile	BRL		ug/Kg	250
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	250
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	250
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	250
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	250
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	250
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	2,500
74-97-5	Bromochloromethane	BRL		ug/Kg	250
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	2,500
67-66-3	Chloroform	BRL		ug/Kg	250
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	250
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	250
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	250
71-43-2	Benzene	BRL		ug/Kg	250
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	250
79-01-6	Trichloroethene	BRL		ug/Kg	250
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	250
74-95-3	Dibromomethane	BRL		ug/Kg	250
75-27-4	Bromodichloromethane	BRL		ug/Kg	250
123-91-1	1,4-Dioxane	BRL		ug/Kg	250,000
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	250
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	2,500
108-88-3	Toluene	BRL		ug/Kg	250
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	250
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	250
127-18-4	Tetrachloroethene	BRL		ug/Kg	250
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	250
591-78-6	2-Hexanone	BRL		ug/Kg	2,500
124-48-1	Dibromochloromethane	BRL		ug/Kg	250
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	250
108-90-7	Chlorobenzene	BRL		ug/Kg	250
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	250
100-41-4	Ethylbenzene	BRL		ug/Kg	250
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL		ug/Kg	250

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**North & East Sidewall (5')**	Matrix:	**Soil**
Project:	**Normans Lakeville Gulf/60158261-400**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**Methanol/ Cool**
Laboratory ID:	**136124-3**	QC Batch ID:	**VM1-2909-E**
Sampled:	**09-09-10 11:20**	Instrument ID:	**MS-1 HP 5890**
Received:	**09-10-10 17:30**	Sample Weight:	**18 g**
Analyzed:	**09-13-10 11:52**	Final Volume:	**15 mL**
Analyst:	**LMG**	% Solids:	**94**
		Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
95-47-6	*ortho*-Xylene	BRL		ug/Kg	250
100-42-5	Styrene	BRL		ug/Kg	250
75-25-2	Bromoform	BRL		ug/Kg	250
98-82-8	Isopropylbenzene	BRL		ug/Kg	250
108-86-1	Bromobenzene	BRL		ug/Kg	250
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	250
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	250
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	2,500
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	250
95-49-8	2-Chlorotoluene	BRL		ug/Kg	250
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	250
106-43-4	4-Chlorotoluene	BRL		ug/Kg	250
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	250
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	250
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	250
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	250
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	250
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	250
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	250
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	250
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	250
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	250
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	250
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	250
91-20-3	Naphthalene	BRL		ug/Kg	250
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	250
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	10,000
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	250
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	250
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	250

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	2,500	1,900	**76 %**	70 - 130 %
1,2-Dichloroethane-d_4	2,500	2,000	**80 %**	70 - 130 %
Toluene-d_8	2,500	2,200	**90 %**	70 - 130 %
4-Bromofluorobenzene	2,500	2,400	**98 %**	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample preparation performed by EPA Method 5035A and EPA Method 5030B. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**Bottom South (7')**	Matrix:	**Soil**
Project:	**Normans Lakeville Gulf/60158261-400**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**Methanol/ Cool**
Laboratory ID:	**136124-4**	QC Batch ID:	**VM1-2909-E**
Sampled:	**09-09-10 11:30**	Instrument ID:	**MS-1 HP 5890**
Received:	**09-10-10 17:30**	Sample Weight:	**14 g**
Analyzed:	**09-13-10 12:28**	Final Volume:	**15 mL**
Analyst:	**LMG**	% Solids:	**96**
		Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	560
74-87-3	Chloromethane	BRL		ug/Kg	560
75-01-4	Vinyl Chloride	BRL		ug/Kg	560
74-83-9	Bromomethane	BRL		ug/Kg	560
75-00-3	Chloroethane	BRL		ug/Kg	560
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	560
60-29-7	Diethyl Ether	BRL		ug/Kg	560
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	280
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	2,800
67-64-1	Acetone	BRL		ug/Kg	2,800
75-15-0	Carbon Disulfide	BRL		ug/Kg	2,800
75-09-2	Methylene Chloride	BRL		ug/Kg	1,100
107-13-1	Acrylonitrile	BRL		ug/Kg	280
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	280
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	280
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	280
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	280
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	280
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	2,800
74-97-5	Bromochloromethane	BRL		ug/Kg	280
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	2,800
67-66-3	Chloroform	BRL		ug/Kg	280
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	280
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	280
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	280
71-43-2	Benzene	BRL		ug/Kg	280
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	280
79-01-6	Trichloroethene	BRL		ug/Kg	280
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	280
74-95-3	Dibromomethane	BRL		ug/Kg	280
75-27-4	Bromodichloromethane	BRL		ug/Kg	280
123-91-1	1,4-Dioxane	BRL		ug/Kg	280,000
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	280
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	2,800
108-88-3	Toluene	BRL		ug/Kg	280
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	280
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	280
127-18-4	Tetrachloroethene	BRL		ug/Kg	280
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	280
591-78-6	2-Hexanone	BRL		ug/Kg	2,800
124-48-1	Dibromochloromethane	BRL		ug/Kg	280
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	280
108-90-7	Chlorobenzene	BRL		ug/Kg	280
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	280
100-41-4	Ethylbenzene	BRL		ug/Kg	280
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL		ug/Kg	280

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**Bottom South (7')**	Matrix:	**Soil**
Project:	**Normans Lakeville Gulf/60158261-400**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**Methanol/ Cool**
Laboratory ID:	**136124-4**	QC Batch ID:	**VM1-2909-E**
Sampled:	**09-09-10 11:30**	Instrument ID:	**MS-1 HP 5890**
Received:	**09-10-10 17:30**	Sample Weight:	**14 g**
Analyzed:	**09-13-10 12:28**	Final Volume:	**15 mL**
Analyst:	**LMG**	% Solids:	**96**
		Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
95-47-6	*ortho*-Xylene	BRL		ug/Kg	280
100-42-5	Styrene	BRL		ug/Kg	280
75-25-2	Bromoform	BRL		ug/Kg	280
98-82-8	Isopropylbenzene	BRL		ug/Kg	280
108-86-1	Bromobenzene	BRL		ug/Kg	280
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	280
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	280
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	2,800
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	280
95-49-8	2-Chlorotoluene	BRL		ug/Kg	280
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	280
106-43-4	4-Chlorotoluene	BRL		ug/Kg	280
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	280
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	280
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	280
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	280
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	280
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	280
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	280
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	280
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	280
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	280
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	280
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	280
91-20-3	Naphthalene	BRL		ug/Kg	280
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	280
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	11,000
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	280
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	280
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	280

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	2,500	2,000	**80** %	70 - 130 %
1,2-Dichloroethane-d_4	2,500	1,900	**77** %	70 - 130 %
Toluene-d_8	2,500	2,200	**89** %	70 - 130 %
4-Bromofluorobenzene	2,500	2,700	**108** %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample preparation performed by EPA Method 5035A and EPA Method 5030B. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**Bottom North (7')**	Matrix:	**Soil**
Project:	**Normans Lakeville Gulf/60158261-400**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**Methanol/ Cool**
Laboratory ID:	**136124-5**	QC Batch ID:	**VM1-2909-E**
Sampled:	**09-09-10 12:05**	Instrument ID:	**MS-1 HP 5890**
Received:	**09-10-10 17:30**	Sample Weight:	**18 g**
Analyzed:	**09-13-10 13:03**	Final Volume:	**15 mL**
Analyst:	**LMG**	% Solids:	**90**
		Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	500
74-87-3	Chloromethane	BRL		ug/Kg	500
75-01-4	Vinyl Chloride	BRL		ug/Kg	500
74-83-9	Bromomethane	BRL		ug/Kg	500
75-00-3	Chloroethane	BRL		ug/Kg	500
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	500
60-29-7	Diethyl Ether	BRL		ug/Kg	500
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	250
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	2,500
67-64-1	Acetone	BRL		ug/Kg	2,500
75-15-0	Carbon Disulfide	BRL		ug/Kg	2,500
75-09-2	Methylene Chloride	BRL		ug/Kg	1,000
107-13-1	Acrylonitrile	BRL		ug/Kg	250
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	250
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	250
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	250
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	250
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	250
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	2,500
74-97-5	Bromochloromethane	BRL		ug/Kg	250
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	2,500
67-66-3	Chloroform	BRL		ug/Kg	250
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	250
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	250
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	250
71-43-2	Benzene	BRL		ug/Kg	250
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	250
79-01-6	Trichloroethene	BRL		ug/Kg	250
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	250
74-95-3	Dibromomethane	BRL		ug/Kg	250
75-27-4	Bromodichloromethane	BRL		ug/Kg	250
123-91-1	1,4-Dioxane	BRL		ug/Kg	250,000
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	250
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	2,500
108-88-3	Toluene	**290**		ug/Kg	250
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	250
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	250
127-18-4	Tetrachloroethene	BRL		ug/Kg	250
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	250
591-78-6	2-Hexanone	BRL		ug/Kg	2,500
124-48-1	Dibromochloromethane	BRL		ug/Kg	250
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	250
108-90-7	Chlorobenzene	BRL		ug/Kg	250
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	250
100-41-4	Ethylbenzene	**370**		ug/Kg	250
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	**2,200**		ug/Kg	250

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**Bottom North (7')**	Matrix:	**Soil**
Project:	**Normans Lakeville Gulf/60158261-400**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**Methanol/ Cool**
Laboratory ID:	**136124-5**	QC Batch ID:	**VM1-2909-E**
Sampled:	**09-09-10 12:05**	Instrument ID:	**MS-1 HP 5890**
Received:	**09-10-10 17:30**	Sample Weight:	**18 g**
Analyzed:	**09-13-10 13:03**	Final Volume:	**15 mL**
Analyst:	**LMG**	% Solids:	**90**
		Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
95-47-6	*ortho*-Xylene	**890**		ug/Kg	250
100-42-5	Styrene	BRL		ug/Kg	250
75-25-2	Bromoform	BRL		ug/Kg	250
98-82-8	Isopropylbenzene	BRL		ug/Kg	250
108-86-1	Bromobenzene	BRL		ug/Kg	250
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	250
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	250
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	2,500
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	250
95-49-8	2-Chlorotoluene	BRL		ug/Kg	250
108-67-8	1,3,5-Trimethylbenzene	**1,500**		ug/Kg	250
106-43-4	4-Chlorotoluene	BRL		ug/Kg	250
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	250
95-63-6	1,2,4-Trimethylbenzene	**2,800**		ug/Kg	250
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	250
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	250
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	250
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	250
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	250
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	250
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	250
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	250
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	250
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	250
91-20-3	Naphthalene	**570**		ug/Kg	250
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	250
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	10,000
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	250
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	250
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	250

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	2,500	2,000	**80** %	70 - 130 %
1,2-Dichloroethane-d_4	2,500	1,800	**73** %	70 - 130 %
Toluene-d_8	2,500	2,400	**94** %	70 - 130 %
4-Bromofluorobenzene	2,500	2,300	**93** %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample preparation performed by EPA Method 5035A and EPA Method 5030B. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**Trip Blank**	Matrix:	**Soil**
Project:	**Normans Lakeville Gulf/60158261-400**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**Methanol/ Cool**
Laboratory ID:	**136124-6**	QC Batch ID:	**VM1-2909-E**
Sampled:	**09-09-10 00:00**	Instrument ID:	**MS-1 HP 5890**
Received:	**09-10-10 17:30**	Sample Weight:	**15 g**
Analyzed:	**09-13-10 14:51**	Final Volume:	**15 mL**
Analyst:	**LMG**	% Solids:	**100**
		Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	500
74-87-3	Chloromethane	BRL		ug/Kg	500
75-01-4	Vinyl Chloride	BRL		ug/Kg	500
74-83-9	Bromomethane	BRL		ug/Kg	500
75-00-3	Chloroethane	BRL		ug/Kg	500
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	500
60-29-7	Diethyl Ether	BRL		ug/Kg	500
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	250
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	2,500
67-64-1	Acetone	BRL		ug/Kg	2,500
75-15-0	Carbon Disulfide	BRL		ug/Kg	2,500
75-09-2	Methylene Chloride	BRL		ug/Kg	1,000
107-13-1	Acrylonitrile	BRL		ug/Kg	250
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	250
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	250
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	250
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	250
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	250
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	2,500
74-97-5	Bromochloromethane	BRL		ug/Kg	250
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	2,500
67-66-3	Chloroform	BRL		ug/Kg	250
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	250
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	250
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	250
71-43-2	Benzene	BRL		ug/Kg	250
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	250
79-01-6	Trichloroethene	BRL		ug/Kg	250
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	250
74-95-3	Dibromomethane	BRL		ug/Kg	250
75-27-4	Bromodichloromethane	BRL		ug/Kg	250
123-91-1	1,4-Dioxane	BRL		ug/Kg	250,000
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	250
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	2,500
108-88-3	Toluene	BRL		ug/Kg	250
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	250
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	250
127-18-4	Tetrachloroethene	BRL		ug/Kg	250
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	250
591-78-6	2-Hexanone	BRL		ug/Kg	2,500
124-48-1	Dibromochloromethane	BRL		ug/Kg	250
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	250
108-90-7	Chlorobenzene	BRL		ug/Kg	250
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	250
100-41-4	Ethylbenzene	BRL		ug/Kg	250
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL		ug/Kg	250

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**Trip Blank**	Matrix:	**Soil**
Project:	**Normans Lakeville Gulf/60158261-400**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**Methanol/ Cool**
Laboratory ID:	**136124-6**	QC Batch ID:	**VM1-2909-E**
Sampled:	**09-09-10 00:00**	Instrument ID:	**MS-1 HP 5890**
Received:	**09-10-10 17:30**	Sample Weight:	**15 g**
Analyzed:	**09-13-10 14:51**	Final Volume:	**15 mL**
Analyst:	**LMG**	% Solids:	**100**
		Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
95-47-6	*ortho*-Xylene	BRL		ug/Kg	250
100-42-5	Styrene	BRL		ug/Kg	250
75-25-2	Bromoform	BRL		ug/Kg	250
98-82-8	Isopropylbenzene	BRL		ug/Kg	250
108-86-1	Bromobenzene	BRL		ug/Kg	250
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	250
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	250
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	2,500
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	250
95-49-8	2-Chlorotoluene	BRL		ug/Kg	250
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	250
106-43-4	4-Chlorotoluene	BRL		ug/Kg	250
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	250
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	250
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	250
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	250
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	250
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	250
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	250
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	250
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	250
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	250
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	250
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	250
91-20-3	Naphthalene	BRL		ug/Kg	250
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	250
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	10,000
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	250
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	250
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	250

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	2,500	2,000	**81 %**	70 - 130 %
1,2-Dichloroethane-d_4	2,500	2,000	**80 %**	70 - 130 %
Toluene-d_8	2,500	2,400	**95 %**	70 - 130 %
4-Bromofluorobenzene	2,500	2,400	**95 %**	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample preparation performed by EPA Method 5035A and EPA Method 5030B. Results are reported on an as received basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

EPA Method 8270C
Semivolatile Organics by GC/MS

Field ID:	**West Wall (5')**	Matrix:	**Soil**
Project:	**Normans Lakeville Gulf/60158261-400**	Container:	**120 mL Amber Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**136124-07**	QC Batch ID:	**SV-2389-P**
Sampled:	**09-08-10 14:00**	Instrument ID:	**MS-3 HP 5890**
Received:	**09-10-10 17:30**	Sample Weight:	**16 g**
Extracted:	**09-13-10 09:00**	Final Volume:	**1 mL**
Analyzed:	**09-15-10 11:00**	Percent Solids:	**89**
Analyst:	**MJB**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	360
110-86-1	Pyridine	BRL		ug/Kg	360
108-95-2	Phenol	BRL		ug/Kg	360
62-53-3	Aniline	BRL		ug/Kg	360
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	360
95-57-8	2-Chlorophenol	BRL		ug/Kg	360
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	360
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	360
100-51-6	Benzyl Alcohol	BRL		ug/Kg	360
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	360
95-48-7	2-Methylphenol	BRL		ug/Kg	360
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	360
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	360
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	360
98-86-2	Acetophenone	BRL		ug/Kg	360
67-72-1	Hexachloroethane	BRL		ug/Kg	360
98-95-3	Nitrobenzene	BRL		ug/Kg	360
78-59-1	Isophorone	BRL		ug/Kg	360
88-75-5	2-Nitrophenol	BRL		ug/Kg	360
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	360
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	360
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	360
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	360
91-20-3	Naphthalene	**4,400**		ug/Kg	360
106-47-8	4-Chloroaniline	BRL		ug/Kg	360
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	360
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	360
91-57-6	2-Methylnaphthalene	**4,400**		ug/Kg	360
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	730
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	360
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	360
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	360
88-74-4	2-Nitroaniline	BRL		ug/Kg	360
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	360
131-11-3	Dimethyl phthalate	BRL		ug/Kg	360
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	360
208-96-8	Acenaphthylene	BRL		ug/Kg	360
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	360
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	360
99-09-2	3-Nitroaniline	BRL		ug/Kg	360
83-32-9	Acenaphthene	BRL		ug/Kg	360
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	360
100-02-7	4-Nitrophenol	BRL		ug/Kg	360
132-64-9	Dibenzofuran	BRL		ug/Kg	360
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	360

GROUNDWATER ANALYTICAL

EPA Method 8270C (Continued)
Semivolatile Organics by GC/MS

Field ID:	**West Wall (5')**	Matrix:	**Soil**
Project:	**Normans Lakeville Gulf/60158261-400**	Container:	**120 mL Amber Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**136124-07**	QC Batch ID:	**SV-2389-P**
Sampled:	**09-08-10 14:00**	Instrument ID:	**MS-3 HP 5890**
Received:	**09-10-10 17:30**	Sample Weight:	**16 g**
Extracted:	**09-13-10 09:00**	Final Volume:	**1 mL**
Analyzed:	**09-15-10 11:00**	Dilution Factor:	**1**
Analyst:	**MJB**		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
84-66-2	Diethyl phthalate	BRL		ug/Kg	360
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	360
86-73-7	Fluorene	BRL		ug/Kg	360
100-01-6	4-Nitroaniline	BRL		ug/Kg	360
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	730
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	360
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	360
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	360
118-74-1	Hexachlorobenzene	BRL		ug/Kg	360
87-86-5	Pentachlorophenol	BRL		ug/Kg	360
85-01-8	Phenanthrene	BRL		ug/Kg	360
120-12-7	Anthracene	BRL		ug/Kg	360
86-74-8	Carbazole	BRL		ug/Kg	360
84-74-2	Di-*n*-butyl phthalate	BRL		ug/Kg	360
206-44-0	Fluoranthene	BRL		ug/Kg	360
129-00-0	Pyrene	BRL		ug/Kg	360
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	360
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	360
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	360
218-01-9	Chrysene	BRL		ug/Kg	360
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	360
117-84-0	Di-*n*-octyl phthalate	BRL		ug/Kg	360
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	360
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	360
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	360
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	360
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	360
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	360

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	14,000	14,000	**96** %	30 - 130 %
Phenol-d5	14,000	13,000	**88** %	30 - 130 %
Nitrobenzene-d5	7,200	7,300	**101** %	30 - 130 %
2-Fluorobiphenyl	7,200	7,600	**105** %	30 - 130 %
2,4,6-Tribromophenol	14,000	13,000	**90** %	30 - 130 %
Terphenyl-d14	7,200	7,500	**104** %	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545. Results are reported on a dry weight basis.

Report Notations:
BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

* Analyzed as 4-Methylphenol.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

EPA Method 8270C
Semivolatile Organics by GC/MS

Field ID:	North Wall (5')	Matrix:	Soil
Project:	Normans Lakeville Gulf/60158261-400	Container:	250 mL Glass
Client:	AECOM Environment	Preservation:	Cool
Laboratory ID:	136124-08	QC Batch ID:	SV-2389-P
Sampled:	09-08-10 14:15	Instrument ID:	MS-3 HP 5890
Received:	09-10-10 17:30	Sample Weight:	16 g
Extracted:	09-13-10 09:00	Final Volume:	1 mL
Analyzed:	09-15-10 11:42	Percent Solids:	90
Analyst:	MJB	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	350
110-86-1	Pyridine	BRL		ug/Kg	350
108-95-2	Phenol	BRL		ug/Kg	350
62-53-3	Aniline	BRL		ug/Kg	350
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	350
95-57-8	2-Chlorophenol	BRL		ug/Kg	350
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	350
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	350
100-51-6	Benzyl Alcohol	BRL		ug/Kg	350
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	350
95-48-7	2-Methylphenol	BRL		ug/Kg	350
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	350
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	350
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	350
98-86-2	Acetophenone	BRL		ug/Kg	350
67-72-1	Hexachloroethane	BRL		ug/Kg	350
98-95-3	Nitrobenzene	BRL		ug/Kg	350
78-59-1	Isophorone	BRL		ug/Kg	350
88-75-5	2-Nitrophenol	BRL		ug/Kg	350
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	350
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	350
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	350
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	350
91-20-3	Naphthalene	BRL		ug/Kg	350
106-47-8	4-Chloroaniline	BRL		ug/Kg	350
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	350
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	350
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	350
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	710
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	350
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	350
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	350
88-74-4	2-Nitroaniline	BRL		ug/Kg	350
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	350
131-11-3	Dimethyl phthalate	BRL		ug/Kg	350
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	350
208-96-8	Acenaphthylene	BRL		ug/Kg	350
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	350
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	350
99-09-2	3-Nitroaniline	BRL		ug/Kg	350
83-32-9	Acenaphthene	BRL		ug/Kg	350
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	350
100-02-7	4-Nitrophenol	BRL		ug/Kg	350
132-64-9	Dibenzofuran	BRL		ug/Kg	350
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	350

GROUNDWATER ANALYTICAL

EPA Method 8270C (Continued)
Semivolatile Organics by GC/MS

Field ID:	North Wall (5')	Matrix:	Soil
Project:	Normans Lakeville Gulf/60158261-400	Container:	250 mL Glass
Client:	AECOM Environment	Preservation:	Cool
Laboratory ID:	136124-08	QC Batch ID:	SV-2389-P
Sampled:	09-08-10 14:15	Instrument ID:	MS-3 HP 5890
Received:	09-10-10 17:30	Sample Weight:	16 g
Extracted:	09-13-10 09:00	Final Volume:	1 mL
Analyzed:	09-15-10 11:42	Dilution Factor:	1
Analyst:	MJB		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
84-66-2	Diethyl phthalate	BRL		ug/Kg	350
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	350
86-73-7	Fluorene	BRL		ug/Kg	350
100-01-6	4-Nitroaniline	BRL		ug/Kg	350
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	710
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	350
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	350
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	350
118-74-1	Hexachlorobenzene	BRL		ug/Kg	350
87-86-5	Pentachlorophenol	BRL		ug/Kg	350
85-01-8	Phenanthrene	BRL		ug/Kg	350
120-12-7	Anthracene	BRL		ug/Kg	350
86-74-8	Carbazole	BRL		ug/Kg	350
84-74-2	Di-n-butyl phthalate	BRL		ug/Kg	350
206-44-0	Fluoranthene	**730**		ug/Kg	350
129-00-0	Pyrene	**700**		ug/Kg	350
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	350
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	350
56-55-3	Benzo[a]anthracene	**550**		ug/Kg	350
218-01-9	Chrysene	**480**		ug/Kg	350
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	350
117-84-0	Di-n-octyl phthalate	BRL		ug/Kg	350
205-99-2	Benzo[b]fluoranthene	**910**		ug/Kg	350
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	350
50-32-8	Benzo[a]pyrene	**770**		ug/Kg	350
193-39-5	Indeno[1,2,3-c,d]pyrene	**350**		ug/Kg	350
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	350
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	350

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	14,000	8,100	**58** %	30 - 130 %
Phenol-d5	14,000	8,200	**58** %	30 - 130 %
Nitrobenzene-d5	7,100	4,900	**69** %	30 - 130 %
2-Fluorobiphenyl	7,100	5,400	**77** %	30 - 130 %
2,4,6-Tribromophenol	14,000	9,200	**65** %	30 - 130 %
Terphenyl-d14	7,100	5,200	**74** %	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545. Results are reported on a dry weight basis.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

* Analyzed as 4-Methylphenol.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

EPA Method 8270C
Semivolatile Organics by GC/MS

Field ID:	North & East Sidewall (5')	Matrix:	Soil
Project:	Normans Lakeville Gulf/60158261-400	Container:	250 mL Glass
Client:	AECOM Environment	Preservation:	Cool
Laboratory ID:	136124-09	QC Batch ID:	SV-2389-P
Sampled:	09-09-10 11:20	Instrument ID:	MS-3 HP 5890
Received:	09-10-10 17:30	Sample Weight:	15 g
Extracted:	09-13-10 09:00	Final Volume:	1 mL
Analyzed:	09-15-10 12:23	Percent Solids:	94
Analyst:	MJB	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	340
110-86-1	Pyridine	BRL		ug/Kg	340
108-95-2	Phenol	BRL		ug/Kg	340
62-53-3	Aniline	BRL		ug/Kg	340
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	340
95-57-8	2-Chlorophenol	BRL		ug/Kg	340
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	340
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	340
100-51-6	Benzyl Alcohol	BRL		ug/Kg	340
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	340
95-48-7	2-Methylphenol	BRL		ug/Kg	340
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	340
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	340
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	340
98-86-2	Acetophenone	BRL		ug/Kg	340
67-72-1	Hexachloroethane	BRL		ug/Kg	340
98-95-3	Nitrobenzene	BRL		ug/Kg	340
78-59-1	Isophorone	BRL		ug/Kg	340
88-75-5	2-Nitrophenol	BRL		ug/Kg	340
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	340
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	340
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	340
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	340
91-20-3	Naphthalene	BRL		ug/Kg	340
106-47-8	4-Chloroaniline	BRL		ug/Kg	340
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	340
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	340
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	340
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	700
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	340
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	340
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	340
88-74-4	2-Nitroaniline	BRL		ug/Kg	340
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	340
131-11-3	Dimethyl phthalate	BRL		ug/Kg	340
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	340
208-96-8	Acenaphthylene	BRL		ug/Kg	340
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	340
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	340
99-09-2	3-Nitroaniline	BRL		ug/Kg	340
83-32-9	Acenaphthene	BRL		ug/Kg	340
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	340
100-02-7	4-Nitrophenol	BRL		ug/Kg	340
132-64-9	Dibenzofuran	BRL		ug/Kg	340
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	340

GROUNDWATER ANALYTICAL

EPA Method 8270C (Continued)
Semivolatile Organics by GC/MS

Field ID:	**North & East Sidewall (5')**	Matrix:	**Soil**
Project:	**Normans Lakeville Gulf/60158261-400**	Container:	**250 mL Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**136124-09**	QC Batch ID:	**SV-2389-P**
Sampled:	**09-09-10 11:20**	Instrument ID:	**MS-3 HP 5890**
Received:	**09-10-10 17:30**	Sample Weight:	**15 g**
Extracted:	**09-13-10 09:00**	Final Volume:	**1 mL**
Analyzed:	**09-15-10 12:23**	Dilution Factor:	**1**
Analyst:	**MJB**		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
84-66-2	Diethyl phthalate	BRL		ug/Kg	340
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	340
86-73-7	Fluorene	BRL		ug/Kg	340
100-01-6	4-Nitroaniline	BRL		ug/Kg	340
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	700
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	340
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	340
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	340
118-74-1	Hexachlorobenzene	BRL		ug/Kg	340
87-86-5	Pentachlorophenol	BRL		ug/Kg	340
85-01-8	Phenanthrene	BRL		ug/Kg	340
120-12-7	Anthracene	BRL		ug/Kg	340
86-74-8	Carbazole	BRL		ug/Kg	340
84-74-2	Di-*n*-butyl phthalate	BRL		ug/Kg	340
206-44-0	Fluoranthene	BRL		ug/Kg	340
129-00-0	Pyrene	BRL		ug/Kg	340
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	340
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	340
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	340
218-01-9	Chrysene	BRL		ug/Kg	340
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	340
117-84-0	Di-*n*-octyl phthalate	BRL		ug/Kg	340
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	340
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	340
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	340
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	340
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	340
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	340

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	14,000	11,000	**77** %	30 - 130 %
Phenol-d5	14,000	11,000	**78** %	30 - 130 %
Nitrobenzene-d5	7,000	6,200	**89** %	30 - 130 %
2-Fluorobiphenyl	7,000	7,000	**101** %	30 - 130 %
2,4,6-Tribromophenol	14,000	12,000	**89** %	30 - 130 %
Terphenyl-d14	7,000	8,300	**119** %	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545. Results are reported on a dry weight basis.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

* Analyzed as 4-Methylphenol.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

EPA Method 8270C
Semivolatile Organics by GC/MS

Field ID:	**Bottom South (7')**	Matrix:	**Soil**
Project:	**Normans Lakeville Gulf/60158261-400**	Container:	**250 mL Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**136124-10**	QC Batch ID:	**SV-2389-P**
Sampled:	**09-09-10 11:30**	Instrument ID:	**MS-3 HP 5890**
Received:	**09-10-10 17:30**	Sample Weight:	**16 g**
Extracted:	**09-13-10 09:00**	Final Volume:	**1 mL**
Analyzed:	**09-15-10 13:04**	Percent Solids:	**96**
Analyst:	**MJB**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	330
110-86-1	Pyridine	BRL		ug/Kg	330
108-95-2	Phenol	BRL		ug/Kg	330
62-53-3	Aniline	BRL		ug/Kg	330
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	330
95-57-8	2-Chlorophenol	BRL		ug/Kg	330
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	330
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	330
100-51-6	Benzyl Alcohol	BRL		ug/Kg	330
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	330
95-48-7	2-Methylphenol	BRL		ug/Kg	330
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	330
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	330
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	330
98-86-2	Acetophenone	BRL		ug/Kg	330
67-72-1	Hexachloroethane	BRL		ug/Kg	330
98-95-3	Nitrobenzene	BRL		ug/Kg	330
78-59-1	Isophorone	BRL		ug/Kg	330
88-75-5	2-Nitrophenol	BRL		ug/Kg	330
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	330
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	330
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	330
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	330
91-20-3	Naphthalene	BRL		ug/Kg	330
106-47-8	4-Chloroaniline	BRL		ug/Kg	330
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	330
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	330
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	330
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	670
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	330
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	330
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	330
88-74-4	2-Nitroaniline	BRL		ug/Kg	330
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	330
131-11-3	Dimethyl phthalate	BRL		ug/Kg	330
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	330
208-96-8	Acenaphthylene	BRL		ug/Kg	330
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	330
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	330
99-09-2	3-Nitroaniline	BRL		ug/Kg	330
83-32-9	Acenaphthene	BRL		ug/Kg	330
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	330
100-02-7	4-Nitrophenol	BRL		ug/Kg	330
132-64-9	Dibenzofuran	BRL		ug/Kg	330
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	330

GROUNDWATER ANALYTICAL

EPA Method 8270C (Continued)
Semivolatile Organics by GC/MS

Field ID:	**Bottom South (7')**	Matrix:	**Soil**
Project:	**Normans Lakeville Gulf/60158261-400**	Container:	**250 mL Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**136124-10**	QC Batch ID:	**SV-2389-P**
Sampled:	**09-09-10 11:30**	Instrument ID:	**MS-3 HP 5890**
Received:	**09-10-10 17:30**	Sample Weight:	**16 g**
Extracted:	**09-13-10 09:00**	Final Volume:	**1 mL**
Analyzed:	**09-15-10 13:04**	Dilution Factor:	**1**
Analyst:	**MJB**		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
84-66-2	Diethyl phthalate	BRL		ug/Kg	330
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	330
86-73-7	Fluorene	BRL		ug/Kg	330
100-01-6	4-Nitroaniline	BRL		ug/Kg	330
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	670
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	330
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	330
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	330
118-74-1	Hexachlorobenzene	BRL		ug/Kg	330
87-86-5	Pentachlorophenol	BRL		ug/Kg	330
85-01-8	Phenanthrene	BRL		ug/Kg	330
120-12-7	Anthracene	BRL		ug/Kg	330
86-74-8	Carbazole	BRL		ug/Kg	330
84-74-2	Di-n-butyl phthalate	BRL		ug/Kg	330
206-44-0	Fluoranthene	BRL		ug/Kg	330
129-00-0	Pyrene	BRL		ug/Kg	330
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	330
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	330
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	330
218-01-9	Chrysene	BRL		ug/Kg	330
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	330
117-84-0	Di-n-octyl phthalate	BRL		ug/Kg	330
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	330
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	330
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	330
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	330
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	330
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	330

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	13,000	9,500	**71** %	30 - 130 %
Phenol-d5	13,000	9,100	**68** %	30 - 130 %
Nitrobenzene-d5	6,700	5,600	**84** %	30 - 130 %
2-Fluorobiphenyl	6,700	6,300	**94** %	30 - 130 %
2,4,6-Tribromophenol	13,000	11,000	**79** %	30 - 130 %
Terphenyl-d14	6,700	7,500	**113** %	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545. Results are reported on a dry weight basis.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

* Analyzed as 4-Methylphenol.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

EPA Method 8270C
Semivolatile Organics by GC/MS

Field ID:	**Bottom North (7')**	Matrix:	**Soil**
Project:	**Normans Lakeville Gulf/60158261-400**	Container:	**250 mL Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**136124-11**	QC Batch ID:	**SV-2389-P**
Sampled:	**09-09-10 12:05**	Instrument ID:	**MS-3 HP 5890**
Received:	**09-10-10 17:30**	Sample Weight:	**15 g**
Extracted:	**09-13-10 09:00**	Final Volume:	**1 mL**
Analyzed:	**09-15-10 13:46**	Percent Solids:	**90**
Analyst:	**MJB**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	360
110-86-1	Pyridine	BRL		ug/Kg	360
108-95-2	Phenol	BRL		ug/Kg	360
62-53-3	Aniline	BRL		ug/Kg	360
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	360
95-57-8	2-Chlorophenol	BRL		ug/Kg	360
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	360
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	360
100-51-6	Benzyl Alcohol	BRL		ug/Kg	360
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	360
95-48-7	2-Methylphenol	BRL		ug/Kg	360
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	360
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	360
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	360
98-86-2	Acetophenone	BRL		ug/Kg	360
67-72-1	Hexachloroethane	BRL		ug/Kg	360
98-95-3	Nitrobenzene	BRL		ug/Kg	360
78-59-1	Isophorone	BRL		ug/Kg	360
88-75-5	2-Nitrophenol	BRL		ug/Kg	360
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	360
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	360
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	360
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	360
91-20-3	Naphthalene	BRL		ug/Kg	360
106-47-8	4-Chloroaniline	BRL		ug/Kg	360
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	360
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	360
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	360
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	720
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	360
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	360
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	360
88-74-4	2-Nitroaniline	BRL		ug/Kg	360
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	360
131-11-3	Dimethyl phthalate	BRL		ug/Kg	360
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	360
208-96-8	Acenaphthylene	BRL		ug/Kg	360
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	360
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	360
99-09-2	3-Nitroaniline	BRL		ug/Kg	360
83-32-9	Acenaphthene	BRL		ug/Kg	360
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	360
100-02-7	4-Nitrophenol	BRL		ug/Kg	360
132-64-9	Dibenzofuran	BRL		ug/Kg	360
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	360

GROUNDWATER ANALYTICAL

EPA Method 8270C (Continued)
Semivolatile Organics by GC/MS

Field ID:	**Bottom North (7')**	Matrix:	**Soil**
Project:	**Normans Lakeville Gulf/60158261-400**	Container:	**250 mL Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**136124-11**	QC Batch ID:	**SV-2389-P**
Sampled:	**09-09-10 12:05**	Instrument ID:	**MS-3 HP 5890**
Received:	**09-10-10 17:30**	Sample Weight:	**15 g**
Extracted:	**09-13-10 09:00**	Final Volume:	**1 mL**
Analyzed:	**09-15-10 13:46**	Dilution Factor:	**1**
Analyst:	**MJB**		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
84-66-2	Diethyl phthalate	BRL		ug/Kg	360
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	360
86-73-7	Fluorene	BRL		ug/Kg	360
100-01-6	4-Nitroaniline	BRL		ug/Kg	360
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	720
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	360
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	360
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	360
118-74-1	Hexachlorobenzene	BRL		ug/Kg	360
87-86-5	Pentachlorophenol	BRL		ug/Kg	360
85-01-8	Phenanthrene	BRL		ug/Kg	360
120-12-7	Anthracene	BRL		ug/Kg	360
86-74-8	Carbazole	BRL		ug/Kg	360
84-74-2	Di-*n*-butyl phthalate	BRL		ug/Kg	360
206-44-0	Fluoranthene	BRL		ug/Kg	360
129-00-0	Pyrene	BRL		ug/Kg	360
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	360
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	360
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	360
218-01-9	Chrysene	BRL		ug/Kg	360
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	360
117-84-0	Di-*n*-octyl phthalate	BRL		ug/Kg	360
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	360
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	360
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	360
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	360
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	360
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	360

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	14,000	7,300	**51 %**	30 - 130 %
Phenol-d5	14,000	7,000	**49 %**	30 - 130 %
Nitrobenzene-d5	7,200	4,100	**58 %**	30 - 130 %
2-Fluorobiphenyl	7,200	4,700	**65 %**	30 - 130 %
2,4,6-Tribromophenol	14,000	7,900	**55 %**	30 - 130 %
Terphenyl-d14	7,200	5,200	**72 %**	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545. Results are reported on a dry weight basis.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

* Analyzed as 4-Methylphenol.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

Project Narrative

Project:	**Normans Lakeville Gulf/60158261-400**	Lab ID:	**136124**
Client:	**AECOM Environment**	Received:	**09-10-10 17:30**

A. Documentation and Client Communication

The following documentation discrepancies, and client changes or amendments were noted for this project:

1. No documentation discrepancies, changes, or amendments were noted.

B. Method Modifications, Non-Conformances and Observations

The sample(s) in this project were analyzed by the references analytical method(s), and no method modifications, non-conformances or analytical issues were noted, except as indicated below:

1. EPA 8260B Note: Sample 136124-1. Sample was diluted prior to analysis. Dilution was required to keep all target analytes within calibration.
2. Sample 136124-6 was not received with sample collection time listed on the Chain of Custody. Sample was reported with a sampling collection time of 00:00 by the laboratory.
3. EPA 8260B Non-conformance: Laboratory control sample (LCS) analyte Dichlorodifluoromethane was below recommended recovery limits for QC batch VM1-2909-E.
4. EPA 8260B Non-conformance: Laboratory control sample (LCS) analyte Dichlorodifluoromethane had an RPD recovery outside recommended recovery limits for QC batch VM1-2909-E.

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CHAIN-OF-CUSTODY RECORD AND WORK ORDER

Project Name: Norman's Lakeville Gulf two Hyde Park, NY	Firm: AECOM
Project Number: 60158241-400	Address: 2 Technology Park Drive
Sampler Name: Jeanne Newell	City / State / Zip: Westford, MA 01886
Project Manager: Jennifer Hadden	Telephone: 978-589-3078

INSTRUCTIONS: Use separate line for each container (except replicates).

TURNAROUND

- ☐ 10 Business Days
- ☐ 5 Business Days
- ☒ RUSH (RAN- 24 hour) (Rush requires Rush Authorization Number)
- ☒ Please Email to: jennifer.hadden@aecom.com
- ☐ Please FAX to:

BILLING

- ☐ Purchase Order No.:
- ☒ Third Party Billing: Gulf Oil LP
- ☐ GWA Quote:

ANALYSIS REQUEST

OPTIONS: ☐ TCLP Metals
3DWA: ☐ 524.2 ☐ 525.2 ☐ 8260 ☐ 200 ☐ 8270 ☐ 625.1 ☐ 8151A ☐ 8081A/8082A ☐ 1,4-dioxane/Dioxane
NPDES: ☐ 624 ☐ 1664-HEM ☐ 625 ☐ 608 Pesticides ☐ 608 PCBs ☐ 8151A Herbicides ☐ 8011 EDB/DBCP ☐ 1664 Hexane Extr. ☐ Phenols ☐ Cyanide ☐ Sulfide ☐ Nitrate ☐ Nitrite ☐ Ortho-P ☐ Turbidity ☐ Chloride ☐ Fluoride ☐ Sulfate ☐ Total Kjeldahl N ☐ Ammonia ☐ Total Phosphorus ☐ Oil & Grease ☐ TOC ☐ TSS ☐ Hardness
RCRA/TCP: ☐ 8260B TCL+VHC ☐ 8260B Aromatics ☐ 8260B Halocarbons ☐ 8021B Aromatics ☐ 8270C ☐ 8270C Acid Only ☐ 8270C BN Only ☐ 8082 PCBs ☐ 8151A Herbicides ☐ 8011 EDB/DBCP ☐ 6010A ☐ 7470A/7471A ☐ 1311 TCLP Extraction ☐ 1312 SPLP Extraction ☐ 9012A Total Cyanide ☐ 9014 Amenable Cyanide ☐ 9045C Soil pH ☐ 1010 Ignitability ☐ 1020 Flashpoint ☐ 9040B pH ☐ 9050A Specific Conductance ☐ 9065 Phenolics (spectrophotometric, manual) ☐ 9095A Paint Filter Liquids ☐ 9034 Titration for Sulfides ☐ 7196A Hexavalent Chromium ☐ 1030 Ignitability, Solids ☐ 9014 Total Cyanide and Amenable Cyanide (distillation)
Metals: Specify For Water Samples: ☐ Total ☐ Dissolved
Petroleum Hydrocarbon Ext. TPH: ☐ EPH ☐ VPH
Haz. Waste: ☐ Ignitability ☐ Corrosivity ☐ Reactivity
General Chemistry: ☐ Alkalinity
Other: ☐ Perchlorate ☐ Hexavalent Chromium ☐ Total Coliform and E. coli (SM 9223B)

Sampling DATE	Sampling TIME	SAMPLE IDENTIFICATION	Matrix	Type	Container(s)	Preservation	Filtered	LABORATORY NUMBER (Lab Use Only)
9/10	1400	Locust Wall (5')	SOIL	COMPOSITE	8 2 4	Methanol		
9/10	1415	North wall (5')	SOIL	COMPOSITE	8 1 4 2	Methanol		
9/10	1120	North & East Sidewall (5')	SOIL	COMPOSITE	6 6 2	Methanol		
9/10	1130	Bottom South (7')	SOIL	COMPOSITE	6 4 2	Methanol		
9/10	1205	Bottom North (7')	SOIL	COMPOSITE	6 6 2	Methanol		
	1418	Trip Blank	TRIP BLANK		4 4	Methanol		

REMARKS / SPECIAL INSTRUCTIONS

- ☐ YES ☒ NO MCP Data Certification required.
- ☐ YES ☒ NO MCP Drinking Water Sample included.
- (Volatile analyses require duplicate collection and Trip Blanks).
- ☐ Analyze Duplicates and Trips Blanks only if positive results.
- ☐ YES ☒ NO GT RCP Data Certification required.

Signature: Jean Newell

DATA QUALITY OBJECTIVES

Regulatory Program

State	Standard	Deliverables
☐ CT	☐ MCP GW-1/S-1	☐ PWS Form
☐ ME	☐ MCP GW-2/S-2	☐ MWRA
☐ MA	☐ NY STARS	☐ _____
☐ NH	☐ Drinking Water	
☒ NY	☐ Wastewater	
☐ RI	☐ Waste Disposal	
☐ VT	☐ Dredge Material	
☐ ___	☐ _____	

Project Specific QC

Many regulatory programs and EPA methods require project specific QC. Project specific QC includes Sample Duplicates, Matrix Spikes, and/or Matrix Spike Duplicates. Laboratory QC is not project specific unless prearranged. Project specific QC samples are charged on a per sample basis. **Each MS, MSD and Sample Duplicate requires an additional sample aliquot.**

Project Specific QC Required	Selection of QC Sample
☐ Sample Duplicate	☐ Please use sample:
☐ Matrix Spike	
☐ Matrix Spike Duplicate	

CHAIN-OF-CUSTODY RECORD

NOTE: All samples submitted subject to Standard Terms and Conditions on reverse hereof.

Relinquished by Sampler:	Date	Time	Received by:	Receipt Temperature:
Jean Newell	9/10/10	0940	Joe Casey	3.4 ☐ Ice ☐ Refrigerated (4°C Recommended)
Relinquished by:	Date	Time	Received by:	Container Count:
Joe Casey	9/10/10	1730		36
Relinquished by:	Date	Time	Received by Laboratory:	Shipping/Airbill Number:

Method of Shipment: ☐ GWA Courier ☐ Express Mail ☐ Federal Express ☐ UPS ☐ Hand ☐ _____ Custody Seal Number:

Quality Assurance/Quality Control

A. Program Overview

Groundwater Analytical conducts an active Quality Assurance program to ensure the production of high quality, valid data. This program closely follows the guidance provided by *Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans,* US EPA QAMS-005/80 (1980), and *Test Methods for Evaluating Solid Waste,* US EPA, SW-846, Update III (1996).

Quality Control protocols include written Standard Operating Procedures (SOPs) developed for each analytical method. SOPs are derived from US EPA methodologies and other established references. Standards are prepared from commercially obtained reference materials of certified purity, and documented for traceability.

Quality Assessment protocols for most organic analyses include a minimum of one laboratory control sample, one method blank, one matrix spike sample, and one sample duplicate for each sample preparation batch. All samples, standards, blanks, laboratory control samples, matrix spikes and sample duplicates are spiked with internal standards and surrogate compounds. All instrument sequences begin with an initial calibration verification standard and a blank; and excepting GC/MS sequences, all sequences close with a continuing calibration standard. GC/MS systems are tuned to appropriate ion abundance criteria daily, or for each 12 hour operating period, whichever is more frequent.

Quality Assessment protocols for most inorganic analyses include a minimum of one laboratory control sample, one method blank, one matrix spike sample, and one sample duplicate for each sample preparation batch. Standard curves are derived from one reagent blank and four concentration levels. Curve validity is verified by standard recoveries within plus or minus ten percent of the curve.

B. Definitions

Batches are used as the basic unit for Quality Assessment. A Batch is defined as twenty or fewer samples of the same matrix which are prepared together for the same analysis, using the same lots of reagents and the same techniques or manipulations, all within the same continuum of time, up to but not exceeding 24 hours.

Laboratory Control Samples are used to assess the accuracy of the analytical method. A Laboratory Control Sample consists of reagent water or sodium sulfate spiked with a group of target analytes representative of the method analytes. Accuracy is defined as the degree of agreement of the measured value with the true or expected value. Percent Recoveries for the Laboratory Control Samples are calculated to assess accuracy.

Method Blanks are used to assess the level of contamination present in the analytical system. Method Blanks consist of reagent water or an aliquot of sodium sulfate. Method Blanks are taken through all the appropriate steps of an analytical method. Sample data reported is not corrected for blank contamination.

Surrogate Compounds are used to assess the effectiveness of an analytical method in dealing with each sample matrix. Surrogate Compounds are organic compounds which are similar to the target analytes of interest in chemical behavior, but which are not normally found in environmental samples. Percent Recoveries are calculated for each Surrogate Compound.

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8260B	Instrument ID:	MS-1 HP 5890	Instrument ID:	MS-1 HP 5890
QC Batch ID:	VM1-2909-E	Analyzed:	09-13-10 08:39	Analyzed:	09-13-10 09:14
Matrix:	Soil	Analyst:	LMG	Analyst:	LMG
Units:	ug/kg				

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
75-71-8	Dichlorodifluoromethane	2,500	2,400	97 %	2,500	1,200	50 % q	64 % q	70 - 130 %	20%
74-87-3	Chloromethane	2,500	2,300	94 %	2,500	2,100	82 %	13 %	70 - 130 %	20%
75-01-4	Vinyl Chloride	2,500	2,700	110 %	2,500	2,300	91 %	19 %	70 - 130 %	20%
74-83-9	Bromomethane	2,500	2,600	102 %	2,500	2,400	94 %	8 %	70 - 130 %	20%
75-00-3	Chloroethane	2,500	2,400	96 %	2,500	2,100	85 %	12 %	70 - 130 %	20%
75-69-4	Trichlorofluoromethane	2,500	2,400	95 %	2,500	2,200	87 %	9 %	70 - 130 %	20%
60-29-7	Diethyl Ether	5,000	4,400	88 %	5,000	4,200	84 %	4 %	70 - 130 %	20%
75-35-4	1,1-Dichloroethene	2,500	2,500	102 %	2,500	2,300	93 %	10 %	70 - 130 %	20%
76-13-1	1,1,2-Trichlorotrifluoroethane	5,000	5,500	109 %	5,000	5,500	111 %	1 %	70 - 130 %	20%
67-64-1	Acetone	5,000	4,700	95 %	5,000	4,300	86 %	10 %	70 - 130 %	20%
75-15-0	Carbon Disulfide	5,000	4,100	83 %	5,000	4,200	84 %	1 %	70 - 130 %	20%
75-09-2	Methylene Chloride	2,500	2,500	101 %	2,500	2,200	88 %	14 %	70 - 130 %	20%
107-13-1	Acrylonitrile	2,500	2,500	98 %	2,500	2,200	89 %	10 %	70 - 130 %	20%
156-60-5	*trans*-1,2-Dichloroethene	2,500	2,500	101 %	2,500	2,300	93 %	8 %	70 - 130 %	20%
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	2,500	2,500	99 %	2,500	2,200	87 %	12 %	70 - 130 %	20%
75-34-3	1,1-Dichloroethane	2,500	2,300	91 %	2,500	2,100	83 %	9 %	70 - 130 %	20%
594-20-7	2,2-Dichloropropane	2,500	2,400	94 %	2,500	2,100	86 %	9 %	70 - 130 %	20%
156-59-2	*cis*-1,2-Dichloroethene	2,500	2,600	103 %	2,500	2,400	96 %	7 %	70 - 130 %	20%
78-93-3	2-Butanone (MEK)	5,000	4,800	97 %	5,000	4,700	95 %	2 %	70 - 130 %	20%
74-97-5	Bromochloromethane	2,500	2,800	111 %	2,500	2,600	103 %	8 %	70 - 130 %	20%
109-99-9	Tetrahydrofuran (THF)	5,000	4,900	98 %	5,000	4,400	89 %	9 %	70 - 130 %	20%
67-66-3	Chloroform	2,500	2,400	94 %	2,500	2,300	92 %	3 %	70 - 130 %	20%
71-55-6	1,1,1-Trichloroethane	2,500	2,300	91 %	2,500	2,200	89 %	3 %	70 - 130 %	20%
56-23-5	Carbon Tetrachloride	2,500	2,500	100 %	2,500	2,400	95 %	5 %	70 - 130 %	20%
563-58-6	1,1-Dichloropropene	2,500	2,300	94 %	2,500	2,200	88 %	6 %	70 - 130 %	20%
71-43-2	Benzene	2,500	2,500	99 %	2,500	2,300	92 %	8 %	70 - 130 %	20%
107-06-2	1,2-Dichloroethane	2,500	2,200	89 %	2,500	2,100	83 %	8 %	70 - 130 %	20%
79-01-6	Trichloroethene	2,500	2,400	97 %	2,500	2,500	99 %	2 %	70 - 130 %	20%
78-87-5	1,2-Dichloropropane	2,500	2,300	91 %	2,500	2,000	81 %	11 %	70 - 130 %	20%
74-95-3	Dibromomethane	2,500	2,300	91 %	2,500	2,100	85 %	7 %	70 - 130 %	20%
75-27-4	Bromodichloromethane	2,500	2,400	97 %	2,500	2,300	91 %	7 %	70 - 130 %	20%
123-91-1	1,4-Dioxane	50,000	45,000	90 %	50,000	38,000	77 %	16 %	70 - 130 %	20%
10061-01-5	*cis*-1,3-Dichloropropene	2,500	2,500	98 %	2,500	2,300	90 %	8 %	70 - 130 %	20%
108-10-1	4-Methyl-2-Pentanone (MIBK)	5,000	4,400	88 %	5,000	4,000	79 %	11 %	70 - 130 %	20%
108-88-3	Toluene	2,500	2,300	92 %	2,500	2,300	92 %	1 %	70 - 130 %	20%
10061-02-6	*trans*-1,3-Dichloropropene	2,500	2,300	90 %	2,500	2,300	93 %	3 %	70 - 130 %	20%
79-00-5	1,1,2-Trichloroethane	2,500	2,400	96 %	2,500	2,400	94 %	2 %	70 - 130 %	20%
127-18-4	Tetrachloroethene	2,500	2,800	111 %	2,500	2,800	110 %	0 %	70 - 130 %	20%
142-28-9	1,3-Dichloropropane	2,500	2,300	93 %	2,500	2,300	93 %	0 %	70 - 130 %	20%
591-78-6	2-Hexanone	5,000	4,700	93 %	5,000	4,300	87 %	7 %	70 - 130 %	20%
124-48-1	Dibromochloromethane	2,500	2,600	105 %	2,500	2,500	98 %	7 %	70 - 130 %	20%
106-93-4	1,2-Dibromoethane (EDB)	2,500	2,600	102 %	2,500	2,400	98 %	5 %	70 - 130 %	20%
108-90-7	Chlorobenzene	2,500	2,500	101 %	2,500	2,400	96 %	5 %	70 - 130 %	20%
630-20-6	1,1,1,2-Tetrachloroethane	2,500	2,700	108 %	2,500	2,600	105 %	3 %	70 - 130 %	20%
100-41-4	Ethylbenzene	2,500	2,500	99 %	2,500	2,400	97 %	2 %	70 - 130 %	20%
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	5,000	5,100	102 %	5,000	4,900	98 %	4 %	70 - 130 %	20%
95-47-6	*ortho*-Xylene	2,500	2,400	95 %	2,500	2,500	99 %	4 %	70 - 130 %	20%
100-42-5	Styrene	2,500	2,500	99 %	2,500	2,500	99 %	0 %	70 - 130 %	20%
75-25-2	Bromoform	2,500	3,100	123 %	2,500	2,800	113 %	8 %	70 - 130 %	20%

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8260B	Instrument ID:	MS-1 HP 5890	Instrument ID:	MS-1 HP 5890
QC Batch ID:	VM1-2909-E	Analyzed:	09-13-10 08:39	Analyzed:	09-13-10 09:14
Matrix:	Soil	Analyst:	LMG	Analyst:	LMG
Units:	ug/kg				

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
98-82-8	Isopropylbenzene	2,500	2,300	90 %	2,500	1,900	77 %	17 %	70 - 130 %	20%
108-86-1	Bromobenzene	2,500	2,600	103 %	2,500	2,300	91 %	12 %	70 - 130 %	20%
79-34-5	1,1,2,2-Tetrachloroethane	2,500	2,200	89 %	2,500	1,800	74 %	18 %	70 - 130 %	20%
96-18-4	1,2,3-Trichloropropane	2,500	2,400	95 %	2,500	2,000	79 %	18 %	70 - 130 %	20%
110-57-6	trans-1,4-Dichloro-2-butene	10,000	9,700	97 %	10,000	8,900	89 %	8 %	70 - 130 %	20%
103-65-1	n-Propylbenzene	2,500	2,300	91 %	2,500	2,000	80 %	13 %	70 - 130 %	20%
95-49-8	2-Chlorotoluene	2,500	2,500	101 %	2,500	2,200	88 %	13 %	70 - 130 %	20%
108-67-8	1,3,5-Trimethylbenzene	2,500	2,500	98 %	2,500	2,100	86 %	14 %	70 - 130 %	20%
106-43-4	4-Chlorotoluene	2,500	2,600	103 %	2,500	2,100	85 %	19 %	70 - 130 %	20%
98-06-6	tert-Butylbenzene	2,500	2,400	97 %	2,500	2,200	87 %	11 %	70 - 130 %	20%
95-63-6	1,2,4-Trimethylbenzene	2,500	2,500	99 %	2,500	2,200	87 %	13 %	70 - 130 %	20%
135-98-8	sec-Butylbenzene	2,500	2,400	94 %	2,500	2,100	84 %	11 %	70 - 130 %	20%
541-73-1	1,3-Dichlorobenzene	2,500	2,500	100 %	2,500	2,200	89 %	12 %	70 - 130 %	20%
99-87-6	4-Isopropyltoluene	2,500	2,500	100 %	2,500	2,100	86 %	16 %	70 - 130 %	20%
106-46-7	1,4-Dichlorobenzene	2,500	2,500	101 %	2,500	2,100	86 %	17 %	70 - 130 %	20%
95-50-1	1,2-Dichlorobenzene	2,500	2,500	99 %	2,500	2,400	96 %	3 %	70 - 130 %	20%
104-51-8	n-Butylbenzene	2,500	2,300	93 %	2,500	2,000	80 %	15 %	70 - 130 %	20%
96-12-8	1,2-Dibromo-3-chloropropane	2,500	2,000	81 %	2,500	1,900	76 %	6 %	70 - 130 %	20%
108-70-3	1,3,5-Trichlorobenzene	2,500	2,800	110 %	2,500	2,500	99 %	11 %	70 - 130 %	20%
120-82-1	1,2,4-Trichlorobenzene	2,500	2,500	99 %	2,500	2,300	90 %	10 %	70 - 130 %	20%
87-68-3	Hexachlorobutadiene	2,500	2,200	86 %	2,500	2,000	82 %	5 %	70 - 130 %	20%
91-20-3	Naphthalene	2,500	2,400	96 %	2,500	2,000	79 %	19 %	70 - 130 %	20%
87-61-6	1,2,3-Trichlorobenzene	2,500	2,400	98 %	2,500	2,200	89 %	10 %	70 - 130 %	20%
75-65-0	tert-Butyl Alcohol (TBA)	50,000	42,000	84 %	50,000	38,000	75 %	11 %	70 - 130 %	20%
108-20-3	Di-isopropyl Ether (DIPE)	2,500	2,100	84 %	2,500	2,100	84 %	0 %	70 - 130 %	20%
637-92-3	Ethyl tert-butyl Ether (ETBE)	2,500	2,200	88 %	2,500	2,200	86 %	3 %	70 - 130 %	20%
994-05-8	tert-Amyl Methyl Ether (TAME)	2,500	2,100	84 %	2,500	2,100	84 %	1 %	70 - 130 %	20%

QC Surrogate Compound	Spiked	Measured	Recovery	Spiked	Measured	Recovery		QC Limits
Dibromofluoromethane	2,500	2,200	86 %	2,500	2,200	88 %		70 - 130 %
1,2-Dichloroethane-d_4	2,500	2,200	87 %	2,500	2,100	82 %		70 - 130 %
Toluene-d_8	2,500	2,300	93 %	2,500	2,400	95 %		70 - 130 %
4-Bromofluorobenzene	2,500	2,400	94 %	2,500	2,300	91 %		70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample preparation performed by EPA Method 5035A.

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

q Recovery outside recommended limits.

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: **EPA Method 8260B**
QC Batch ID: **VM1-2909-E**
Matrix: **Soil**

Instrument ID: **MS-1 HP 5890**
Analyzed: **09-13-10 09:49**
Analyst: **LMG**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	500
74-87-3	Chloromethane	BRL		ug/Kg	500
75-01-4	Vinyl Chloride	BRL		ug/Kg	500
74-83-9	Bromomethane	BRL		ug/Kg	500
75-00-3	Chloroethane	BRL		ug/Kg	500
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	500
60-29-7	Diethyl Ether	BRL		ug/Kg	500
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	250
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	2,500
67-64-1	Acetone	BRL		ug/Kg	2,500
75-15-0	Carbon Disulfide	BRL		ug/Kg	2,500
75-09-2	Methylene Chloride	BRL		ug/Kg	1,000
107-13-1	Acrylonitrile	BRL		ug/Kg	250
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	250
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	250
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	250
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	250
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	250
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	2,500
74-97-5	Bromochloromethane	BRL		ug/Kg	250
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	2,500
67-66-3	Chloroform	BRL		ug/Kg	250
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	250
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	250
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	250
71-43-2	Benzene	BRL		ug/Kg	250
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	250
79-01-6	Trichloroethene	BRL		ug/Kg	250
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	250
74-95-3	Dibromomethane	BRL		ug/Kg	250
75-27-4	Bromodichloromethane	BRL		ug/Kg	250
123-91-1	1,4-Dioxane	BRL		ug/Kg	250,000
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	250
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	2,500
108-88-3	Toluene	BRL		ug/Kg	250
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	250
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	250
127-18-4	Tetrachloroethene	BRL		ug/Kg	250
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	250
591-78-6	2-Hexanone	BRL		ug/Kg	2,500
124-48-1	Dibromochloromethane	BRL		ug/Kg	250
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	250
108-90-7	Chlorobenzene	BRL		ug/Kg	250
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	250
100-41-4	Ethylbenzene	BRL		ug/Kg	250
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL		ug/Kg	250
95-47-6	*ortho*-Xylene	BRL		ug/Kg	250
100-42-5	Styrene	BRL		ug/Kg	250
75-25-2	Bromoform	BRL		ug/Kg	250

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: **EPA Method 8260B**
QC Batch ID: **VM1-2909-E**
Matrix: **Soil**

Instrument ID: **MS-1 HP 5890**
Analyzed: **09-13-10 09:49**
Analyst: **LMG**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
98-82-8	Isopropylbenzene	BRL		ug/Kg	250
108-86-1	Bromobenzene	BRL		ug/Kg	250
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	250
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	250
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	2,500
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	250
95-49-8	2-Chlorotoluene	BRL		ug/Kg	250
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	250
106-43-4	4-Chlorotoluene	BRL		ug/Kg	250
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	250
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	250
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	250
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	250
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	250
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	250
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	250
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	250
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	250
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	250
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	250
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	250
91-20-3	Naphthalene	BRL		ug/Kg	250
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	250
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	10,000
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	250
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	250
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	250

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	2,500	2,200	**90** %	70 - 130 %
1,2-Dichloroethane-d_4	2,500	1,900	**76** %	70 - 130 %
Toluene-d_8	2,500	2,400	**94** %	70 - 130 %
4-Bromofluorobenzene	2,500	2,500	**102** %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample preparation performed by EPA Method 5035A.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8270C		MS-3 HP 5890	Instrument ID:	MS-3 HP 5890
QC Batch ID:	SV-2389-P	Extracted:	09-13-10 09:00	Extracted:	09-13-10 09:00
Matrix:	Soil	Analyzed:	09-15-10 08:57	Analyzed:	09-15-10 09:38
Units:	ug/Kg	Analyst:	MJB	Analyst:	MJB

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
62-75-9	N-Nitrosodimethylamine	3,300	2,100	64 %	3,300	2,100	62 %	3 %	40 - 140 %	30%
110-86-1	Pyridine	3,300	1,800	53 %	3,300	1,800	54 %	1 %	40 - 140 %	30%
108-95-2	Phenol	3,300	2,600	79 %	3,300	2,700	80 %	2 %	30 - 130 %	30%
62-53-3	Aniline	3,300	2,200	67 %	3,300	2,300	68 %	0 %	40 - 140 %	30%
111-44-4	Bis(2-chloroethyl) ether	3,300	2,300	69 %	3,300	2,300	68 %	2 %	40 - 140 %	30%
95-57-8	2-Chlorophenol	3,300	2,500	75 %	3,300	2,600	79 %	4 %	30 - 130 %	30%
541-73-1	1,3-Dichlorobenzene	3,300	2,400	72 %	3,300	2,400	72 %	0 %	40 - 140 %	30%
106-46-7	1,4-Dichlorobenzene	3,300	2,500	74 %	3,300	2,400	71 %	3 %	40 - 140 %	30%
100-51-6	Benzyl Alcohol	3,300	2,700	81 %	3,300	2,700	81 %	0 %	30 - 130 %	30%
95-50-1	1,2-Dichlorobenzene	3,300	2,400	72 %	3,300	2,400	73 %	2 %	40 - 140 %	30%
95-48-7	2-Methylphenol	3,300	2,500	75 %	3,300	2,500	76 %	2 %	30 - 130 %	30%
108-60-1	Bis(2-chloroisopropyl) ether	3,300	2,200	67 %	3,300	2,300	68 %	1 %	40 - 140 %	30%
106-44-5	4-Methylphenol	3,300	2,500	76 %	3,300	2,600	79 %	4 %	30 - 130 %	30%
621-64-7	N-Nitrosodi-n-propylamine	3,300	2,400	71 %	3,300	2,500	74 %	3 %	40 - 140 %	30%
98-86-2	Acetophenone	3,300	2,500	75 %	3,300	2,500	76 %	1 %	40 - 140 %	30%
67-72-1	Hexachloroethane	3,300	2,300	68 %	3,300	2,300	68 %	1 %	40 - 140 %	30%
98-95-3	Nitrobenzene	3,300	2,300	69 %	3,300	2,400	72 %	4 %	40 - 140 %	30%
78-59-1	Isophorone	3,300	2,400	72 %	3,300	2,400	73 %	1 %	40 - 140 %	30%
88-75-5	2-Nitrophenol	3,300	2,600	78 %	3,300	2,600	77 %	2 %	30 - 130 %	30%
105-67-9	2,4-Dimethylphenol	3,300	2,300	69 %	3,300	2,600	77 %	10 %	30 - 130 %	30%
111-91-1	Bis(2-chloroethoxy) methane	3,300	2,300	69 %	3,300	2,300	69 %	0 %	40 - 140 %	30%
120-83-2	2,4-Dichlorophenol	3,300	2,700	80 %	3,300	2,700	82 %	3 %	30 - 130 %	30%
120-82-1	1,2,4-Trichlorobenzene	3,300	2,600	78 %	3,300	2,600	77 %	1 %	40 - 140 %	30%
91-20-3	Naphthalene	3,300	2,500	75 %	3,300	2,400	73 %	2 %	40 - 140 %	30%
106-47-8	4-Chloroaniline	3,300	2,100	63 %	3,300	2,200	65 %	3 %	40 - 140 %	30%
87-68-3	Hexachlorobutadiene	3,300	2,500	76 %	3,300	2,500	76 %	1 %	40 - 140 %	30%
59-50-7	4-Chloro-3-methylphenol	3,300	2,500	75 %	3,300	2,500	75 %	0 %	30 - 130 %	30%
91-57-6	2-Methylnaphthalene	3,300	2,500	76 %	3,300	2,600	78 %	3 %	40 - 140 %	30%
77-47-4	Hexachlorocyclopentadiene	3,300	3,000	90 %	3,300	2,900	87 %	4 %	40 - 140 %	30%
88-06-2	2,4,6-Trichlorophenol	3,300	2,800	85 %	3,300	2,700	81 %	5 %	30 - 130 %	30%
95-95-4	2,4,5-Trichlorophenol	3,300	2,800	84 %	3,300	2,800	83 %	1 %	30 - 130 %	30%
91-58-7	2-Chloronaphthalene	3,300	2,700	81 %	3,300	2,600	79 %	3 %	40 - 140 %	30%
88-74-4	2-Nitroaniline	3,300	2,700	82 %	3,300	2,600	77 %	6 %	40 - 140 %	30%
100-25-4	1,4-Dinitrobenzene	3,300	2,900	86 %	3,300	2,800	83 %	4 %	40 - 140 %	30%
131-11-3	Dimethyl phthalate	3,300	2,800	83 %	3,300	2,700	81 %	2 %	40 - 140 %	30%
99-65-0	1,3-Dinitrobenzene	3,300	2,900	87 %	3,300	2,800	85 %	3 %	40 - 140 %	30%
208-96-8	Acenaphthylene	3,300	2,800	83 %	3,300	2,700	80 %	3 %	40 - 140 %	30%
606-20-2	2,6-Dinitrotoluene	3,300	2,800	85 %	3,300	2,700	81 %	4 %	40 - 140 %	30%
528-29-0	1,2-Dinitrobenzene	3,300	2,800	84 %	3,300	2,800	83 %	1 %	40 - 140 %	30%
99-09-2	3-Nitroaniline	3,300	2,500	75 %	3,300	2,400	73 %	2 %	40 - 140 %	30%
83-32-9	Acenaphthene	3,300	2,800	83 %	3,300	2,700	80 %	3 %	40 - 140 %	30%
51-28-5	2,4-Dinitrophenol	3,300	1,300	38 %	3,300	1,500	44 %	15 %	30 - 130 %	30%
100-02-7	4-Nitrophenol	3,300	3,000	89 %	3,300	2,800	83 %	8 %	30 - 130 %	30%
132-64-9	Dibenzofuran	3,300	2,800	83 %	3,300	2,700	81 %	4 %	40 - 140 %	30%
121-14-2	2,4-Dinitrotoluene	3,300	2,800	84 %	3,300	2,800	83 %	1 %	40 - 140 %	30%
84-66-2	Diethyl phthalate	3,300	2,800	83 %	3,300	2,700	81 %	3 %	40 - 140 %	30%
7005-72-3	4-Chlorophenyl phenyl ether	3,300	2,800	84 %	3,300	2,700	81 %	3 %	40 - 140 %	30%
86-73-7	Fluorene	3,300	2,700	82 %	3,300	2,700	81 %	2 %	40 - 140 %	30%

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8270C	Instrument ID:	MS-3 HP 5890	Instrument ID:	MS-3 HP 5890
QC Batch ID:	SV-2389-P	Extracted:	09-13-10 09:00	Extracted:	09-13-10 09:00
Matrix:	Soil	Analyzed:	09-15-10 08:57	Analyzed:	09-15-10 09:38
Units:	ug/Kg	Analyst:	MJB	Analyst:	MJB

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
100-01-6	4-Nitroaniline	3,300	2,700	80 %	3,300	2,600	79 %	1 %	40 - 140 %	30%
534-52-1	4,6-Dinitro-2-methylphenol	3,300	2,000	59 %	3,300	2,200	67 %	14 %	30 - 130 %	30%
86-30-6	N-Nitrosodiphenylamine †	3,300	2,700	81 %	3,300	2,800	84 %	4 %	40 - 140 %	30%
122-66-7	1,2-Diphenylhydrazine à	3,300	2,600	77 %	3,300	2,600	79 %	2 %	40 - 140 %	30%
101-55-3	4-Bromophenyl phenyl ether	3,300	2,700	82 %	3,300	2,900	87 %	6 %	40 - 140 %	30%
118-74-1	Hexachlorobenzene	3,300	2,700	80 %	3,300	2,800	84 %	5 %	40 - 140 %	30%
87-86-5	Pentachlorophenol	3,300	2,400	72 %	3,300	2,600	78 %	8 %	30 - 130 %	30%
85-01-8	Phenanthrene	3,300	2,700	81 %	3,300	2,800	84 %	4 %	40 - 140 %	30%
120-12-7	Anthracene	3,300	2,700	82 %	3,300	2,800	84 %	2 %	40 - 140 %	30%
86-74-8	Carbazole	3,300	2,800	83 %	3,300	2,800	84 %	1 %	40 - 140 %	30%
84-74-2	Di-*n*-butyl phthalate	3,300	2,700	80 %	3,300	2,800	83 %	4 %	40 - 140 %	30%
206-44-0	Fluoranthene	3,300	2,800	83 %	3,300	2,900	86 %	4 %	40 - 140 %	30%
129-00-0	Pyrene	3,300	2,800	83 %	3,300	2,800	84 %	1 %	40 - 140 %	30%
85-68-7	Butyl benzyl phthalate	3,300	2,700	81 %	3,300	2,700	81 %	1 %	40 - 140 %	30%
91-94-1	3,3'-Dichlorobenzidine	3,300	2,200	65 %	3,300	2,200	66 %	2 %	40 - 140 %	30%
56-55-3	Benzo[a]anthracene	3,300	2,700	82 %	3,300	2,800	84 %	2 %	40 - 140 %	30%
218-01-9	Chrysene	3,300	2,700	82 %	3,300	2,700	81 %	1 %	40 - 140 %	30%
117-81-7	Bis(2-ethylhexyl) phthalate	3,300	2,700	82 %	3,300	2,700	81 %	2 %	40 - 140 %	30%
117-84-0	Di-*n*-octyl phthalate	3,300	2,800	84 %	3,300	2,800	84 %	1 %	40 - 140 %	30%
205-99-2	Benzo[b]fluoranthene	3,300	2,800	84 %	3,300	2,800	83 %	1 %	40 - 140 %	30%
207-08-9	Benzo[k]fluoranthene	3,300	2,800	84 %	3,300	2,800	84 %	1 %	40 - 140 %	30%
50-32-8	Benzo[a]pyrene	3,300	2,700	82 %	3,300	2,700	81 %	1 %	40 - 140 %	30%
193-39-5	Indeno[1,2,3-c,d]pyrene	3,300	2,400	72 %	3,300	2,500	74 %	3 %	40 - 140 %	30%
53-70-3	Dibenzo[a,h]anthracene	3,300	2,600	77 %	3,300	2,500	76 %	2 %	40 - 140 %	30%
191-24-2	Benzo[g,h,i]perylene	3,300	2,500	75 %	3,300	2,500	74 %	1 %	40 - 140 %	30%

QC Surrogate Compound	Spiked	Measured	Recovery	Spiked	Measured	Recovery		QC Limits
2-Fluorophenol	13,000	10,000	79 %	13,000	10,000	75 %		30 - 130 %
Phenol-d5	13,000	10,000	77 %	13,000	11,000	82 %		30 - 130 %
Nitrobenzene-d5	6,700	5,800	87 %	6,700	5,900	89 %		30 - 130 %
2-Fluorobiphenyl	6,700	6,800	101 %	6,700	6,600	99 %		30 - 130 %
2,4,6-Tribromophenol	13,000	12,000	93 %	13,000	12,000	89 %		30 - 130 %
Terphenyl-d14	6,700	7,300	110 %	6,700	7,200	108 %		30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545.

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category:	**EPA Method 8270C**	Instrument ID:	**MS-3 HP 5890**
QC Batch ID:	**SV-2389-P**	Extracted:	**09-13-10 09:00**
Matrix:	**Soil**	Analyzed:	**09-15-10 10:19**
		Analyst:	**MJB**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	330
110-86-1	Pyridine	BRL		ug/Kg	330
108-95-2	Phenol	BRL		ug/Kg	330
62-53-3	Aniline	BRL		ug/Kg	330
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	330
95-57-8	2-Chlorophenol	BRL		ug/Kg	330
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	330
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	330
100-51-6	Benzyl Alcohol	BRL		ug/Kg	330
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	330
95-48-7	2-Methylphenol	BRL		ug/Kg	330
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	330
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	330
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	330
98-86-2	Acetophenone	BRL		ug/Kg	330
67-72-1	Hexachloroethane	BRL		ug/Kg	330
98-95-3	Nitrobenzene	BRL		ug/Kg	330
78-59-1	Isophorone	BRL		ug/Kg	330
88-75-5	2-Nitrophenol	BRL		ug/Kg	330
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	330
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	330
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	330
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	330
91-20-3	Naphthalene	BRL		ug/Kg	330
106-47-8	4-Chloroaniline	BRL		ug/Kg	330
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	330
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	330
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	330
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	670
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	330
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	330
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	330
88-74-4	2-Nitroaniline	BRL		ug/Kg	330
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	330
131-11-3	Dimethyl phthalate	BRL		ug/Kg	330
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	330
208-96-8	Acenaphthylene	BRL		ug/Kg	330
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	330
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	330
99-09-2	3-Nitroaniline	BRL		ug/Kg	330
83-32-9	Acenaphthene	BRL		ug/Kg	330
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	330
100-02-7	4-Nitrophenol	BRL		ug/Kg	330
132-64-9	Dibenzofuran	BRL		ug/Kg	330
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	330
84-66-2	Diethyl phthalate	BRL		ug/Kg	330
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	330
86-73-7	Fluorene	BRL		ug/Kg	330
100-01-6	4-Nitroaniline	BRL		ug/Kg	330

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: **EPA Method 8270C**
QC Batch ID: **SV-2389-P**
Matrix: **Soil**

Instrument ID: **MS-3 HP 5890**
Extracted: **09-13-10 09:00**
Analyzed: **09-15-10 10:19**
Analyst: **MJB**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	670
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	330
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	330
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	330
118-74-1	Hexachlorobenzene	BRL		ug/Kg	330
87-86-5	Pentachlorophenol	BRL		ug/Kg	330
85-01-8	Phenanthrene	BRL		ug/Kg	330
120-12-7	Anthracene	BRL		ug/Kg	330
86-74-8	Carbazole	BRL		ug/Kg	330
84-74-2	Di-*n*-butyl phthalate	BRL		ug/Kg	330
206-44-0	Fluoranthene	BRL		ug/Kg	330
129-00-0	Pyrene	BRL		ug/Kg	330
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	330
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	330
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	330
218-01-9	Chrysene	BRL		ug/Kg	330
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	330
117-84-0	Di-*n*-octyl phthalate	BRL		ug/Kg	330
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	330
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	330
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	330
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	330
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	330
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	330

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	13,000	7,400	**56** %	30 - 130 %
Phenol-d5	13,000	8,000	**60** %	30 - 130 %
Nitrobenzene-d5	6,700	4,700	**70** %	30 - 130 %
2-Fluorobiphenyl	6,700	5,000	**75** %	30 - 130 %
2,4,6-Tribromophenol	13,000	7,800	**59** %	30 - 130 %
Terphenyl-d14	6,700	5,500	**82** %	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample extraction performed by EPA Method 3545.

Report Notations:
BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.
* Analyzed as 4-Methylphenol.
† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.
◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

Certifications and Approvals

Groundwater Analytical maintains environmental laboratory certification in a variety of states. Copies of our current certificates may be obtained from our website:

http://www.groundwateranalytical.com/qualifications.htm

CONNECTICUT

Department of Health Services, PH-0586 — Potable Water, Wastewater, Solid Waste and Soil
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/Out_State.pdf

MASSACHUSETTS

Department of Environmental Protection, M-MA-103 — Potable Water and Non-Potable Water
http://public.dep.state.ma.us/labcert/labcert.aspx

Department of Labor, Division of Occupational Safety, AA000195 — Asbestos Analytical Services, Class A
http://www.mass.gov/dos/forms/la-rpt_list_aa.pdf

NEW HAMPSHIRE

Department of Environmental Services, 202708 — Potable Water, Non-Potable Water, Solid and Chemical Materials
http://www4.egov.nh.gov/DES/NHELAP

NEW YORK

Department of Health, 11754 — Potable Water, Non-Potable Water, Solid and Hazardous Waste
http://www.wadsworth.org/labcert/elap/comm.html

RHODE ISLAND

Department of Health, Division of Laboratories, LAO00054 — Potable and Non-Potable Water Microbiology, Organic and Inorganic Chemistry
http://www.health.ri.gov/labs/outofstatelabs.pdf

U.S. DEPARTMENT OF AGRICULTURE

USDA, Soil Permit, S-53921 — Foreign soil import permit

VERMONT

Department of Health, VT-87643 — Potable Water
http://healthvermont.gov/enviro/ph_lab/water_test.aspx#cert

GROUNDWATER ANALYTICAL

Certifications and Approvals

MASSACHUSETTS — Department of Environmental Protection, M-MA-103

Groundwater Analytical maintains MassDEP environmental laboratory certification for only the methods and analytes listed below. Analyses for certified analytes are conducted in accordance with MassDEP certification standards, except as may be specifically noted in the project narrative.

Potable Water (Drinking Water)

Analyte	Method
1,2-Dibromo-3-Chloropropane	EPA 504.1
1,2-Dibromoethane	EPA 504.1
Alkalinity, Total	SM 2320-B
Antimony	EPA 200.8
Arsenic	EPA 200.8
Barium	EPA 200.7
Barium	EPA 200.8
Beryllium	EPA 200.7
Beryllium	EPA 200.8
Cadmium	EPA 200.7
Cadmium	EPA 200.8
Calcium	EPA 200.7
Chlorine, Residual Free	SM 4500-CL-G
Chromium	EPA 200.7
Cyanide, Total	Lachat 10-204-00-1-A
E. Coli (Treatment and Distribution)	Enz. Sub. SM 9223
E. Coli (Treatment and Distribution)	NA-MUG SM 9222-G
Fecal Coliform (Source Water)	MF SM 9222-D
Fluoride	EPA 300.0
Fluoride	SM 4500-F-C
Heterotrophic Plate Count	SM 9215-B
Lead	EPA 200.8
Mercury	EPA 245.1
Nickel	EPA 200.7
Nickel	EPA 200.8
Nitrate-N	EPA 300.0
Nitrate-N	Lachat 10-107-04-1-C
Nitrite-N	EPA 300.0
Nitrite-N	Lachat 10-107-04-1-C
pH	SM 4500-H-B
Selenium	EPA 200.8
Silver	EPA 200.7
Silver	EPA 200.8
Sodium	EPA 200.7
Sulfate	EPA 300.0
Thallium	EPA 200.8
Total Coliform (Treatment and Distribution)	Enz. Sub. SM 9223
Total Coliform (Treatment and Distribution)	MF SM 9222-B
Total Dissolved Solids	SM 2540-C
Trihalomethanes	EPA 524.2
Turbidity	SM 2130-B
Volatile Organic Compounds	EPA 524.2

Non-Potable Water (Wastewater)

Analyte	Method
Aldrin	EPA 608
Alkalinity, Total	SM 2320-B
Alpha-BHC	EPA 608
Aluminum	EPA 200.7
Aluminum	EPA 200.8
Ammonia-N	Lachat 10-107-06-1-B

Non-Potable Water (Wastewater)

Analyte	Method
Antimony	EPA 200.7
Antimony	EPA 200.8
Arsenic	EPA 200.7
Arsenic	EPA 200.8
Beryllium	EPA 200.7
Beryllium	EPA 200.8
Beta-BHC	EPA 608
Biochemical Oxygen Demand	SM 5210-B
Cadmium	EPA 200.7
Cadmium	EPA 200.8
Calcium	EPA 200.7
Chemical Oxygen Demand	SM 5220-D
Chlordane	EPA 608
Chloride	EPA 300.0
Chlorine, Total Residual	SM 4500-CL-G
Chromium	EPA 200.7
Chromium	EPA 200.8
Cobalt	EPA 200.7
Cobalt	EPA 200.8
Copper	EPA 200.7
Copper	EPA 200.8
Cyanide, Total	Lachat 10-204-00-1-A
DDD	EPA 608
DDE	EPA 608
DDT	EPA 608
Delta-BHC	EPA 608
Dieldrin	EPA 608
Endosulfan I	EPA 608
Endosulfan II	EPA 608
Endosulfan Sulfate	EPA 608
Endrin	EPA 608
Endrin Aldehyde	EPA 608
Fluoride	EPA 300.0
Gamma-BHC	EPA 608
Hardness (CaCO3), Total	EPA 200.7
Hardness (CaCO3), Total	SM 2340-B
Heptachlor	EPA 608
Heptachlor Epoxide	EPA 608
Iron	EPA 200.7
Kjeldahl-N	Lachat 10-107-06-02-D
Lead	EPA 200.7
Magnesium	EPA 200.7
Manganese	EPA 200.7
Manganese	EPA 200.8
Mercury	EPA 245.1
Molybdenum	EPA 200.7
Molybdenum	EPA 200.8
Nickel	EPA 200.7
Nickel	EPA 200.8
Nitrate-N	EPA 300.0
Nitrate-N	Lachat 10-107-04-1-C
Non-Filterable Residue	SM 2540-D
Oil and Grease	EPA 1664

GROUNDWATER ANALYTICAL

Certifications and Approvals

MASSACHUSETTS — **Department of Environmental Protection, M-MA-103**

Groundwater Analytical maintains MassDEP environmental laboratory certification for only the methods and analytes listed below. Analyses for certified analytes are conducted in accordance with MassDEP certification standards, except as may be specifically noted in the project narrative.

Non-Potable Water (Wastewater)

Analyte	Method
Orthophosphate	Lachat 10-115-01-1-A
pH	SM 4500-H-B
Phenolics, Total	EPA 420.4
Phenolics, Total	Lachat 10-210-00-1-B
Phosphorus, Total	Lachat 10-115-01-1-C
Phosphorus, Total	SM 4500-P-B,E
Polychlorinated Biphenyls (Oil)	EPA 600/4-81-045
Polychlorinated Biphenyls (Water)	EPA 608
Potassium	EPA 200.7
Selenium	EPA 200.7
Selenium	EPA 200.8
Silver	EPA 200.7
Sodium	EPA 200.7
Specific Conductivity	SM 2510-B
Strontium	EPA 200.7
Sulfate	EPA 300.0
SVOC-Acid Extractables	EPA 625
SVOC-Base/Neutral Extractables	EPA 625
Thallium	EPA 200.7
Thallium	EPA 200.8
Titanium	EPA 200.7
Total Dissolved Solids	SM 2540-C
Total Organic Carbon	SM 5310-B
Toxaphene	EPA 608
Vanadium	EPA 200.7
Vanadium	EPA 200.8
Volatile Aromatics	EPA 602
Volatile Aromatics	EPA 624
Volatile Halocarbons	EPA 624
Zinc	EPA 200.7
Zinc	EPA 200.8

Hyde Park #213
(09/10)

GROUNDWATER ANALYTICAL

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Buzzards Bay, MA 02532

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September 16, 2010

Ms. Jennifer Hadden
AECOM Environment
2 Technology Park Drive
Westford, MA 01886

LABORATORY REPORT

Project: **New Hyde Park/60158261**
Lab ID: **136160**
Received: **09-09-10**

Dear Jennifer:

Enclosed are the analytical results for the above referenced project. The project was processed for Rush 4 Business Day turnaround.

This letter authorizes the release of the analytical results, and should be considered a part of this report. This report contains a sample receipt report detailing the samples received, a project narrative indicating project changes and non-conformances, a quality control report, and a statement of our state certifications.

The analytical results contained in this report meet all applicable NELAC or NVLAP standards, except as may be specifically noted, or described in the project narrative. The analytical results relate only to the samples received. This report may only be used or reproduced in its entirety.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Should you have any questions concerning this report, please do not hesitate to contact me.

Sincerely,

Eric H. Jensen
Operations Manager

EHJ/elm
Enclosures

GROUNDWATER ANALYTICAL

Sample Receipt Report

Project: **New Hyde Park/60158261**
Client: **AECOM Environment**
Lab ID: **136160**

Delivery: **GWA Courier**
Airbill: **n/a**
Lab Receipt: **09-09-10**

Temperature: **2.6°C**
Chain of Custody: **Present**
Custody Seal(s): **n/a**

Lab ID	Field ID		Matrix	Sampled	Method				Notes
136160-1	Bay 3 Bottom		Soil	9/8/10 9:00	EPA 8260B Volatile Organics with Oxygenates				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1280853	40 mL VOA Vial	Scientific	BX37079	n/a	R-6223C	07-16-10	n/a		
C1280841	40 mL VOA Vial	Scientific	BX37079	n/a	R-6223C	07-16-10	n/a		
C1276037	40 mL VOA Vial	Scientific	BX36954	Methanol	R-6137B	06-30-10	n/a		
C1275187	40 mL VOA Vial	Scientific	BX36963	n/a	R-6223C	07-16-10	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
136160-2	Bay 3 SW		Soil	9/8/10 9:10	EPA 8260B Volatile Organics with Oxygenates				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1282979	40 mL VOA Vial	Scientific	BX37232	Methanol	R-6227B	08-05-10	n/a		
C1278561	40 mL VOA Vial	Scientific	BX37295	n/a	R-6223A	08-17-10	n/a		
C1278551	40 mL VOA Vial	Scientific	BX37295	n/a	R-6223A	08-17-10	n/a		
C1278550	40 mL VOA Vial	Scientific	BX37295	n/a	R-6223A	08-17-10	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
136160-3	Bay 2 Bottom		Soil	9/8/10 10:30	EPA 8260B Volatile Organics with Oxygenates				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1267106	40 mL VOA Vial	Scientific	BX36330	NaHSO4	R-5468C	04-29-10	n/a		
C1231962	40 mL VOA Vial	Scientific	BX35933	Methanol	R-6092D	03-22-10	n/a		
C1234429	40 mL VOA Vial	Scientific	BX36069	NaHSO4	R-5468C	04-07-10	n/a		
C1234398	40 mL VOA Vial	Scientific	BX36069	NaHSO4	R-5468C	04-07-10	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
136160-4	Bay 2 SW		Soil	9/8/10 10:45	EPA 8260B Volatile Organics with Oxygenates				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1280948	40 mL VOA Vial	Scientific	BX37080	Methanol	R-6187O	07-09-10	n/a		
C1276218	40 mL VOA Vial	Scientific	BX37201	n/a	R-6223B	07-19-10	n/a		
C1276152	40 mL VOA Vial	Scientific	BX37201	n/a	R-6223B	07-19-10	n/a		
C1276151	40 mL VOA Vial	Scientific	BX37201	n/a	R-6223B	07-19-10	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
136160-5	Bay 3 Bottom		Soil	9/8/10 9:00	EPA 6010B/7471A 8 RCRA Metals EPA 8082 PCBs EPA 8270C Semivolatile Organics				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1290287	120 mL Amber Glass	Scientific	BX37016	None	n/a	n/a	n/a		
C1290286	120 mL Amber Glass	Scientific	BX37016	None	n/a	n/a	n/a		
C1290284	120 mL Amber Glass	Scientific	BX37016	None	n/a	n/a	n/a		
C1290281	120 mL Amber Glass	Scientific	BX37016	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
136160-6	Bay 3 SW		Soil	9/8/10 9:10	EPA 6010B/7471A 8 RCRA Metals EPA 8082 PCBs EPA 8270C Semivolatile Organics				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1263854	250 mL Amber Glass	Scientific	BX36423	None	n/a	n/a	n/a		
C1263846	250 mL Amber Glass	Scientific	BX36423	None	n/a	n/a	n/a		

GROUNDWATER ANALYTICAL

Sample Receipt Report (Continued)

Project: **New Hyde Park/60158261**
Client: **AECOM Environment**
Lab ID: **136160**

Delivery: **GWA Courier**
Airbill: **n/a**
Lab Receipt: **09-09-10**

Temperature: **2.6°C**
Chain of Custody: **Present**
Custody Seal(s): **n/a**

Lab ID	Field ID		Matrix	Sampled	Method				Notes
136160-7	Bay 2 Bottom		Soil	9/8/10 10:30	EPA 6010B/7471A 8 RCRA Metals EPA 8082 PCBs EPA 8270C Semivolatile Organics				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1204204	250 mL Amber Glass	Scientific Specialties	BX35699	None	n/a	n/a	n/a		
C1289789	250 mL Amber Glass	n/a	n/a	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
136160-8	Bay 2 SW		Soil	9/8/10 10:45	EPA 6010B/7471A 8 RCRA Metals EPA 8082 PCBs EPA 8270C Semivolatile Organics				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1204207	250 mL Amber Glass	Scientific Specialties	BX35699	None	n/a	n/a	n/a		
C1204201	250 mL Amber Glass	Scientific Specialties	BX35699	None	n/a	n/a	n/a		

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**Bay 3 Bottom**	Matrix:	**Soil**
Project:	**New Hyde Park/60158261**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**Methanol/ Cool**
Laboratory ID:	**136160-1**	QC Batch ID:	**VM1-2909-E**
Sampled:	**09-08-10 09:00**	Instrument ID:	**MS-1 HP 5890**
Received:	**09-09-10 19:35**	Sample Weight:	**17 g**
Analyzed:	**09-13-10 15:27**	Final Volume:	**15 mL**
Analyst:	**LMG**	% Solids:	**89**
		Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	510
74-87-3	Chloromethane	BRL		ug/Kg	510
75-01-4	Vinyl Chloride	BRL		ug/Kg	510
74-83-9	Bromomethane	BRL		ug/Kg	510
75-00-3	Chloroethane	BRL		ug/Kg	510
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	510
60-29-7	Diethyl Ether	BRL		ug/Kg	510
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	250
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	2,500
67-64-1	Acetone	BRL		ug/Kg	2,500
75-15-0	Carbon Disulfide	BRL		ug/Kg	2,500
75-09-2	Methylene Chloride	BRL		ug/Kg	1,000
107-13-1	Acrylonitrile	BRL		ug/Kg	250
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	250
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	250
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	250
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	250
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	250
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	2,500
74-97-5	Bromochloromethane	BRL		ug/Kg	250
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	2,500
67-66-3	Chloroform	BRL		ug/Kg	250
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	250
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	250
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	250
71-43-2	Benzene	BRL		ug/Kg	250
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	250
79-01-6	Trichloroethene	BRL		ug/Kg	250
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	250
74-95-3	Dibromomethane	BRL		ug/Kg	250
75-27-4	Bromodichloromethane	BRL		ug/Kg	250
123-91-1	1,4-Dioxane	BRL		ug/Kg	250,000
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	250
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	2,500
108-88-3	Toluene	BRL		ug/Kg	250
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	250
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	250
127-18-4	Tetrachloroethene	2,700		ug/Kg	250
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	250
591-78-6	2-Hexanone	BRL		ug/Kg	2,500
124-48-1	Dibromochloromethane	BRL		ug/Kg	250
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	250
108-90-7	Chlorobenzene	BRL		ug/Kg	250
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	250
100-41-4	Ethylbenzene	BRL		ug/Kg	250
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL		ug/Kg	250

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**Bay 3 Bottom**	Matrix:	**Soil**
Project:	**New Hyde Park/60158261**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**Methanol/ Cool**
Laboratory ID:	**136160-1**	QC Batch ID:	**VM1-2909-E**
Sampled:	**09-08-10 09:00**	Instrument ID:	**MS-1 HP 5890**
Received:	**09-09-10 19:35**	Sample Weight:	**17 g**
Analyzed:	**09-13-10 15:27**	Final Volume:	**15 mL**
Analyst:	**LMG**	% Solids:	**89**
		Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
95-47-6	*ortho*-Xylene	BRL		ug/Kg	250
100-42-5	Styrene	BRL		ug/Kg	250
75-25-2	Bromoform	BRL		ug/Kg	250
98-82-8	Isopropylbenzene	BRL		ug/Kg	250
108-86-1	Bromobenzene	BRL		ug/Kg	250
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	250
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	250
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	250
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	2,500
95-49-8	2-Chlorotoluene	BRL		ug/Kg	250
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	250
106-43-4	4-Chlorotoluene	BRL		ug/Kg	250
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	250
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	250
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	250
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	250
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	250
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	250
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	250
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	250
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	250
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	250
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	250
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	250
91-20-3	Naphthalene	**430**		ug/Kg	250
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	250
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	250
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	10,000
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	250
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	250

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	2,500	1,900	**78** %	70 - 130 %
1,2-Dichloroethane-d_4	2,500	2,000	**80** %	70 - 130 %
Toluene-d_8	2,500	2,300	**93** %	70 - 130 %
4-Bromofluorobenzene	2,500	2,400	**96** %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample preparation performed by EPA Method 5035A and EPA Method 5030B. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	Bay 3 SW	Matrix:	Soil
Project:	New Hyde Park/60158261	Container:	40 mL VOA Vial
Client:	AECOM Environment	Preservation:	Methanol/ Cool
Laboratory ID:	136160-2	QC Batch ID:	VM1-2909-E
Sampled:	09-08-10 09:10	Instrument ID:	MS-1 HP 5890
Received:	09-09-10 19:35	Sample Weight:	17 g
Analyzed:	09-13-10 16:02	Final Volume:	15 mL
Analyst:	LMG	% Solids:	86
		Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	500
74-87-3	Chloromethane	BRL		ug/Kg	500
75-01-4	Vinyl Chloride	BRL		ug/Kg	500
74-83-9	Bromomethane	BRL		ug/Kg	500
75-00-3	Chloroethane	BRL		ug/Kg	500
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	500
60-29-7	Diethyl Ether	BRL		ug/Kg	500
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	250
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	2,500
67-64-1	Acetone	BRL		ug/Kg	2,500
75-15-0	Carbon Disulfide	BRL		ug/Kg	2,500
75-09-2	Methylene Chloride	BRL		ug/Kg	1,000
107-13-1	Acrylonitrile	BRL		ug/Kg	250
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	250
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	250
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	250
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	250
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	250
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	2,500
74-97-5	Bromochloromethane	BRL		ug/Kg	250
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	2,500
67-66-3	Chloroform	BRL		ug/Kg	250
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	250
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	250
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	250
71-43-2	Benzene	BRL		ug/Kg	250
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	250
79-01-6	Trichloroethene	BRL		ug/Kg	250
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	250
74-95-3	Dibromomethane	BRL		ug/Kg	250
75-27-4	Bromodichloromethane	BRL		ug/Kg	250
123-91-1	1,4-Dioxane	BRL		ug/Kg	250,000
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	250
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	2,500
108-88-3	Toluene	BRL		ug/Kg	250
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	250
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	250
127-18-4	Tetrachloroethene	2,600		ug/Kg	250
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	250
591-78-6	2-Hexanone	BRL		ug/Kg	2,500
124-48-1	Dibromochloromethane	BRL		ug/Kg	250
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	250
108-90-7	Chlorobenzene	BRL		ug/Kg	250
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	250
100-41-4	Ethylbenzene	BRL		ug/Kg	250
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL		ug/Kg	250

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**Bay 3 SW**	Matrix:	**Soil**
Project:	**New Hyde Park/60158261**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**Methanol/ Cool**
Laboratory ID:	**136160-2**	QC Batch ID:	**VM1-2909-E**
Sampled:	**09-08-10 09:10**	Instrument ID:	**MS-1 HP 5890**
Received:	**09-09-10 19:35**	Sample Weight:	**17 g**
Analyzed:	**09-13-10 16:02**	Final Volume:	**15 mL**
Analyst:	**LMG**	% Solids:	**86**
		Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
95-47-6	*ortho*-Xylene	BRL		ug/Kg	250
100-42-5	Styrene	BRL		ug/Kg	250
75-25-2	Bromoform	BRL		ug/Kg	250
98-82-8	Isopropylbenzene	BRL		ug/Kg	250
108-86-1	Bromobenzene	BRL		ug/Kg	250
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	250
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	250
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	250
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	2,500
95-49-8	2-Chlorotoluene	BRL		ug/Kg	250
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	250
106-43-4	4-Chlorotoluene	BRL		ug/Kg	250
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	250
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	250
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	250
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	250
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	250
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	250
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	250
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	250
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	250
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	250
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	250
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	250
91-20-3	Naphthalene	BRL		ug/Kg	250
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	250
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	10,000
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	250
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	250
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	250

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	2,500	2,000	**80 %**	70 - 130 %
1,2-Dichloroethane-d_4	2,500	2,100	**84 %**	70 - 130 %
Toluene-d_8	2,500	2,300	**91 %**	70 - 130 %
4-Bromofluorobenzene	2,500	2,400	**94 %**	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample preparation performed by EPA Method 5035A and EPA Method 5030B. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**Bay 2 Bottom**	Matrix:	**Soil**
Project:	**New Hyde Park/60158261**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**Methanol/ Cool**
Laboratory ID:	**136160-3**	QC Batch ID:	**VM1-2909-E**
Sampled:	**09-08-10 10:30**	Instrument ID:	**MS-1 HP 5890**
Received:	**09-09-10 19:35**	Sample Weight:	**15 g**
Analyzed:	**09-13-10 16:38**	Final Volume:	**15 mL**
Analyst:	**LMG**	% Solids:	**90**
		Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	540
74-87-3	Chloromethane	BRL		ug/Kg	540
75-01-4	Vinyl Chloride	BRL		ug/Kg	540
74-83-9	Bromomethane	BRL		ug/Kg	540
75-00-3	Chloroethane	BRL		ug/Kg	540
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	540
60-29-7	Diethyl Ether	BRL		ug/Kg	540
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	270
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	2,700
67-64-1	Acetone	BRL		ug/Kg	2,700
75-15-0	Carbon Disulfide	BRL		ug/Kg	2,700
75-09-2	Methylene Chloride	BRL		ug/Kg	1,100
107-13-1	Acrylonitrile	BRL		ug/Kg	270
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	270
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	270
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	270
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	270
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	270
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	2,700
74-97-5	Bromochloromethane	BRL		ug/Kg	270
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	2,700
67-66-3	Chloroform	BRL		ug/Kg	270
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	270
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	270
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	270
71-43-2	Benzene	BRL		ug/Kg	270
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	270
79-01-6	Trichloroethene	BRL		ug/Kg	270
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	270
74-95-3	Dibromomethane	BRL		ug/Kg	270
75-27-4	Bromodichloromethane	BRL		ug/Kg	270
123-91-1	1,4-Dioxane	BRL		ug/Kg	270,000
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	270
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	2,700
108-88-3	Toluene	BRL		ug/Kg	270
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	270
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	270
127-18-4	Tetrachloroethene	**940**		ug/Kg	270
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	270
591-78-6	2-Hexanone	BRL		ug/Kg	2,700
124-48-1	Dibromochloromethane	BRL		ug/Kg	270
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	270
108-90-7	Chlorobenzene	BRL		ug/Kg	270
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	270
100-41-4	Ethylbenzene	BRL		ug/Kg	270
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	**500**		ug/Kg	270

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**Bay 2 Bottom**	Matrix:	**Soil**
Project:	**New Hyde Park/60158261**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**Methanol/ Cool**
Laboratory ID:	**136160-3**	QC Batch ID:	**VM1-2909-E**
Sampled:	**09-08-10 10:30**	Instrument ID:	**MS-1 HP 5890**
Received:	**09-09-10 19:35**	Sample Weight:	**15 g**
Analyzed:	**09-13-10 16:38**	Final Volume:	**15 mL**
Analyst:	**LMG**	% Solids:	**90**
		Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
95-47-6	*ortho*-Xylene	BRL		ug/Kg	270
100-42-5	Styrene	BRL		ug/Kg	270
75-25-2	Bromoform	BRL		ug/Kg	270
98-82-8	Isopropylbenzene	BRL		ug/Kg	270
108-86-1	Bromobenzene	BRL		ug/Kg	270
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	270
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	270
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	270
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	2,700
95-49-8	2-Chlorotoluene	BRL		ug/Kg	270
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	270
106-43-4	4-Chlorotoluene	BRL		ug/Kg	270
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	270
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	270
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	270
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	270
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	270
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	270
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	270
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	270
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	270
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	270
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	270
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	270
91-20-3	Naphthalene	BRL		ug/Kg	270
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	270
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	11,000
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	270
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	270
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	270

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	2,500	2,000	**80 %**	70 - 130 %
1,2-Dichloroethane-d_4	2,500	2,200	**87 %**	70 - 130 %
Toluene-d_8	2,500	2,500	**98 %**	70 - 130 %
4-Bromofluorobenzene	2,500	2,300	**92 %**	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample preparation performed by EPA Method 5035A and EPA Method 5030B. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**Bay 2 SW**	Matrix:	**Soil**
Project:	**New Hyde Park/60158261**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**Methanol/ Cool**
Laboratory ID:	**136160-4**	QC Batch ID:	**VM1-2909-E**
Sampled:	**09-08-10 10:45**	Instrument ID:	**MS-1 HP 5890**
Received:	**09-09-10 19:35**	Sample Weight:	**13 g**
Analyzed:	**09-13-10 17:13**	Final Volume:	**15 mL**
Analyst:	**LMG**	% Solids:	**89**
		Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	650
74-87-3	Chloromethane	BRL		ug/Kg	650
75-01-4	Vinyl Chloride	BRL		ug/Kg	650
74-83-9	Bromomethane	BRL		ug/Kg	650
75-00-3	Chloroethane	BRL		ug/Kg	650
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	650
60-29-7	Diethyl Ether	BRL		ug/Kg	650
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	330
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	3,300
67-64-1	Acetone	BRL		ug/Kg	3,300
75-15-0	Carbon Disulfide	BRL		ug/Kg	3,300
75-09-2	Methylene Chloride	BRL		ug/Kg	1,300
107-13-1	Acrylonitrile	BRL		ug/Kg	330
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	330
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	330
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	330
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	330
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	330
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	3,300
74-97-5	Bromochloromethane	BRL		ug/Kg	330
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	3,300
67-66-3	Chloroform	BRL		ug/Kg	330
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	330
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	330
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	330
71-43-2	Benzene	BRL		ug/Kg	330
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	330
79-01-6	Trichloroethene	BRL		ug/Kg	330
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	330
74-95-3	Dibromomethane	BRL		ug/Kg	330
75-27-4	Bromodichloromethane	BRL		ug/Kg	330
123-91-1	1,4-Dioxane	BRL		ug/Kg	330,000
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	330
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	3,300
108-88-3	Toluene	BRL		ug/Kg	330
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	330
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	330
127-18-4	Tetrachloroethene	**890**		ug/Kg	330
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	330
591-78-6	2-Hexanone	BRL		ug/Kg	3,300
124-48-1	Dibromochloromethane	BRL		ug/Kg	330
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	330
108-90-7	Chlorobenzene	BRL		ug/Kg	330
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	330
100-41-4	Ethylbenzene	BRL		ug/Kg	330
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	**570**		ug/Kg	330

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**Bay 2 SW**	Matrix:	**Soil**
Project:	**New Hyde Park/60158261**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**Methanol/ Cool**
Laboratory ID:	**136160-4**	QC Batch ID:	**VM1-2909-E**
Sampled:	**09-08-10 10:45**	Instrument ID:	**MS-1 HP 5890**
Received:	**09-09-10 19:35**	Sample Weight:	**13 g**
Analyzed:	**09-13-10 17:13**	Final Volume:	**15 mL**
Analyst:	**LMG**	% Solids:	**89**
		Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
95-47-6	*ortho*-Xylene	BRL		ug/Kg	330
100-42-5	Styrene	BRL		ug/Kg	330
75-25-2	Bromoform	BRL		ug/Kg	330
98-82-8	Isopropylbenzene	BRL		ug/Kg	330
108-86-1	Bromobenzene	BRL		ug/Kg	330
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	330
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	330
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	330
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	3,300
95-49-8	2-Chlorotoluene	BRL		ug/Kg	330
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	330
106-43-4	4-Chlorotoluene	BRL		ug/Kg	330
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	330
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	330
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	330
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	330
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	330
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	330
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	330
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	330
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	330
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	330
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	330
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	330
91-20-3	Naphthalene	BRL		ug/Kg	330
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	330
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	13,000
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	330
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	330
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	330

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	2,500	2,100	**83** %	70 - 130 %
1,2-Dichloroethane-d_4	2,500	2,100	**86** %	70 - 130 %
Toluene-d_8	2,500	2,300	**94** %	70 - 130 %
4-Bromofluorobenzene	2,500	2,600	**102** %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample preparation performed by EPA Method 5035A and EPA Method 5030B. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

EPA Method 8270C
Semivolatile Organics by GC/MS

Field ID:	**Bay 3 Bottom**	Matrix:	**Soil**
Project:	**New Hyde Park/60158261**	Container:	**120 mL Amber Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**136160-05**	QC Batch ID:	**SV-2389-P**
Sampled:	**09-08-10 09:00**	Instrument ID:	**MS-3 HP 5890**
Received:	**09-09-10 19:35**	Sample Weight:	**16 g**
Extracted:	**09-13-10 09:00**	Final Volume:	**1 mL**
Analyzed:	**09-15-10 14:27**	Percent Solids:	**89**
Analyst:	**MJB**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	360
110-86-1	Pyridine	BRL		ug/Kg	360
108-95-2	Phenol	BRL		ug/Kg	360
62-53-3	Aniline	BRL		ug/Kg	360
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	360
95-57-8	2-Chlorophenol	BRL		ug/Kg	360
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	360
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	360
100-51-6	Benzyl Alcohol	BRL		ug/Kg	360
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	360
95-48-7	2-Methylphenol	BRL		ug/Kg	360
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	360
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	360
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	360
98-86-2	Acetophenone	BRL		ug/Kg	360
67-72-1	Hexachloroethane	BRL		ug/Kg	360
98-95-3	Nitrobenzene	BRL		ug/Kg	360
78-59-1	Isophorone	BRL		ug/Kg	360
88-75-5	2-Nitrophenol	BRL		ug/Kg	360
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	360
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	360
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	360
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	360
91-20-3	Naphthalene	BRL		ug/Kg	360
106-47-8	4-Chloroaniline	BRL		ug/Kg	360
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	360
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	360
91-57-6	2-Methylnaphthalene	**640**		ug/Kg	360
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	730
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	360
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	360
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	360
88-74-4	2-Nitroaniline	BRL		ug/Kg	360
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	360
131-11-3	Dimethyl phthalate	BRL		ug/Kg	360
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	360
208-96-8	Acenaphthylene	BRL		ug/Kg	360
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	360
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	360
99-09-2	3-Nitroaniline	BRL		ug/Kg	360
83-32-9	Acenaphthene	BRL		ug/Kg	360
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	360
100-02-7	4-Nitrophenol	BRL		ug/Kg	360
132-64-9	Dibenzofuran	BRL		ug/Kg	360
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	360

GROUNDWATER ANALYTICAL

EPA Method 8270C (Continued)
Semivolatile Organics by GC/MS

Field ID:	**Bay 3 Bottom**	Matrix:	**Soil**
Project:	**New Hyde Park/60158261**	Container:	**120 mL Amber Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**136160-05**	QC Batch ID:	**SV-2389-P**
Sampled:	**09-08-10 09:00**	Instrument ID:	**MS-3 HP 5890**
Received:	**09-09-10 19:35**	Sample Weight:	**16 g**
Extracted:	**09-13-10 09:00**	Final Volume:	**1 mL**
Analyzed:	**09-15-10 14:27**	Dilution Factor:	**1**
Analyst:	**MJB**		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
84-66-2	Diethyl phthalate	BRL		ug/Kg	360
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	360
86-73-7	Fluorene	BRL		ug/Kg	360
100-01-6	4-Nitroaniline	BRL		ug/Kg	360
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	730
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	360
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	360
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	360
118-74-1	Hexachlorobenzene	BRL		ug/Kg	360
87-86-5	Pentachlorophenol	BRL		ug/Kg	360
85-01-8	Phenanthrene	BRL		ug/Kg	360
120-12-7	Anthracene	BRL		ug/Kg	360
86-74-8	Carbazole	BRL		ug/Kg	360
84-74-2	Di-*n*-butyl phthalate	BRL		ug/Kg	360
206-44-0	Fluoranthene	BRL		ug/Kg	360
129-00-0	Pyrene	BRL		ug/Kg	360
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	360
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	360
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	360
218-01-9	Chrysene	BRL		ug/Kg	360
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	360
117-84-0	Di-*n*-octyl phthalate	BRL		ug/Kg	360
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	360
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	360
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	360
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	360
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	360
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	360

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	14,000	9,500	**66 %**	30 - 130 %
Phenol-d5	14,000	10,000	**70 %**	30 - 130 %
Nitrobenzene-d5	7,200	6,100	**85 %**	30 - 130 %
2-Fluorobiphenyl	7,200	6,600	**91 %**	30 - 130 %
2,4,6-Tribromophenol	14,000	12,000	**82 %**	30 - 130 %
Terphenyl-d14	7,200	6,400	**88 %**	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545. Results are reported on a dry weight basis.

Report Notations:
BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.
* Analyzed as 4-Methylphenol.
† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.
◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

EPA Method 8270C
Semivolatile Organics by GC/MS

Field ID:	**Bay 3 SW**	Matrix:	**Soil**
Project:	**New Hyde Park/60158261**	Container:	**250 mL Amber Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**136160-06**	QC Batch ID:	**SV-2389-P**
Sampled:	**09-08-10 09:10**	Instrument ID:	**MS-3 HP 5890**
Received:	**09-09-10 19:35**	Sample Weight:	**15 g**
Extracted:	**09-13-10 09:00**	Final Volume:	**1 mL**
Analyzed:	**09-15-10 15:08**	Percent Solids:	**86**
Analyst:	**MJB**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	370
110-86-1	Pyridine	BRL		ug/Kg	370
108-95-2	Phenol	BRL		ug/Kg	370
62-53-3	Aniline	BRL		ug/Kg	370
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	370
95-57-8	2-Chlorophenol	BRL		ug/Kg	370
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	370
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	370
100-51-6	Benzyl Alcohol	BRL		ug/Kg	370
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	370
95-48-7	2-Methylphenol	BRL		ug/Kg	370
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	370
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	370
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	370
98-86-2	Acetophenone	BRL		ug/Kg	370
67-72-1	Hexachloroethane	BRL		ug/Kg	370
98-95-3	Nitrobenzene	BRL		ug/Kg	370
78-59-1	Isophorone	BRL		ug/Kg	370
88-75-5	2-Nitrophenol	BRL		ug/Kg	370
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	370
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	370
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	370
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	370
91-20-3	Naphthalene	BRL		ug/Kg	370
106-47-8	4-Chloroaniline	BRL		ug/Kg	370
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	370
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	370
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	370
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	760
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	370
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	370
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	370
88-74-4	2-Nitroaniline	BRL		ug/Kg	370
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	370
131-11-3	Dimethyl phthalate	BRL		ug/Kg	370
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	370
208-96-8	Acenaphthylene	BRL		ug/Kg	370
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	370
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	370
99-09-2	3-Nitroaniline	BRL		ug/Kg	370
83-32-9	Acenaphthene	BRL		ug/Kg	370
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	370
100-02-7	4-Nitrophenol	BRL		ug/Kg	370
132-64-9	Dibenzofuran	BRL		ug/Kg	370
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	370

GROUNDWATER ANALYTICAL

EPA Method 8270C (Continued)
Semivolatile Organics by GC/MS

Field ID:	**Bay 3 SW**	Matrix:	**Soil**
Project:	**New Hyde Park/60158261**	Container:	**250 mL Amber Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**136160-06**	QC Batch ID:	**SV-2389-P**
Sampled:	**09-08-10 09:10**	Instrument ID:	**MS-3 HP 5890**
Received:	**09-09-10 19:35**	Sample Weight:	**15 g**
Extracted:	**09-13-10 09:00**	Final Volume:	**1 mL**
Analyzed:	**09-15-10 15:08**	Dilution Factor:	**1**
Analyst:	**MJB**		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
84-66-2	Diethyl phthalate	BRL		ug/Kg	370
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	370
86-73-7	Fluorene	BRL		ug/Kg	370
100-01-6	4-Nitroaniline	BRL		ug/Kg	370
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	760
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	370
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	370
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	370
118-74-1	Hexachlorobenzene	BRL		ug/Kg	370
87-86-5	Pentachlorophenol	BRL		ug/Kg	370
85-01-8	Phenanthrene	BRL		ug/Kg	370
120-12-7	Anthracene	BRL		ug/Kg	370
86-74-8	Carbazole	BRL		ug/Kg	370
84-74-2	Di-*n*-butyl phthalate	BRL		ug/Kg	370
206-44-0	Fluoranthene	BRL		ug/Kg	370
129-00-0	Pyrene	BRL		ug/Kg	370
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	370
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	370
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	370
218-01-9	Chrysene	BRL		ug/Kg	370
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	370
117-84-0	Di-*n*-octyl phthalate	BRL		ug/Kg	370
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	370
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	370
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	370
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	370
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	370
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	370

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	15,000	6,300	**42 %**	30 - 130 %
Phenol-d5	15,000	6,400	**43 %**	30 - 130 %
Nitrobenzene-d5	7,500	4,000	**53 %**	30 - 130 %
2-Fluorobiphenyl	7,500	4,200	**56 %**	30 - 130 %
2,4,6-Tribromophenol	15,000	7,500	**50 %**	30 - 130 %
Terphenyl-d14	7,500	4,200	**56 %**	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545. Results are reported on a dry weight basis.

Report Notations:
- BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.
- * Analyzed as 4-Methylphenol.
- † Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.
- ◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

EPA Method 8270C
Semivolatile Organics by GC/MS

Field ID:	**Bay 2 Bottom**	Matrix:	**Soil**
Project:	**New Hyde Park/60158261**	Container:	**250 mL Amber Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**136160-07**	QC Batch ID:	**SV-2389-P**
Sampled:	**09-08-10 10:30**	Instrument ID:	**MS-3 HP 5890**
Received:	**09-09-10 19:35**	Sample Weight:	**16 g**
Extracted:	**09-13-10 09:00**	Final Volume:	**1 mL**
Analyzed:	**09-15-10 15:50**	Percent Solids:	**90**
Analyst:	**MJB**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	350
110-86-1	Pyridine	BRL		ug/Kg	350
108-95-2	Phenol	BRL		ug/Kg	350
62-53-3	Aniline	BRL		ug/Kg	350
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	350
95-57-8	2-Chlorophenol	BRL		ug/Kg	350
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	350
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	350
100-51-6	Benzyl Alcohol	BRL		ug/Kg	350
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	350
95-48-7	2-Methylphenol	BRL		ug/Kg	350
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	350
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	350
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	350
98-86-2	Acetophenone	BRL		ug/Kg	350
67-72-1	Hexachloroethane	BRL		ug/Kg	350
98-95-3	Nitrobenzene	BRL		ug/Kg	350
78-59-1	Isophorone	BRL		ug/Kg	350
88-75-5	2-Nitrophenol	BRL		ug/Kg	350
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	350
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	350
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	350
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	350
91-20-3	Naphthalene	BRL		ug/Kg	350
106-47-8	4-Chloroaniline	BRL		ug/Kg	350
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	350
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	350
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	350
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	720
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	350
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	350
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	350
88-74-4	2-Nitroaniline	BRL		ug/Kg	350
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	350
131-11-3	Dimethyl phthalate	BRL		ug/Kg	350
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	350
208-96-8	Acenaphthylene	BRL		ug/Kg	350
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	350
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	350
99-09-2	3-Nitroaniline	BRL		ug/Kg	350
83-32-9	Acenaphthene	BRL		ug/Kg	350
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	350
100-02-7	4-Nitrophenol	BRL		ug/Kg	350
132-64-9	Dibenzofuran	BRL		ug/Kg	350
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	350

GROUNDWATER ANALYTICAL

EPA Method 8270C (Continued)
Semivolatile Organics by GC/MS

Field ID:	**Bay 2 Bottom**	Matrix:	**Soil**
Project:	**New Hyde Park/60158261**	Container:	**250 mL Amber Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**136160-07**	QC Batch ID:	**SV-2389-P**
Sampled:	**09-08-10 10:30**	Instrument ID:	**MS-3 HP 5890**
Received:	**09-09-10 19:35**	Sample Weight:	**16 g**
Extracted:	**09-13-10 09:00**	Final Volume:	**1 mL**
Analyzed:	**09-15-10 15:50**	Dilution Factor:	**1**
Analyst:	**MJB**		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
84-66-2	Diethyl phthalate	BRL		ug/Kg	350
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	350
86-73-7	Fluorene	BRL		ug/Kg	350
100-01-6	4-Nitroaniline	BRL		ug/Kg	350
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	720
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	350
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	350
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	350
118-74-1	Hexachlorobenzene	BRL		ug/Kg	350
87-86-5	Pentachlorophenol	BRL		ug/Kg	350
85-01-8	Phenanthrene	BRL		ug/Kg	350
120-12-7	Anthracene	BRL		ug/Kg	350
86-74-8	Carbazole	BRL		ug/Kg	350
84-74-2	Di-*n*-butyl phthalate	BRL		ug/Kg	350
206-44-0	Fluoranthene	BRL		ug/Kg	350
129-00-0	Pyrene	BRL		ug/Kg	350
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	350
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	350
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	350
218-01-9	Chrysene	BRL		ug/Kg	350
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	350
117-84-0	Di-*n*-octyl phthalate	BRL		ug/Kg	350
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	350
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	350
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	350
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	350
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	350
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	350

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	14,000	7,900	**55 %**	30 - 130 %
Phenol-d5	14,000	7,900	**56 %**	30 - 130 %
Nitrobenzene-d5	7,100	5,100	**71 %**	30 - 130 %
2-Fluorobiphenyl	7,100	5,500	**77 %**	30 - 130 %
2,4,6-Tribromophenol	14,000	8,500	**60 %**	30 - 130 %
Terphenyl-d14	7,100	6,300	**88 %**	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545. Results are reported on a dry weight basis.

Report Notations:
- BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.
- * Analyzed as 4-Methylphenol.
- † Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.
- ◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

EPA Method 8270C
Semivolatile Organics by GC/MS

Field ID:	Bay 2 SW	Matrix:	Soil
Project:	New Hyde Park/60158261	Container:	250 mL Amber Glass
Client:	AECOM Environment	Preservation:	Cool
Laboratory ID:	136160-08	QC Batch ID:	SV-2389-P
Sampled:	09-08-10 10:45	Instrument ID:	MS-3 HP 5890
Received:	09-09-10 19:35	Sample Weight:	15 g
Extracted:	09-13-10 09:00	Final Volume:	1 mL
Analyzed:	09-15-10 16:31	Percent Solids:	89
Analyst:	MJB	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	370
110-86-1	Pyridine	BRL		ug/Kg	370
108-95-2	Phenol	BRL		ug/Kg	370
62-53-3	Aniline	BRL		ug/Kg	370
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	370
95-57-8	2-Chlorophenol	BRL		ug/Kg	370
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	370
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	370
100-51-6	Benzyl Alcohol	BRL		ug/Kg	370
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	370
95-48-7	2-Methylphenol	BRL		ug/Kg	370
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	370
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	370
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	370
98-86-2	Acetophenone	BRL		ug/Kg	370
67-72-1	Hexachloroethane	BRL		ug/Kg	370
98-95-3	Nitrobenzene	BRL		ug/Kg	370
78-59-1	Isophorone	BRL		ug/Kg	370
88-75-5	2-Nitrophenol	BRL		ug/Kg	370
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	370
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	370
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	370
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	370
91-20-3	Naphthalene	BRL		ug/Kg	370
106-47-8	4-Chloroaniline	BRL		ug/Kg	370
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	370
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	370
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	370
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	750
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	370
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	370
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	370
88-74-4	2-Nitroaniline	BRL		ug/Kg	370
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	370
131-11-3	Dimethyl phthalate	BRL		ug/Kg	370
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	370
208-96-8	Acenaphthylene	BRL		ug/Kg	370
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	370
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	370
99-09-2	3-Nitroaniline	BRL		ug/Kg	370
83-32-9	Acenaphthene	BRL		ug/Kg	370
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	370
100-02-7	4-Nitrophenol	BRL		ug/Kg	370
132-64-9	Dibenzofuran	BRL		ug/Kg	370
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	370

GROUNDWATER ANALYTICAL

EPA Method 8270C (Continued)
Semivolatile Organics by GC/MS

Field ID:	**Bay 2 SW**	Matrix:	**Soil**
Project:	**New Hyde Park/60158261**	Container:	**250 mL Amber Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**136160-08**	QC Batch ID:	**SV-2389-P**
Sampled:	**09-08-10 10:45**	Instrument ID:	**MS-3 HP 5890**
Received:	**09-09-10 19:35**	Sample Weight:	**15 g**
Extracted:	**09-13-10 09:00**	Final Volume:	**1 mL**
Analyzed:	**09-15-10 16:31**	Dilution Factor:	**1**
Analyst:	**MJB**		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
84-66-2	Diethyl phthalate	BRL		ug/Kg	370
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	370
86-73-7	Fluorene	BRL		ug/Kg	370
100-01-6	4-Nitroaniline	BRL		ug/Kg	370
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	750
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	370
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	370
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	370
118-74-1	Hexachlorobenzene	BRL		ug/Kg	370
87-86-5	Pentachlorophenol	BRL		ug/Kg	370
85-01-8	Phenanthrene	BRL		ug/Kg	370
120-12-7	Anthracene	BRL		ug/Kg	370
86-74-8	Carbazole	BRL		ug/Kg	370
84-74-2	Di-*n*-butyl phthalate	BRL		ug/Kg	370
206-44-0	Fluoranthene	BRL		ug/Kg	370
129-00-0	Pyrene	BRL		ug/Kg	370
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	370
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	370
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	370
218-01-9	Chrysene	BRL		ug/Kg	370
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	370
117-84-0	Di-*n*-octyl phthalate	BRL		ug/Kg	370
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	370
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	370
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	370
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	370
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	370
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	370

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	15,000	9,800	**66 %**	30 - 130 %
Phenol-d5	15,000	10,000	**69 %**	30 - 130 %
Nitrobenzene-d5	7,400	6,000	**81 %**	30 - 130 %
2-Fluorobiphenyl	7,400	7,000	**94 %**	30 - 130 %
2,4,6-Tribromophenol	15,000	12,000	**79 %**	30 - 130 %
Terphenyl-d14	7,400	7,900	**107 %**	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545. Results are reported on a dry weight basis.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

* Analyzed as 4-Methylphenol.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

EPA Method 8082
Polychlorinated Biphenyls (PCBs) by GC/ECD

Field ID:	**Bay 3 Bottom**	Matrix:	**Soil**
Project:	**New Hyde Park/60158261**	Container:	**120 mL Amber Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**136160-05**	QC Batch ID:	**PB-3572-P**
Sampled:	**09-08-10 09:00**	Instrument ID:	**GC-13 Agilent 6890**
Received:	**09-09-10 19:35**	Sample Weight:	**15 g**
Extracted:	**09-13-10 10:00**	Final Volume:	**1 mL**
Cleaned Up:	**09-13-10 21:30**	Percent Solids:	**89**
Analyzed:	**09-14-10 10:57**	Dilution Factor:	**1**
Analyst:	**CRL**		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
12674-11-2	Aroclor 1016	BRL		ug/Kg	87
11104-28-2	Aroclor 1221	BRL		ug/Kg	87
11141-16-5	Aroclor 1232	BRL		ug/Kg	87
53469-21-9	Aroclor 1242	BRL		ug/Kg	87
12672-29-6	Aroclor 1248	BRL		ug/Kg	87
11097-69-1	Aroclor 1254	BRL		ug/Kg	87
11096-82-5	Aroclor 1260	BRL		ug/Kg	87
37324-23-5	Aroclor 1262 †	BRL		ug/Kg	87
11100-14-4	Aroclor 1268 †	BRL		ug/Kg	87

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
First Column	Tetrachloro-*m*-xylene	15	9	**64 %**	30 - 150 %
	Decachlorobiphenyl	15	11	**77 %**	30 - 150 %
Second Column	Tetrachloro-*m*-xylene	15	11	**74 %**	30 - 150 %
	Decachlorobiphenyl	15	10	**70 %**	30 - 150 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample extraction performed by EPA Method 3545. Cleanup performed by EPA Method 3660B and EPA Method 3665A.
Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

† Non-target analyte. Result is based on a single mid-range calibration standard.

GROUNDWATER ANALYTICAL

EPA Method 8082
Polychlorinated Biphenyls (PCBs) by GC/ECD

Field ID:	**Bay 3 SW**	Matrix:	**Soil**
Project:	**New Hyde Park/60158261**	Container:	**250 mL Amber Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**136160-06**	QC Batch ID:	**PB-3572-P**
Sampled:	**09-08-10 09:10**	Instrument ID:	**GC-13 Agilent 6890**
Received:	**09-09-10 19:35**	Sample Weight:	**15 g**
Extracted:	**09-13-10 10:00**	Final Volume:	**1 mL**
Cleaned Up:	**09-13-10 21:30**	Percent Solids:	**86**
Analyzed:	**09-14-10 11:20**	Dilution Factor:	**1**
Analyst:	**CRL**		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
12674-11-2	Aroclor 1016	BRL		ug/Kg	90
11104-28-2	Aroclor 1221	BRL		ug/Kg	90
11141-16-5	Aroclor 1232	BRL		ug/Kg	90
53469-21-9	Aroclor 1242	BRL		ug/Kg	90
12672-29-6	Aroclor 1248	BRL		ug/Kg	90
11097-69-1	Aroclor 1254	BRL		ug/Kg	90
11096-82-5	Aroclor 1260	BRL		ug/Kg	90
37324-23-5	Aroclor 1262 †	BRL		ug/Kg	90
11100-14-4	Aroclor 1268 †	BRL		ug/Kg	90

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
First Column	Tetrachloro-*m*-xylene	15	10	**68** %	30 - 150 %
	Decachlorobiphenyl	15	14	**90** %	30 - 150 %
Second Column	Tetrachloro-*m*-xylene	15	12	**77** %	30 - 150 %
	Decachlorobiphenyl	15	12	**80** %	30 - 150 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample extraction performed by EPA Method 3545. Cleanup performed by EPA Method 3660B and EPA Method 3665A.
Results are reported on a dry weight basis.

Report Notations:
BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

† Non-target analyte. Result is based on a single mid-range calibration standard.

GROUNDWATER ANALYTICAL

EPA Method 8082
Polychlorinated Biphenyls (PCBs) by GC/ECD

Field ID:	**Bay 2 Bottom**	Matrix:	**Soil**
Project:	**New Hyde Park/60158261**	Container:	**250 mL Amber Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**136160-07**	QC Batch ID:	**PB-3572-P**
Sampled:	**09-08-10 10:30**	Instrument ID:	**GC-13 Agilent 6890**
Received:	**09-09-10 19:35**	Sample Weight:	**15 g**
Extracted:	**09-13-10 10:00**	Final Volume:	**1 mL**
Cleaned Up:	**09-13-10 21:30**	Percent Solids:	**90**
Analyzed:	**09-14-10 11:44**	Dilution Factor:	**1**
Analyst:	**CRL**		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
12674-11-2	Aroclor 1016	BRL		ug/Kg	88
11104-28-2	Aroclor 1221	BRL		ug/Kg	88
11141-16-5	Aroclor 1232	BRL		ug/Kg	88
53469-21-9	Aroclor 1242	BRL		ug/Kg	88
12672-29-6	Aroclor 1248	BRL		ug/Kg	88
11097-69-1	Aroclor 1254	BRL		ug/Kg	88
11096-82-5	Aroclor 1260	BRL		ug/Kg	88
37324-23-5	Aroclor 1262 †	BRL		ug/Kg	88
11100-14-4	Aroclor 1268 †	BRL		ug/Kg	88

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
First Column	Tetrachloro-*m*-xylene	15	11	**77 %**	30 - 150 %
	Decachlorobiphenyl	15	14	**93 %**	30 - 150 %
Second Column	Tetrachloro-*m*-xylene	15	12	**83 %**	30 - 150 %
	Decachlorobiphenyl	15	12	**79 %**	30 - 150 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample extraction performed by EPA Method 3545. Cleanup performed by EPA Method 3660B and EPA Method 3665A.
Results are reported on a dry weight basis.

Report Notations:
BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

† Non-target analyte. Result is based on a single mid-range calibration standard.

GROUNDWATER ANALYTICAL

EPA Method 8082
Polychlorinated Biphenyls (PCBs) by GC/ECD

Field ID:	**Bay 2 SW**	Matrix:	**Soil**
Project:	**New Hyde Park/60158261**	Container:	**250 mL Amber Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**136160-08**	QC Batch ID:	**PB-3572-P**
Sampled:	**09-08-10 10:45**	Instrument ID:	**GC-13 Agilent 6890**
Received:	**09-09-10 19:35**	Sample Weight:	**15 g**
Extracted:	**09-13-10 10:00**	Final Volume:	**1 mL**
Cleaned Up:	**09-13-10 21:30**	Percent Solids:	**89**
Analyzed:	**09-14-10 12:08**	Dilution Factor:	**1**
Analyst:	**CRL**		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
12674-11-2	Aroclor 1016	BRL		ug/Kg	87
11104-28-2	Aroclor 1221	BRL		ug/Kg	87
11141-16-5	Aroclor 1232	BRL		ug/Kg	87
53469-21-9	Aroclor 1242	BRL		ug/Kg	87
12672-29-6	Aroclor 1248	BRL		ug/Kg	87
11097-69-1	Aroclor 1254	BRL		ug/Kg	87
11096-82-5	Aroclor 1260	BRL		ug/Kg	87
37324-23-5	Aroclor 1262 †	BRL		ug/Kg	87
11100-14-4	Aroclor 1268 †	BRL		ug/Kg	87

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
First Column	Tetrachloro-*m*-xylene	14	10	**69** %	30 - 150 %
	Decachlorobiphenyl	14	13	**87** %	30 - 150 %
Second Column	Tetrachloro-*m*-xylene	14	11	**78** %	30 - 150 %
	Decachlorobiphenyl	14	11	**78** %	30 - 150 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545. Cleanup performed by EPA Method 3660B and EPA Method 3665A. Results are reported on a dry weight basis.

Report Notations:
BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

† Non-target analyte. Result is based on a single mid-range calibration standard.

GROUNDWATER ANALYTICAL

Trace Metals

Field ID:	**Bay 3 Bottom**	Matrix:	**Soil**
Project:	**New Hyde Park/60158261**	Container:	**120 mL Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**136160-5**	Percent Solids:	**89**
Sampled:	**09-08-10 09:00**		
Received:	**09-09-10 19:35**		

Analysis Method	QC Batch ID	Prep Method	Prepared	Sample Weight	Instrument ID	Analyst
EPA 6010B[1]	MB-01894-S	EPA 3050B	09-13-10 00:00	0.485 g	ICP-3 PE 3000	LMS
EPA 7471A[2]	MP-2590-S	EPA 7471A	09-13-10 00:00	0.6 g	CVAA-1 PE FIMS	LMS

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit	DF	Analyzed	Method
7440-38-2	Arsenic, Total	BRL		mg/Kg	3.5	1	09-13-10 18:06	EPA 6010B[1]
7440-39-3	Barium, Total	**34**		mg/Kg	5.8	1	09-13-10 18:06	EPA 6010B[1]
7440-43-9	Cadmium, Total	**0.92**		mg/Kg	0.58	1	09-13-10 18:06	EPA 6010B[1]
7440-47-3	Chromium, Total	**17**		mg/Kg	1.2	1	09-13-10 18:06	EPA 6010B[1]
7439-92-1	Lead, Total	**35**		mg/Kg	5.8	1	09-13-10 18:06	EPA 6010B[1]
7439-97-6	Mercury, Total	**0.094**		mg/Kg	0.018	1	09-14-10 10:34	EPA 7471A[2]
7782-49-2	Selenium, Total	BRL		mg/Kg	5.8	1	09-13-10 18:06	EPA 6010B[1]
7440-22-4	Silver, Total	BRL		mg/Kg	1.2	1	09-13-10 18:06	EPA 6010B[1]

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

DF Dilution Factor.

GROUNDWATER ANALYTICAL

Trace Metals

Field ID:	**Bay 3 SW**	Matrix:	**Soil**
Project:	**New Hyde Park/60158261**	Container:	**250 mL Amber Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**136160-6**	Percent Solids:	**86**
Sampled:	**09-08-10 09:10**		
Received:	**09-09-10 19:35**		

Analysis Method	QC Batch ID	Prep Method	Prepared	Sample Weight	Instrument ID	Analyst
EPA 6010B[1]	MB-01894-S	EPA 3050B	09-13-10 00:00	0.502 g	ICP-1 PE 3000	LMS
EPA 7471A[2]	MP-2590-S	EPA 7471A	09-13-10 00:00	0.6 g	CVAA-1 PE FIMS	LMS

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit	DF	Analyzed	Method
7440-38-2	Arsenic, Total	BRL		mg/Kg	3.5	1	09-13-10 18:10	EPA 6010B[1]
7440-39-3	Barium, Total	**53**		mg/Kg	5.8	1	09-13-10 18:10	EPA 6010B[1]
7440-43-9	Cadmium, Total	**1.3**		mg/Kg	0.58	1	09-13-10 18:10	EPA 6010B[1]
7440-47-3	Chromium, Total	**16**		mg/Kg	1.2	1	09-13-10 18:10	EPA 6010B[1]
7439-92-1	Lead, Total	**33**		mg/Kg	5.8	1	09-13-10 18:10	EPA 6010B[1]
7439-97-6	Mercury, Total	**0.096**		mg/Kg	0.019	1	09-14-10 10:44	EPA 7471A[2]
7782-49-2	Selenium, Total	BRL		mg/Kg	5.8	1	09-13-10 18:10	EPA 6010B[1]
7440-22-4	Silver, Total	BRL		mg/Kg	1.2	1	09-13-10 18:10	EPA 6010B[1]

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Results are reported on a dry weight basis.

Report Notations:
BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.
DF Dilution Factor.

GROUNDWATER ANALYTICAL

Trace Metals

Field ID:	**Bay 2 Bottom**	Matrix:	**Soil**
Project:	**New Hyde Park/60158261**	Container:	**250 mL Amber Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**136160-7**	Percent Solids:	**90**
Sampled:	**09-08-10 10:30**		
Received:	**09-09-10 19:35**		

Analysis Method	QC Batch ID	Prep Method	Prepared	Sample Weight	Instrument ID	Analyst
EPA 6010B[1]	MB-01894-S	EPA 3050B	09-13-10 00:00	0.494 g	ICP-1 PE 3000	LMS
EPA 7471A[2]	MP-2590-S	EPA 7471A	09-13-10 00:00	0.6 g	CVAA-1 PE FIMS	LMS

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit	DF	Analyzed	Method
7440-38-2	Arsenic, Total	BRL		mg/Kg	3.4	1	09-13-10 18:14	EPA 6010B[1]
7440-39-3	Barium, Total	**35**		mg/Kg	5.6	1	09-13-10 18:14	EPA 6010B[1]
7440-43-9	Cadmium, Total	**0.92**		mg/Kg	0.56	1	09-13-10 18:14	EPA 6010B[1]
7440-47-3	Chromium, Total	**13**		mg/Kg	1.1	1	09-13-10 18:14	EPA 6010B[1]
7439-92-1	Lead, Total	**23**		mg/Kg	5.6	1	09-13-10 18:14	EPA 6010B[1]
7439-97-6	Mercury, Total	**0.086**		mg/Kg	0.018	1	09-14-10 10:47	EPA 7471A[2]
7782-49-2	Selenium, Total	BRL		mg/Kg	5.6	1	09-13-10 18:14	EPA 6010B[1]
7440-22-4	Silver, Total	BRL		mg/Kg	1.1	1	09-13-10 18:14	EPA 6010B[1]

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

DF Dilution Factor.

GROUNDWATER ANALYTICAL

Trace Metals

Field ID:	**Bay 2 SW**	Matrix:	**Soil**
Project:	**New Hyde Park/60158261**	Container:	**250 mL Amber Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**136160-8**	Percent Solids:	**89**
Sampled:	**09-08-10 10:45**		
Received:	**09-09-10 19:35**		

Analysis Method	QC Batch ID	Prep Method	Prepared	Sample Weight	Instrument ID	Analyst
EPA 6010B[1]	MB-01894-S	EPA 3050B	09-13-10 00:00	0.509 g	ICP-1 PE 3000	LMS
EPA 7471A[2]	MP-2590-S	EPA 7471A	09-13-10 00:00	0.6 g	CVAA-1 PE FIMS	LMS

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit	DF	Analyzed	Method
7440-38-2	Arsenic, Total	BRL		mg/Kg	3.3	1	09-13-10 18:19	EPA 6010B[1]
7440-39-3	Barium, Total	**37**		mg/Kg	5.5	1	09-13-10 18:18	EPA 6010B[1]
7440-43-9	Cadmium, Total	**0.95**		mg/Kg	0.55	1	09-13-10 18:19	EPA 6010B[1]
7440-47-3	Chromium, Total	**15**		mg/Kg	1.1	1	09-13-10 18:18	EPA 6010B[1]
7439-92-1	Lead, Total	**18**		mg/Kg	5.5	1	09-13-10 18:19	EPA 6010B[1]
7439-97-6	Mercury, Total	**0.050**		mg/Kg	0.018	1	09-14-10 10:50	EPA 7471A[2]
7782-49-2	Selenium, Total	BRL		mg/Kg	5.5	1	09-13-10 18:19	EPA 6010B[1]
7440-22-4	Silver, Total	BRL		mg/Kg	1.1	1	09-13-10 18:18	EPA 6010B[1]

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

DF Dilution Factor.

GROUNDWATER ANALYTICAL

Project Narrative

Project: **New Hyde Park/60158261**
Client: **AECOM Environment**

Lab ID: **136160**
Received: **09-09-10 19:35**

A. Documentation and Client Communication

The following documentation discrepancies, and client changes or amendments were noted for this project:

1. No documentation discrepancies, changes, or amendments were noted.

B. Method Modifications, Non-Conformances and Observations

The sample(s) in this project were analyzed by the references analytical method(s), and no method modifications, non-conformances or analytical issues were noted, except as indicated below:

1. EPA 8260B Non-conformance: Laboratory control sample (LCS) analyte Dichlorodifluoromethane was below recommended recovery limits for QC batch VM1-2909-E.
2. EPA 8260B Non-conformance: Laboratory control sample (LCS) analyte Dichlorodifluoromethane had an RPD recovery outside recommended recovery limits for QC batch VM1-2909-E.

GROUNDWATER ANALYTICAL

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Buzzards Bay, MA 02532
Telephone (508) 759-4441 • FAX (508) 759-4475
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CHAIN-OF-CUSTODY RECORD AND WORK ORDER

Project Name: New Hyde Park
Project Number: 60[illegible]82601
Sampler Name: Joanne Newell
Project Manager: Jen Hadden

Firm: AECOM
Address: 2 Technology Park
City / State / Zip: ~~Hartford~~ Westford, MA
Telephone: 9785893000

TURNAROUND

- ☐ 10 Business Days
- ☐ 5 Business Days
- ☒ RUSH (RAN- 24 Hours) (Rush requires Rush Authorization Number)
- ☐ Please Email to: jennifer.hadden@aecom.com
- ☐ Please FAX to:

BILLING

- ☐ Purchase Order No:
- ☒ Third Party Billing: 6114.01.LP Attn: Dan Smith
- ☐ GWA Quote:

ANALYSIS REQUEST

OPTIONS / SDWA / NPDES / RCRA

Volatiles: ☐ TPH Search
Semivolatiles: ☐ Acids Only (☐ 8270 SIM Only) ☐ 1,4-Dioxane Only
Pest/Herb/PCBs Extractable: ☐ 608 ☐ 508 ☐ 505 ☐ 515.3 ☐ 504.1 ☐ 8081/8082
Pest/Herb/PCBs Vol.:
Metals: Specify for Water Samples ☐ Total ☐ Dissolved
☐ Lead and Copper
☐ 3 Month Period
Petroleum Hydrocarbons Ext. TPH: ☐ MA DEP EPH w/ Target Analytes ☐ EPH w/ PAHs ☐ Hydrocarbon Fingerprint (GC/FID) (w/ MTBE/8260B-20 Mod.) ☐ TPH by (GC/FID) (8015B Mod) Quantitation Only ☐ Residual Range Organics (RRO) ☐ MA DEP TPH w/ Target Analytes ☐ EPH Carbon Ranges only
Petroleum Hydrocarbons Vol. TPH: ☐ TO-15 VPH (GC/MS) Full Scan ☐ MA DEP VPH w/ Target Analytes ☐ VPH Carbon Ranges only
Haz. Waste: ☐ TCLP VOA ☐ TCLP SVOA ☐ TCLP Metals ☐ TCLP Pesticides ☐ TCLP Herbicides ☐ Reactivity ☐ Ignitability ☐ Corrosivity ☐ PCB Screen
General Chemistry: ☐ Conductivity ☐ Flash Point ☐ Alkalinity ☐ Ammonia ☐ BOD ☐ Total Phosphorus ☐ Total N (w/ NO3/NO2 if TKN) ☐ COD ☐ Cyanide ☐ Fecal Coliform ☐ MBAS ☐ TOC ☐ TSS ☐ Nitrate ☐ Nitrite ☐ Nitrate/Nitrite ☐ Orthophosphate ☐ Sulfate ☐ Sulfide ☐ Total Chlorine ☐ Dissolved Phosphorus
Other: ☐ Hexavalent Chromium ☐ Total Chromium ☐ Ferrous Iron ☐ Corrosivity ☐ Ignitability ☐ Reactivity ☐ Cyanide ☐ Phenols ☐ Sulfide ☐ Flashpoint ☐ Total Coliform ☐ Fecal Coliform ☐ HPC ☐ Asbestos (PLM)

Sampling DATE	Sampling TIME	SAMPLE IDENTIFICATION	Matrix	Type	Container(s)	Preservation	Filtered	LABORATORY NUMBER (Lab Use Only)
9/9	1430	BAY 3 Bottom	SOIL	COMPOSITE	4	Methanol	VSS	
9/9	1410	BAY 3 SW	SOIL	COMPOSITE	2	Methanol	VSS	
9/9	1035	BAY 2 Bottom	SOIL	COMPOSITE	2	Methanol	VSS	
9/9	1045	BAY 2 SW	SOIL	COMPOSITE	2	Methanol	VSS	

REMARKS / SPECIAL INSTRUCTIONS

- ☐ YES ☐ NO MCP Data Certification required.
- ☐ YES ☐ NO MCP Drinking Water Sample Included. (Volatile analyses require duplicate collection and Trip Blanks)
- ☐ Analyze Duplicates and Trips Blanks only if positive results.
- ☐ YES ☐ NO CT RCP Data Certification required.

Signature:

DATA QUALITY OBJECTIVES

Regulatory Program

State	Standard	Deliverables
☐ CT	☐ MCP GW-1/S-1	☐ PWS Form
☐ ME	☐ MCP GW-2/S-2	☐ MWRA
☐ MA	☒ NY STARS	☐
☐ NH	☐ Drinking Water	
☐ NY	☐ Wastewater	
☐ RI	☐ Waste Disposal	
☐ VT	☐ Dredge Material	
☐	☐	

Project Specific QC

Many regulatory programs and EPA methods require project specific QC. Project specific QC includes Sample Duplicates, Matrix Spikes, and/or Matrix Spike Duplicates. Laboratory QC is not project specific unless prearranged. Project specific QC samples are charged on a per sample basis. **Each MS, MSD and Sample Duplicate requires an additional sample aliquot.**

Project Specific QC Required
- ☐ Sample Duplicate
- ☐ Matrix Spike
- ☐ Matrix Spike Duplicate

Selection of QC Sample
- ☐ Please use sample:

CHAIN-OF-CUSTODY RECORD

NOTE: All samples submitted subject to Standard Terms and Conditions on reverse hereof

Relinquished by Sampler:	Date / Time	Received by:	Receipt Temperature:
	9/9/10 1230		☐ Ice ☐ Refrigerated 2.6 °C Recommended
Relinquished by:	Date / Time	Received by:	Container Count:
	9/9/10 1930		
Relinquished by:	Date / Time	Received by Laboratory:	Shipping/Airbill Number:

Method of Shipment: ☒ GWA Courier ☐ Express Mail ☐ Federal Express ☐ UPS ☐ Hand ☐

Custody Seal Number:

Quality Assurance/Quality Control

A. Program Overview

Groundwater Analytical conducts an active Quality Assurance program to ensure the production of high quality, valid data. This program closely follows the guidance provided by *Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans,* US EPA QAMS-005/80 (1980), and *Test Methods for Evaluating Solid Waste,* US EPA, SW-846, Update III (1996).

Quality Control protocols include written Standard Operating Procedures (SOPs) developed for each analytical method. SOPs are derived from US EPA methodologies and other established references. Standards are prepared from commercially obtained reference materials of certified purity, and documented for traceability.

Quality Assessment protocols for most organic analyses include a minimum of one laboratory control sample, one method blank, one matrix spike sample, and one sample duplicate for each sample preparation batch. All samples, standards, blanks, laboratory control samples, matrix spikes and sample duplicates are spiked with internal standards and surrogate compounds. All instrument sequences begin with an initial calibration verification standard and a blank; and excepting GC/MS sequences, all sequences close with a continuing calibration standard. GC/MS systems are tuned to appropriate ion abundance criteria daily, or for each 12 hour operating period, whichever is more frequent.

Quality Assessment protocols for most inorganic analyses include a minimum of one laboratory control sample, one method blank, one matrix spike sample, and one sample duplicate for each sample preparation batch. Standard curves are derived from one reagent blank and four concentration levels. Curve validity is verified by standard recoveries within plus or minus ten percent of the curve.

B. Definitions

Batches are used as the basic unit for Quality Assessment. A Batch is defined as twenty or fewer samples of the same matrix which are prepared together for the same analysis, using the same lots of reagents and the same techniques or manipulations, all within the same continuum of time, up to but not exceeding 24 hours.

Laboratory Control Samples are used to assess the accuracy of the analytical method. A Laboratory Control Sample consists of reagent water or sodium sulfate spiked with a group of target analytes representative of the method analytes. Accuracy is defined as the degree of agreement of the measured value with the true or expected value. Percent Recoveries for the Laboratory Control Samples are calculated to assess accuracy.

Method Blanks are used to assess the level of contamination present in the analytical system. Method Blanks consist of reagent water or an aliquot of sodium sulfate. Method Blanks are taken through all the appropriate steps of an analytical method. Sample data reported is not corrected for blank contamination.

Surrogate Compounds are used to assess the effectiveness of an analytical method in dealing with each sample matrix. Surrogate Compounds are organic compounds which are similar to the target analytes of interest in chemical behavior, but which are not normally found in environmental samples. Percent Recoveries are calculated for each Surrogate Compound.

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

Category:	EPA 8082
QC Batch ID:	PB-3572-P
Matrix:	Soil
Units:	ug/Kg

LCS		LCSD	
Instrument ID:	GC-13 Agilent 6890	Instrument ID:	GC-13 Agilent 6890
Extracted:	09-13-10 10:00	Extracted:	09-13-10 10:00
Cleaned Up:	09-13-10 21:30	Cleaned Up:	09-13-10 21:30
Analyzed:	09-14-10 02:15	Analyzed:	09-14-10 02:38
Analyst:	CRL	Analyst:	CRL

CAS Number	Analyte	LCS					LCS Duplicate						QC Limits	
		Spiked	Measured		Recovery		Spiked	Measured		Recovery		RPD		
			1st Col	2nd Col	1st Col	2nd Col		1st Col	2nd Col	1st Col	2nd Col	1st Col	2nd Col	Spike	RPD
12674-11-2	Aroclor 1016	330	280	290	84%	87%	330	280	290	84%	87%	1 %	0 %	40 - 140%	30 %
11096-82-5	Aroclor 1260	330	290	300	87%	91%	330	280	310	85%	92%	2 %	0 %	40 - 140%	30 %

QC Surrogate Compound	Surrogate Recovery										QC Limits
Tetrachloro-m-xylene	13	9.4	10	71%	76%	13	9.6	10	72%	77%	30 - 150 %
Decachlorobiphenyl	13	12	11	91%	81%	13	12	11	90%	79%	30 - 150 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample extraction performed by EPA Method 3545. Cleanup performed by EPA Method 3660B and EPA Method 3665A.

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: **EPA Method 8082**
QC Batch ID: **PB-3572-P**
Matrix: **Soil**

Instrument ID: **GC-13 Agilent 6890**
Extracted: **09-13-10 10:00**
Cleaned Up: **09-13-10 21:30**
Analyzed: **09-14-10 01:51**
Analyst: **CRL**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
12674-11-2	Aroclor 1016	BRL		ug/Kg	80
11104-28-2	Aroclor 1221	BRL		ug/Kg	80
11141-16-5	Aroclor 1232	BRL		ug/Kg	80
53469-21-9	Aroclor 1242	BRL		ug/Kg	80
12672-29-6	Aroclor 1248	BRL		ug/Kg	80
11097-69-1	Aroclor 1254	BRL		ug/Kg	80
11096-82-5	Aroclor 1260	BRL		ug/Kg	80
37324-23-5	Aroclor 1262 †	BRL		ug/Kg	80
11100-14-4	Aroclor 1268 †	BRL		ug/Kg	80

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
First Column	Tetrachloro-*m*-xylene	13	10	**76 %**	30 - 150 %
	Decachlorobiphenyl	13	12	**87 %**	30 - 150 %
Second Column	Tetrachloro-*m*-xylene	13	11	**82 %**	30 - 150 %
	Decachlorobiphenyl	13	10	**78 %**	30 - 150 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample extraction performed by EPA Method 3545. Cleanup performed by EPA Method 3660B and EPA Method 3665A.

Report Notations:
BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.
† Non-target analyte. Result is based on a single mid-range calibration standard.

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

Category: **Metals**
Matrix: **Soil**
Units: **mg/Kg**

Sample Type	Method	QC Batch ID	Prep Method	Prepared	Analyzed	Instrument ID	Analyst
LCS	EPA 6010B	MB-1894-SL	EPA 3050B	09-13-10 00:00	09-13-10 17:43	ICP-1 PE 3000	JK
LCS	EPA 7471A	MP-2590-SL	EPA 7471A	09-13-10 00:00	09-14-10 10:27	CVAA-1 PE FIMS	LMS
LCSD	EPA 6010B	MB-1894-SL	EPA 3050B	09-13-10 00:00	09-13-10 17:47	ICP-1 PE 3000	JK
LCSD	EPA 7471A	MP-2590-SL	EPA 7471A	09-13-10 00:00	09-14-10 10:31	CVAA-1 PE FIMS	LMS

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits		Method
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	LCS	RPD	
7440-38-2	Arsenic	110	100	**93%**	110	97	**89%**	**2 %**	83-117 %	30 %	EPA 6010B
7440-39-3	Barium	330	310	**97%**	330	310	**94%**	**2 %**	83-117 %	30 %	EPA 6010B
7440-43-9	Cadmium	110	99	**90%**	110	110	**96%**	**3 %**	80-120 %	30 %	EPA 6010B
7440-47-3	Chromium	93	97	**104%**	93	93	**100%**	**2 %**	81-120 %	30 %	EPA 6010B
7439-92-1	Lead	150	160	**105%**	150	150	**101%**	**2 %**	79-121 %	30 %	EPA 6010B
7439-97-6	Mercury	16	18	**110%**	16	18	**110%**	**0 %**	71-129 %	30 %	EPA 7471A
7782-49-2	Selenium	210	190	**89%**	210	180	**89%**	**0 %**	79-120 %	30 %	EPA 6010B
7440-22-4	Silver	52	40	**77%**	52	44	**85%**	**5 %**	66-134 %	30 %	EPA 6010B

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: **Metals**
Matrix: **Soil**

Analysis Method	QC Batch ID	Prep Method	Prepared	Sample Volume	Instrument ID	Analyst
EPA 6010B	MB-1894-SB	EPA 3050B	09-13-10 00:00	0.5 g	ICP-1 PE 3000	JK
EPA 7471A	MP-2590-SB	EPA 7471A	09-13-10 00:00	0.6 g	CVAA-1 PE FIMS	LMS

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit	DF	Analyzed	Method
7440-38-2	Arsenic	BRL		mg/Kg	3.0	1	09-13-10 17:39	EPA 6010B
7440-39-3	Barium	BRL		mg/Kg	5.0	1	09-13-10 17:39	EPA 6010B
7440-43-9	Cadmium	BRL		mg/Kg	0.50	1	09-13-10 17:39	EPA 6010B
7440-47-3	Chromium	BRL		mg/Kg	1.0	1	09-13-10 17:38	EPA 6010B
7439-92-1	Lead	BRL		mg/Kg	5.0	1	09-13-10 17:39	EPA 6010B
7439-97-6	Mercury	BRL		mg/Kg	0.017	1	09-14-10 10:27	EPA 7471A
7782-49-2	Selenium	BRL		mg/Kg	5.0	1	09-13-10 17:39	EPA 6010B
7440-22-4	Silver	BRL		mg/Kg	1.0	1	09-13-10 17:38	EPA 6010B

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).

Report Notations:
BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.
DF Dilution Factor.

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

Category: **EPA Method 8260B**
QC Batch ID: **VM1-2909-E**
Matrix: **Soil**
Units: **ug/kg**

LCS
Instrument ID: **MS-1 HP 5890**
Analyzed: **09-13-10 08:39**
Analyst: **LMG**

LCSD
Instrument ID: **MS-1 HP 5890**
Analyzed: **09-13-10 09:14**
Analyst: **LMG**

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
75-71-8	Dichlorodifluoromethane	2,500	2,400	97 %	2,500	1,200	50 % q	64 % q	70 - 130 %	20%
74-87-3	Chloromethane	2,500	2,300	94 %	2,500	2,100	82 %	13 %	70 - 130 %	20%
75-01-4	Vinyl Chloride	2,500	2,700	110 %	2,500	2,300	91 %	19 %	70 - 130 %	20%
74-83-9	Bromomethane	2,500	2,600	102 %	2,500	2,400	94 %	8 %	70 - 130 %	20%
75-00-3	Chloroethane	2,500	2,400	96 %	2,500	2,100	85 %	12 %	70 - 130 %	20%
75-69-4	Trichlorofluoromethane	2,500	2,400	95 %	2,500	2,200	87 %	9 %	70 - 130 %	20%
60-29-7	Diethyl Ether	5,000	4,400	88 %	5,000	4,200	84 %	4 %	70 - 130 %	20%
75-35-4	1,1-Dichloroethene	2,500	2,500	102 %	2,500	2,300	93 %	10 %	70 - 130 %	20%
76-13-1	1,1,2-Trichlorotrifluoroethane	5,000	5,500	109 %	5,000	5,500	111 %	1 %	70 - 130 %	20%
67-64-1	Acetone	5,000	4,700	95 %	5,000	4,300	86 %	10 %	70 - 130 %	20%
75-15-0	Carbon Disulfide	5,000	4,100	83 %	5,000	4,200	84 %	1 %	70 - 130 %	20%
75-09-2	Methylene Chloride	2,500	2,500	101 %	2,500	2,200	88 %	14 %	70 - 130 %	20%
107-13-1	Acrylonitrile	2,500	2,500	98 %	2,500	2,200	89 %	10 %	70 - 130 %	20%
156-60-5	*trans*-1,2-Dichloroethene	2,500	2,500	101 %	2,500	2,300	93 %	8 %	70 - 130 %	20%
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	2,500	2,500	99 %	2,500	2,200	87 %	12 %	70 - 130 %	20%
75-34-3	1,1-Dichloroethane	2,500	2,300	91 %	2,500	2,100	83 %	9 %	70 - 130 %	20%
594-20-7	2,2-Dichloropropane	2,500	2,400	94 %	2,500	2,100	86 %	9 %	70 - 130 %	20%
156-59-2	*cis*-1,2-Dichloroethene	2,500	2,600	103 %	2,500	2,400	96 %	7 %	70 - 130 %	20%
78-93-3	2-Butanone (MEK)	5,000	4,800	97 %	5,000	4,700	95 %	2 %	70 - 130 %	20%
74-97-5	Bromochloromethane	2,500	2,800	111 %	2,500	2,600	103 %	8 %	70 - 130 %	20%
109-99-9	Tetrahydrofuran (THF)	5,000	4,900	98 %	5,000	4,400	89 %	9 %	70 - 130 %	20%
67-66-3	Chloroform	2,500	2,400	94 %	2,500	2,300	92 %	3 %	70 - 130 %	20%
71-55-6	1,1,1-Trichloroethane	2,500	2,300	91 %	2,500	2,200	89 %	3 %	70 - 130 %	20%
56-23-5	Carbon Tetrachloride	2,500	2,500	100 %	2,500	2,400	95 %	5 %	70 - 130 %	20%
563-58-6	1,1-Dichloropropene	2,500	2,300	94 %	2,500	2,200	88 %	6 %	70 - 130 %	20%
71-43-2	Benzene	2,500	2,500	99 %	2,500	2,300	92 %	8 %	70 - 130 %	20%
107-06-2	1,2-Dichloroethane	2,500	2,200	89 %	2,500	2,100	83 %	8 %	70 - 130 %	20%
79-01-6	Trichloroethene	2,500	2,400	97 %	2,500	2,500	99 %	2 %	70 - 130 %	20%
78-87-5	1,2-Dichloropropane	2,500	2,300	91 %	2,500	2,000	81 %	11 %	70 - 130 %	20%
74-95-3	Dibromomethane	2,500	2,300	91 %	2,500	2,100	85 %	7 %	70 - 130 %	20%
75-27-4	Bromodichloromethane	2,500	2,400	97 %	2,500	2,300	91 %	7 %	70 - 130 %	20%
123-91-1	1,4-Dioxane	50,000	45,000	90 %	50,000	38,000	77 %	16 %	70 - 130 %	20%
10061-01-5	*cis*-1,3-Dichloropropene	2,500	2,500	98 %	2,500	2,300	90 %	8 %	70 - 130 %	20%
108-10-1	4-Methyl-2-Pentanone (MIBK)	5,000	4,400	88 %	5,000	4,000	79 %	11 %	70 - 130 %	20%
108-88-3	Toluene	2,500	2,300	92 %	2,500	2,300	92 %	1 %	70 - 130 %	20%
10061-02-6	*trans*-1,3-Dichloropropene	2,500	2,300	90 %	2,500	2,300	93 %	3 %	70 - 130 %	20%
79-00-5	1,1,2-Trichloroethane	2,500	2,400	96 %	2,500	2,400	94 %	2 %	70 - 130 %	20%
127-18-4	Tetrachloroethene	2,500	2,800	111 %	2,500	2,800	110 %	0 %	70 - 130 %	20%
142-28-9	1,3-Dichloropropane	2,500	2,300	93 %	2,500	2,300	93 %	0 %	70 - 130 %	20%
591-78-6	2-Hexanone	5,000	4,700	93 %	5,000	4,300	87 %	7 %	70 - 130 %	20%
124-48-1	Dibromochloromethane	2,500	2,600	105 %	2,500	2,500	98 %	7 %	70 - 130 %	20%
106-93-4	1,2-Dibromoethane (EDB)	2,500	2,600	102 %	2,500	2,400	98 %	5 %	70 - 130 %	20%
108-90-7	Chlorobenzene	2,500	2,500	101 %	2,500	2,400	96 %	5 %	70 - 130 %	20%
630-20-6	1,1,1,2-Tetrachloroethane	2,500	2,700	108 %	2,500	2,600	105 %	3 %	70 - 130 %	20%
100-41-4	Ethylbenzene	2,500	2,500	99 %	2,500	2,400	97 %	2 %	70 - 130 %	20%
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	5,000	5,100	102 %	5,000	4,900	98 %	4 %	70 - 130 %	20%
95-47-6	*ortho*-Xylene	2,500	2,400	95 %	2,500	2,500	99 %	4 %	70 - 130 %	20%
100-42-5	Styrene	2,500	2,500	99 %	2,500	2,500	99 %	0 %	70 - 130 %	20%
75-25-2	Bromoform	2,500	3,100	123 %	2,500	2,800	113 %	8 %	70 - 130 %	20%

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8260B	Instrument ID:	MS-1 HP 5890	Instrument ID:	MS-1 HP 5890
QC Batch ID:	VM1-2909-E	Analyzed:	09-13-10 08:39	Analyzed:	09-13-10 09:14
Matrix:	Soil	Analyst:	LMG	Analyst:	LMG
Units:	ug/kg				

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
98-82-8	Isopropylbenzene	2,500	2,300	90 %	2,500	1,900	77 %	17 %	70 - 130 %	20%
108-86-1	Bromobenzene	2,500	2,600	103 %	2,500	2,300	91 %	12 %	70 - 130 %	20%
79-34-5	1,1,2,2-Tetrachloroethane	2,500	2,200	89 %	2,500	1,800	74 %	18 %	70 - 130 %	20%
96-18-4	1,2,3-Trichloropropane	2,500	2,400	95 %	2,500	2,000	79 %	18 %	70 - 130 %	20%
110-57-6	*trans*-1,4-Dichloro-2-butene	10,000	9,700	97 %	10,000	8,900	89 %	8 %	70 - 130 %	20%
103-65-1	*n*-Propylbenzene	2,500	2,300	91 %	2,500	2,000	80 %	13 %	70 - 130 %	20%
95-49-8	2-Chlorotoluene	2,500	2,500	101 %	2,500	2,200	88 %	13 %	70 - 130 %	20%
108-67-8	1,3,5-Trimethylbenzene	2,500	2,500	98 %	2,500	2,100	86 %	14 %	70 - 130 %	20%
106-43-4	4-Chlorotoluene	2,500	2,600	103 %	2,500	2,100	85 %	19 %	70 - 130 %	20%
98-06-6	*tert*-Butylbenzene	2,500	2,400	97 %	2,500	2,200	87 %	11 %	70 - 130 %	20%
95-63-6	1,2,4-Trimethylbenzene	2,500	2,500	99 %	2,500	2,200	87 %	13 %	70 - 130 %	20%
135-98-8	*sec*-Butylbenzene	2,500	2,400	94 %	2,500	2,100	84 %	11 %	70 - 130 %	20%
541-73-1	1,3-Dichlorobenzene	2,500	2,500	100 %	2,500	2,200	89 %	12 %	70 - 130 %	20%
99-87-6	4-Isopropyltoluene	2,500	2,500	100 %	2,500	2,100	86 %	16 %	70 - 130 %	20%
106-46-7	1,4-Dichlorobenzene	2,500	2,500	101 %	2,500	2,100	86 %	17 %	70 - 130 %	20%
95-50-1	1,2-Dichlorobenzene	2,500	2,500	99 %	2,500	2,400	96 %	3 %	70 - 130 %	20%
104-51-8	*n*-Butylbenzene	2,500	2,300	93 %	2,500	2,000	80 %	15 %	70 - 130 %	20%
96-12-8	1,2-Dibromo-3-chloropropane	2,500	2,000	81 %	2,500	1,900	76 %	6 %	70 - 130 %	20%
108-70-3	1,3,5-Trichlorobenzene	2,500	2,800	110 %	2,500	2,500	99 %	11 %	70 - 130 %	20%
120-82-1	1,2,4-Trichlorobenzene	2,500	2,500	99 %	2,500	2,300	90 %	10 %	70 - 130 %	20%
87-68-3	Hexachlorobutadiene	2,500	2,200	86 %	2,500	2,000	82 %	5 %	70 - 130 %	20%
91-20-3	Naphthalene	2,500	2,400	96 %	2,500	2,000	79 %	19 %	70 - 130 %	20%
87-61-6	1,2,3-Trichlorobenzene	2,500	2,400	98 %	2,500	2,200	89 %	10 %	70 - 130 %	20%
75-65-0	*tert*-Butyl Alcohol (TBA)	50,000	42,000	84 %	50,000	38,000	75 %	11 %	70 - 130 %	20%
108-20-3	Di-isopropyl Ether (DIPE)	2,500	2,100	84 %	2,500	2,100	84 %	0 %	70 - 130 %	20%
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	2,500	2,200	88 %	2,500	2,200	86 %	3 %	70 - 130 %	20%
994-05-8	*tert*-Amyl Methyl Ether (TAME)	2,500	2,100	84 %	2,500	2,100	84 %	1 %	70 - 130 %	20%

QC Surrogate Compound	Spiked	Measured	Recovery	Spiked	Measured	Recovery		QC Limits
Dibromofluoromethane	2,500	2,200	86 %	2,500	2,200	88 %		70 - 130 %
1,2-Dichloroethane-d_4	2,500	2,200	87 %	2,500	2,100	82 %		70 - 130 %
Toluene-d_8	2,500	2,300	93 %	2,500	2,400	95 %		70 - 130 %
4-Bromofluorobenzene	2,500	2,400	94 %	2,500	2,300	91 %		70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample preparation performed by EPA Method 5035A.

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

q Recovery outside recommended limits.

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: **EPA Method 8260B**
QC Batch ID: **VM1-2909-E**
Matrix: **Soil**

Instrument ID: **MS-1 HP 5890**
Analyzed: **09-13-10 09:49**
Analyst: **LMG**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	500
74-87-3	Chloromethane	BRL		ug/Kg	500
75-01-4	Vinyl Chloride	BRL		ug/Kg	500
74-83-9	Bromomethane	BRL		ug/Kg	500
75-00-3	Chloroethane	BRL		ug/Kg	500
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	500
60-29-7	Diethyl Ether	BRL		ug/Kg	500
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	250
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	2,500
67-64-1	Acetone	BRL		ug/Kg	2,500
75-15-0	Carbon Disulfide	BRL		ug/Kg	2,500
75-09-2	Methylene Chloride	BRL		ug/Kg	1,000
107-13-1	Acrylonitrile	BRL		ug/Kg	250
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	250
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	250
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	250
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	250
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	250
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	2,500
74-97-5	Bromochloromethane	BRL		ug/Kg	250
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	2,500
67-66-3	Chloroform	BRL		ug/Kg	250
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	250
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	250
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	250
71-43-2	Benzene	BRL		ug/Kg	250
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	250
79-01-6	Trichloroethene	BRL		ug/Kg	250
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	250
74-95-3	Dibromomethane	BRL		ug/Kg	250
75-27-4	Bromodichloromethane	BRL		ug/Kg	250
123-91-1	1,4-Dioxane	BRL		ug/Kg	250,000
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	250
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	2,500
108-88-3	Toluene	BRL		ug/Kg	250
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	250
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	250
127-18-4	Tetrachloroethene	BRL		ug/Kg	250
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	250
591-78-6	2-Hexanone	BRL		ug/Kg	2,500
124-48-1	Dibromochloromethane	BRL		ug/Kg	250
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	250
108-90-7	Chlorobenzene	BRL		ug/Kg	250
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	250
100-41-4	Ethylbenzene	BRL		ug/Kg	250
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL		ug/Kg	250
95-47-6	*ortho*-Xylene	BRL		ug/Kg	250
100-42-5	Styrene	BRL		ug/Kg	250
75-25-2	Bromoform	BRL		ug/Kg	250

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: **EPA Method 8260B**
QC Batch ID: **VM1-2909-E**
Matrix: **Soil**

Instrument ID: **MS-1 HP 5890**
Analyzed: **09-13-10 09:49**
Analyst: **LMG**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
98-82-8	Isopropylbenzene	BRL		ug/Kg	250
108-86-1	Bromobenzene	BRL		ug/Kg	250
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	250
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	250
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	2,500
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	250
95-49-8	2-Chlorotoluene	BRL		ug/Kg	250
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	250
106-43-4	4-Chlorotoluene	BRL		ug/Kg	250
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	250
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	250
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	250
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	250
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	250
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	250
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	250
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	250
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	250
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	250
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	250
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	250
91-20-3	Naphthalene	BRL		ug/Kg	250
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	250
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	10,000
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	250
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	250
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	250

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	2,500	2,200	**90** %	70 - 130 %
1,2-Dichloroethane-d_4	2,500	1,900	**76** %	70 - 130 %
Toluene-d_8	2,500	2,400	**94** %	70 - 130 %
4-Bromofluorobenzene	2,500	2,500	**102** %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample preparation performed by EPA Method 5035A.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8270C			Instrument ID:	MS-3 HP 5890
QC Batch ID:	SV-2389-P	Instrument ID:	MS-3 HP 5890	Extracted:	09-13-10 09:00
Matrix:	Soil	Extracted:	09-13-10 09:00	Analyzed:	09-15-10 09:38
Units:	ug/Kg	Analyzed:	09-15-10 08:57	Analyst:	MJB
		Analyst:	MJB		

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
62-75-9	N-Nitrosodimethylamine	3,300	2,100	64 %	3,300	2,100	62 %	3 %	40 - 140 %	30%
110-86-1	Pyridine	3,300	1,800	53 %	3,300	1,800	54 %	1 %	40 - 140 %	30%
108-95-2	Phenol	3,300	2,600	79 %	3,300	2,700	80 %	2 %	30 - 130 %	30%
62-53-3	Aniline	3,300	2,200	67 %	3,300	2,300	68 %	0 %	40 - 140 %	30%
111-44-4	Bis(2-chloroethyl) ether	3,300	2,300	69 %	3,300	2,300	68 %	2 %	40 - 140 %	30%
95-57-8	2-Chlorophenol	3,300	2,500	75 %	3,300	2,600	79 %	4 %	30 - 130 %	30%
541-73-1	1,3-Dichlorobenzene	3,300	2,400	72 %	3,300	2,400	72 %	0 %	40 - 140 %	30%
106-46-7	1,4-Dichlorobenzene	3,300	2,500	74 %	3,300	2,400	71 %	3 %	40 - 140 %	30%
100-51-6	Benzyl Alcohol	3,300	2,700	81 %	3,300	2,700	81 %	0 %	30 - 130 %	30%
95-50-1	1,2-Dichlorobenzene	3,300	2,400	72 %	3,300	2,400	73 %	2 %	40 - 140 %	30%
95-48-7	2-Methylphenol	3,300	2,500	75 %	3,300	2,500	76 %	2 %	30 - 130 %	30%
108-60-1	Bis(2-chloroisopropyl) ether	3,300	2,200	67 %	3,300	2,300	68 %	1 %	40 - 140 %	30%
106-44-5	4-Methylphenol	3,300	2,500	76 %	3,300	2,600	79 %	4 %	30 - 130 %	30%
621-64-7	N-Nitrosodi-n-propylamine	3,300	2,400	71 %	3,300	2,500	74 %	3 %	40 - 140 %	30%
98-86-2	Acetophenone	3,300	2,500	75 %	3,300	2,500	76 %	1 %	40 - 140 %	30%
67-72-1	Hexachloroethane	3,300	2,300	68 %	3,300	2,300	68 %	1 %	40 - 140 %	30%
98-95-3	Nitrobenzene	3,300	2,300	69 %	3,300	2,400	72 %	4 %	40 - 140 %	30%
78-59-1	Isophorone	3,300	2,400	72 %	3,300	2,400	73 %	1 %	40 - 140 %	30%
88-75-5	2-Nitrophenol	3,300	2,600	78 %	3,300	2,600	77 %	2 %	30 - 130 %	30%
105-67-9	2,4-Dimethylphenol	3,300	2,300	69 %	3,300	2,600	77 %	10 %	30 - 130 %	30%
111-91-1	Bis(2-chloroethoxy) methane	3,300	2,300	69 %	3,300	2,300	69 %	0 %	40 - 140 %	30%
120-83-2	2,4-Dichlorophenol	3,300	2,700	80 %	3,300	2,700	82 %	3 %	30 - 130 %	30%
120-82-1	1,2,4-Trichlorobenzene	3,300	2,600	78 %	3,300	2,600	77 %	1 %	40 - 140 %	30%
91-20-3	Naphthalene	3,300	2,500	75 %	3,300	2,400	73 %	2 %	40 - 140 %	30%
106-47-8	4-Chloroaniline	3,300	2,100	63 %	3,300	2,200	65 %	3 %	40 - 140 %	30%
87-68-3	Hexachlorobutadiene	3,300	2,500	76 %	3,300	2,500	76 %	1 %	40 - 140 %	30%
59-50-7	4-Chloro-3-methylphenol	3,300	2,500	75 %	3,300	2,500	75 %	0 %	30 - 130 %	30%
91-57-6	2-Methylnaphthalene	3,300	2,500	76 %	3,300	2,600	78 %	3 %	40 - 140 %	30%
77-47-4	Hexachlorocyclopentadiene	3,300	3,000	90 %	3,300	2,900	87 %	4 %	40 - 140 %	30%
88-06-2	2,4,6-Trichlorophenol	3,300	2,800	85 %	3,300	2,700	81 %	5 %	30 - 130 %	30%
95-95-4	2,4,5-Trichlorophenol	3,300	2,800	84 %	3,300	2,800	83 %	1 %	30 - 130 %	30%
91-58-7	2-Chloronaphthalene	3,300	2,700	81 %	3,300	2,600	79 %	3 %	40 - 140 %	30%
88-74-4	2-Nitroaniline	3,300	2,700	82 %	3,300	2,600	77 %	6 %	40 - 140 %	30%
100-25-4	1,4-Dinitrobenzene	3,300	2,900	86 %	3,300	2,800	83 %	4 %	40 - 140 %	30%
131-11-3	Dimethyl phthalate	3,300	2,800	83 %	3,300	2,700	81 %	2 %	40 - 140 %	30%
99-65-0	1,3-Dinitrobenzene	3,300	2,900	87 %	3,300	2,800	85 %	3 %	40 - 140 %	30%
208-96-8	Acenaphthylene	3,300	2,800	83 %	3,300	2,700	80 %	3 %	40 - 140 %	30%
606-20-2	2,6-Dinitrotoluene	3,300	2,800	85 %	3,300	2,700	81 %	4 %	40 - 140 %	30%
528-29-0	1,2-Dinitrobenzene	3,300	2,800	84 %	3,300	2,800	83 %	1 %	40 - 140 %	30%
99-09-2	3-Nitroaniline	3,300	2,500	75 %	3,300	2,400	73 %	2 %	40 - 140 %	30%
83-32-9	Acenaphthene	3,300	2,800	83 %	3,300	2,700	80 %	3 %	40 - 140 %	30%
51-28-5	2,4-Dinitrophenol	3,300	1,300	38 %	3,300	1,500	44 %	15 %	30 - 130 %	30%
100-02-7	4-Nitrophenol	3,300	3,000	89 %	3,300	2,800	83 %	8 %	30 - 130 %	30%
132-64-9	Dibenzofuran	3,300	2,800	83 %	3,300	2,700	81 %	4 %	40 - 140 %	30%
121-14-2	2,4-Dinitrotoluene	3,300	2,800	84 %	3,300	2,800	83 %	1 %	40 - 140 %	30%
84-66-2	Diethyl phthalate	3,300	2,800	83 %	3,300	2,700	81 %	3 %	40 - 140 %	30%
7005-72-3	4-Chlorophenyl phenyl ether	3,300	2,800	84 %	3,300	2,700	81 %	3 %	40 - 140 %	30%
86-73-7	Fluorene	3,300	2,700	82 %	3,300	2,700	81 %	2 %	40 - 140 %	30%

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8270C	Instrument ID:	MS-3 HP 5890	Instrument ID:	MS-3 HP 5890
QC Batch ID:	SV-2389-P	Extracted:	09-13-10 09:00	Extracted:	09-13-10 09:00
Matrix:	Soil	Analyzed:	09-15-10 08:57	Analyzed:	09-15-10 09:38
Units:	ug/Kg	Analyst:	MJB	Analyst:	MJB

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
100-01-6	4-Nitroaniline	3,300	2,700	80 %	3,300	2,600	79 %	1 %	40 - 140 %	30%
534-52-1	4,6-Dinitro-2-methylphenol	3,300	2,000	59 %	3,300	2,200	67 %	14 %	30 - 130 %	30%
86-30-6	N-Nitrosodiphenylamine †	3,300	2,700	81 %	3,300	2,800	84 %	4 %	40 - 140 %	30%
122-66-7	1,2-Diphenylhydrazine à	3,300	2,600	77 %	3,300	2,600	79 %	2 %	40 - 140 %	30%
101-55-3	4-Bromophenyl phenyl ether	3,300	2,700	82 %	3,300	2,900	87 %	6 %	40 - 140 %	30%
118-74-1	Hexachlorobenzene	3,300	2,700	80 %	3,300	2,800	84 %	5 %	40 - 140 %	30%
87-86-5	Pentachlorophenol	3,300	2,400	72 %	3,300	2,600	78 %	8 %	30 - 130 %	30%
85-01-8	Phenanthrene	3,300	2,700	81 %	3,300	2,800	84 %	4 %	40 - 140 %	30%
120-12-7	Anthracene	3,300	2,700	82 %	3,300	2,800	84 %	2 %	40 - 140 %	30%
86-74-8	Carbazole	3,300	2,800	83 %	3,300	2,800	84 %	1 %	40 - 140 %	30%
84-74-2	Di-*n*-butyl phthalate	3,300	2,700	80 %	3,300	2,800	83 %	4 %	40 - 140 %	30%
206-44-0	Fluoranthene	3,300	2,800	83 %	3,300	2,900	86 %	4 %	40 - 140 %	30%
129-00-0	Pyrene	3,300	2,800	83 %	3,300	2,800	84 %	1 %	40 - 140 %	30%
85-68-7	Butyl benzyl phthalate	3,300	2,700	81 %	3,300	2,700	81 %	1 %	40 - 140 %	30%
91-94-1	3,3'-Dichlorobenzidine	3,300	2,200	65 %	3,300	2,200	66 %	2 %	40 - 140 %	30%
56-55-3	Benzo[a]anthracene	3,300	2,700	82 %	3,300	2,800	84 %	2 %	40 - 140 %	30%
218-01-9	Chrysene	3,300	2,700	82 %	3,300	2,700	81 %	1 %	40 - 140 %	30%
117-81-7	Bis(2-ethylhexyl) phthalate	3,300	2,700	82 %	3,300	2,700	81 %	2 %	40 - 140 %	30%
117-84-0	Di-*n*-octyl phthalate	3,300	2,800	84 %	3,300	2,800	84 %	1 %	40 - 140 %	30%
205-99-2	Benzo[b]fluoranthene	3,300	2,800	84 %	3,300	2,800	83 %	1 %	40 - 140 %	30%
207-08-9	Benzo[k]fluoranthene	3,300	2,800	84 %	3,300	2,800	84 %	1 %	40 - 140 %	30%
50-32-8	Benzo[a]pyrene	3,300	2,700	82 %	3,300	2,700	81 %	1 %	40 - 140 %	30%
193-39-5	Indeno[1,2,3-c,d]pyrene	3,300	2,400	72 %	3,300	2,500	74 %	3 %	40 - 140 %	30%
53-70-3	Dibenzo[a,h]anthracene	3,300	2,600	77 %	3,300	2,500	76 %	2 %	40 - 140 %	30%
191-24-2	Benzo[g,h,i]perylene	3,300	2,500	75 %	3,300	2,500	74 %	1 %	40 - 140 %	30%

QC Surrogate Compound	Spiked	Measured	Recovery	Spiked	Measured	Recovery		QC Limits
2-Fluorophenol	13,000	10,000	79 %	13,000	10,000	75 %		30 - 130 %
Phenol-d5	13,000	10,000	77 %	13,000	11,000	82 %		30 - 130 %
Nitrobenzene-d5	6,700	5,800	87 %	6,700	5,900	89 %		30 - 130 %
2-Fluorobiphenyl	6,700	6,800	101 %	6,700	6,600	99 %		30 - 130 %
2,4,6-Tribromophenol	13,000	12,000	93 %	13,000	12,000	89 %		30 - 130 %
Terphenyl-d14	6,700	7,300	110 %	6,700	7,200	108 %		30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545.

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: **EPA Method 8270C**
QC Batch ID: **SV-2389-P**
Matrix: **Soil**

Instrument ID: **MS-3 HP 5890**
Extracted: **09-13-10 09:00**
Analyzed: **09-15-10 10:19**
Analyst: **MJB**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	330
110-86-1	Pyridine	BRL		ug/Kg	330
108-95-2	Phenol	BRL		ug/Kg	330
62-53-3	Aniline	BRL		ug/Kg	330
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	330
95-57-8	2-Chlorophenol	BRL		ug/Kg	330
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	330
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	330
100-51-6	Benzyl Alcohol	BRL		ug/Kg	330
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	330
95-48-7	2-Methylphenol	BRL		ug/Kg	330
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	330
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	330
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	330
98-86-2	Acetophenone	BRL		ug/Kg	330
67-72-1	Hexachloroethane	BRL		ug/Kg	330
98-95-3	Nitrobenzene	BRL		ug/Kg	330
78-59-1	Isophorone	BRL		ug/Kg	330
88-75-5	2-Nitrophenol	BRL		ug/Kg	330
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	330
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	330
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	330
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	330
91-20-3	Naphthalene	BRL		ug/Kg	330
106-47-8	4-Chloroaniline	BRL		ug/Kg	330
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	330
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	330
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	330
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	330
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	670
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	330
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	330
88-74-4	2-Nitroaniline	BRL		ug/Kg	330
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	330
131-11-3	Dimethyl phthalate	BRL		ug/Kg	330
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	330
208-96-8	Acenaphthylene	BRL		ug/Kg	330
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	330
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	330
99-09-2	3-Nitroaniline	BRL		ug/Kg	330
83-32-9	Acenaphthene	BRL		ug/Kg	330
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	330
100-02-7	4-Nitrophenol	BRL		ug/Kg	330
132-64-9	Dibenzofuran	BRL		ug/Kg	330
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	330
84-66-2	Diethyl phthalate	BRL		ug/Kg	330
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	330
86-73-7	Fluorene	BRL		ug/Kg	330
100-01-6	4-Nitroaniline	BRL		ug/Kg	330

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: **EPA Method 8270C**
QC Batch ID: **SV-2389-P**
Matrix: **Soil**

Instrument ID: **MS-3 HP 5890**
Extracted: **09-13-10 09:00**
Analyzed: **09-15-10 10:19**
Analyst: **MJB**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	670
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	330
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	330
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	330
118-74-1	Hexachlorobenzene	BRL		ug/Kg	330
87-86-5	Pentachlorophenol	BRL		ug/Kg	330
85-01-8	Phenanthrene	BRL		ug/Kg	330
120-12-7	Anthracene	BRL		ug/Kg	330
86-74-8	Carbazole	BRL		ug/Kg	330
84-74-2	Di-*n*-butyl phthalate	BRL		ug/Kg	330
206-44-0	Fluoranthene	BRL		ug/Kg	330
129-00-0	Pyrene	BRL		ug/Kg	330
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	330
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	330
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	330
218-01-9	Chrysene	BRL		ug/Kg	330
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	330
117-84-0	Di-*n*-octyl phthalate	BRL		ug/Kg	330
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	330
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	330
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	330
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	330
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	330
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	330

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	13,000	7,400	**56 %**	30 - 130 %
Phenol-d5	13,000	8,000	**60 %**	30 - 130 %
Nitrobenzene-d5	6,700	4,700	**70 %**	30 - 130 %
2-Fluorobiphenyl	6,700	5,000	**75 %**	30 - 130 %
2,4,6-Tribromophenol	13,000	7,800	**59 %**	30 - 130 %
Terphenyl-d14	6,700	5,500	**82 %**	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample extraction performed by EPA Method 3545.

Report Notations:
BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.
* Analyzed as 4-Methylphenol.
† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.
◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

Certifications and Approvals

Groundwater Analytical maintains environmental laboratory certification in a variety of states. Copies of our current certificates may be obtained from our website:

http://www.groundwateranalytical.com/qualifications.htm

CONNECTICUT

Department of Health Services, PH-0586 — Potable Water, Wastewater, Solid Waste and Soil
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/Out_State.pdf

MASSACHUSETTS

Department of Environmental Protection, M-MA-103 — Potable Water and Non-Potable Water
http://public.dep.state.ma.us/labcert/labcert.aspx

Department of Labor, Division of Occupational Safety, AA000195 — Asbestos Analytical Services, Class A
http://www.mass.gov/dos/forms/la-rpt_list_aa.pdf

NEW HAMPSHIRE

Department of Environmental Services, 202708 — Potable Water, Non-Potable Water, Solid and Chemical Materials
http://www4.egov.nh.gov/DES/NHELAP

NEW YORK

Department of Health, 11754 — Potable Water, Non-Potable Water, Solid and Hazardous Waste
http://www.wadsworth.org/labcert/elap/comm.html

RHODE ISLAND

Department of Health, Division of Laboratories, LAO00054 — Potable and Non-Potable Water Microbiology, Organic and Inorganic Chemistry
http://www.health.ri.gov/labs/outofstatelabs.pdf

U.S. DEPARTMENT OF AGRICULTURE

USDA, Soil Permit, S-53921 — Foreign soil import permit

VERMONT

Department of Health, VT-87643 — Potable Water
http://healthvermont.gov/enviro/ph_lab/water_test.aspx#cert

GROUNDWATER ANALYTICAL

Certifications and Approvals

MASSACHUSETTS — Department of Environmental Protection, M-MA-103

Groundwater Analytical maintains MassDEP environmental laboratory certification for only the methods and analytes listed below. Analyses for certified analytes are conducted in accordance with MassDEP certification standards, except as may be specifically noted in the project narrative.

Potable Water (Drinking Water)

Analyte	Method
1,2-Dibromo-3-Chloropropane	EPA 504.1
1,2-Dibromoethane	EPA 504.1
Alkalinity, Total	SM 2320-B
Antimony	EPA 200.8
Arsenic	EPA 200.8
Barium	EPA 200.7
Barium	EPA 200.8
Beryllium	EPA 200.7
Beryllium	EPA 200.8
Cadmium	EPA 200.7
Cadmium	EPA 200.8
Calcium	EPA 200.7
Chlorine, Residual Free	SM 4500-CL-G
Chromium	EPA 200.7
Cyanide, Total	Lachat 10-204-00-1-A
E. Coli (Treatment and Distribution)	Enz. Sub. SM 9223
E. Coli (Treatment and Distribution)	NA-MUG SM 9222-G
Fecal Coliform (Source Water)	MF SM 9222-D
Fluoride	EPA 300.0
Fluoride	SM 4500-F-C
Heterotrophic Plate Count	SM 9215-B
Lead	EPA 200.8
Mercury	EPA 245.1
Nickel	EPA 200.7
Nickel	EPA 200.8
Nitrate-N	EPA 300.0
Nitrate-N	Lachat 10-107-04-1-C
Nitrite-N	EPA 300.0
Nitrite-N	Lachat 10-107-04-1-C
pH	SM 4500-H-B
Selenium	EPA 200.8
Silver	EPA 200.7
Silver	EPA 200.8
Sodium	EPA 200.7
Sulfate	EPA 300.0
Thallium	EPA 200.8
Total Coliform (Treatment and Distribution)	Enz. Sub. SM 9223
Total Coliform (Treatment and Distribution)	MF SM 9222-B
Total Dissolved Solids	SM 2540-C
Trihalomethanes	EPA 524.2
Turbidity	SM 2130-B
Volatile Organic Compounds	EPA 524.2

Non-Potable Water (Wastewater)

Analyte	Method
Aldrin	EPA 608
Alkalinity, Total	SM 2320-B
Alpha-BHC	EPA 608
Aluminum	EPA 200.7
Aluminum	EPA 200.8
Ammonia-N	Lachat 10-107-06-1-B

Non-Potable Water (Wastewater)

Analyte	Method
Antimony	EPA 200.7
Antimony	EPA 200.8
Arsenic	EPA 200.7
Arsenic	EPA 200.8
Beryllium	EPA 200.7
Beryllium	EPA 200.8
Beta-BHC	EPA 608
Biochemical Oxygen Demand	SM 5210-B
Cadmium	EPA 200.7
Cadmium	EPA 200.8
Calcium	EPA 200.7
Chemical Oxygen Demand	SM 5220-D
Chlordane	EPA 608
Chloride	EPA 300.0
Chlorine, Total Residual	SM 4500-CL-G
Chromium	EPA 200.7
Chromium	EPA 200.8
Cobalt	EPA 200.7
Cobalt	EPA 200.8
Copper	EPA 200.7
Copper	EPA 200.8
Cyanide, Total	Lachat 10-204-00-1-A
DDD	EPA 608
DDE	EPA 608
DDT	EPA 608
Delta-BHC	EPA 608
Dieldrin	EPA 608
Endosulfan I	EPA 608
Endosulfan II	EPA 608
Endosulfan Sulfate	EPA 608
Endrin	EPA 608
Endrin Aldehyde	EPA 608
Fluoride	EPA 300.0
Gamma-BHC	EPA 608
Hardness (CaCO3), Total	EPA 200.7
Hardness (CaCO3), Total	SM 2340-B
Heptachlor	EPA 608
Heptachlor Epoxide	EPA 608
Iron	EPA 200.7
Kjeldahl-N	Lachat 10-107-06-02-D
Lead	EPA 200.7
Magnesium	EPA 200.7
Manganese	EPA 200.7
Manganese	EPA 200.8
Mercury	EPA 245.1
Molybdenum	EPA 200.7
Molybdenum	EPA 200.8
Nickel	EPA 200.7
Nickel	EPA 200.8
Nitrate-N	EPA 300.0
Nitrate-N	Lachat 10-107-04-1-C
Non-Filterable Residue	SM 2540-D
Oil and Grease	EPA 1664

GROUNDWATER ANALYTICAL

Certifications and Approvals

MASSACHUSETTS — **Department of Environmental Protection, M-MA-103**

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Non-Potable Water (Wastewater)

Analyte	Method
Orthophosphate	Lachat 10-115-01-1-A
pH	SM 4500-H-B
Phenolics, Total	EPA 420.4
Phenolics, Total	Lachat 10-210-00-1-B
Phosphorus, Total	Lachat 10-115-01-1-C
Phosphorus, Total	SM 4500-P-B,E
Polychlorinated Biphenyls (Oil)	EPA 600/4-81-045
Polychlorinated Biphenyls (Water)	EPA 608
Potassium	EPA 200.7
Selenium	EPA 200.7
Selenium	EPA 200.8
Silver	EPA 200.7
Sodium	EPA 200.7
Specific Conductivity	SM 2510-B
Strontium	EPA 200.7
Sulfate	EPA 300.0
SVOC-Acid Extractables	EPA 625
SVOC-Base/Neutral Extractables	EPA 625
Thallium	EPA 200.7
Thallium	EPA 200.8
Titanium	EPA 200.7
Total Dissolved Solids	SM 2540-C
Total Organic Carbon	SM 5310-B
Toxaphene	EPA 608
Vanadium	EPA 200.7
Vanadium	EPA 200.8
Volatile Aromatics	EPA 602
Volatile Aromatics	EPA 624
Volatile Halocarbons	EPA 624
Zinc	EPA 200.7
Zinc	EPA 200.8

* Hyd. Cft #1 *
(01/10)

GROUNDWATER ANALYTICAL

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228 Main Street
Buzzards Bay, MA 02532

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www.groundwateranalytical.com

February 8, 2011

Ms. Jennifer Hadden
AECOM Environment
2 Technology Park Drive
Westford, MA 01886

LABORATORY REPORT

Project: **New Hyde Park/60158261**
Lab ID: **139470**
Received: **01-31-11**

Dear Jennifer:

Enclosed are the analytical results for the above referenced project. The project was processed for Priority turnaround.

This letter authorizes the release of the analytical results, and should be considered a part of this report. This report contains a sample receipt report detailing the samples received, a project narrative indicating project changes and non-conformances, a quality control report, and a statement of our state certifications.

The analytical results contained in this report meet all applicable NELAC standards, except as may be specifically noted, or described in the project narrative. The analytical results relate only to the samples received. This report may only be used or reproduced in its entirety.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Should you have any questions concerning this report, please do not hesitate to contact me.

Sincerely,

Karyn E. Raymond

Karyn E. Raymond
Project Manager

KER/elm
Enclosures

GROUNDWATER ANALYTICAL

Sample Receipt Report

Project: **New Hyde Park/60158261**
Client: **AECOM Environment**
Lab ID: **139470**

Delivery: **GWA Courier**
Airbill: **n/a**
Lab Receipt: **01-31-11**

Temperature: **3.7°C**
Chain of Custody: **Present**
Custody Seal(s): **n/a**

Lab ID	Field ID		Matrix	Sampled	Method				Notes
139470-1	Composite		Soil	1/26/11 15:10	EPA 8260B Volatile Organics with Oxygenates				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1192541	40 mL VOA Vial	Proline	BX33023	Methanol	R-5786AO	03-19-09	04-17-09		
C1319377	40 mL VOA Vial	Proline	BX38204	n/a	R-6302C	12-30-10	n/a		
C1319340	40 mL VOA Vial	Proline	BX38204	n/a	R-6302C	12-30-10	n/a		
C1319305	40 mL VOA Vial	Proline	BX38204	n/a	R-6302C	12-30-10	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
139470-2	Bottom		Soil	1/26/11 15:05	EPA 8260B Volatile Organics with Oxygenates				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1192542	40 mL VOA Vial	Proline	BX33023	Methanol	R-5786AO	03-19-09	04-17-09		
C1319335	40 mL VOA Vial	Proline	BX38204	n/a	R-6302C	12-30-10	n/a		
C1319327	40 mL VOA Vial	Proline	BX38204	n/a	R-6302C	12-30-10	n/a		
C1319314	40 mL VOA Vial	Proline	BX38204	n/a	R-6302C	12-30-10	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
139470-3	Composite		Soil	1/26/11 15:10	EPA 6010B Pb EPA 8270C Semivolatile Organics				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1330359	250 mL Amber Glass	Proline	BX38214	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
139470-4	Bottom		Soil	1/26/11 15:05	EPA 6010B Pb EPA 8270C Semivolatile Organics				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C1324704	250 mL Amber Glass	Proline	BX38081	None	n/a	n/a	n/a		

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**Composite**	Matrix:	**Soil**
Project:	**New Hyde Park/60158261**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**Frozen**
Laboratory ID:	**139470-1**	QC Batch ID:	**VM8-1403-S**
Sampled:	**01-26-11 15:10**	Instrument ID:	**MS-8 HP 6890**
Received:	**01-31-11 14:40**	Sample Weight:	**5.8 g**
Analyzed:	**02-06-11 18:32**	% Solids:	**93**
Analyst:	**EMC**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	10
74-87-3	Chloromethane	BRL		ug/Kg	10
75-01-4	Vinyl Chloride	BRL		ug/Kg	10
74-83-9	Bromomethane	BRL		ug/Kg	10
75-00-3	Chloroethane	BRL		ug/Kg	10
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	10
60-29-7	Diethyl Ether	BRL		ug/Kg	10
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	50
67-64-1	Acetone	BRL		ug/Kg	200
75-15-0	Carbon Disulfide	BRL		ug/Kg	50
75-09-2	Methylene Chloride	BRL		ug/Kg	50
107-13-1	Acrylonitrile	BRL		ug/Kg	5
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	5
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	5
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	5
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	5
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	5
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	50
74-97-5	Bromochloromethane	BRL		ug/Kg	5
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	50
67-66-3	Chloroform	BRL		ug/Kg	5
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	5
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	5
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	5
71-43-2	Benzene	BRL		ug/Kg	5
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	5
79-01-6	Trichloroethene	BRL		ug/Kg	5
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	5
74-95-3	Dibromomethane	BRL		ug/Kg	5
75-27-4	Bromodichloromethane	BRL		ug/Kg	5
123-91-1	1,4-Dioxane	BRL		ug/Kg	5,000
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	50
108-88-3	Toluene	BRL		ug/Kg	5
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	5
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	5
127-18-4	Tetrachloroethene	BRL		ug/Kg	5
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	5
591-78-6	2-Hexanone	BRL		ug/Kg	50
124-48-1	Dibromochloromethane	BRL		ug/Kg	5
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	5
108-90-7	Chlorobenzene	BRL		ug/Kg	5
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	5
100-41-4	Ethylbenzene	BRL		ug/Kg	5
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL		ug/Kg	5

GROUNDWATER ANALYTICAL

EPA Method 8260B (Continued)
Volatile Organics by GC/MS

Field ID:	**Composite**	Matrix:	**Soil**
Project:	**New Hyde Park/60158261**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**Frozen**
Laboratory ID:	**139470-1**	QC Batch ID:	**VM8-1403-S**
Sampled:	**01-26-11 15:10**	Instrument ID:	**MS-8 HP 6890**
Received:	**01-31-11 14:40**	Sample Weight:	**5.8 g**
Analyzed:	**02-06-11 18:32**	% Solids:	**93**
Analyst:	**EMC**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
95-47-6	*ortho*-Xylene	BRL		ug/Kg	5
100-42-5	Styrene	BRL		ug/Kg	5
75-25-2	Bromoform	BRL		ug/Kg	5
98-82-8	Isopropylbenzene	BRL		ug/Kg	5
108-86-1	Bromobenzene	BRL		ug/Kg	5
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	5
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	5
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	50
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	5
95-49-8	2-Chlorotoluene	BRL		ug/Kg	5
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	5
106-43-4	4-Chlorotoluene	BRL		ug/Kg	5
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	5
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	5
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	5
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	5
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	5
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	5
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	5
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	5
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	5
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	5
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	5
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	5
91-20-3	Naphthalene	BRL		ug/Kg	5
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	5
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	200
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	5
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	5
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	50	46	**93** %	70 - 130 %
1,2-Dichloroethane-d_4	50	46	**93** %	70 - 130 %
Toluene-d_8	50	52	**104** %	70 - 130 %
4-Bromofluorobenzene	50	55	**111** %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample preparation performed by EPA Method 5030B. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**Bottom**	Matrix:	**Soil**
Project:	**New Hyde Park/60158261**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**Frozen**
Laboratory ID:	**139470-2**	QC Batch ID:	**VM8-1403-S**
Sampled:	**01-26-11 15:05**	Instrument ID:	**MS-8 HP 6890**
Received:	**01-31-11 14:40**	Sample Weight:	**6.2 g**
Analyzed:	**02-06-11 19:39**	% Solids:	**91**
Analyst:	**EMC**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	10
74-87-3	Chloromethane	BRL		ug/Kg	10
75-01-4	Vinyl Chloride	BRL		ug/Kg	10
74-83-9	Bromomethane	BRL		ug/Kg	10
75-00-3	Chloroethane	BRL		ug/Kg	10
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	10
60-29-7	Diethyl Ether	BRL		ug/Kg	10
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	50
67-64-1	Acetone	BRL		ug/Kg	200
75-15-0	Carbon Disulfide	BRL		ug/Kg	50
75-09-2	Methylene Chloride	BRL		ug/Kg	50
107-13-1	Acrylonitrile	BRL		ug/Kg	5
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	5
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	5
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	5
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	5
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	5
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	50
74-97-5	Bromochloromethane	BRL		ug/Kg	5
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	50
67-66-3	Chloroform	BRL		ug/Kg	5
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	5
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	5
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	5
71-43-2	Benzene	BRL		ug/Kg	5
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	5
79-01-6	Trichloroethene	BRL		ug/Kg	5
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	5
74-95-3	Dibromomethane	BRL		ug/Kg	5
75-27-4	Bromodichloromethane	BRL		ug/Kg	5
123-91-1	1,4-Dioxane	BRL		ug/Kg	5,000
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	50
108-88-3	Toluene	BRL		ug/Kg	5
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	5
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	5
127-18-4	Tetrachloroethene	6		ug/Kg	5
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	5
591-78-6	2-Hexanone	BRL		ug/Kg	50
124-48-1	Dibromochloromethane	BRL		ug/Kg	5
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	5
108-90-7	Chlorobenzene	BRL		ug/Kg	5
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	5
100-41-4	Ethylbenzene	BRL		ug/Kg	5
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL		ug/Kg	5

EPA Method 8260B (Continued)
Volatile Organics by GC/MS

Field ID:	**Bottom**	Matrix:	**Soil**
Project:	**New Hyde Park/60158261**	Container:	**40 mL VOA Vial**
Client:	**AECOM Environment**	Preservation:	**Frozen**
Laboratory ID:	**139470-2**	QC Batch ID:	**VM8-1403-S**
Sampled:	**01-26-11 15:05**	Instrument ID:	**MS-8 HP 6890**
Received:	**01-31-11 14:40**	Sample Weight:	**6.2 g**
Analyzed:	**02-06-11 19:39**	% Solids:	**91**
Analyst:	**EMC**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
95-47-6	*ortho*-Xylene	BRL		ug/Kg	5
100-42-5	Styrene	BRL		ug/Kg	5
75-25-2	Bromoform	BRL		ug/Kg	5
98-82-8	Isopropylbenzene	BRL		ug/Kg	5
108-86-1	Bromobenzene	BRL		ug/Kg	5
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	5
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	5
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	50
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	5
95-49-8	2-Chlorotoluene	BRL		ug/Kg	5
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	5
106-43-4	4-Chlorotoluene	BRL		ug/Kg	5
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	5
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	5
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	5
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	5
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	5
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	5
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	5
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	5
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	5
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	5
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	5
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	5
91-20-3	Naphthalene	BRL		ug/Kg	5
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	5
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	200
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	5
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	5
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	50	48	**95** %	70 - 130 %
1,2-Dichloroethane-d_4	50	47	**94** %	70 - 130 %
Toluene-d_8	50	51	**103** %	70 - 130 %
4-Bromofluorobenzene	50	56	**113** %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample preparation performed by EPA Method 5030B. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

EPA Method 8270C
Semivolatile Organics by GC/MS

Field ID:	**Composite**	Matrix:	**Soil**
Project:	**New Hyde Park/60158261**	Container:	**250 mL Amber Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**139470-03**	QC Batch ID:	**SV-2440-P**
Sampled:	**01-26-11 15:10**	Instrument ID:	**MS-3 HP 5890**
Received:	**01-31-11 14:40**	Sample Weight:	**16 g**
Extracted:	**02-04-11 16:00**	Final Volume:	**1 mL**
Analyzed:	**02-07-11 11:47**	Percent Solids:	**93**
Analyst:	**MJB**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	340
110-86-1	Pyridine	BRL		ug/Kg	340
108-95-2	Phenol	BRL		ug/Kg	340
62-53-3	Aniline	BRL		ug/Kg	340
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	340
95-57-8	2-Chlorophenol	BRL		ug/Kg	340
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	340
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	340
100-51-6	Benzyl Alcohol	BRL		ug/Kg	340
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	340
95-48-7	2-Methylphenol	BRL		ug/Kg	340
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	340
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	340
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	340
98-86-2	Acetophenone	BRL		ug/Kg	340
67-72-1	Hexachloroethane	BRL		ug/Kg	340
98-95-3	Nitrobenzene	BRL		ug/Kg	340
78-59-1	Isophorone	BRL		ug/Kg	340
88-75-5	2-Nitrophenol	BRL		ug/Kg	340
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	340
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	340
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	340
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	340
91-20-3	Naphthalene	BRL		ug/Kg	340
106-47-8	4-Chloroaniline	BRL		ug/Kg	340
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	340
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	340
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	340
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	340
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	340
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	340
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	340
88-74-4	2-Nitroaniline	BRL		ug/Kg	340
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	340
131-11-3	Dimethyl phthalate	BRL		ug/Kg	340
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	340
208-96-8	Acenaphthylene	BRL		ug/Kg	340
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	340
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	340
99-09-2	3-Nitroaniline	BRL		ug/Kg	340
83-32-9	Acenaphthene	BRL		ug/Kg	340
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	340
100-02-7	4-Nitrophenol	BRL		ug/Kg	340
132-64-9	Dibenzofuran	BRL		ug/Kg	340
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	340

GROUNDWATER ANALYTICAL

EPA Method 8270C (Continued)
Semivolatile Organics by GC/MS

Field ID:	**Composite**	Matrix:	**Soil**
Project:	**New Hyde Park/60158261**	Container:	**250 mL Amber Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**139470-03**	QC Batch ID:	**SV-2440-P**
Sampled:	**01-26-11 15:10**	Instrument ID:	**MS-3 HP 5890**
Received:	**01-31-11 14:40**	Sample Weight:	**16 g**
Extracted:	**02-04-11 16:00**	Final Volume:	**1 mL**
Analyzed:	**02-07-11 11:47**	Dilution Factor:	**1**
Analyst:	**MJB**		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
84-66-2	Diethyl phthalate	BRL		ug/Kg	340
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	340
86-73-7	Fluorene	BRL		ug/Kg	340
100-01-6	4-Nitroaniline	BRL		ug/Kg	340
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	340
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	340
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	340
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	340
118-74-1	Hexachlorobenzene	BRL		ug/Kg	340
87-86-5	Pentachlorophenol	BRL		ug/Kg	340
85-01-8	Phenanthrene	BRL		ug/Kg	340
120-12-7	Anthracene	BRL		ug/Kg	340
86-74-8	Carbazole	BRL		ug/Kg	340
84-74-2	Di-*n*-butyl phthalate	BRL		ug/Kg	340
206-44-0	Fluoranthene	BRL		ug/Kg	340
129-00-0	Pyrene	BRL		ug/Kg	340
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	340
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	340
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	340
218-01-9	Chrysene	BRL		ug/Kg	340
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	340
117-84-0	Di-*n*-octyl phthalate	BRL		ug/Kg	340
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	340
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	340
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	340
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	340
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	340
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	340

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	14,000	7,900	**57 %**	30 - 130 %
Phenol-d5	14,000	9,100	**65 %**	30 - 130 %
Nitrobenzene-d5	7,000	4,500	**65 %**	30 - 130 %
2-Fluorobiphenyl	7,000	5,000	**72 %**	30 - 130 %
2,4,6-Tribromophenol	14,000	10,000	**74 %**	30 - 130 %
Terphenyl-d14	7,000	5,400	**77 %**	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545. Results are reported on a dry weight basis.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

* Analyzed as 4-Methylphenol.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

EPA Method 8270C
Semivolatile Organics by GC/MS

Field ID:	**Bottom**	Matrix:	**Soil**
Project:	**New Hyde Park/60158261**	Container:	**250 mL Amber Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**139470-04**	QC Batch ID:	**SV-2440-P**
Sampled:	**01-26-11 15:05**	Instrument ID:	**MS-3 HP 5890**
Received:	**01-31-11 14:40**	Sample Weight:	**15 g**
Extracted:	**02-04-11 16:00**	Final Volume:	**1 mL**
Analyzed:	**02-07-11 12:28**	Percent Solids:	**91**
Analyst:	**MJB**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	360
110-86-1	Pyridine	BRL		ug/Kg	360
108-95-2	Phenol	BRL		ug/Kg	360
62-53-3	Aniline	BRL		ug/Kg	360
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	360
95-57-8	2-Chlorophenol	BRL		ug/Kg	360
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	360
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	360
100-51-6	Benzyl Alcohol	BRL		ug/Kg	360
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	360
95-48-7	2-Methylphenol	BRL		ug/Kg	360
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	360
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	360
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	360
98-86-2	Acetophenone	BRL		ug/Kg	360
67-72-1	Hexachloroethane	BRL		ug/Kg	360
98-95-3	Nitrobenzene	BRL		ug/Kg	360
78-59-1	Isophorone	BRL		ug/Kg	360
88-75-5	2-Nitrophenol	BRL		ug/Kg	360
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	360
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	360
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	360
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	360
91-20-3	Naphthalene	BRL		ug/Kg	360
106-47-8	4-Chloroaniline	BRL		ug/Kg	360
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	360
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	360
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	360
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	360
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	360
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	360
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	360
88-74-4	2-Nitroaniline	BRL		ug/Kg	360
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	360
131-11-3	Dimethyl phthalate	BRL		ug/Kg	360
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	360
208-96-8	Acenaphthylene	BRL		ug/Kg	360
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	360
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	360
99-09-2	3-Nitroaniline	BRL		ug/Kg	360
83-32-9	Acenaphthene	BRL		ug/Kg	360
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	360
100-02-7	4-Nitrophenol	BRL		ug/Kg	360
132-64-9	Dibenzofuran	BRL		ug/Kg	360
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	360

GROUNDWATER ANALYTICAL

EPA Method 8270C (Continued)
Semivolatile Organics by GC/MS

Field ID:	**Bottom**	Matrix:	**Soil**
Project:	**New Hyde Park/60158261**	Container:	**250 mL Amber Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**139470-04**	QC Batch ID:	**SV-2440-P**
Sampled:	**01-26-11 15:05**	Instrument ID:	**MS-3 HP 5890**
Received:	**01-31-11 14:40**	Sample Weight:	**15 g**
Extracted:	**02-04-11 16:00**	Final Volume:	**1 mL**
Analyzed:	**02-07-11 12:28**	Dilution Factor:	**1**
Analyst:	**MJB**		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
84-66-2	Diethyl phthalate	BRL		ug/Kg	360
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	360
86-73-7	Fluorene	BRL		ug/Kg	360
100-01-6	4-Nitroaniline	BRL		ug/Kg	360
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	360
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	360
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	360
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	360
118-74-1	Hexachlorobenzene	BRL		ug/Kg	360
87-86-5	Pentachlorophenol	BRL		ug/Kg	360
85-01-8	Phenanthrene	BRL		ug/Kg	360
120-12-7	Anthracene	BRL		ug/Kg	360
86-74-8	Carbazole	BRL		ug/Kg	360
84-74-2	Di-*n*-butyl phthalate	BRL		ug/Kg	360
206-44-0	Fluoranthene	BRL		ug/Kg	360
129-00-0	Pyrene	BRL		ug/Kg	360
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	360
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	360
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	360
218-01-9	Chrysene	BRL		ug/Kg	360
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	360
117-84-0	Di-*n*-octyl phthalate	BRL		ug/Kg	360
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	360
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	360
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	360
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	360
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	360
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	360

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	15,000	8,100	**55 %**	30 - 130 %
Phenol-d5	15,000	9,200	**63 %**	30 - 130 %
Nitrobenzene-d5	7,300	4,600	**63 %**	30 - 130 %
2-Fluorobiphenyl	7,300	5,100	**70 %**	30 - 130 %
2,4,6-Tribromophenol	15,000	11,000	**74 %**	30 - 130 %
Terphenyl-d14	7,300	5,600	**77 %**	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545. Results are reported on a dry weight basis.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

* Analyzed as 4-Methylphenol.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

Trace Metals

Field ID:	**Composite**	Matrix:	**Soil**
Project:	**New Hyde Park/60158261**	Container:	**250 mL Amber Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**139470-3**	Percent Solids:	**93**
Sampled:	**01-26-11 15:10**		
Received:	**01-31-11 14:40**		

Analysis Method	QC Batch ID	Prep Method	Prepared	Sample Weight	Instrument ID	Analyst
EPA 6020A[1]	MB-01967-S	EPA 3050B	02-01-11 00:00	0.505 g	ICP-1 PE 3000	LMS

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit	DF	Analyzed	Method
7439-92-1	Lead, Total	**29**		mg/Kg	5.3	1	02-03-11 14:24	EPA 6020A[1]

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

DF Dilution Factor.

GROUNDWATER ANALYTICAL

Trace Metals

Field ID:	**Bottom**	Matrix:	**Soil**
Project:	**New Hyde Park/60158261**	Container:	**250 mL Amber Glass**
Client:	**AECOM Environment**	Preservation:	**Cool**
Laboratory ID:	**139470-4**	Percent Solids:	**91**
Sampled:	**01-26-11 15:05**		
Received:	**01-31-11 14:40**		

Analysis Method	QC Batch ID	Prep Method	Prepared	Sample Weight	Instrument ID	Analyst
EPA 6020A[1]	MB-01967-S	EPA 3050B	02-01-11 00:00	0.52 g	ICP-1 PE 3000	LMS

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit	DF	Analyzed	Method
7439-92-1	Lead, Total	**28**		mg/Kg	5.3	1	02-03-11 14:30	EPA 6020A[1]

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

DF Dilution Factor.

GROUNDWATER ANALYTICAL

Project Narrative

Project: **New Hyde Park/60158261**
Client: **AECOM Environment**

Lab ID: **139470**
Received: **01-31-11 14:40**

A. Documentation and Client Communication

The following documentation discrepancies, and client changes or amendments were noted for this project:

1. No documentation discrepancies, changes, or amendments were noted.

B. Method Modifications, Non-Conformances and Observations

The sample(s) in this project were analyzed by the references analytical method(s), and no method modifications, non-conformances or analytical issues were noted, except as indicated below:

1. EPA 8260B Non-conformance: Laboratory control sample (LCS) analytes 2-Hexanone, trans-1,4-Dichloro-2-butene and Naphthalene were above recommended recovery limits for QC batch VM8-1403-S.
2. EPA 8270C Non-conformance: Laboratory control sample (LCS) analytes Aniline, 4-Chloroaniline and 2,4-Dinitrophenol were below recommended recovery limits for QC batch SV-2440-P.
3. EPA 8270C Non-conformance: Laboratory control sample (LCS) analytes 4-Chloroaniline, 2,4-Dinitrophenol and 4,6-Dinitro-2-methylphenol had RPD recoveries outside recommended recovery limits for QC batch SV-2440-P.

GROUNDWATER ANALYTICAL

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Buzzards Bay, MA 02532
Telephone (508) 759-4441 • FAX (508) 759-4475
www.groundwateranalytical.com

CHAIN-OF-CUSTODY RECORD AND WORK ORDER

Project Name: New Hyde Park	Firm: ARCH
Project Number: 60158261	Address: 2 Technology Park Drive
Sampler Name: Keith Robinson	City / State / Zip: Westford MA
Project Manager: Jennifer Haley	Telephone: 978 589 3000

INSTRUCTIONS: Use separate line for each container (except replicates).

TURNAROUND

- ☐ 10 Business Days
- ☑ 5 Business Days
- ☐ RUSH (RAN- _____)
  (Rush requires Rush Authorization Number)
- ☐ Please Email to: Jennifer.Haley@ARCHEnv.com
- ☐ Please FAX to: ARCHEnv.com

BILLING

- ☐ Purchase Order No.: _____
- ☐ Third Party Billing: _____
- ☐ GWA Quote: _____

ANALYSIS REQUEST

OPTIONS: ☐ TIC Search

VOA: ☐ 8260 B

SOMS: ☐ 8260 B

MPDES: ☐ 624

RCRA/TE: ☐ 8260 TCL+TITE

Volatiles: ☐ 8260 B ☐ 624 ☐ 8260 Halocarbons ☐ 8260 Aromatics ☐ 8011 EDB/DBCP

Semivolatiles: ☐ Acid only ☐ 8270 Base/Neutral ☐ TIC Search ☐ 8270 SIM ☐ 8270 Pesticides ☐ 8270 PAH/Polynuclear Aromatics

Pest/Herb/PCBs Extractable: ☐ 8081 Pesticides ☐ 8151 Herbicides ☐ 8082 PCB

Pest/Herb/PCBs Vol.: ☐ 8015 ☐ 8021 ☐ 8082 PCB

Metals: Specify Filtered or Unfiltered Sample(s) ☐ Total ☐ Dissolved ☐ 13 Priority Pollutant ☐ 8 RCRA ☐ 8 RCRA (TCLP leach) ☐ 25 TAL

Petroleum Hydrocarbons: Ext. TPH ☐ EPH (Target Analytes) ☐ EPH (Extended Range) ☐ EPH (Aliphatic/Aromatic Fractions) ☐ EPH (Target Analytes + Extended Range) ☐ EPH (Aliphatic/Aromatic Fractions + Extended Range) ☐ EPH (Target Analytes + Aliphatic/Aromatic Fractions) ☐ EPH (Target Analytes + Extended Range + Aliphatic/Aromatic Fractions) ☐ VPH (Target Analytes) ☐ VPH (Aliphatic/Aromatic Fractions) ☐ VPH (Target Analytes + Aliphatic/Aromatic Fractions) ☐ 8100M (EPH) ☐ 8015M (GRO/DRO) ☐ 8015M (GRO/DRO/MTBE/TBA/DIPE/ETBE/TAME) ☐ 8260 (GRO) ☐ 8260 (MTBE/TBA/DIPE/ETBE/TAME) ☐ 8260 (Full List) ☐ 8270 (Full List) ☐ 8270 (Target Analytes) ☐ 8270 (Target Analytes + Tentatively Identified Compounds) ☐ 8270 SIM (PAH) ☐ 8270 SIM (Target Analytes) ☐ 8270 SIM (Target Analytes + Tentatively Identified Compounds) ☐ 8270 SIM (PAH + Tentatively Identified Compounds) ☐ 8270 SIM (Pesticides) ☐ 8270 SIM (Herbicides) ☐ 8270 SIM (PCBs) ☐ 8270 SIM (Pesticides + PCBs) ☐ 8270 SIM (Herbicides + PCBs) ☐ 8270 SIM (Pesticides + Herbicides + PCBs) ☐ 8082 PCB (Aroclors) ☐ 8081 Pesticides ☐ 8151 Herbicides ☐ 8082 PCB (Congeners) ☐ 8082 PCB (Aroclors + Congeners) ☐ 8081 Pesticides (Target Analytes) ☐ 8081 Pesticides (Target Analytes + Tentatively Identified Compounds) ☐ 8151 Herbicides (Target Analytes) ☐ 8151 Herbicides (Target Analytes + Tentatively Identified Compounds) ☐ 8260 (Halocarbons) ☐ 8260 (Aromatics) ☐ 8260 (Halocarbons + Aromatics) ☐ 8011 EDB/DBCP

Haz. Waste: ☐ Reactivity ☐ Ignitability ☐ Corrosivity ☐ Paint Filter ☐ 624 (Purgeables) ☐ 625 (Base/Neutrals) ☐ 608 (PCBs) ☐ 8081 (Pesticides) ☐ 8151 (Herbicides) ☐ 1664 (n-Hexane Extractable Material) ☐ 9071 (n-Hexane Extractable Material) ☐ 9074 (Total Recoverable Phenolics) ☐ 9045 (Soil/Sediment pH) ☐ Flashpoint ☐ 1010 (Flashpoint) ☐ Cyanide ☐ Fluoride ☐ Sulfide

General Chemistry: ☐ Dissolved Phosphorus ☐ Total Phosphorus ☐ Total Kjeldahl Nitrogen ☐ Ammonia ☐ TKN ☐ Total Phosphorus ☐ BOD ☐ TSS ☐ Alkalinity ☐ 300.0 (Cl, SO4) ☐ 9056 (Cl, SO4) ☐ Nitrate ☐ Nitrite ☐ Chloride ☐ Phosphate (Ortho) ☐ Available Cyanide ☐ pH ☐ Dissolved Oxygen ☐ Turbidity ☐ Total Coliform ☐ Fecal Coliform ☐ HPC ☐ 9030/1/7 Sulfides in Soil ☐ Sulfides (Tot.)

Other: ☐ VOCs

Sampling DATE	Sampling TIME	SAMPLE IDENTIFICATION	Matrix	Type	Container(s)	Preservation	Filtered	LABORATORY NUMBER (Lab Use Only)
1-26-11	1510	Composite	WASTEWATER	GRAB	3 / 4	Sodium Bisulfate	VOA	
1-26-11	1505	Button	WASTEWATER	GRAB	3 / 1	Sodium Bisulfate	VOA	

PRESERVATIVE: HCl, HNO3, H2SO4, NaOH, Methanol, Sodium Bisulfate, DI

FILTERED: VOA, WC

OPTIONS: X

VOA: X

SOMS: X

MPDES: X

RCRA/TE: X

VOCs: X X

REMARKS / SPECIAL INSTRUCTIONS

- ☐ YES ☑ NO MCP Data Certification required.
- ☐ YES ☑ NO MCP Drinking Water Sample included.
  (Volatile analyses require duplicate collection and Trip Blanks).
- ☐ Analyze Duplicates and Trips Blanks only if positive results.
- ☐ YES ☑ NO CT RCP Data Certification required.

Signature: _____

DATA QUALITY OBJECTIVES

Regulatory Program

State	Standard	Deliverables
☐ CT	☐ MCP GW-1/S-1	☐ PWS Form
☐ ME	☐ MCP GW-2/S-2	☐ MWRA
☐ MA	☐ NY STARS	☐ _____
☐ NH	☐ Drinking Water	
☑ NY	☐ Wastewater	
☐ RI	☐ Waste Disposal	
☐ VT	☐ Dredge Material	
☐ ___	☐ _____	

Project Specific QC

Many regulatory programs and EPA methods require project specific QC. Project specific QC includes Sample Duplicates, Matrix Spikes, and/or Matrix Spike Duplicates. Laboratory QC is not project specific unless prearranged. Project specific QC samples are charged on a per sample basis. **Each MS, MSD and Sample Duplicate requires an additional sample aliquot.**

Project Specific QC Required	Selection of QC Sample
☐ Sample Duplicate	☐ Please use sample:
☐ Matrix Spike	
☐ Matrix Spike Duplicate	

CHAIN-OF-CUSTODY RECORD

NOTE: All samples submitted subject to Standard Terms and Conditions on reverse hereof.

	Date	Time			
Relinquished by Sampler:			Received by:	1/31/11	1424
Relinquished by:	1/31/11	1440	Received by:		
Relinquished by:			Received by Laboratory:		

Receipt Temperature: ☐ Ice ☐ Refrigerated 3.7 ☐ Ambient

Container Count: 10

Shipping/Airbill Number:

Method of Shipment: ☐ GWA Courier ☐ Express Mail ☐ Federal Express ☐ UPS ☐ Hand ☐ _____

Custody Seal Number:

Quality Assurance/Quality Control

A. Program Overview

Groundwater Analytical conducts an active Quality Assurance program to ensure the production of high quality, valid data. This program closely follows the guidance provided by *Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans,* US EPA QAMS-005/80 (1980), and *Test Methods for Evaluating Solid Waste,* US EPA, SW-846, Update III (1996).

Quality Control protocols include written Standard Operating Procedures (SOPs) developed for each analytical method. SOPs are derived from US EPA methodologies and other established references. Standards are prepared from commercially obtained reference materials of certified purity, and documented for traceability.

Quality Assessment protocols for most organic analyses include a minimum of one laboratory control sample, one method blank, one matrix spike sample, and one sample duplicate for each sample preparation batch. All samples, standards, blanks, laboratory control samples, matrix spikes and sample duplicates are spiked with internal standards and surrogate compounds. All instrument sequences begin with an initial calibration verification standard and a blank; and excepting GC/MS sequences, all sequences close with a continuing calibration standard. GC/MS systems are tuned to appropriate ion abundance criteria daily, or for each 12 hour operating period, whichever is more frequent.

Quality Assessment protocols for most inorganic analyses include a minimum of one laboratory control sample, one method blank, one matrix spike sample, and one sample duplicate for each sample preparation batch. Standard curves are derived from one reagent blank and four concentration levels. Curve validity is verified by standard recoveries within plus or minus ten percent of the curve.

B. Definitions

Batches are used as the basic unit for Quality Assessment. A Batch is defined as twenty or fewer samples of the same matrix which are prepared together for the same analysis, using the same lots of reagents and the same techniques or manipulations, all within the same continuum of time, up to but not exceeding 24 hours.

Laboratory Control Samples are used to assess the accuracy of the analytical method. A Laboratory Control Sample consists of reagent water or sodium sulfate spiked with a group of target analytes representative of the method analytes. Accuracy is defined as the degree of agreement of the measured value with the true or expected value. Percent Recoveries for the Laboratory Control Samples are calculated to assess accuracy.

Method Blanks are used to assess the level of contamination present in the analytical system. Method Blanks consist of reagent water or an aliquot of sodium sulfate. Method Blanks are taken through all the appropriate steps of an analytical method. Sample data reported is not corrected for blank contamination.

Surrogate Compounds are used to assess the effectiveness of an analytical method in dealing with each sample matrix. Surrogate Compounds are organic compounds which are similar to the target analytes of interest in chemical behavior, but which are not normally found in environmental samples. Percent Recoveries are calculated for each Surrogate Compound.

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

Category: **Metals**
Matrix: **Soil**
Units: **mg/Kg**

Sample Type	Method	QC Batch ID	Prep Method	Prepared	Analyzed	Instrument ID	Analyst
LCS	EPA 6020A	MB-1967-SL	EPA 3050B	02-01-11 00:00	02-03-11 00:00	ICPMS-1 ELAN 9000	LS
LCSD	EPA 6020A	MB-1967-SL	EPA 3050B	02-01-11 00:00		ICPMS-1 ELAN 9000	LS

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits		Method
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	LCS	RPD	
7439-92-1	Lead	120	120	**96%**	120	140	**116%**	**9 %**	83-117 %	30 %	EPA 6020A

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: **Metals**
Matrix: **Soil**

Analysis Method	QC Batch ID	Prep Method	Prepared	Sample Volume	Instrument ID	Analyst
EPA 6020A	MB-1967-SB	EPA 3050B	02-01-11 00:00	0.5 g	ICPMS-1 ELAN 9000	LS

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit	DF	Analyzed	Method
7439-92-1	Lead	BRL		mg/Kg	5.0	1	02-03-11 00:00	EPA 6020A

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).

Report Notations:
BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.
DF Dilution Factor.

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

Category: EPA Method 8260B
QC Batch ID: VM8-1403-S
Matrix: Soil
Units: ug/kg

LCS
Instrument ID: MS-8 HP 6890
Analyzed: 02-06-11 15:37
Analyst: EMC

LCSD
Instrument ID: MS-8 HP 6890
Analyzed: 02-06-11 16:17
Analyst: EMC

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
75-71-8	Dichlorodifluoromethane	50	51	101 %	50	45	89 %	13 %	70 - 130 %	20%
74-87-3	Chloromethane	50	47	94 %	50	46	91 %	3 %	70 - 130 %	20%
75-01-4	Vinyl Chloride	50	52	104 %	50	51	101 %	3 %	70 - 130 %	20%
74-83-9	Bromomethane	50	48	97 %	50	46	93 %	4 %	70 - 130 %	20%
75-00-3	Chloroethane	50	44	88 %	50	42	83 %	5 %	70 - 130 %	20%
75-69-4	Trichlorofluoromethane	50	45	90 %	50	42	85 %	7 %	70 - 130 %	20%
60-29-7	Diethyl Ether	100	97	97 %	100	100	101 %	4 %	70 - 130 %	20%
75-35-4	1,1-Dichloroethene	50	42	85 %	50	40	80 %	6 %	70 - 130 %	20%
76-13-1	1,1,2-Trichlorotrifluoroethane	100	100	101 %	100	97	97 %	4 %	70 - 130 %	20%
67-64-1	Acetone	100	91	91 %	100	100	101 %	11 %	70 - 130 %	20%
75-15-0	Carbon Disulfide	100	94	94 %	100	89	89 %	6 %	70 - 130 %	20%
75-09-2	Methylene Chloride	50	46	93 %	50	46	91 %	2 %	70 - 130 %	20%
107-13-1	Acrylonitrile	50	49	98 %	50	52	105 %	7 %	70 - 130 %	20%
156-60-5	*trans*-1,2-Dichloroethene	50	46	91 %	50	44	88 %	4 %	70 - 130 %	20%
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	50	56	113 %	50	57	115 %	2 %	70 - 130 %	20%
75-34-3	1,1-Dichloroethane	50	45	91 %	50	43	86 %	5 %	70 - 130 %	20%
594-20-7	2,2-Dichloropropane	50	50	101 %	50	47	94 %	7 %	70 - 130 %	20%
156-59-2	*cis*-1,2-Dichloroethene	50	48	95 %	50	46	92 %	3 %	70 - 130 %	20%
78-93-3	2-Butanone (MEK)	100	110	107 %	100	110	114 %	6 %	70 - 130 %	20%
74-97-5	Bromochloromethane	50	47	94 %	50	47	94 %	0 %	70 - 130 %	20%
109-99-9	Tetrahydrofuran (THF)	100	110	109 %	100	120	116 %	6 %	70 - 130 %	20%
67-66-3	Chloroform	50	46	92 %	50	45	90 %	3 %	70 - 130 %	20%
71-55-6	1,1,1-Trichloroethane	50	49	97 %	50	47	95 %	2 %	70 - 130 %	20%
56-23-5	Carbon Tetrachloride	50	51	101 %	50	47	94 %	7 %	70 - 130 %	20%
563-58-6	1,1-Dichloropropene	50	51	103 %	50	48	96 %	7 %	70 - 130 %	20%
71-43-2	Benzene	50	47	95 %	50	46	91 %	4 %	70 - 130 %	20%
107-06-2	1,2-Dichloroethane	50	50	99 %	50	50	100 %	1 %	70 - 130 %	20%
79-01-6	Trichloroethene	50	47	94 %	50	45	90 %	4 %	70 - 130 %	20%
78-87-5	1,2-Dichloropropane	50	49	98 %	50	47	94 %	4 %	70 - 130 %	20%
74-95-3	Dibromomethane	50	48	96 %	50	50	99 %	3 %	70 - 130 %	20%
75-27-4	Bromodichloromethane	50	48	95 %	50	48	95 %	0 %	70 - 130 %	20%
123-91-1	1,4-Dioxane	1,000	1,200	123 %	1,000	1,300	126 %	2 %	70 - 130 %	20%
10061-01-5	*cis*-1,3-Dichloropropene	50	54	109 %	50	53	106 %	3 %	70 - 130 %	20%
108-10-1	4-Methyl-2-Pentanone (MIBK)	100	120	123 %	100	120	125 %	1 %	70 - 130 %	20%
108-88-3	Toluene	50	47	94 %	50	44	89 %	6 %	70 - 130 %	20%
10061-02-6	*trans*-1,3-Dichloropropene	50	52	103 %	50	52	104 %	0 %	70 - 130 %	20%
79-00-5	1,1,2-Trichloroethane	50	50	100 %	50	51	101 %	1 %	70 - 130 %	20%
127-18-4	Tetrachloroethene	50	49	98 %	50	45	91 %	8 %	70 - 130 %	20%
142-28-9	1,3-Dichloropropane	50	51	103 %	50	52	105 %	2 %	70 - 130 %	20%
591-78-6	2-Hexanone	100	130	128 %	100	140	138 % q	7 %	70 - 130 %	20%
124-48-1	Dibromochloromethane	50	50	100 %	50	50	100 %	0 %	70 - 130 %	20%
106-93-4	1,2-Dibromoethane (EDB)	50	52	104 %	50	52	104 %	1 %	70 - 130 %	20%
108-90-7	Chlorobenzene	50	48	96 %	50	46	92 %	4 %	70 - 130 %	20%
630-20-6	1,1,1,2-Tetrachloroethane	50	50	101 %	50	49	99 %	2 %	70 - 130 %	20%
100-41-4	Ethylbenzene	50	50	100 %	50	48	96 %	5 %	70 - 130 %	20%
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	100	100	100 %	100	96	96 %	4 %	70 - 130 %	20%
95-47-6	*ortho*-Xylene	50	49	98 %	50	47	95 %	4 %	70 - 130 %	20%
100-42-5	Styrene	50	54	108 %	50	53	105 %	2 %	70 - 130 %	20%
75-25-2	Bromoform	50	48	96 %	50	48	95 %	0 %	70 - 130 %	20%

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8260B	Instrument ID:	MS-8 HP 6890	Instrument ID:	MS-8 HP 6890
QC Batch ID:	VM8-1403-S	Analyzed:	02-06-11 15:37	Analyzed:	02-06-11 16:17
Matrix:	Soil	Analyst:	EMC	Analyst:	EMC
Units:	ug/kg				

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
98-82-8	Isopropylbenzene	50	42	83 %	50	39	77 %	8 %	70 - 130 %	20%
108-86-1	Bromobenzene	50	47	94 %	50	45	89 %	5 %	70 - 130 %	20%
79-34-5	1,1,2,2-Tetrachloroethane	50	51	102 %	50	50	100 %	1 %	70 - 130 %	20%
96-18-4	1,2,3-Trichloropropane	50	51	101 %	50	50	101 %	0 %	70 - 130 %	20%
110-57-6	*trans*-1,4-Dichloro-2-butene	200	320	159 % q	200	320	160 % q	0 %	70 - 130 %	20%
103-65-1	*n*-Propylbenzene	50	53	106 %	50	49	97 %	8 %	70 - 130 %	20%
95-49-8	2-Chlorotoluene	50	47	95 %	50	44	88 %	7 %	70 - 130 %	20%
108-67-8	1,3,5-Trimethylbenzene	50	53	106 %	50	49	98 %	7 %	70 - 130 %	20%
106-43-4	4-Chlorotoluene	50	48	95 %	50	44	88 %	8 %	70 - 130 %	20%
98-06-6	tert-Butylbenzene	50	52	104 %	50	48	97 %	7 %	70 - 130 %	20%
95-63-6	1,2,4-Trimethylbenzene	50	55	109 %	50	51	101 %	7 %	70 - 130 %	20%
135-98-8	sec-Butylbenzene	50	53	105 %	50	49	97 %	8 %	70 - 130 %	20%
541-73-1	1,3-Dichlorobenzene	50	50	99 %	50	47	93 %	6 %	70 - 130 %	20%
99-87-6	4-Isopropyltoluene	50	57	115 %	50	52	105 %	9 %	70 - 130 %	20%
106-46-7	1,4-Dichlorobenzene	50	49	99 %	50	46	92 %	7 %	70 - 130 %	20%
95-50-1	1,2-Dichlorobenzene	50	51	101 %	50	49	98 %	3 %	70 - 130 %	20%
104-51-8	*n*-Butylbenzene	50	57	114 %	50	53	106 %	8 %	70 - 130 %	20%
96-12-8	1,2-Dibromo-3-chloropropane	50	64	128 %	50	62	124 %	3 %	70 - 130 %	20%
108-70-3	1,3,5-Trichlorobenzene	50	58	117 %	50	55	110 %	6 %	70 - 130 %	20%
120-82-1	1,2,4-Trichlorobenzene	50	64	127 %	50	62	124 %	3 %	70 - 130 %	20%
87-68-3	Hexachlorobutadiene	50	62	124 %	50	57	115 %	8 %	70 - 130 %	20%
91-20-3	Naphthalene	50	65	130 %	50	68	135 % q	4 %	70 - 130 %	20%
87-61-6	1,2,3-Trichlorobenzene	50	64	128 %	50	65	129 %	1 %	70 - 130 %	20%
75-65-0	tert-Butyl Alcohol (TBA)	1,000	980	98 %	1,000	1,000	103 %	5 %	70 - 130 %	20%
108-20-3	Di-isopropyl Ether (DIPE)	50	43	85 %	50	42	83 %	2 %	70 - 130 %	20%
637-92-3	Ethyl tert-butyl Ether (ETBE)	50	46	92 %	50	46	92 %	0 %	70 - 130 %	20%
994-05-8	tert-Amyl Methyl Ether (TAME)	50	52	104 %	50	53	106 %	2 %	70 - 130 %	20%

QC Surrogate Compound	Spiked	Measured	Recovery	Spiked	Measured	Recovery		QC Limits
Dibromofluoromethane	50	44	88 %	50	44	87 %		70 - 130 %
1,2-Dichloroethane-d_4	50	44	89 %	50	44	88 %		70 - 130 %
Toluene-d_8	50	52	103 %	50	51	103 %		70 - 130 %
4-Bromofluorobenzene	50	52	105 %	50	50	100 %		70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample preparation performed by EPA Method 5035A.

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

q Recovery outside recommended limits.

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: **EPA Method 8260B**
QC Batch ID: **VM8-1403-S**
Matrix: **Soil**

Instrument ID: **MS-8 HP 6890**
Analyzed: **02-06-11 17:55**
Analyst: **EMC**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	10
74-87-3	Chloromethane	BRL		ug/Kg	10
75-01-4	Vinyl Chloride	BRL		ug/Kg	10
74-83-9	Bromomethane	BRL		ug/Kg	10
75-00-3	Chloroethane	BRL		ug/Kg	10
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	10
60-29-7	Diethyl Ether	BRL		ug/Kg	10
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	50
67-64-1	Acetone	BRL		ug/Kg	200
75-15-0	Carbon Disulfide	BRL		ug/Kg	50
75-09-2	Methylene Chloride	BRL		ug/Kg	50
107-13-1	Acrylonitrile	BRL		ug/Kg	5
156-60-5	*trans*-1,2-Dichloroethene	BRL		ug/Kg	5
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL		ug/Kg	5
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	5
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	5
156-59-2	*cis*-1,2-Dichloroethene	BRL		ug/Kg	5
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	50
74-97-5	Bromochloromethane	BRL		ug/Kg	5
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	50
67-66-3	Chloroform	BRL		ug/Kg	5
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	5
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	5
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	5
71-43-2	Benzene	BRL		ug/Kg	5
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	5
79-01-6	Trichloroethene	BRL		ug/Kg	5
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	5
74-95-3	Dibromomethane	BRL		ug/Kg	5
75-27-4	Bromodichloromethane	BRL		ug/Kg	5
123-91-1	1,4-Dioxane	BRL		ug/Kg	5,000
10061-01-5	*cis*-1,3-Dichloropropene	BRL		ug/Kg	5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	50
108-88-3	Toluene	BRL		ug/Kg	5
10061-02-6	*trans*-1,3-Dichloropropene	BRL		ug/Kg	5
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	5
127-18-4	Tetrachloroethene	BRL		ug/Kg	5
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	5
591-78-6	2-Hexanone	BRL		ug/Kg	50
124-48-1	Dibromochloromethane	BRL		ug/Kg	5
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	5
108-90-7	Chlorobenzene	BRL		ug/Kg	5
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	5
100-41-4	Ethylbenzene	BRL		ug/Kg	5
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL		ug/Kg	5
95-47-6	*ortho*-Xylene	BRL		ug/Kg	5
100-42-5	Styrene	BRL		ug/Kg	5
75-25-2	Bromoform	BRL		ug/Kg	5

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: **EPA Method 8260B**
QC Batch ID: **VM8-1403-S**
Matrix: **Soil**

Instrument ID: **MS-8 HP 6890**
Analyzed: **02-06-11 17:55**
Analyst: **EMC**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
98-82-8	Isopropylbenzene	BRL		ug/Kg	5
108-86-1	Bromobenzene	BRL		ug/Kg	5
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	5
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	5
110-57-6	*trans*-1,4-Dichloro-2-butene	BRL		ug/Kg	50
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	5
95-49-8	2-Chlorotoluene	BRL		ug/Kg	5
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	5
106-43-4	4-Chlorotoluene	BRL		ug/Kg	5
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	5
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	5
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	5
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	5
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	5
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	5
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	5
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	5
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	5
108-70-3	1,3,5-Trichlorobenzene	BRL		ug/Kg	5
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	5
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	5
91-20-3	Naphthalene	BRL		ug/Kg	5
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	5
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	200
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	5
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	5
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	50	45	**90** %	70 - 130 %
1,2-Dichloroethane-d_4	50	46	**92** %	70 - 130 %
Toluene-d_8	50	50	**99** %	70 - 130 %
4-Bromofluorobenzene	50	52	**104** %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample preparation performed by EPA Method 5035A.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8270C		MS-3 HP 5890	Instrument ID:	MS-3 HP 5890
QC Batch ID:	SV-2440-P	Extracted:	02-04-11 16:00	Extracted:	02-04-11 16:00
Matrix:	Soil	Analyzed:	02-07-11 09:45	Analyzed:	02-07-11 10:26
Units:	ug/Kg	Analyst:	MJB	Analyst:	MJB

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
62-75-9	N-Nitrosodimethylamine	3,300	2,100	64 %	3,300	2,100	64 %	0 %	40 - 140 %	30%
110-86-1	Pyridine	3,300	1,600	48 %	3,300	1,600	49 %	3 %	40 - 140 %	30%
108-95-2	Phenol	3,300	2,500	75 %	3,300	2,500	74 %	2 %	30 - 130 %	30%
62-53-3	Aniline	3,300	1,500	46 %	3,300	1,200	36 % q	24 %	40 - 140 %	30%
111-44-4	Bis(2-chloroethyl) ether	3,300	2,500	74 %	3,300	2,500	74 %	0 %	40 - 140 %	30%
95-57-8	2-Chlorophenol	3,300	2,600	77 %	3,300	2,500	76 %	2 %	30 - 130 %	30%
541-73-1	1,3-Dichlorobenzene	3,300	2,300	68 %	3,300	2,300	69 %	1 %	40 - 140 %	30%
106-46-7	1,4-Dichlorobenzene	3,300	2,300	69 %	3,300	2,400	71 %	3 %	40 - 140 %	30%
100-51-6	Benzyl Alcohol	3,300	2,600	77 %	3,300	2,500	75 %	2 %	30 - 130 %	30%
95-50-1	1,2-Dichlorobenzene	3,300	2,400	71 %	3,300	2,400	72 %	2 %	40 - 140 %	30%
95-48-7	2-Methylphenol	3,300	2,600	79 %	3,300	2,700	80 %	1 %	30 - 130 %	30%
108-60-1	Bis(2-chloroisopropyl) ether	3,300	2,500	74 %	3,300	2,400	73 %	2 %	40 - 140 %	30%
106-44-5	4-Methylphenol	3,300	2,600	79 %	3,300	2,600	79 %	1 %	30 - 130 %	30%
621-64-7	N-Nitrosodi-n-propylamine	3,300	2,600	77 %	3,300	2,500	76 %	2 %	40 - 140 %	30%
98-86-2	Acetophenone	3,300	2,600	79 %	3,300	2,600	79 %	0 %	40 - 140 %	30%
67-72-1	Hexachloroethane	3,300	2,300	68 %	3,300	2,300	69 %	2 %	40 - 140 %	30%
98-95-3	Nitrobenzene	3,300	2,500	74 %	3,300	2,200	66 %	11 %	40 - 140 %	30%
78-59-1	Isophorone	3,300	2,500	74 %	3,300	2,200	65 %	13 %	40 - 140 %	30%
88-75-5	2-Nitrophenol	3,300	2,500	75 %	3,300	2,200	67 %	11 %	30 - 130 %	30%
105-67-9	2,4-Dimethylphenol	3,300	2,500	74 %	3,300	2,300	69 %	8 %	30 - 130 %	30%
111-91-1	Bis(2-chloroethoxy) methane	3,300	2,500	75 %	3,300	2,200	67 %	12 %	40 - 140 %	30%
120-83-2	2,4-Dichlorophenol	3,300	2,600	78 %	3,300	2,300	70 %	11 %	30 - 130 %	30%
120-82-1	1,2,4-Trichlorobenzene	3,300	2,400	72 %	3,300	2,200	65 %	10 %	40 - 140 %	30%
91-20-3	Naphthalene	3,300	2,500	74 %	3,300	2,200	66 %	12 %	40 - 140 %	30%
106-47-8	4-Chloroaniline	3,300	1,800	53 %	3,300	630	19 % q	95 % q	40 - 140 %	30%
87-68-3	Hexachlorobutadiene	3,300	2,400	73 %	3,300	2,200	67 %	9 %	40 - 140 %	30%
59-50-7	4-Chloro-3-methylphenol	3,300	2,600	79 %	3,300	2,300	69 %	13 %	30 - 130 %	30%
91-57-6	2-Methylnaphthalene	3,300	2,600	77 %	3,300	2,300	68 %	11 %	40 - 140 %	30%
77-47-4	Hexachlorocyclopentadiene	3,300	2,100	64 %	3,300	2,200	65 %	2 %	40 - 140 %	30%
88-06-2	2,4,6-Trichlorophenol	3,300	2,700	82 %	3,300	2,700	81 %	2 %	30 - 130 %	30%
95-95-4	2,4,5-Trichlorophenol	3,300	2,600	79 %	3,300	2,600	79 %	0 %	30 - 130 %	30%
91-58-7	2-Chloronaphthalene	3,300	2,700	80 %	3,300	2,600	78 %	2 %	40 - 140 %	30%
88-74-4	2-Nitroaniline	3,300	2,800	85 %	3,300	2,700	80 %	5 %	40 - 140 %	30%
100-25-4	1,4-Dinitrobenzene	3,300	2,800	85 %	3,300	2,700	80 %	6 %	40 - 140 %	30%
131-11-3	Dimethyl phthalate	3,300	2,700	81 %	3,300	2,600	78 %	4 %	40 - 140 %	30%
99-65-0	1,3-Dinitrobenzene	3,300	2,700	82 %	3,300	2,600	79 %	4 %	40 - 140 %	30%
208-96-8	Acenaphthylene	3,300	2,700	81 %	3,300	2,600	78 %	3 %	40 - 140 %	30%
606-20-2	2,6-Dinitrotoluene	3,300	2,700	81 %	3,300	2,600	78 %	3 %	40 - 140 %	30%
528-29-0	1,2-Dinitrobenzene	3,300	2,700	81 %	3,300	2,600	77 %	5 %	40 - 140 %	30%
99-09-2	3-Nitroaniline	3,300	2,000	59 %	3,300	1,600	49 %	19 %	40 - 140 %	30%
83-32-9	Acenaphthene	3,300	2,600	78 %	3,300	2,600	78 %	0 %	40 - 140 %	30%
51-28-5	2,4-Dinitrophenol	3,300	900	27 % q	3,300	1,900	58 %	74 % q	30 - 130 %	30%
100-02-7	4-Nitrophenol	3,300	2,300	69 %	3,300	2,400	71 %	3 %	30 - 130 %	30%
132-64-9	Dibenzofuran	3,300	2,700	81 %	3,300	2,600	78 %	3 %	40 - 140 %	30%
121-14-2	2,4-Dinitrotoluene	3,300	2,800	83 %	3,300	2,600	79 %	4 %	40 - 140 %	30%
84-66-2	Diethyl phthalate	3,300	2,800	83 %	3,300	2,600	79 %	5 %	40 - 140 %	30%
7005-72-3	4-Chlorophenyl phenyl ether	3,300	2,800	83 %	3,300	2,700	80 %	3 %	40 - 140 %	30%
86-73-7	Fluorene	3,300	2,800	83 %	3,300	2,700	80 %	4 %	40 - 140 %	30%

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8270C	Instrument ID:	MS-3 HP 5890	Instrument ID:	MS-3 HP 5890
QC Batch ID:	SV-2440-P	Extracted:	02-04-11 16:00	Extracted:	02-04-11 16:00
Matrix:	Soil	Analyzed:	02-07-11 09:45	Analyzed:	02-07-11 10:26
Units:	ug/Kg	Analyst:	MJB	Analyst:	MJB

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
100-01-6	4-Nitroaniline	3,300	2,500	76 %	3,300	2,300	69 %	10 %	40 - 140 %	30%
534-52-1	4,6-Dinitro-2-methylphenol	3,300	1,600	49 %	3,300	2,300	68 %	33 % q	30 - 130 %	30%
86-30-6	N-Nitrosodiphenylamine †	3,300	2,700	82 %	3,300	2,600	78 %	4 %	40 - 140 %	30%
122-66-7	1,2-Diphenylhydrazine â	3,300	2,800	83 %	3,300	2,600	77 %	7 %	40 - 140 %	30%
101-55-3	4-Bromophenyl phenyl ether	3,300	2,800	83 %	3,300	2,600	79 %	5 %	40 - 140 %	30%
118-74-1	Hexachlorobenzene	3,300	2,800	84 %	3,300	2,700	80 %	5 %	40 - 140 %	30%
87-86-5	Pentachlorophenol	3,300	2,600	79 %	3,300	2,600	78 %	2 %	30 - 130 %	30%
85-01-8	Phenanthrene	3,300	2,800	85 %	3,300	2,600	79 %	6 %	40 - 140 %	30%
120-12-7	Anthracene	3,300	2,800	85 %	3,300	2,700	80 %	6 %	40 - 140 %	30%
86-74-8	Carbazole	3,300	2,800	85 %	3,300	2,600	79 %	7 %	40 - 140 %	30%
84-74-2	Di-*n*-butyl phthalate	3,300	2,900	87 %	3,300	2,700	81 %	7 %	40 - 140 %	30%
206-44-0	Fluoranthene	3,300	2,800	85 %	3,300	2,700	80 %	7 %	40 - 140 %	30%
129-00-0	Pyrene	3,300	2,800	85 %	3,300	2,600	79 %	7 %	40 - 140 %	30%
85-68-7	Butyl benzyl phthalate	3,300	2,900	88 %	3,300	2,700	80 %	9 %	40 - 140 %	30%
91-94-1	3,3'-Dichlorobenzidine	3,300	1,600	48 %	3,300	1,500	44 %	8 %	40 - 140 %	30%
56-55-3	Benzo[a]anthracene	3,300	2,900	86 %	3,300	2,600	79 %	8 %	40 - 140 %	30%
218-01-9	Chrysene	3,300	2,900	86 %	3,300	2,600	79 %	9 %	40 - 140 %	30%
117-81-7	Bis(2-ethylhexyl) phthalate	3,300	3,000	90 %	3,300	2,700	82 %	9 %	40 - 140 %	30%
117-84-0	Di-*n*-octyl phthalate	3,300	3,200	95 %	3,300	2,900	86 %	10 %	40 - 140 %	30%
205-99-2	Benzo[b]fluoranthene	3,300	3,000	90 %	3,300	2,700	81 %	11 %	40 - 140 %	30%
207-08-9	Benzo[k]fluoranthene	3,300	3,000	89 %	3,300	2,700	81 %	10 %	40 - 140 %	30%
50-32-8	Benzo[a]pyrene	3,300	2,900	88 %	3,300	2,700	80 %	10 %	40 - 140 %	30%
193-39-5	Indeno[1,2,3-c,d]pyrene	3,300	2,700	82 %	3,300	2,500	75 %	9 %	40 - 140 %	30%
53-70-3	Dibenzo[a,h]anthracene	3,300	2,800	85 %	3,300	2,500	76 %	10 %	40 - 140 %	30%
191-24-2	Benzo[g,h,i]perylene	3,300	2,900	86 %	3,300	2,600	78 %	10 %	40 - 140 %	30%

QC Surrogate Compound	Spiked	Measured	Recovery	Spiked	Measured	Recovery		QC Limits
2-Fluorophenol	13,000	8,400	63 %	13,000	8,500	63 %		30 - 130 %
Phenol-d5	13,000	9,400	70 %	13,000	9,200	69 %		30 - 130 %
Nitrobenzene-d5	6,700	4,900	74 %	6,700	4,400	66 %		30 - 130 %
2-Fluorobiphenyl	6,700	5,100	77 %	6,700	4,900	74 %		30 - 130 %
2,4,6-Tribromophenol	13,000	10,000	76 %	13,000	9,900	75 %		30 - 130 %
Terphenyl-d14	6,700	5,600	84 %	6,700	5,200	78 %		30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample extraction performed by EPA Method 3545.

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.

◊ Analyzed as Azobenzene.

q Recovery outside recommended limits.

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: EPA Method 8270C
QC Batch ID: SV-2440-P
Matrix: Soil

Instrument ID: MS-3 HP 5890
Extracted: 02-04-11 16:00
Analyzed: 02-07-11 11:06
Analyst: MJB

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
62-75-9	N-Nitrosodimethylamine	BRL		ug/Kg	330
110-86-1	Pyridine	BRL		ug/Kg	330
108-95-2	Phenol	BRL		ug/Kg	330
62-53-3	Aniline	BRL		ug/Kg	330
111-44-4	Bis(2-chloroethyl) ether	BRL		ug/Kg	330
95-57-8	2-Chlorophenol	BRL		ug/Kg	330
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	330
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	330
100-51-6	Benzyl Alcohol	BRL		ug/Kg	330
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	330
95-48-7	2-Methylphenol	BRL		ug/Kg	330
108-60-1	Bis(2-chloroisopropyl) ether	BRL		ug/Kg	330
108-39-4/106-44-5	3 and 4-Methylphenol *	BRL		ug/Kg	330
621-64-7	N-Nitrosodi-n-propylamine	BRL		ug/Kg	330
98-86-2	Acetophenone	BRL		ug/Kg	330
67-72-1	Hexachloroethane	BRL		ug/Kg	330
98-95-3	Nitrobenzene	BRL		ug/Kg	330
78-59-1	Isophorone	BRL		ug/Kg	330
88-75-5	2-Nitrophenol	BRL		ug/Kg	330
105-67-9	2,4-Dimethylphenol	BRL		ug/Kg	330
111-91-1	Bis(2-chloroethoxy) methane	BRL		ug/Kg	330
120-83-2	2,4-Dichlorophenol	BRL		ug/Kg	330
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	330
91-20-3	Naphthalene	BRL		ug/Kg	330
106-47-8	4-Chloroaniline	BRL		ug/Kg	330
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	330
59-50-7	4-Chloro-3-methylphenol	BRL		ug/Kg	330
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	330
77-47-4	Hexachlorocyclopentadiene	BRL		ug/Kg	330
88-06-2	2,4,6-Trichlorophenol	BRL		ug/Kg	330
95-95-4	2,4,5-Trichlorophenol	BRL		ug/Kg	330
91-58-7	2-Chloronaphthalene	BRL		ug/Kg	330
88-74-4	2-Nitroaniline	BRL		ug/Kg	330
100-25-4	1,4-Dinitrobenzene	BRL		ug/Kg	330
131-11-3	Dimethyl phthalate	BRL		ug/Kg	330
99-65-0	1,3-Dinitrobenzene	BRL		ug/Kg	330
208-96-8	Acenaphthylene	BRL		ug/Kg	330
606-20-2	2,6-Dinitrotoluene	BRL		ug/Kg	330
528-29-0	1,2-Dinitrobenzene	BRL		ug/Kg	330
99-09-2	3-Nitroaniline	BRL		ug/Kg	330
83-32-9	Acenaphthene	BRL		ug/Kg	330
51-28-5	2,4-Dinitrophenol	BRL		ug/Kg	330
100-02-7	4-Nitrophenol	BRL		ug/Kg	330
132-64-9	Dibenzofuran	BRL		ug/Kg	330
121-14-2	2,4-Dinitrotoluene	BRL		ug/Kg	330
84-66-2	Diethyl phthalate	BRL		ug/Kg	330
7005-72-3	4-Chlorophenyl phenyl ether	BRL		ug/Kg	330
86-73-7	Fluorene	BRL		ug/Kg	330
100-01-6	4-Nitroaniline	BRL		ug/Kg	330

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: **EPA Method 8270C**
QC Batch ID: **SV-2440-P**
Matrix: **Soil**

Instrument ID: **MS-3 HP 5890**
Extracted: **02-04-11 16:00**
Analyzed: **02-07-11 11:06**
Analyst: **MJB**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
534-52-1	4,6-Dinitro-2-methylphenol	BRL		ug/Kg	330
86-30-6	N-Nitrosodiphenylamine †	BRL		ug/Kg	330
122-66-7	1,2-Diphenylhydrazine ◊	BRL		ug/Kg	330
101-55-3	4-Bromophenyl phenyl ether	BRL		ug/Kg	330
118-74-1	Hexachlorobenzene	BRL		ug/Kg	330
87-86-5	Pentachlorophenol	BRL		ug/Kg	330
85-01-8	Phenanthrene	BRL		ug/Kg	330
120-12-7	Anthracene	BRL		ug/Kg	330
86-74-8	Carbazole	BRL		ug/Kg	330
84-74-2	Di-*n*-butyl phthalate	BRL		ug/Kg	330
206-44-0	Fluoranthene	BRL		ug/Kg	330
129-00-0	Pyrene	BRL		ug/Kg	330
85-68-7	Butyl benzyl phthalate	BRL		ug/Kg	330
91-94-1	3,3'-Dichlorobenzidine	BRL		ug/Kg	330
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	330
218-01-9	Chrysene	BRL		ug/Kg	330
117-81-7	Bis(2-ethylhexyl) phthalate	BRL		ug/Kg	330
117-84-0	Di-*n*-octyl phthalate	BRL		ug/Kg	330
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	330
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	330
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	330
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	330
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	330
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	330

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2-Fluorophenol	13,000	8,700	**65 %**	30 - 130 %
Phenol-d5	13,000	9,700	**73 %**	30 - 130 %
Nitrobenzene-d5	6,700	4,800	**72 %**	30 - 130 %
2-Fluorobiphenyl	6,700	5,300	**79 %**	30 - 130 %
2,4,6-Tribromophenol	13,000	7,300	**55 %**	30 - 130 %
Terphenyl-d14	6,700	5,700	**85 %**	30 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample extraction performed by EPA Method 3545.

Report Notations:
BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.
* Analyzed as 4-Methylphenol.
† Reported as sum of N-Nitrosodiphenylamine and Diphenylamine.
◊ Analyzed as Azobenzene.

GROUNDWATER ANALYTICAL

Certifications and Approvals

Groundwater Analytical maintains environmental laboratory certification in a variety of states. Copies of our current certificates may be obtained from our website:

http://www.groundwateranalytical.com/qualifications.htm

CONNECTICUT

Department of Health Services, PH-0586 — Potable Water, Wastewater, Solid Waste and Soil
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/Out_State.pdf

MASSACHUSETTS

Department of Environmental Protection, M-MA-103 — Potable Water and Non-Potable Water
http://public.dep.state.ma.us/labcert/labcert.aspx

Department of Labor, Division of Occupational Safety, AA000195 — Asbestos Analytical Services, Class A
http://www.mass.gov/dos/forms/la-rpt_list_aa.pdf

NEW HAMPSHIRE

Department of Environmental Services, 202708 — Potable Water, Non-Potable Water, Solid and Chemical Materials
http://www4.egov.nh.gov/DES/NHELAP

NEW YORK

Department of Health, 11754 — Potable Water, Non-Potable Water, Solid and Hazardous Waste
http://www.wadsworth.org/labcert/elap/comm.html

RHODE ISLAND

Department of Health, Division of Laboratories, LAO00054 — Potable and Non-Potable Water Microbiology, Organic and Inorganic Chemistry
http://www.health.ri.gov/labs/outofstatelabs.pdf

U.S. DEPARTMENT OF AGRICULTURE

USDA, Soil Permit, S-53921 — Foreign soil import permit

VERMONT

Department of Health, VT-87643 — Potable Water
http://healthvermont.gov/enviro/ph_lab/water_test.aspx#cert

GROUNDWATER ANALYTICAL

Certifications and Approvals

MASSACHUSETTS — Department of Environmental Protection, M-MA-103

Groundwater Analytical maintains MassDEP environmental laboratory certification for only the methods and analytes listed below. Analyses for certified analytes are conducted in accordance with MassDEP certification standards, except as may be specifically noted in the project narrative.

Potable Water (Drinking Water)

Analyte	Method
1,2-Dibromo-3-Chloropropane	EPA 504.1
1,2-Dibromoethane	EPA 504.1
Alkalinity, Total	SM 2320-B
Antimony	EPA 200.8
Arsenic	EPA 200.8
Barium	EPA 200.7
Barium	EPA 200.8
Beryllium	EPA 200.7
Beryllium	EPA 200.8
Cadmium	EPA 200.7
Cadmium	EPA 200.8
Calcium	EPA 200.7
Chlorine, Residual Free	SM 4500-CL-G
Chromium	EPA 200.7
Copper	EPA 200.7
Copper	EPA 200.8
Cyanide, Total	Lachat 10-204-00-1-A
E. Coli (Treatment and Distribution)	Enz. Sub. SM 9223
E. Coli (Treatment and Distribution)	NA-MUG SM 9222-G
Fecal Coliform (Source Water)	MF SM 9222-D
Fluoride	EPA 300.0
Fluoride	SM 4500-F-C
Haloacetic Acids	EPA 552.2
Heterotrophic Plate Count	SM 9215-B
Lead	EPA 200.8
Mercury	EPA 245.1
Nickel	EPA 200.7
Nickel	EPA 200.8
Nitrate-N	EPA 300.0
Nitrate-N	Lachat 10-107-04-1-C
Nitrite-N	EPA 300.0
Nitrite-N	Lachat 10-107-04-1-C
pH	SM 4500-H-B
Selenium	EPA 200.8
Silver	EPA 200.7
Silver	EPA 200.8
Sodium	EPA 200.7
Sulfate	EPA 300.0
Thallium	EPA 200.8
Total Coliform (Treatment and Distribution)	Enz. Sub. SM 9223
Total Coliform (Treatment and Distribution)	MF SM 9222-B
Total Dissolved Solids	SM 2540-C
Trihalomethanes	EPA 524.2
Turbidity	SM 2130-B
Volatile Organic Compounds	EPA 524.2

Non-Potable Water (Wastewater)

Analyte	Method
Aldrin	EPA 608
Alkalinity, Total	SM 2320-B
Alpha-BHC	EPA 608
Aluminum	EPA 200.7
Aluminum	EPA 200.8
Ammonia-N	Lachat 10-107-06-1-B
Antimony	EPA 200.7
Antimony	EPA 200.8
Arsenic	EPA 200.7
Arsenic	EPA 200.8
Beryllium	EPA 200.7
Beryllium	EPA 200.8
Beta-BHC	EPA 608
Biochemical Oxygen Demand	SM 5210-B
Cadmium	EPA 200.7
Cadmium	EPA 200.8
Calcium	EPA 200.7
Chemical Oxygen Demand	SM 5220-D
Chlordane	EPA 608
Chloride	EPA 300.0
Chlorine, Total Residual	SM 4500-CL-G
Chromium	EPA 200.7
Chromium	EPA 200.8
Cobalt	EPA 200.7
Cobalt	EPA 200.8
Copper	EPA 200.7
Copper	EPA 200.8
Cyanide, Total	Lachat 10-204-00-1-A
DDD	EPA 608
DDE	EPA 608
DDT	EPA 608
Delta-BHC	EPA 608
Dieldrin	EPA 608
Endosulfan I	EPA 608
Endosulfan II	EPA 608
Endosulfan Sulfate	EPA 608
Endrin	EPA 608
Endrin Aldehyde	EPA 608
Gamma-BHC	EPA 608
Hardness (CaCO3), Total	EPA 200.7
Hardness (CaCO3), Total	SM 2340-B
Heptachlor	EPA 608
Heptachlor Epoxide	EPA 608
Iron	EPA 200.7
Kjeldahl-N	Lachat 10-107-06-02-D
Lead	EPA 200.7
Magnesium	EPA 200.7
Manganese	EPA 200.7
Manganese	EPA 200.8
Mercury	EPA 245.1
Molybdenum	EPA 200.7
Molybdenum	EPA 200.8
Nickel	EPA 200.7
Nickel	EPA 200.8
Nitrate-N	EPA 300.0
Nitrate-N	Lachat 10-107-04-1-C
Non-Filterable Residue	SM 2540-D
Oil and Grease	EPA 1664

GROUNDWATER ANALYTICAL

Certifications and Approvals

MASSACHUSETTS — **Department of Environmental Protection, M-MA-103**

Groundwater Analytical maintains MassDEP environmental laboratory certification for only the methods and analytes listed below. Analyses for certified analytes are conducted in accordance with MassDEP certification standards, except as may be specifically noted in the project narrative.

Non-Potable Water (Wastewater)

Analyte	Method
Orthophosphate	Lachat 10-115-01-1-A
pH	SM 4500-H-B
Phenolics, Total	EPA 420.4
Phenolics, Total	Lachat 10-210-00-1-B
Phosphorus, Total	Lachat 10-115-01-1-C
Phosphorus, Total	SM 4500-P-B,E
Polychlorinated Biphenyls (Oil)	EPA 600/4-81-045
Polychlorinated Biphenyls (Water)	EPA 608
Potassium	EPA 200.7
Selenium	EPA 200.7
Selenium	EPA 200.8
Silver	EPA 200.7
Sodium	EPA 200.7
Specific Conductivity	SM 2510-B
Strontium	EPA 200.7
Sulfate	EPA 300.0
SVOC-Acid Extractables	EPA 625
SVOC-Base/Neutral Extractables	EPA 625
Thallium	EPA 200.7
Thallium	EPA 200.8
Titanium	EPA 200.7
Total Dissolved Solids	SM 2540-C
Total Organic Carbon	SM 5310-B
Toxaphene	EPA 608
Vanadium	EPA 200.7
Vanadium	EPA 200.8
Volatile Aromatics	EPA 602
Volatile Aromatics	EPA 624
Volatile Halocarbons	EPA 624
Zinc	EPA 200.7
Zinc	EPA 200.8

Appendix A

Service Constraints

Service Constraints

The following limitation is applicable if the report is stamped "DRAFT" or otherwise identified as

restrictions, AECOM has not performed the services necessary for it to render any opinions or

by the client upon which the Client may draw its own conclusions. Client agrees that AECOM shall

2 General

- This Report was prepared for the exclusive use of the Client. No other party is entitled to

express written consent of AECOM.

- This Report was prepared pursuant to an Agreement between the Client and AECOM

conditions and restrictions contained therein.

It is AECOM's understanding that this Report is to be used for the purpose described in the introduction of the Report. This stated purpose has been a significant factor in determining the

is to be used, or the proposed use of the site(s) change, this Report is no longer valid, and use of

AECOM shall be entitled to additional compensation at then existing rates or such other terms as

4. Scope of Services

The observations and conclusions described in this Report are based solely on the Scope of

introduction of this Report. AECOM has not performed any additional observations, investigations, studies, or testing not specifically stated therein. AECOM shall not be liable for the existence of any

the presence of asbestos, electromagnetic fields, lead paint, lead or copper in water, radon gas or other radioactive or infectious materials.

5. Time

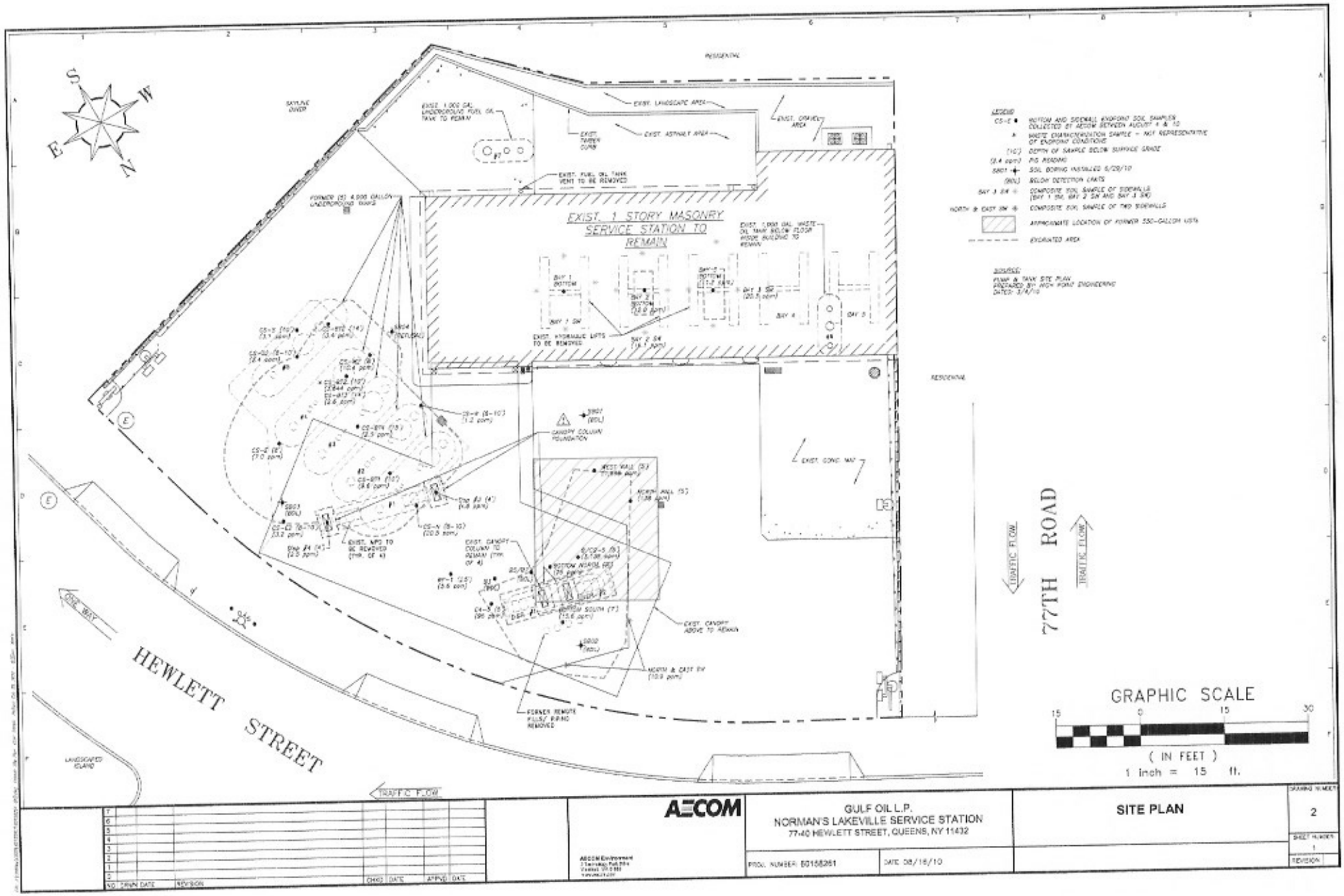
The passage of time may result in changes in technology, economic conditions, site variations, or regulatory provisions which would render the Report inaccurate. Accordingly, neither the Client, nor any other party, shall rely on the information or conclusions contained in this Report after three (3) months from its date of submission without the express written consent of AECOM. Reliance on the report after such period of time shall be at the user's sole risk. Should AECOM be required to review the Report after three (3) months from its date of submission, AECOM shall be entitled to

6. Conclusions

provided by the Client; and information and/or analyses provided by independent testing and

information or materials received from third parties during the performance of its services. AECOM

Figures



NO.	DRWN DATE	REVISION	CHKD	DATE	APPVD	DATE
7						
6						
5						
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1						

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3 Technology Park Drive
Westford, MA 01886
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GULF OIL L.P.
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77-40 HEWLETT STREET, QUEENS, NY 11432

PROJ. NUMBER: 60158261

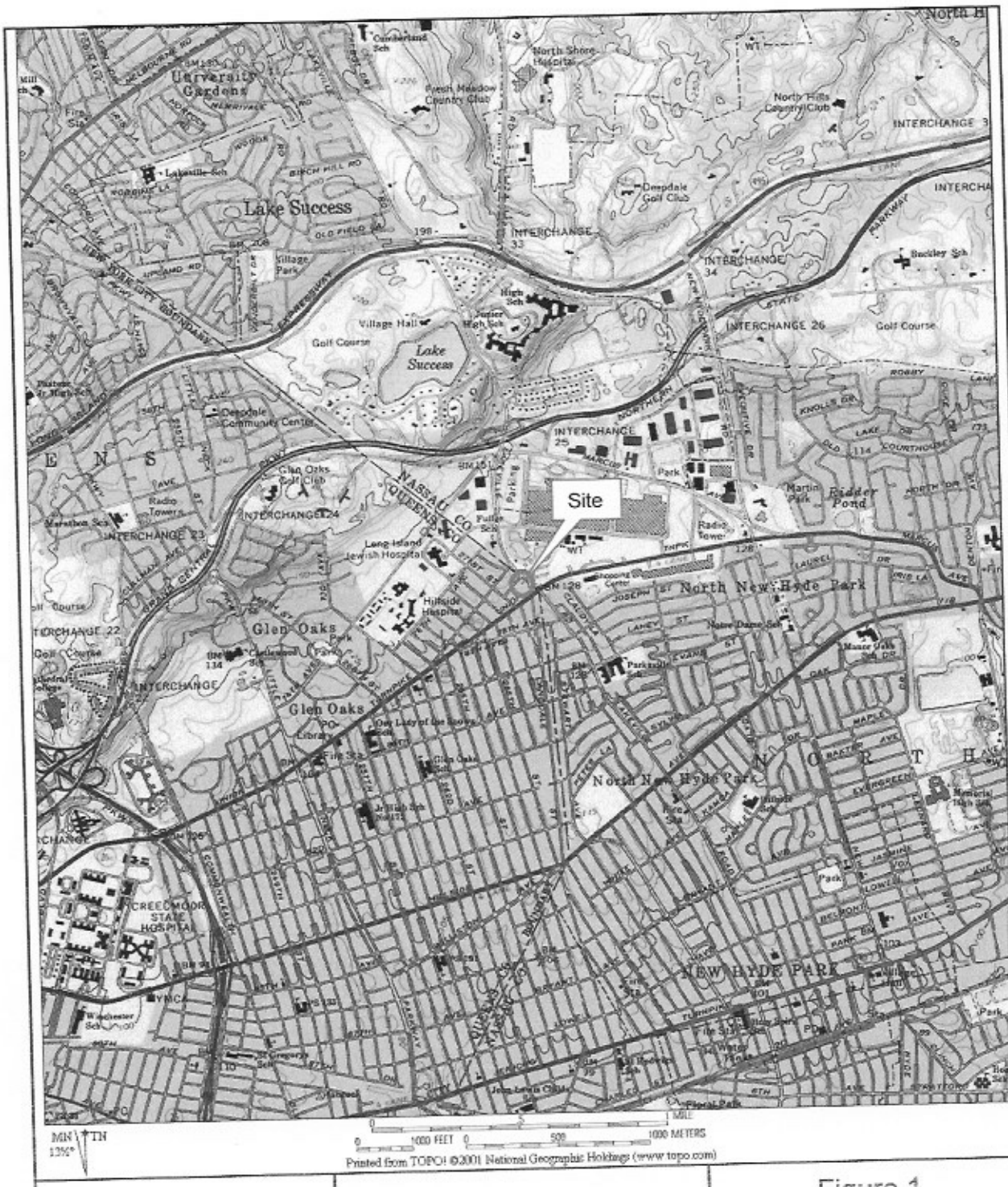
DATE: 08/18/10

SITE PLAN

DRAWING NUMBER: 2

SHEET NUMBER: 1

REVISION



AECOM	Cumberland Gulf Group of Companies 100 Crossing Boulevard Framingham, MA 01702	Figure 1 Site Location Map 77-40 Hewlett Street New Hyde Park, New York Job No. 60158261

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Tables

Table 1
UST Endpoint Samples
Norman's Lakeville Service Station
New Hyde Park, NY

Sample ID	CS-BT1	CS-W2	CS-E	CS-S	CS-BT2	CS-W	CS-N	CS-BT3	CS-BT4	CS-E2	CS-S2	TAGM Recommended Soil Cleanup Objective µg/kg
Sample Depth (feet)	10	8	8	10	14	8-10	8-10	14	15	8-10	8-10	
Date Sampled	8/4/2010	8/4/2010	8/4/2010	8/5/2010	8/5/2010	8/9/2010	8/9/2010	8/9/2010	8/9/2010	8/9/2010	8/9/2010	
PID Readings (ppm)	9.6	10.4	7.0	3.1	3.4	1.2	20.5	2.6	2.5	3.2	2.4	
EPA 8260 Volatile Organics (ug/Kg)												
Benzene	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	60
Isopropylbenzene	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	2,300
Tetrachloroethene	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	1,400
n-butylbenzene	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	10,000
sec-butylbenzene	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	10,000
Ethylbenzene	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	5,500
Methyl-tert-butyl-ether	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	12,000
Naphthalene	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	13,000
n-propylbenzene	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	3,700
Toluene	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	1,500
1,2,4-trimethylbenzene	<5	<5	<5	<5	<5	<5	7	<5	<5	<5	<5	10,000
1,3,5-trimethylbenzene	<5	<5	<5	<5	<5	<5	6	<5	<5	<5	<5	3,300
Total Xylenes	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	1,200
EPA 8270C Semivolatile Organics (ug/Kg)												
Naphthalene	<330	<340	<330	<400	<330	<380	<330	<380	<350	<360	<350	13,000
2-Methylnaphthalene	<330	<340	<330	<400	<330	<380	<330	<380	<350	<360	<350	36,400
Fluoranthene	<330	<340	<330	<400	<330	<380	<330	<380	<350	<360	<350	50,000
Phenanthrene	<330	<340	<330	<400	<330	<380	<330	<380	<350	<360	<350	50,000
Pyrene	<330	<340	<330	<400	<330	<380	<330	<380	<350	<360	<350	50,000
Benzo(a)anthracene	**<330**	**<340**	**<330**	**<400**	**<330**	**<380**	**<330**	**<380**	**<350**	**<360**	**<350**	224
Chrysene	<330	<340	<330	<400	<330	<380	<330	<380	<350	<360	<350	400
Benzo(b)fluoranthene	<330	<340	<330	<400	<330	<380	<330	<380	<350	<360	<350	1,100
Benzo(k)fluoranthene	<330	<340	<330	<400	<330	<380	<330	<380	<350	<360	<350	1,100
Benzo(a)pyrene	**<330**	**<340**	**<330**	**<400**	**<330**	**<380**	**<330**	**<380**	**<350**	**<360**	**<350**	61
Indeno(1,2,3-cd)pyrene	<330	<340	<330	<400	<330	<380	<330	<380	<350	<360	<350	3,200
Benzo(g,h,i)perylene	<330	<340	<330	<400	<330	<380	<330	<380	<350	<360	<350	50,000

NOTES:
TAGM 4046 Recommended Soil Cleanup Objective
mg/Kg = milligrams per kilogram, equivalent to parts-per-million (ppm)
ug/Kg = micrograms per kilogram, equivalent to parts-per-billion (ppb)
Bold and underlined indicates concentrations above NYSDEC Recommended Soil Cleanup Objectives
< = Below Laboratory Reporting Limit
< and Bold = Laboratory Reporting Limit above cleanup objectives
NA = Not Analyzed
BB = B to Background
* = Background levels for lead vary widely. Average levels in undeveloped, rural areas range from 4 - 61 mg/Kg. Average background levels in metropolitan or suburban areas or near highways are much higher and typically range from 200 - 500 mg/Kg.

Table 2
Hydraulic Lift Endpoint Samples
Norman's Lakeville Service Station
New Hyde Park, NY

Sample ID	Bay 2 SW	Bay 2 Bottom	Bay 3 SW	Bay 3 Bottom	Composite **	Bottom **	TAGM Recommended Soil Cleanup Objective µg/kg
Date Sampled	9/8/2010	9/8/2010	9/8/2010	9/8/2010	1/26/2011	1/26/2011	
PID Readings (ppm)	16.1	12.0	20.3	11.2	0.9	4.0	
EPA 8260 Volatile Organics (µg/Kg)							
Benzene	<330	<270	<250	<250	<5	<5	60
Isopropylbenzene	<330	<270	<250	<250	<5	<5	2,300
Tetrachloroethene	690	940	2,600	2,700	<5	6	1,400
n-butylbenzene	<330	<270	<250	<250	<5	<5	10,000
sec-butylbenzene	<330	<270	<250	<250	<5	<5	10,000
Ethylbenzene	<330	<270	<250	<250	<5	<5	5,500
Methyl-tert-butyl-ether	<330	<270	<250	<250	<5	<5	12,000
Naphthalene	<330	<270	<250	430	<5	<5	13,000
n-propylbenzene	<330	<270	<250	<250	<5	<5	3,700
Toluene	<330	<270	<250	<250	<5	<5	1,500
1,2,4-trimethylbenzene	<330	<270	<250	<250	<5	<5	10,000
1,3,5-trimethylbenzene	<330	<270	<250	<250	<5	<5	3,300
Total Xylenes	570	500	<500	<500	<10	<10	1,200
EPA 8270C SemiVolatile Organics (ug/Kg)							
Naphthalene	<370	<350	<370	<360	<340	<360	13,000
2-Methylnaphthalene	<370	<350	<370	640	<340	<360	36,400
Fluoranthene	<370	<350	<370	<360	<340	<360	50,000
Phenanthrene	<370	<350	<370	<360	<340	<360	50,000
Pyrene	<370	<350	<370	<360	<340	<360	50,000
Benzo(a)anthracene	<370	<350	<370	<360	<340	<360	224
Chrysene	<370	<350	<370	<360	<340	<360	400
Benzo(b)fluoranthene	<370	<350	<370	<360	<340	<360	1,100
Benzo(k)fluoranthene	<370	<350	<370	<360	<340	<360	1,100
Benzo(a)pyrene	<370	<350	<370	<360	<340	<360	61
Indeno(1,2,3-cd)pyrene	<370	<350	<370	<360	<340	<360	3,200
Benzo(g,h,i)perylene	<370	<350	<370	<360	<340	<360	50,000
PCBs (µg/Kg)							
Aroclor 1016	<87	<88	<90	<87	NA	NA	1,000 (surface) or 10,000 (subsurface)
Aroclor 1221	<87	<88	<90	<87	NA	NA	
Aroclor 1232	<87	<88	<90	<87	NA	NA	
Aroclor 1242	<87	<88	<90	<87	NA	NA	
Aroclor 1248	<87	<88	<90	<87	NA	NA	
Aroclor 1254	<87	<88	<90	<87	NA	NA	
Aroclor 1260	<87	<88	<90	<87	NA	NA	
Aroclor 1262	<87	<88	<90	<87	NA	NA	
Aroclor 1268	<87	<88	<90	<87	NA	NA	
Trace Metals (mg/Kg)							
Antimony	NA	NA	NA	NA	NA	NA	SB
Arsenic	<3.3	<3.4	<3.5	<3.5	NA	NA	7.5 or SB
Barium	37.0	35	53	34	NA	NA	300 or SB
Cadmium	0.95	0.92	1.3	0.92	NA	NA	1 or SB
Chromium	15	13	16	17	NA	NA	10 or SB
Copper	NA	NA	NA	NA	NA	NA	25 or SB
Lead	18	23	33	35	20	20	SB*
Mercury	0.050	0.086	0.096	0.094	NA	NA	0.1
Nickel	NA	NA	NA	NA	NA	NA	13 or SB
Selenium	<5.5	<5.6	<5.8	<5.8	NA	NA	2 or SB
Silver	<1.1	<1.1	<1.2	<1.2	NA	NA	SB
Thallium	NA	NA	NA	NA	NA	NA	SB
Zinc	NA	NA	NA	NA	NA	NA	20 or SB

NOTES:

mg/Kg = milligrams per kilogram, equivalent to parts-per-million (ppm)

µg/Kg = micrograms per kilogram, equivalent to parts-per-billion (ppb)

Bold and underlined indicates concentrations above NYSDEC Recommended Soil Cleanup Objectives

< = Below Laboratory Reporting Limit

< Bold Value = Laboratory Reporting Limit above cleanup objectives

NA = Not Analyzed

SB = Site Background

* = Background levels are most very variable. Average levels in undeveloped, rural areas range from 4 - 61 mg/kg

Average background levels in metropolitan or suburban areas or near highways are much higher and typically range from 200 - 500 mg/Kg

Table 3
Waste Characterization Samples
Norman's Lakeville Service Station
New Hyde Park, NY

Sample ID	CS_BT2	B/C9-5	C4-5	TAGM Recommended Soil Cleanup Objective µg/kg
Sample Depth (feet)	10	5	5	
Date Sampled	8/4/2010	9/2/2010	9/2/2010	
PID Readings (ppm)	3,644	3,138	96	
EPA 8260 Volatile Organics (µg/Kg)				
Benzene	<250	<44,000	<280	60
Isopropylbenzene	<250	77,000	<280	2,300
Tetrachloroethene	<250	<44,000	<280	1,400
n-butylbenzene	<250	<44,000	<280	10,000
sec-butylbenzene	<250	<44,000	<280	10,000
Ethylbenzene	<250	210,000	<280	5,500
Methyl-tert-butyl-ether	<250	<44,000	<280	12,000
Naphthalene	1,100	87,000	600	13,000
n-propylbenzene	<250	82,000	<280	3,700
Toluene	<250	460,000	320	1,500
1,2,4-trimethylbenzene	6,300	660,000	2,800	10,000
1,3,5-trimethylbenzene	2,800	250,000	1,200	3,300
Total Xylenes	2,380	1,390,000	1,890	1,200
EPA 8270C SemiVolatile Organics (µg/Kg)				
Naphthalene	NA	62,000	<350	13,000
2-Methylnaphthalene	NA	63,000	<350	36,400
Fluoranthene	NA	<3,600	<350	50,000
Phenanthrene	NA	<3,600	<350	50,000
Pyrene	NA	<3,600	<350	50,000
Benzo(a)anthracene	NA	<3,600	<350	224
Chrysene	NA	<3,600	<350	400
Benzo(b)fluoranthene	NA	<3,600	<350	1,100
Benzo(k)fluoranthene	NA	<3,600	<350	1,100
Benzo(a)pyrene	NA	<3,600	<350	61
Indeno(1,2,3-cd)pyrene	NA	<3,600	<350	3,200
Benzo(g,h,i)perylene	NA	<3,600	<350	50,000
EPA 8015B TPH's (mg/Kg)				
Total Petroleum Hydrocarbons	100	NA	NA	--
Inorganic Chemistry				
Free Liquids	Absent	NA	NA	--
Trace Metals (mg/Kg)				
Antimony	<1.1	NA	NA	SB
Arsenic	<3.2	NA	NA	7.5 or SB
Barium	<5.3	NA	NA	300 or SB
Cadmium	<0.53	NA	NA	1 or SB
Chromium	NA	NA	NA	10 or SB
Copper	<21	NA	NA	25 or SB
Lead	<5.3	NA	NA	SB*
Mercury	NA	NA	NA	0.1
Nickel	<5.3	NA	NA	13 or SB
Selenium	NA	NA	NA	2 or SB
Silver	NA	NA	NA	SB
Thallium	<5.3	NA	NA	SB
Zinc	22	NA	NA	20 or SB

NOTES:
TAGM 4046 Recommended Soil Cleanup Objective
mg/Kg = milligrams per kilogram, equivalent to parts per million (ppm)
µg/Kg = micrograms per kilogram, equivalent to parts-per-billion (ppb)
Bold and underlined indicates concentrations above NYSDEC Recommended Soil Cleanup Objectives
< = Below Laboratory Reporting Limit
< and Bold = Laboratory Reporting Limit above cleanup objectives
NA = Not Analyzed
SB = Site Background
* = Background levels for lead vary widely. Average levels in undeveloped, rural areas range from 4 - 61 mg/Kg. Average background

Table 4
Piping and Dispenser Samples
Norman's Lakeville Service Station
New Hyde Park, NY

Sample ID	Disp #3	Disp #4	RF-1	B3	B5/B7	West Wall	S-1	North Wall	North & East Sidewall	Bottom South	Bottom North	TAGM Recommended Soil Cleanup Objective µg/kg
Sample Depth (feet)	4	4	2.5	5	0-5	5	7	5	5	7	7	
Date Sampled	8/4/2010	8/4/2010	8/20/2010	9/2/2010	9/2/2010	9/8/2010	9/9/2010	9/8/2010	9/9/2010	9/9/2010	9/9/2010	
PID Readings (ppm)	4.6	2.5	5.6	BDL	BDL	1,698.0	351	138	10.9	15.6	75	
EPA 8260 Volatile Organics (µg/Kg)												
Benzene	<5	<5	<5	<5	<5	**1,700**	**282**	**450**	**<250**	**<280**	**<250**	**60**
Isopropylbenzene	<5	<5	<5	<5	<5	1,800	329	<250	<250	<280	<250	**2,300**
Tetrachloroethene	<5	<5	<5	<5	<5	<980	<251	<250	<250	<280	<250	**1,400**
n-butylbenzene	<5	<5	<5	<5	<5	<980	556	<250	<250	<280	<250	**10,000**
sec-butylbenzene	<5	<5	<5	<5	<5	<980	317	<250	<250	<280	<250	**10,000**
Ethylbenzene	<5	<5	<5	<5	<5	**12,000**	1,510	300	<250	<280	370	**5,500**
Methyl-tert-butyl-ether	6	<5	<5	<5	<5	<980	<251	<250	<250	<280	<250	**12,000**
Naphthalene	<5	<5	<5	<5	<5	5,500	2,060	<250	<250	<280	570	**13,000**
n-propylbenzene	<5	<5	<5	<5	<5	**5,700**	983	<250	<250	<280	<250	**3,700**
Toluene	<5	<5	<5	<5	<5	**16,000**	**2,060**	280	<250	<280	290	**1,500**
1,2,4-trimethylbenzene	<5	<5	<5	<5	<5	**40,000**	9,960	<250	<250	<280	2,800	**10,000**
1,3,5-trimethylbenzene	<5	<5	<5	<5	<5	**18,000**	2,810	<250	<250	<280	1,500	**3,300**
Total Xylenes	<10	<10	<10	<10	<10	**83,000**	**14,490**	1,130	<500	<560	**3,090**	**1,200**
EPA 8270C Semivolatile Organics (µg/Kg)												
Naphthalene	<340	<360	<340	<340	<350	4,400	NA	<350	<340	<330	<360	**13,000**
2-Methylnaphthalene	<340	<360	<340	<340	<350	4,400	NA	<350	<340	<330	<360	**36,400**
Fluoranthene	<340	<360	<340	<340	<350	<360	NA	730	<340	<330	<360	**50,000**
Phenanthrene	<340	<360	<340	<340	<350	<360	NA	<350	<340	<330	<360	**50,000**
Pyrene	<340	<360	<340	<340	<350	<360	NA	700	<340	<330	<360	**50,000**
Benzo(a)anthracene	**<340**	**<360**	**<340**	**<340**	**<350**	**<360**	NA	**550**	**<340**	**<330**	**<360**	**224**
Chrysene	<340	<360	<340	<340	<350	<360	NA	**480**	<340	<330	<360	**400**
Benzo(b)fluoranthene	<340	<360	<340	<340	<350	<360	NA	910	<340	<330	<360	**1,100**
Benzo(k)fluoranthene	<340	<360	<340	<340	<350	<360	NA	<350	<340	<330	<360	**1,100**
Benzo(a)pyrene	**<340**	**<360**	**<340**	**<340**	**<350**	**<360**	NA	**770**	**<340**	**<330**	**<360**	**61**
Indeno(1,2,3-cd)pyrene	<340	<360	<340	<340	<350	<360	NA	350	<340	<330	<360	**3,200**
Benzo(g,h,i)perylene	<340	<360	<340	<340	<350	<360	NA	<350	<340	<330	<360	**50,000**

NOTES:
TAGM 4046 Recommended Soil Cleanup Objective
mg/Kg = milligrams per kilogram, equivalent to parts-per-million (ppm)
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ACCREDITED IN ACCORDANCE WITH
NY Lab #11393/11840
FL Lab # E87600/E87936

SPECTRUM ANALYTICAL, INC.
Featuring
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PETROLEUM PRODUCT ANALYSIS REPORT

Site Location: Norman's Lakeville Gulf
New Hyde Park, NY

Project # 60158261-400
Lab ID# SB17976-01

Presented to:

AECOM
2 Technology Park Drive
Westford, MA

By:

M. Amine Dahmani, Ph.D.
Hanibal C. Tayeh, Ph.D.

February 25, 2011

Authorized Signature: _____

Hanibal C. Tayeh, Ph.D.

Executive Summary

Based on our education, experience and the analytical testing reflected in the information contained in this report, we have the following opinions to a reasonable degree of scientific certainty about the soil sample received from AECOM.

Opinion 1: Sample **S-1 (7') (SB17976-01)** contains gasoline and motor oil.

Opinion 2: The gasoline in the sample is moderately weathered

Our opinions are based upon information received and considered as of February 25, 2011. Any new information provided after this date is not included in this report. We reserve the right to amend or supplement our opinions in consideration of any new information received.

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1.0 INTRODUCTION

Spectrum Analytical, Inc. (SAI) was retained by AECOM to identify the age of the petroleum product(s) associated with the soil sample provided and render opinions regarding the product(s).

1.1 Professional Credentials

1.1.1 Hanibal C. Tayeh

Dr. Tayeh is the President-CEO-Director of Spectrum Analytical, Inc. Dr. Tayeh is also an adjunct professor at the Environmental Science Program of the University of Massachusetts in Amherst. Dr. Tayeh has twenty-one (21) years of managerial, Quality Assurance/Quality Control (QA/QC) and Research and Development (R&D) experience. This includes the development and implementation of various environmental analytical methods to identify and quantify total petroleum hydrocarbons by gas chromatography (GC), polynuclear aromatic hydrocarbons by gas chromatography/mass spectrometry (GC/MS), polychlorinated biphenyls (PCBs) and chlorinated hydrocarbons pesticides by gas chromatography/Electron Capture Detector (GC/ECD) as well as volatile organic compounds via GC/MS. Dr. Tayeh performed all quality assurance/quality control (QA/QC) and method detection limit studies related to these methods and their implementation in the laboratory. Dr. Tayeh was also instrumental in the development of the Massachusetts Department of Environmental Protection (MADEP) methods for petroleum hydrocarbon determination, Extractable Petroleum Hydrocarbon (EPH) and Volatile Petroleum Hydrocarbon (VPH) with his direct involvement with the Mass DEP technical team in Lawrence and Boston, Massachusetts, to support the finalization of these particular methods.

Dr. Tayeh's research and experience has led him to develop an innovative analytical method for the determination of petroleum hydrocarbons, total petroleum hydrocarbon technique (TPHT). He has presented this method to University of Massachusetts, Amherst and has conducted several technical seminars with environmental consultants pertaining to this technique. He has also utilized this method with various environmental consulting firms to provide support services associated with property transfer, insurance litigation from a release of contaminants, and cost/responsibility allocation at Superfund sites and other contaminated sites in terrestrial, marine or atmospheric environments.

1.1.2 M. Amine Dahmani

Dr. Dahmani has worked in the oil industry for four years before joining the Civil and Environmental Engineering Department at the University of Connecticut (UCONN) in 1990 as an Assistant Professor, to work on petroleum related environmental problems. He was the Director of the Site Assessment and Remediation laboratories at the Environmental Research Institute at UCONN before joining SAI as the Section Team Leader of Research and Development in June 2005. He is currently Deputy Director of Spectrum Analytical, Inc. He has



conducted numerous studies in site assessment, remediation, environmental forensics, and environmental monitoring. He was instrumental in the development of two important remediation technologies, namely air sparging and chemical oxidation. His knowledge of petroleum products and fate and transport of petroleum contaminants is critical in the conduct of forensic studies. Dr. Dahmani has also served as Adjunct Professor in the Civil and Environmental Engineering Department at UCONN.

1.2 SAI Company Profile

SAI occupies two locations in Agawam, MA, covering over 25,000 square feet of laboratory space. It has over 100 employees. The labs are equipped with state-of-the-art technology to automate analyses and ensure data accuracy. In order to provide consistently reliable data, SAI's QA/QC standards include a strict adherence to good laboratory practices, peer review of data, and organized operational processes.

SAI is certified in accordance with the National Environmental Laboratory Accreditation Conference (NELAC). The laboratory continuously reviews updates from NELAC, as well as other state agencies, and implements these changes into its daily operational procedures. SAI also continues to improve its quality standards with periodic audits by NELAC. This dedication provides clients with an assurance to meet project quality objectives and maintain data consistency between projects.

SAI has recently acquired PEL Laboratory in Tampa, FL and Mitkem Laboratory in Warwick, RI

1.3 Overview of Petroleum Chemical Fingerprinting

Chemical fingerprinting is an analytical chemistry tool that can help in the evaluation of chemical compound distributions in complex chemical mixtures using various analytical instruments. The most common chemical fingerprinting techniques for petroleum products use high-resolution gas chromatography. These techniques can distinguish among various fuel types that may be commingled at a given location by providing individual fingerprints of petroleum types.

The types of hydrocarbons that can be identified using chemical fingerprinting include gasoline, diesel, #2 Fuel Oil, jet fuel, kerosene, Stoddard solvent, #4 Fuel Oil, hydraulic oil etc. In order to identify the type of hydrocarbons, pattern recognition based on reference standards can be performed. In addition, pattern matching of gas chromatographic fingerprints of different samples can be conducted. Compounds that can be used in pattern recognition analysis for diesel and #2 fuels include normal alkanes and isoprenoids, alkylcyclohexanes, as well as biomarkers such as sesquiterpanes, diterpanes, triterpanes and steranes. Biomarkers are any of a suite of chemical compounds that may indicate biological involvement in the formation of petroleum.

1.4 Overview of Petroleum Weathering

Petroleum weathering is the impact of chemical, physical and biological forces on the chemical and physical compositions of petroleum mixtures. The primary weathering processes that affect petroleum hydrocarbons include evaporation, solubilization and biodegradation.

Evaporation is a weathering process that selectively removes compounds with lower molecular weights, lower boiling points and lower vapor pressures. The lighter the petroleum product, the more prone it is to evaporation. However, the conditions under which a petroleum release occurs will determine the degree of evaporation of the petroleum mixture. Temperature, wind, impacted medium (soil, water, cement, pipe), rate of release of the petroleum product will significantly affect the rate of evaporation of the lighter compounds.

Solubilization is the transfer of petroleum compounds from the petroleum phase to the water phase. Solubilization is a function of the molar concentration of a compound in a mixture and its relative solubility in water compared to its solubility in the petroleum phase. Hydrocarbons with the highest solubility in water would be dissolved more easily in water than compounds with lower water solubilities. Solubilization affects primarily petroleum products in contact with surface or ground water.

Biodegradation of petroleum hydrocarbons is the result of microbial action. If the right conditions are present in terms of nutrient and oxygen availability and an energy source, indigenous microbial populations in soils are capable of degrading petroleum products. This leads to the decrease or destruction of a portion of the hydrocarbon product and results in higher concentrations of the less biodegradable compounds.

The weathering terms used to support this professional opinion for each individual sample were referenced from the book "Introduction to Environmental Forensics", Chapter 6.

2.0 METHODOLOGIES

2.1 Sample Log-in Procedures

The soil sample S-1 (7') collected on September 9, 2010 was received in the laboratory on September 10, 2010 via Spectrum courier. The sample was received at 3.0°C.

For comparison and verification purposes, Spectrum analyzed several quality control and petroleum reference samples. The following summarizes the petroleum reference samples:

- 100 ug/L Aliphatic Standards
- #2 Fuel Oil Continuing calibration Check Standard (CCC)
- 20 ug/L Volatile Organic Laboratory Control sample (LCS)
- 50 ug/L Volatile Organic Continuing Calibration Check sample (CCC)

Sample identification and the assigned laboratory number are as follows:

Sample ID	Matrix	Lab. ID#
S-1 (7')	Soil	SB17976-01

2.2 Total Petroleum Hydrocarbons by GC/MS/FID Analysis

2.2.1 Technique

In order to determine the type or types of parent products associated with the forensic sample SVOC methods are employed. The SW846 8100 method is designed for the identification and quantitation of total petroleum hydrocarbons (TPH) in aqueous and soil or product samples by the use of capillary column gas chromatography / flame ionization detector (GC/FID) instrumentation. The SW846 8270C method is designed for the identification and quantitation of semi-volatile organic compounds (SVOCs), such as organic lead, in aqueous and soil or product samples by the use of capillary column gas chromatography / mass spectrometry (GC/MS) instrumentation.

Samples in a liquid state are injected into a capillary column at an elevated temperature through which a carrier gas flows. The column is temperature-programmed to separate the compounds, which are then detected by a mass spectrometer (MS) and/or flame ionization detector (FID) interfaced to the gas chromatograph (GC).

Qualitative analysis is accomplished by comparing the chromatogram of the target compound with prepared standards, and by GC retention times.

2.2.2 Preparation of Samples

Samples for all of the SVOC analyses used for this project are prepared similarly. Different internal standards and surrogates may be used specific to each method as explained in Spectrum's Standard Operating Procedure (SOP) for each method.

The soil sample was extracted following USEPA's SW846-3550B ultrasonic method. A specific mass (in grams) of each soil sample and petroleum standard was extracted with a pre-defined volume (mL) of methylene chloride (solvent extraction). A 1 µL aliquot from each sample was then injected into the appropriate instrument for analysis.

2.2.3 Operating Conditions

A 1 µL aliquot from each sample was injected into Spectrum's forensic GC/MS/FID system for analysis. The extracts were analyzed by a new high resolution, capillary gas chromatography (GC)/mass spectrometry system equipped with 30-meter HP-5MS column (0.25 mm I.D, 0.25 µm film thickness), a 30-meter HP-5 column (0.32 mm I.D, 0.25 µm film thickness), and a flame ionization detector (FID). A new HP-GC gas chromatography-auto-system (HP-6890) equipped with a mass selective detector 5973N was utilized. The MS was operated under the scan model from m/z 35 to m/z 350. The GC/MS system includes the total ion GC fingerprint trace and the mass spectrum of each peak. Based on the mass spectrum of each peak, the peak identification was achieved by the combination of NIST2002 mass spectra library search and the author's best knowledge. The area counts of each total ion peak were integrated by HP Chemstation software. The compound concentration was calculated using peak area and described as the percentage of each compound in the sample.

OPERATING CONDITIONS FOR TPH (HP15&16)

Total run time = 16.25 min
Inlet A pressure = 23 psi
Inlet A temp = 260 °C
Total flow = 58.6 mL/min

Oven temp 1 = 60°C	Time 1 = 2.0 min	Ramp rate 1 = 30.0°C/min
Oven temp 2 = 150°C	Time 2 = 0.0 min	Ramp rate 2 = 35.0°C/min
Oven temp 3 = 310°C	Time 3 = 5.43 min	Ramp rate 3 = 40.0°C/min
Oven temp 4 = 320°C	Time 4 = 1.0 min	Ramp rate 4 = 0.0°C/min

2.2.4 Data Reduction and Calculations

Sequences were created on each instrument and downloaded at the beginning of each sample run. Data files were created within the sequence and data was written to them as each sample was acquired. Each data file was named for the laboratory identification number that was assigned to it at the time of sample receipt. Once the sample completed its run, the analyst then recalled the file, processed the raw data, and calculated the results from the print-outs that are generated for each data file. Samples that contained levels of contamination above the calibration range were rerun at a dilution to bring the contaminants into the calibration range. Similarly, samples that were run at a dilution and had results below detection limit were rerun at a lower dilution to bring the compounds within the calibration range and to provide a lower detection limit. Calculations used in quantifying the results to the analyses are based on the internal standard concentration, dilution factor, and sample weight.

2.2.5 Quality Control and Quality Assurance

Quality control protocols described in Spectrum Analytical, Inc. Standard Operating Procedures For Total Petroleum Hydrocarbons SW846 8100 Method and in Section IX. "Initial Calibration" of Spectrum Analytical, Inc. Standard Operating Procedures For Analysis of Semi-Volatile Organic Compounds by Gas Chromatography Mass Spectrometry: Capillary Column Technique SW846 8270C Method were strictly adhered to for all analyzed samples. The quality control data consists of a method blank sample, a laboratory control sample (LCS), a method calibration summary report along with the appropriate calibration standards raw data, continuing calibration check (CCC) standards and all associated sample and standard chromatograms. Definitions for these quality control samples are provided along with the results of the analyses.

2.3 Volatile Organic Compound Analysis by SW846 8260B GC/MS

2.3.1 Technique

The SW846 8260B method is designed for the identification and quantitation of purgeable volatile organic compounds (VOCs) in aqueous and soil or product samples by the use of capillary column gas chromatography / mass spectrometry (GC/MS) instrumentation.

Purgeable VOCs in an aqueous state are transferred from an aqueous phase to a vapor phase by purging the sample with an inert gas (helium). The purged vapor stream is concentrated on a trap, a stainless steel tube containing sorbent material capable of trapping the purged VOCs. The volatile compounds are then desorbed from the sorbent materials onto a capillary column by back-purging the trap with helium at an elevated temperature. The column is temperature-programmed to separate the compounds, which are then detected by a mass spectrometer (MS) interfaced to the gas chromatograph (GC).

Qualitative analysis is accomplished by comparing the mass spectra of the target analytes with prepared standards, and by GC retention times. Quantitation is achieved by comparing the abundance of a primary characteristic (quantitation) ion to the response of the internal standard using a minimum of a five-point calibration curve.

2.3.2 Preparation of Samples

The soil sample was preserved in 15mL of purge and trap grade methanol according to SW846 5030 method for the determination of high volatile organic compounds in solid matrix. The methanol-extracted sample and the extracted standard were treated as aqueous samples. All methanol vials were warmed to room temperature and weighed before loading in order to determine the weight of the soil. All methanol extracts were analyzed at a minimum of 1:50 dilution to ensure data quality and reproducibility.

2.3.3 Operating Conditions

One Gas Chromatograph/Mass Spectrometer instruments was used to perform analysis for this project. It is equipped with a 20-meter DB-VRX column (0.18 mm I.D, 1 µm film thickness). The operating conditions for these instruments are outlined as follows:

OPERATING CONDITIONS FOR HP#2

TABLE A: Purge and trap (Method No. 2)

Purge ready temp = 38°C	Bake time = 8.00 min
Purge time = 11.00 min	Bake temp = 260°C
Dry purge time = 2.00 min	2016 line = 130°C
Desorb preheat = 245°C	2016 valve = 130°C
Desorb time = 4.00 min	Line temp = 150°C
Desorb temp = 250°C	Valve temp = 150°C
Sample drain = off	MCS bake temp = 300°C
Bgb on delay 0.16 minutes	MCS line temp = 150°C

TABLE B: GC method

Total run time = 20.80 min
Split ratio = 1.00:1
Split flow = 1.40 mL/min
Inlet B pressure = 11.0psi
Inlet B temp = 200 °C
Detector B = 250 °C

Oven temp 1 = 35°C	Time 1 = 5.0 min	Ramp rate 1 = 10.0°C/min
Oven temp 2 = 100°C	Time 2 = 1.00 min	Ramp rate 2 = 15.0°C/min
Oven temp 3 = 170°C	Time 3 = 1.00 min	Ramp rate 3 = 19.0°C/min
Oven temp 4 = 220°C	Time 4 = 0.0 min	Ramp rate 4 = 0.0°C/min

2.3.4 Data Reduction and Calculations

As mentioned in Section XIII.C of Standard Operating Procedures For Analysis of Volatile Organic Compounds by EPA 8260B & MADEP WSC-CAM-II A, "Instrument Sequence Creation and Storage", sequences were created on each instrument and downloaded at the beginning of each sample run. Data files were created within the sequence and data was written to them as each sample was acquired. Each data file was named for the laboratory identification number that was assigned to it at the time of sample receipt. Once the sample completed its run, the analyst then recalled the file, processed the raw data, and calculated the results from the print-outs that are generated for each data file. Samples that contained levels of contamination above the calibration range were rerun at a dilution to bring the contaminants into the calibration range. Similarly, samples that were run at a dilution and had results below detection limit were rerun at a lower dilution to bring the compounds within the calibration range and to provide a lower detection limit. Calculations used in quantifying the results to the analyses are based on the internal standard concentration, dilution factor, and sample weight. For detailed descriptions of calculations, please refer to Spectrum Analytical, Inc. Standard Operating Procedures For Analysis of Volatile Organic Compounds by EPA 8260B & MADEP WSC-CAM-II A

2.3.5 Quality Control and Quality Assurance

Quality control protocols described in Section XVIII. "Quality Control and Quality Assurance" of Spectrum Analytical, Inc. Standard Operating Procedures For Analysis of Volatile Organic Compounds by EPA 8260B & MADEP WSC-CAM-II A were strictly adhered to for all analyzed samples. The quality control data consists of a method blank sample, a laboratory control sample, a method calibration summary report along with the appropriate calibration standards raw data, continuing calibration check (CCC) standards, various method tuning criteria and all associated sample and standard chromatograms.

3.0 RESULTS

Appendix A shows the chromatograms associated with the samples from this project. Figure 1 shows the GC/MS chromatogram of sample S-1 (7') (SB17976-01) at a 1:250 dilution using method SW846 8260B. Figure 2 shows the GC/FID chromatogram of the sample using a modified SW846 8100 method. Figure 3 shows an overlay of Figure 2 with a chromatogram of a gasoline standard. Figure 4 shows an overlay of Figure 2 with a chromatogram of a motor oil standard.

Appendix B shows the quality assurance report specific to this project that outlines several data quality interpretations:

-Total petroleum hydrocarbon (TPH) concentration in ppm
-Petroleum fingerprint identification
-Volatile Hydrocarbon Data via SW846 8260B Method
-Various quality control analyses associated with sample batches.

4.0 DISCUSSION

1) Sample S-1 (7') (SB17976-01)

Sample **S-1 (7') (SB17976-01)** chromatograms and overlays are shown in Figures 1 through 4. Figure 1 (GC/MS fingerprint) and Figure 3 (overlay with a gasoline standard) indicate the presence of gasoline in the sample. The chromatograms indicate that the gasoline in the sample is moderately weathered (Degree of weathering could be approximately in the range of 25-50 %).

Figure 2 (GC/FID fingerprint) and Figure 4 (overlay with motor oil standard) indicate the presence of motor oil in the sample, in addition to gasoline.

5.0 OPINIONS

Based on our education, experience and the analytical testing reflected in the information contained in this report, we have the following opinions to a reasonable degree of scientific certainty about the soil sample received from AECOM.

Opinion 1: Sample **S-1 (7') (SB17976-01)** contains gasoline and motor oil.

Opinion 2: The gasoline in the sample is moderately weathered

Note 1: The following terms used to support this professional opinion for each individual sample were referenced from "Introduction to Environmental Forensics", Chapter 6 (Murphy and Morrison, 2002).

Unweathered = A sample that does not appear to have been altered in the environment (Degree of weathering: could be approximately 0%).

Slightly weathered = a sample in which only the most susceptible compounds appear to have been reduced relative to less susceptible compounds (Degree of weathering: could be approximately in the range of 5-25%).

Moderately weathered = A sample in which a substantial portion of the resolved compounds have been lost or reduced (Degree of weathering: could be approximately in the range of 25-50 %).

Severely weathered = A sample in which most of the volatile and semi-volatile compounds are lost, no n-alkanes are present, even the isoprenoids appear substantially depleted or absent. (Degree of weathering: could be approximately over 50%).

6.0 REFERENCES

"Introduction to Environmental Forensics" edited by Brian L. Murphy and Robert D. Morrison, Academic Press, ISBN number: 0125113552, 2002.

Appendix C

Boring Logs

Project Number:	60158281-300	AECOM	**Boring Log**
Client:	Guld Oil Limited Partnership 100 Crossing Boulevard Framingham, Massachusetts	2 Technology Park Drive Westford, Massachusetts (978) 589-3000	Use: Soil Investigation Boring Number: 1 Sheet: 1 of 1
Site Location:	Norman's Lakeville Gulf 7740 Hewlett Street New Hyde Park, New York		**SB01**
Project Manager:	J. Hadden	Field Technician: J. Newell	Date Started: 6/29/2010
Drilling Contractor:	Zebra	Driller: Luke	Date Completed: 6/29/2010
Equipment:	Geoprobe 6610DT	Inside Diameter: 4.25	Outside Diameter:
Well Depth: NA Screen Depth: NA Screen length: NA Water Depth: NA			

Depth	Sample Depth	Sample Number	Blow Counts (24") 0-6	6-12	12-18	18-24	Pen (in.)	Rec (in.)	Sorting	Moisture	PID (ppm)	Field Identification	Description	Fill Mat.	Tube	Fill Mat.	Depth
1												Asphalt Air Vac to 5 feet BSG - Cleared	No Monitoring Well Installed				1
2	0-5'		NA	NA	NA	NA	60	NA		Dry	BDL	Light brown fine to medium SAND with trace rounded Gravel (1/2-inch diameter), with some larger Rocks.					2
3																	3
4										Dry	BDL	Brown medium SAND with large boulders (very boney).					4
5																	5
6	5-10'		NA	NA	NA	NA	60	24"		Dry	BDL	7" Light brown medium to coarse SAND with little Gravel.					6
7										Dry	BDL	8" Dark brown fine SAND with little medium and coarse Sand, trace Silt.					7
8																	8
9										Dry	BDL	9" Brown medium SAND with Gravel, and trace coarse Sand.					9
10																	10
11	10-15'		NA	NA	NA	NA	60	41"		Dry	BDL	4" Brown medium SAND with Gravel and trace coarse Sand.					11
12																	12
13										Dry	BDL	5" Light brown medium SAND with trace coarse Sand and Gravel.					13
14										Dry	BDL	32" Brown medium SAND with trace Silt and Gravel					14
15																	15
16	15-20'		NA	NA	NA	NA	60	33"		Dry	BDL	8" Brown medium SAND with little coarse Sand, trace Gravel.					16
17										Dry	BDL	10" Weathered rock with little light brown fine to coarse SAND.					17
18																	18
19										Dry	BDL	6" Brown medium SAND with rock fragments.					19
20										Dry	BDL	7" Weathered Rock					20
21	20-25'		NA	NA	NA	NA	60	30"		Dry	BDL	Brown coarse SAND with some very coarse Sand and little Gravel, loose.					21
22																	22
23																	23
24																	24
25																	25
26	25-30'		NA	NA	NA	NA	60	27"		Dry	BDL	7" Brown coarse SAND with Gravel.					26
27												10" Light brown/ brown banded coarse SAND with trace Gravel.					27
28										Dry	BDL	10" Brown coarse to very coarse Sand with Gravel.					28
29																	29
30																	30
31	30-35'		NA	NA	NA	NA	60	27"		Dry	BDL	Light brown/brown banded coarse SAND with with some medium Sand and Gravel.					31
32																	32
33																	33
34																	34
35																	35

End of Boring at 35' BSG - No refusal Encountered

BDL = Below Instrument Detection Limits
BSG = Below Surface Grade

Project Number:	60158261-300	AECOM	**Boring Log**
Client:	Gulf Oil Limited Partnership 100 Crossing Boulevard Framingham, Massachusetts	2 Technology Park Drive Westford, Massachusetts (978) 589-3000	Use: Soil Investigation Boring Number: 1 Sheet: 1 of 1
Site Location:	Norman's Lakeville Gulf 7740 Hewlett Street New Hyde Park, New York		**SB02**
Project Manager:	J. Hadden	Field Technician: J. Newell	Date Started: 6/29/2010
Drilling Contractor:	Zebra	Driller: Luke	Date Completed: 6/29/2010
			Equipment: Geoprobe 6610DT Inside Diameter: 4.25 Outside Diameter:
			Well Depth: NA Screen Depth: NA Screen length: NA Water Depth: NA

Depth	Sample Depth	Sample Number	Blow Counts (24") 0-6	6-12	12-18	18-24	Pen (in.)	Rec (in.)	Sorting	Moisture	PID (ppm)	Field Identification	Description	Fill Mat.	Tube	Fill Mat.	Depth
1												Asphalt					1
												Air Vac to 5 feet BSG - Cleared					
2	0-5'		NA	NA	NA	NA	60	NA		Dry	BDL	Brown fine to medium SAND with trace Gravel					2
3																	3
4																	4
5																	5
6	5-10'		NA	NA	NA	NA	60	39		Dry	BDL	18" Brown medium to coarse SAND with little fine Sand, trace rounded Gravel.					6
7																	7
8												9" Weathered Rock.					8
9												12" Brown medium to coarse SAND.					9
10																	10
11	10-15'		NA	NA	NA	NA	60	60		Dry	BDL	26" Brown medium Sand with Gravel.					11
12												24" Brown coarse to very coarse brown SAND, with some subangular Gravel.					12
13																	13
14												10" Brown coarse to medium SAND.					14
15																	15
16	15-20'		NA	NA	NA	NA	60	60		Dry	BDL	Brown medium SAND with some coarse Sand, and subangular Gravel.					16
17																	17
18										Dry	BDL	Same as above					18
19																	19
20																	20
21	20-25'		NA	NA	NA	NA	60	58		Dry	BDL	Brown medium to coarse SAND with little Gravel.					21
22																	22
23																	23
24												Same as above					24
25																	25
26	25-30'		NA	NA	NA	NA	60	50		Dry	BDL	Brown medium SAND with some coarse Sand, trace Gravel					26
27																	27
28										Dry	BDL	Same as above.					28
29																	29
30																	30

End of Boring at 30' BSG - No refusal Encountered

BDL = Below Instrument Detection Limits
BSG = Below Surface Grade

Project Number:	60158261-300	AECOM	Boring Log
Client:	Guld Oil Limited Partnership 100 Crossing Boulevard Framingham, Massachusetts	2 Technology Park Drive Westford, Massachusetts (978) 589-3000	Use: Soil Investigation Boring Number: 1 Sheet: 1 of 1
Site Location:	Norman's Lakeville Gulf 7740 Hewlett Street New Hyde Park, New York		SB03
Project Manager: J. Haddan	Field Technician: J. Newell	Date Started: 6/28/2010	Equipment: Geoprobe 6610DT Inside Diameter: 4.25 Outside Diameter:
Drilling Contractor: Zebra	Driller: Luke	Date Completed: 6/29/2010	Well Depth: NA Screen Depth: NA Screen length: NA Water Depth: NA

Depth	Sample Depth	Sample Number	Blow Counts (24") 0-6	6-12	12-18	18-24	Pen (in.)	Rec (in.)	Bottling	Moisture	PID (ppm)	Field Identification	Description	Fil Mat.	Tube	Fil Mat.	Depth
1												Asphalt					1
2	0-5'		NA	NA	NA	NA	60	60		Dry	BDL	Air Vac to 5 feet BSC - cleared Brown fine to medium SAND with Gravel (backfill), and large rocks (2-5 inch diameter)					2
3																	3
4																	4
5																	5
6	5-10'		NA	NA	NA	NA	60	45		Dry	BDL	28" Brown fine SAND with little Silt, little medium to coarse Sand					6
7																	7
8																	8
9										Dry	BDL	17" Brown fine SAND with little Silt, trace Gravel					9
10																	10
11	10-15'		NA	NA	NA	NA	60	44		Dry	BDL	12" Brown Fine SAND with little Silt.					11
12																	12
13										Dry	BDL	32" Light brown medium to coarse SAND with little Gravel.					13
14																	14
15																	15
16	15-20'		NA	NA	NA	NA	60	18		Dry	BDL	Light brown/ brown medium to coarse SAND.					16
17																	17
18																	18
19																	19
20																	20
21	20-25'		NA	NA	NA	NA	60	60		Dry	BDL	20" Brown medium SAND with some coarse SAND, some weathered rock.					21
22																	22
23										Dry	BDL	13" Brown coarse to very coarse SAND .					23
24										Dry	BDL	27" Brown medium SAND with Gravel and weathered rock.					24
25																	25
26	25-30'		NA	NA	NA	NA	60	60		Dry	BDL	Brown medium to coarse SAND.					26
27																	27
28																	28
29																	29
30																	30
31	30-35'		NA	NA	NA	NA	60	50		Dry	BDL	45" Brown medium SAND with coarse Sand and Gravel.					31
32																	32
33										Dry	BDL	15" Brown coarse SAND with medium Sand.					33
34																	34
35																	35
36	35-40'		NA	NA	NA	NA	60	45		Dry	BDL	Brown medium SAND with little coarse SAND.					36
37																	37
38																	38
39																	39
40																	40

End of Boring at 40' BSG - No refusal Encountered

BDL = Below Instrument Detection Limits
BSG = Below Surface Grade

Appendix D

Photographs

AECOM

PHOTOGRAPHIC LOG

Client Name: Gulf Oil LP	Site Location: New Hyde Park, NY	Project No. 6015-8261

Photo No.	Date:
1	Aug-10

Direction Photo Taken:

Description:

Tank #1 - One 4,000-gallon steel gasoline UST



Photo No.	Date:
2	Aug-10

Direction Photo Taken:

Description:

Tank #2 - One 4,000-gallon steel gasoline UST



AECOM

PHOTOGRAPHIC LOG

Client Name: Gulf Oil LP	Site Location: New Hyde Park, NY	Project No. 6015-8261

Photo No.	Date:
3	Aug-10

Direction Photo Taken:

Description:

Tank #3 - One 4,000-gallon steel gasoline UST



Photo No.	Date:
4	Aug-10

Direction Photo Taken:

Description:

Tank #4 - One 4,000-gallon steel gasoline UST being placed on flatbed for off-site disposal



AECOM

PHOTOGRAPHIC LOG

Client Name: Gulf Oil LP	Site Location: New Hyde Park, NY	Project No. 6015-8261

Photo No.	Date:
5	Aug-10

Direction Photo Taken:

Description:

Tank #5 - One 4,000-gallon steel gasoline UST encased in concrete



Photo No.	Date:
6	Aug-10

Direction Photo Taken:

Description:

Concrete being separated from Tank #5 with a jackhammer



AECOM

PHOTOGRAPHIC LOG

Client Name: Gulf Oil LP	Site Location: New Hyde Park, NY	Project No. 6015-8261

Photo No.	Date:
7	Aug-10

Direction Photo Taken:

Description:

Tank #5 completely removed from concrete encasement.



Photo No.	Date:
8	Aug-10

Direction Photo Taken:

Description:

Condition of tank grave upon removal of Tank #5. No visual impacts noted.



AECOM

PHOTOGRAPHIC LOG

Client Name: Gulf Oil LP	Site Location: New Hyde Park, NY	Project No. 6015-8261

Photo No.	Date:
9	Aug-10

Direction Photo Taken:

Description:

Southern wall of UST excavation.



Photo No.	Date:
10	Aug-10

Direction Photo Taken:

Description:

Northern portion of UST excavation in the area of Tanks #1 and 2. No visual impacts noted.



AECOM

PHOTOGRAPHIC LOG

Client Name: Gulf Oil LP	Site Location: New Hyde Park, NY	Project No. 6015-8261

Photo No.	Date:
11	Aug-10

Direction Photo Taken:

Description:

UST excavation in area of Tank #3 and 4.



Photo No.	Date:
12	Aug-10

Direction Photo Taken:

Description:

Piping removed from the ground.



AECOM

PHOTOGRAPHIC LOG

Client Name: Gulf Oil LP	Site Location: New Hyde Park, NY	Project No. 6015-8261

Photo No.	Date:
13	Aug-10

Direction Photo Taken:

Description:

Excavation limited by canopy footing. Poly-liner placed at limits of excavation in the area of Tanks #1 and 2.



Photo No.	Date:
14	Aug-10

Direction Photo Taken:

Description:

Excavation in the area of Tanks #3, 4 and 5. Removed soils in UST area to a depth of 8 to 15 feet BSG.



AECOM

PHOTOGRAPHIC LOG

Client Name: Gulf Oil LP	Site Location: New Hyde Park, NY	Project No. 6015-8261

Photo No. 15	Date: Aug-10

Direction Photo Taken:

Description:

Hydraulic Lifts were removed from Service Bays 1, 2 and 3.



Photo No. 16	Date: Aug-10

Direction Photo Taken:

Description:

Impacted soils were live-loaded and shipped off site for disposal by Soil Safe.



Appendix B

Laboratory Analytical Reports

Report Date:
01-Oct-10 17:04

☑ Final Report
☐ Re-Issued Report
☐ Revised Report

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

Laboratory Report

AECOM Environment
2 Technology Park Drive
Westford, MA 01886-3140
Attn: Jennifer Hadden

Project: Norman's Lakeville Gulf-New Hyde Park, NY
Project #: 60158261-400

Laboratory ID	Client Sample ID	Matrix	Date Sampled	Date Received
SB17976-01	S-1 (7')	Soil	09-Sep-10 12:30	10-Sep-10 14:55

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the sample(s) as received.
All applicable NELAC requirements have been met.

Massachusetts # M-MA138/MA1110
Connecticut # PH-0777
Florida # E87600/E87936
Maine # MA138
New Hampshire # 2538
New Jersey # MA011/MA012
New York # 11393/11840
Pennsylvania # 68-04426/68-02924
Rhode Island # 98
USDA # S-51435

ACCREDITED IN ACCORDANCE WITH nelac

Authorized by:

Hanibal C. Tayeh, Ph.D.
President/Laboratory Director

Technical Reviewer's Initial:

Spectrum Analytical holds certification in the State of New York for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of New York does not offer certification for all analytes.
Please note that this report contains 14 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory work(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Spectrum Analytical, Inc.

Spectrum Analytical, Inc. is a NELAC accredited laboratory organization and meets NELAC testing standards. Use of the NELAC logo however does [illegible] Massachusetts, New Hampshire, New Jersey and Florida. All analytical work for Volatile Organic and Air analysis are [illegible]

CASE NARRATIVE:

The sample temperature upon receipt by Spectrum Analytical courier was recorded as 3.0 degrees Celsius. The samples were transported on ice to the laboratory facility and the temperature was recorded at 2.6 degrees Celsius upon receipt at the laboratory. Please refer to the Chain of Custody for details specific to sample receipt times.

An infrared thermometer with a tolerance of +/- 2.0 degrees Celsius was used immediately upon receipt of the samples.

If a Matrix Spike (MS), Matrix Spike Duplicate (MSD) or Duplicate (DUP) was not requested on the Chain of Custody, method criteria may have been fulfilled with a source sample not of this Sample Delivery Group.

All VOC soils samples submitted and analyzed in methanol will have a minimum dilution factor of 50. This is the minimum amount of solvent allowed on the instrumentation without causing interference. Additional dilution factors may be required to keep analyte concentration within instrument calibration.

See below for any non-conformances and issues relating to quality control samples and/or sample analysis/matrix.

SW846 8260B/C

Calibration:

1008010

Analyte quantified by quadratic equation type calibration.

1,2,3-Trichlorobenzene
1,2,4-Trichlorobenzene
[illegible]
1,2-Dibromoethane (EDB)
2-Hexanone (MBK)
4-Methyl-2-pentanone (MIBK)
Bromodichloromethane
Bromoform
Carbon disulfide
cis-1,3-Dichloropropene
[illegible]
Naphthalene
trans-1,3-Dichloropropene

This affected the following samples:

1019536-BLK1
1019536-BS1
[illegible]
S007387-ICV1
S008459-CCV1
S-1 (7)

S007387-ICV1

Analyte percent recovery is outside individual acceptance criteria (70-130).

Methyl tert-butyl ether (221%)

This affected the following samples:

1019536-BLK1
1019536-BS1
[illegible]
S008459-CCV1
S-1 (7)

Laboratory Control Samples:

SW846 8260B/C

Laboratory Control Samples:

1019536 BSD

1,4-Dioxane RPD 27% (25%) is outside individual acceptance criteria, but within overall method allowances.

1019536-BSD1

The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.

1,4-Dioxane

Samples:

S008459-CCV1

Analyte percent difference is outside individual acceptance criteria (20), but within overall method allowances.

2,2-Dichloropropane (26.9%)
Tert-Butanol / butyl alcohol (25.0%)

Analyte percent drift is outside individual acceptance criteria (20), but within overall method allowances.

n-Butylbenzene (-21.2%)

This affected the following samples:

1019536-BLK1
1019536-BS1
1019536-BSD1
S-1 (7')

SB17976-01 *S-1 (7')*

Elevated Reporting Limits due to the presence of high levels of non-target analytes.

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
S-1 (7') SB17976-01	60158261-400	Soil	09-Sep-10 12:30	10-Sep-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Organic Compounds												
	VOC Extraction	Field extracted		N/A		1	SW846 5035 Soil Extraction	10-Sep-10	10-Sep-10	AR	1010551	
Volatile Organic Compounds			R05									
Prepared by method SW846 5030 Soil (high level)						Initial weight: 20.21 g						
76-13-1	1,1,2-Trichlorotrifluoroethane (Freon 113)	BRL		µg/kg dry	251	250	SW846 8260B/C	10-Sep-10	10-Sep-10	eg	1010508	X
67-64-1	Acetone	BRL		ug/kg dry	2510	250	"	"	"	"	"	X
107-13-1	Acrylonitrile	BRL		ug/kg dry	251	250	"	"	"	"	"	X
71-43-2	Benzene	282		ug/kg dry	251	250	"	"	"	"	"	X
108-86-1	Bromobenzene	BRL		µg/kg dry	251	250	"	"	"	"	"	X
74-97-5	Bromochloromethane	BRL		ug/kg dry	251	250	"	"	"	"	"	X
75-27-4	Bromodichloromethane	BRL		µg/kg dry	251	250	"	"	"	"	"	X
75-25-2	Bromoform	BRL		µg/kg dry	251	250	"	"	"	"	"	X
74-83-9	Bromomethane	BRL		ug/kg dry	503	250	"	"	"	"	"	X
78-93-3	2-Butanone (MEK)	BRL		ug/kg dry	2510	250	"	"	"	"	"	X
104-51-8	n-Butylbenzene	556		µg/kg dry	251	250	"	"	"	"	"	X
135-98-8	sec-Butylbenzene	317		ug/kg dry	251	250	"	"	"	"	"	X
98-06-6	tert-Butylbenzene	BRL		µg/kg dry	251	250	"	"	"	"	"	X
75-15-0	Carbon disulfide	BRL		ug/kg dry	503	250	"	"	"	"	"	X
56-23-5	Carbon tetrachloride	BRL		ug/kg dry	251	250	"	"	"	"	"	X
108-90-7	Chlorobenzene	BRL		ug/kg dry	251	250	"	"	"	"	"	X
75-00-3	Chloroethane	BRL		µg/kg dry	503	250	"	"	"	"	"	X
67-66-3	Chloroform	BRL		ug/kg dry	251	250	"	"	"	"	"	X
74-87-3	Chloromethane	BRL		ug/kg dry	503	250	"	"	"	"	"	X
95-49-8	2-Chlorotoluene	BRL		µg/kg dry	251	250	"	"	"	"	"	X
106-43-4	4-Chlorotoluene	BRL		µg/kg dry	251	250	"	"	"	"	"	X
96-12-8	1,2 Dibromo-3-chloropropane	BRL		ug/kg dry	503	250	"	"	"	"	"	X
124-48-1	Dibromochloromethane	BRL		µg/kg dry	251	250	"	"	"	"	"	X
106-93-4	1,2 Dibromoethane (EDB)	BRL		ug/kg dry	251	250	"	"	"	"	"	X
74-95-3	Dibromomethane	BRL		µg/kg dry	251	250	"	"	"	"	"	X
95-50-1	1,2-Dichlorobenzene	BRL		µg/kg dry	251	250	"	"	"	"	"	X
541-73-1	1,3 Dichlorobenzene	BRL		µg/kg dry	251	250	"	"	"	"	"	X
106-46-7	1,4-Dichlorobenzene	BRL		ug/kg dry	251	250	"	"	"	"	"	X
75-71-8	Dichlorodifluoromethane (Freon12)	BRL		ug/kg dry	503	250	"	"	"	"	"	X
75-34-3	1,1 Dichloroethane	BRL		µg/kg dry	251	250	"	"	"	"	"	X
107-06-2	1,2-Dichloroethane	BRL		µg/kg dry	251	250	"	"	"	"	"	X
75-35-4	1,1-Dichloroethene	BRL		µg/kg dry	251	250	"	"	"	"	"	X
156-59-2	cis-1,2 Dichloroethene	BRL		µg/kg dry	251	250	"	"	"	"	"	X
156-60-5	trans-1,2 Dichloroethene	BRL		ug/kg dry	251	250	"	"	"	"	"	X
78-87-5	1,2-Dichloropropane	BRL		µg/kg dry	251	250	"	"	"	"	"	X
142-28-9	1,3 Dichloropropane	BRL		µg/kg dry	251	250	"	"	"	"	"	X
594-20-7	2,2-Dichloropropane	BRL		µg/kg dry	251	250	"	"	"	"	"	X
563-58-6	1,1-Dichloropropene	BRL		µg/kg dry	251	250	"	"	"	"	"	X
10061-01-5	cis-1,3 Dichloropropene	BRL		µg/kg dry	251	250	"	"	"	"	"	X
10061-02-6	trans-1,3-Dichloropropene	BRL		µg/kg dry	251	250	"	"	"	"	"	X
100-41-4	Ethylbenzene	1,510		µg/kg dry	251	250	"	"	"	"	"	X
87-68-3	Hexachlorobutadiene	BRL		µg/kg dry	251	250	"	"	"	"	"	X
591-78-6	2-Hexanone (MBK)	BRL		µg/kg dry	2510	250	"	"	"	"	"	X

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
S-1 (7') SB17976-01	60158261-400	Soil	09-Sep-10 12:30	10-Sep-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Organic Compounds												
Volatile Organic Compounds			B66									
Prepared by method SW846 5030 Soil (high level)					Initial weight: 20.21 g							
98-82-8	Isopropylbenzene	329		µg/kg dry	251	250	SW846 8260B/C	15-Sep-10	15-Sep-10	eg	1019536	X
99-87-6	4-Isopropyltoluene	BRL		µg/kg dry	251	250	"	"	"	"	"	X
1634-04-4	Methyl tert-butyl ether	BRL		µg/kg dry	251	250	"	"	"	"	"	X
108-10-1	4-Methyl-2-pentanone (MIBK)	BRL		µg/kg dry	2510	250	"	"	"	"	"	X
75-09-2	Methylene chloride	BRL		µg/kg dry	503	250	"	"	"	"	"	X
91-20-3	Naphthalene	2,060		µg/kg dry	251	250	"	"	"	"	"	X
103-65-1	n-Propylbenzene	983		µg/kg dry	251	250	"	"	"	"	"	X
100-42-5	Styrene	BRL		µg/kg dry	251	250	"	"	"	"	"	X
630-20-6	1,1,1,2-Tetrachloroethane	BRL		µg/kg dry	251	250	"	"	"	"	"	X
79-34-5	1,1,2,2-Tetrachloroethane	BRL		µg/kg dry	251	250	"	"	"	"	"	X
127-18-4	Tetrachloroethene	BRL		µg/kg dry	251	250	"	"	"	"	"	X
108-88-3	Toluene	2,080		µg/kg dry	251	250	"	"	"	"	"	X
87-61-6	1,2,3-Trichlorobenzene	BRL		µg/kg dry	251	250	"	"	"	"	"	
120-82-1	1,2,4-Trichlorobenzene	BRL		µg/kg dry	251	250	"	"	"	"	"	X
108-70-3	1,3,5-Trichlorobenzene	BRL		µg/kg dry	251	250	"	"	"	"	"	
71-55-6	1,1,1-Trichloroethane	BRL		µg/kg dry	251	250	"	"	"	"	"	X
79-00-5	1,1,2-Trichloroethane	BRL		µg/kg dry	251	250	"	"	"	"	"	X
79-01-6	Trichloroethene	BRL		µg/kg dry	251	250	"	"	"	"	"	X
75-69-4	Trichlorofluoromethane (Freon 11)	BRL		µg/kg dry	251	250	"	"	"	"	"	X
96-18-4	1,2,3-Trichloropropane	BRL		µg/kg dry	251	250	"	"	"	"	"	X
95-63-6	1,2,4-Trimethylbenzene	9,960		µg/kg dry	251	250	"	"	"	"	"	X
108-67-8	1,3,5-Trimethylbenzene	2,810		µg/kg dry	251	250	"	"	"	"	"	X
75-01-4	Vinyl chloride	BRL		µg/kg dry	251	250	"	"	"	"	"	X
179401-23-1	m,p-Xylene	10,900		µg/kg dry	503	250	"	"	"	"	"	X
95-47-6	o-Xylene	3,580		µg/kg dry	251	250	"	"	"	"	"	X
109-99-9	Tetrahydrofuran	BRL		µg/kg dry	503	250	"	"	"	"	"	
60-29-7	Ethyl ether	BRL		µg/kg dry	251	250	"	"	"	"	"	
994-05-8	Tert-amyl methyl ether	BRL		µg/kg dry	251	250	"	"	"	"	"	
637-92-3	Ethyl tert-butyl ether	BRL		µg/kg dry	251	250	"	"	"	"	"	
108-20-3	Di-isopropyl ether	BRL		µg/kg dry	251	250	"	"	"	"	"	
75-65-0	Tert-Butanol / butyl alcohol	BRL		µg/kg dry	2510	250	"	"	"	"	"	X
123-91-1	1,4-Dioxane	BRL		µg/kg dry	5020	250	"	"	"	"	"	X
110-57-6	trans-1,4-Dichloro-2-butene	BRL		µg/kg dry	1260	250	"	"	"	"	"	
64-17-5	Ethanol	BRL		µg/kg dry	101000	250	"	"	"	"	"	
Surrogate recoveries												
460-00-4	*4-Bromofluorobenzene*	86			70-130 %		"	"	"	"	"	
2037-26-5	*Toluene-d8*	119			70-130 %		"	"	"	"	"	
17060-07-0	*1,2-Dichloroethane-d4*	101			70-130 %		"	"	"	"	"	
1868-53-7	*Dibromofluoromethane*	93			70-130 %		"	"	"	"	"	
Extractable Petroleum Hydrocarbons												
TPH 8100 by GC												
Prepared by method SW846 3545A												
86290-81-5	Gasoline	BRL		mg/kg dry	30.5	1	SW846 8015B/M	14-Sep-10	15-Sep-10	SHB	1019410	
68476-30-2	Fuel Oil #2	BRL		mg/kg dry	30.5	1	"	"	"	"	"	

This laboratory report is not valid without an authorized signature on the cover page.

* Reportable Detection Limit BRL = Below Reporting Limit

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
S-1 (7') SB17976-01	60158261-400	Soil	09-Sep-10 12:30	10-Sep-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Extractable Petroleum Hydrocarbons												
TPH 8100 by GC												
Prepared by method SW846 3545A												
68476-31-3	Fuel Oil #4	BRL		mg/kg dry	30.5	1	+SW846 8100Mod.	14-Sep-10	15-Sep-10	SHM	1019440	
68553-00-4	Fuel Oil #6	BRL		mg/kg dry	30.5	1	"	"	"	"	"	
64742-65-0	Motor Oil	Calculated as		mg/kg dry	30.5	1	"	"	"	"	"	
8032-32-4	Ligroin	BRL		mg/kg dry	30.5	1	"	"	"	"	"	
8008-20-6	Aviation Fuel	BRL		mg/kg dry	30.5	1	"	"	"	"	"	
	Hydraulic Oil	BRL		mg/kg dry	30.5	1	"	"	"	"	"	
	Dielectric Fluid	BRL		mg/kg dry	30.5	1	"	"	"	"	"	
	Unidentified	724		mg/kg dry	30.5	1	"	"	"	"	"	
	Other Oil	Calculated as		mg/kg dry	30.5	1	"	"	"	"	"	
	Total Petroleum Hydrocarbons	724		mg/kg dry	30.5	1	"	"	"	"	"	
Surrogate Recoveries												
3386-33-2	*1-Chlorooctadecane*	*80*			*40-140 %*		"	"	"	"	"	
General Chemistry Parameters												
	% Solids	96.9		%		1	SM2540 G Mod.	10-Sep-10	10-Sep-10	BD	1019330	

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1019536 - SW846 5030 Soil (high level)										
Blank (1019536-BLK1)					Prepared & Analyzed: 15-Sep-10					
1,1,2-Trichlorotrifluoroethane (Freon 113)	BRL		µg/kg wet	50.0						
Acetone	BRL		µg/kg wet	500						
Acrylonitrile	BRL		µg/kg wet	50.0						
Benzene	BRL		µg/kg wet	50.0						
Bromobenzene	BRL		µg/kg wet	50.0						
Bromochloromethane	BRL		µg/kg wet	50.0						
Bromodichloromethane	BRL		µg/kg wet	50.0						
Bromoform	BRL		µg/kg wet	50.0						
Bromomethane	BRL		µg/kg wet	100						
2-Butanone (MEK)	BRL		µg/kg wet	500						
n-Butylbenzene	BRL		µg/kg wet	50.0						
sec-Butylbenzene	BRL		µg/kg wet	50.0						
tert-Butylbenzene	BRL		µg/kg wet	50.0						
Carbon disulfide	BRL		µg/kg wet	100						
Carbon tetrachloride	BRL		µg/kg wet	50.0						
Chlorobenzene	BRL		µg/kg wet	50.0						
Chloroethane	BRL		µg/kg wet	100						
Chloroform	BRL		µg/kg wet	50.0						
Chloromethane	BRL		µg/kg wet	100						
2-Chlorotoluene	BRL		µg/kg wet	50.0						
4-Chlorotoluene	BRL		µg/kg wet	50.0						
1,2-Dibromo-3-chloropropane	BRL		µg/kg wet	100						
Dibromochloromethane	BRL		µg/kg wet	50.0						
1,2-Dibromoethane (EDB)	BRL		µg/kg wet	50.0						
Dibromomethane	BRL		µg/kg wet	50.0						
1,2-Dichlorobenzene	BRL		µg/kg wet	50.0						
1,3-Dichlorobenzene	BRL		µg/kg wet	50.0						
1,4-Dichlorobenzene	BRL		µg/kg wet	50.0						
Dichlorodifluoromethane (Freon12)	BRL		µg/kg wet	100						
1,1-Dichloroethane	BRL		µg/kg wet	50.0						
1,2-Dichloroethane	BRL		µg/kg wet	50.0						
1,1-Dichloroethene	BRL		µg/kg wet	50.0						
cis-1,2-Dichloroethene	BRL		µg/kg wet	50.0						
trans-1,2-Dichloroethene	BRL		µg/kg wet	50.0						
1,2-Dichloropropane	BRL		µg/kg wet	50.0						
1,3-Dichloropropane	BRL		µg/kg wet	50.0						
2,2-Dichloropropane	BRL		µg/kg wet	50.0						
1,1-Dichloropropene	BRL		µg/kg wet	50.0						
cis-1,3-Dichloropropene	BRL		µg/kg wet	50.0						
trans-1,3-Dichloropropene	BRL		µg/kg wet	50.0						
Ethylbenzene	BRL		µg/kg wet	50.0						
Hexachlorobutadiene	BRL		µg/kg wet	50.0						
2-Hexanone (MBK)	BRL		µg/kg wet	500						
Isopropylbenzene	BRL		µg/kg wet	50.0						
4-Isopropyltoluene	BRL		µg/kg wet	50.0						
Methyl tert-butyl ether	BRL		µg/kg wet	50.0						
4-Methyl-2-pentanone (MIBK)	BRL		µg/kg wet	500						
Methylene chloride	BRL		µg/kg wet	100						
Naphthalene	BRL		µg/kg wet	50.0						
n-Propylbenzene	BRL		µg/kg wet	50.0						
Styrene	BRL		µg/kg wet	50.0						
1,1,1,2-Tetrachloroethane	BRL		µg/kg wet	50.0						

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1019536 - SW846 5030 Soil (high level)										
Blank (1019536-BLK1)					Prepared & Analyzed: 15-Sep-10					
1,1,2,2-Tetrachloroethane	BRL		ug/kg wet	50.0						
Tetrachloroethene	BRL		µg/kg wet	50.0						
Toluene	BRL		ug/kg wet	50.0						
1,2,3-Trichlorobenzene	BRL		ug/kg wet	50.0						
1,2,4-Trichlorobenzene	BRL		µg/kg wet	50.0						
1,3,5-Trichlorobenzene	BRL		ug/kg wet	50.0						
1,1,1-Trichloroethane	BRL		ug/kg wet	50.0						
1,1,2-Trichloroethane	BRL		µg/kg wet	50.0						
Trichloroethene	BRL		ug/kg wet	50.0						
Trichlorofluoromethane (Freon 11)	BRL		µg/kg wet	50.0						
1,2,3-Trichloropropane	BRL		µg/kg wet	50.0						
1,2,4-Trimethylbenzene	BRL		ug/kg wet	50.0						
1,3,5-Trimethylbenzene	BRL		µg/kg wet	50.0						
Vinyl chloride	BRL		µg/kg wet	50.0						
m,p-Xylene	BRL		ug/kg wet	100						
o-Xylene	BRL		ug/kg wet	50.0						
Tetrahydrofuran	BRL		µg/kg wet	100						
Ethyl ether	BRL		ug/kg wet	50.0						
Tert-amyl methyl ether	BRL		µg/kg wet	50.0						
Ethyl tert-butyl ether	BRL		µg/kg wet	50.0						
Diisopropyl ether	BRL		ug/kg wet	50.0						
Tert-Butanol / butyl alcohol	BRL		µg/kg wet	500						
1,4-Dioxane	BRL		µg/kg wet	1000						
trans-1,4-Dichloro-2-butene	BRL		ug/kg wet	250						
Ethanol	BRL		µg/kg wet	20000						
Surrogate: 4-Bromofluorobenzene	24.5		ug/kg wet		30.0		82	*70-130*		
Surrogate: Toluene-d8	29.0		µg/kg wet		30.0		97	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	28.6		µg/kg wet		30.0		95	*70-130*		
Surrogate: Dibromofluoromethane	28.6		ug/kg wet		30.0		95	*70-130*		
LCS (1019536-BS1)					Prepared & Analyzed: 15-Sep-10					
1,1,2-Trichlorotrifluoroethane (Freon 113)	15.3		µg/kg wet		20.0		77	70-130		
Acetone	19.6		ug/kg wet		20.0		98	70-130		
Acrylonitrile	18.2		µg/kg wet		20.0		91	70-130		
Benzene	18.9		µg/kg wet		20.0		95	70-130		
Bromobenzene	20.6		ug/kg wet		20.0		103	70-130		
Bromochloromethane	19.8		µg/kg wet		20.0		99	70-130		
Bromodichloromethane	15.9		µg/kg wet		20.0		79	70-130		
Bromoform	21.8		ug/kg wet		20.0		109	70-130		
Bromomethane	17.0		µg/kg wet		20.0		85	70-130		
2-Butanone (MEK)	18.1		µg/kg wet		20.0		90	70-130		
n-Butylbenzene	14.8		ug/kg wet		20.0		74	70-130		
sec-Butylbenzene	19.1		µg/kg wet		20.0		95	70-130		
tert-Butylbenzene	19.0		µg/kg wet		20.0		95	70-130		
Carbon disulfide	18.2		ug/kg wet		20.0		91	70-130		
Carbon tetrachloride	19.3		µg/kg wet		20.0		97	70-130		
Chlorobenzene	19.2		µg/kg wet		20.0		96	70-130		
Chloroethane	16.8		ug/kg wet		20.0		84	70-130		
Chloroform	16.3		µg/kg wet		20.0		81	70-130		
Chloromethane	19.9		µg/kg wet		20.0		100	70-130		
2-Chlorotoluene	22.1		ug/kg wet		20.0		111	70-130		
4-Chlorotoluene	18.5		µg/kg wet		20.0		92	70-130		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1019536 - SW846 5030 Soil (high level)										
LCS (1019536-BS1)					Prepared & Analyzed: 15-Feb-19					
1,2-Dibromo-3-chloropropane	19.8		µg/kg wet		20.0		99	70-130		
Dibromochloromethane	19.0		µg/kg wet		20.0		95	70-130		
1,2-Dibromoethane (EDB)	18.3		µg/kg wet		20.0		91	70-130		
Dibromomethane	15.6		µg/kg wet		20.0		78	70-130		
1,2-Dichlorobenzene	19.0		µg/kg wet		20.0		95	70-130		
1,3-Dichlorobenzene	20.9		µg/kg wet		20.0		105	70-130		
1,4-Dichlorobenzene	16.8		µg/kg wet		20.0		84	70-130		
Dichlorodifluoromethane (Freon12)	19.0		µg/kg wet		20.0		95	70-130		
1,1-Dichloroethane	19.2		µg/kg wet		20.0		96	70-130		
1,2-Dichloroethane	15.3		µg/kg wet		20.0		77	70-130		
1,1-Dichloroethene	19.6		µg/kg wet		20.0		98	70-130		
cis-1,2-Dichloroethene	17.2		µg/kg wet		20.0		86	70-130		
trans-1,2-Dichloroethene	18.3		µg/kg wet		20.0		92	70-130		
1,2-Dichloropropane	15.9		µg/kg wet		20.0		79	70-130		
1,3-Dichloropropane	18.4		µg/kg wet		20.0		92	70-130		
2,2-Dichloropropane	22.6		µg/kg wet		20.0		113	70-130		
1,1-Dichloropropene	18.7		µg/kg wet		20.0		93	70-130		
cis-1,3-Dichloropropene	21.4		µg/kg wet		20.0		107	70-130		
trans-1,3-Dichloropropene	20.2		µg/kg wet		20.0		101	70-130		
Ethylbenzene	18.1		µg/kg wet		20.0		91	70-130		
Hexachlorobutadiene	20.0		µg/kg wet		20.0		100	70-130		
2-Hexanone (MBK)	20.4		µg/kg wet		20.0		102	70-130		
Isopropylbenzene	21.4		µg/kg wet		20.0		107	70-130		
4-Isopropyltoluene	16.5		µg/kg wet		20.0		83	70-130		
Methyl tert-butyl ether	20.4		µg/kg wet		20.0		102	70-130		
4-Methyl-2-pentanone (MIBK)	19.9		µg/kg wet		20.0		99	70-130		
Methylene chloride	18.1		µg/kg wet		20.0		91	70-130		
Naphthalene	20.7		µg/kg wet		20.0		104	70-130		
n-Propylbenzene	17.0		µg/kg wet		20.0		85	70-130		
Styrene	17.5		µg/kg wet		20.0		88	70-130		
1,1,1,2-Tetrachloroethane	21.3		µg/kg wet		20.0		106	70-130		
1,1,2,2-Tetrachloroethane	20.0		µg/kg wet		20.0		100	70-130		
Tetrachloroethene	19.4		µg/kg wet		20.0		97	70-130		
Toluene	19.0		µg/kg wet		20.0		95	70-130		
1,2,3-Trichlorobenzene	19.6		µg/kg wet		20.0		98	70-130		
1,2,4-Trichlorobenzene	20.0		µg/kg wet		20.0		100	70-130		
1,3,5-Trichlorobenzene	20.5		µg/kg wet		20.0		102	70-130		
1,1,1-Trichloroethane	17.6		µg/kg wet		20.0		89	70-130		
1,1,2-Trichloroethane	18.8		µg/kg wet		20.0		94	70-130		
Trichloroethene	15.7		µg/kg wet		20.0		79	70-130		
Trichlorofluoromethane (Freon 11)	16.4		µg/kg wet		20.0		82	70-130		
1,2,3-Trichloropropane	19.1		µg/kg wet		20.0		96	70-130		
1,2,4-Trimethylbenzene	18.3		µg/kg wet		20.0		92	70-130		
1,3,5-Trimethylbenzene	18.1		µg/kg wet		20.0		91	70-130		
Vinyl chloride	20.2		µg/kg wet		20.0		101	70-130		
m,p-Xylene	38.5		µg/kg wet		40.0		96	70-130		
o-Xylene	19.8		µg/kg wet		20.0		99	70-130		
Tetrahydrofuran	20.0		µg/kg wet		20.0		100	70-130		
Ethyl ether	18.9		µg/kg wet		20.0		94	70-130		
Tert-amyl methyl ether	21.4		µg/kg wet		20.0		107	70-130		
Ethyl tert-butyl ether	21.0		µg/kg wet		20.0		105	70-130		
Di-isopropyl ether	17.8		µg/kg wet		20.0		89	70-130		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1019536 - SW846 5030 Soil (high level)										
LCS (1019536-BS1)					Prepared & Analyzed: 15-Sep-10					
Tert-Butanol / butyl alcohol	217		ug/kg wet		200		108	70-130		
1,4-Dioxane	174		µg/kg wet		200		87	70-130		
trans-1,4-Dichloro-2-butene	19.3		ug/kg wet		20.0		96	70-130		
Ethanol	357		ug/kg wet		400		89	70-130		
Surrogate: 4-Bromofluorobenzene	*31.8*		µg/kg wet		*30.0*		*106*	*70-130*		
Surrogate: Toluene-d8	*31.2*		µg/kg wet		*30.0*		*104*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	24.3		µg/kg wet		30.0		*81*	70-130		
Surrogate: Dibromofluoromethane	26.6		µg/kg wet		*30.0*		*89*	*70-130*		
LCS Dup (1019536-BSD1)					Prepared & Analyzed: 15-Sep-10					
1,1,2-Trichlorotrifluoroethane (Freon 113)	18.3		µg/kg wet		20.0		91	70-130	18	25
Acetone	18.9		ug/kg wet		20.0		94	70-130	4	50
Acrylonitrile	17.8		ug/kg wet		20.0		89	70-130	2	25
Benzene	18.3		µg/kg wet		20.0		92	70-130	3	25
Bromobenzene	20.4		ug/kg wet		20.0		102	70-130	1	25
Bromochloromethane	17.1		ug/kg wet		20.0		85	70-130	15	25
Bromodichloromethane	18.1		µg/kg wet		20.0		90	70-130	13	25
Bromoform	21.9		ug/kg wet		20.0		109	70-130	0.1	25
Bromomethane	16.3		ug/kg wet		20.0		81	70-130	4	50
2-Butanone (MEK)	18.5		µg/kg wet		20.0		93	70-130	3	50
n-Butylbenzene	14.3		ug/kg wet		20.0		72	70-130	3	25
sec-Butylbenzene	18.9		ug/kg wet		20.0		95	70-130	0.7	25
tert-Butylbenzene	19.1		µg/kg wet		20.0		95	70-130	0.5	25
Carbon disulfide	20.2		ug/kg wet		20.0		101	70-130	10	25
Carbon tetrachloride	18.2		ug/kg wet		20.0		91	70-130	6	25
Chlorobenzene	18.5		µg/kg wet		20.0		92	70-130	4	25
Chloroethane	17.4		ug/kg wet		20.0		87	70-130	6	50
Chloroform	15.0		ug/kg wet		20.0		75	70-130	8	25
Chloromethane	19.5		µg/kg wet		20.0		98	70-130	2	25
2-Chlorotoluene	20.4		ug/kg wet		20.0		102	70-130	6	25
4-Chlorotoluene	17.9		ug/kg wet		20.0		89	70-130	3	25
1,2-Dibromo-3-chloropropane	18.2		µg/kg wet		20.0		91	70-130	8	25
Dibromochloromethane	15.6		ug/kg wet		20.0		90	70-130	5	50
1,2-Dibromoethane (EDB)	17.9		ug/kg wet		20.0		90	70-130	2	25
Dibromomethane	15.5		µg/kg wet		20.0		78	70-130	0.1	25
1,2-Dichlorobenzene	18.2		ug/kg wet		20.0		91	70-130	4	25
1,3-Dichlorobenzene	21.0		ug/kg wet		20.0		105	70-130	0.2	25
1,4-Dichlorobenzene	16.6		µg/kg wet		20.0		83	70-130	0.9	25
Dichlorodifluoromethane (Freon 12)	19.3		ug/kg wet		20.0		97	70-130	2	50
1,1-Dichloroethane	18.2		ug/kg wet		20.0		91	70-130	6	25
1,2-Dichloroethane	17.2		µg/kg wet		20.0		86	70-130	11	25
1,1-Dichloroethene	19.0		ug/kg wet		20.0		95	70-130	3	25
cis-1,2-Dichloroethene	18.4		µg/kg wet		20.0		92	70-130	7	25
trans-1,2-Dichloroethene	18.4		µg/kg wet		20.0		92	70-130	0.4	25
1,2-Dichloropropane	16.8		ug/kg wet		20.0		84	70-130	6	25
1,3-Dichloropropane	17.8		µg/kg wet		20.0		89	70-130	3	25
2,2-Dichloropropane	21.7		µg/kg wet		20.0		108	70-130	4	25
1,1-Dichloropropene	18.5		ug/kg wet		20.0		92	70-130	0.9	25
cis-1,3-Dichloropropene	21.4		ug/kg wet		20.0		107	70-130	0.2	25
trans-1,3-Dichloropropene	20.2		µg/kg wet		20.0		101	70-130	0.05	25
Ethylbenzene	17.5		ug/kg wet		20.0		88	70-130	4	25
Hexachlorobutadiene	18.7		µg/kg wet		20.0		93	70-130	7	50

Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1019536 - SW846 5030 Soil (high level)										
LCS Dup (1019536-BSD1)					Prepared & Analyzed: 15-Sep-10					
2-Hexanone (MBK)	18.3		ug/kg wet		20.0		92	70-130	11	25
Isopropylbenzene	21.4		µg/kg wet		20.0		107	70-130	0.05	25
4-Isopropyltoluene	16.0		µg/kg wet		20.0		80	70-130	6	25
Methyl tert-butyl ether	20.2		ug/kg wet		20.0		101	70-130	1	25
4-Methyl-2-pentanone (MIBK)	21.2		µg/kg wet		20.0		106	70-130	6	50
Methylene chloride	17.8		µg/kg wet		20.0		89	70-130	2	25
Naphthalene	20.4		ug/kg wet		20.0		102	70-130	2	25
n-Propylbenzene	16.5		µg/kg wet		20.0		82	70-130	4	25
Styrene	17.4		µg/kg wet		20.0		87	70-130	0.7	25
1,1,1,2-Tetrachloroethane	21.0		ug/kg wet		20.0		105	70-130	1	25
1,1,2,2-Tetrachloroethane	18.8		µg/kg wet		20.0		94	70-130	7	25
Tetrachloroethene	19.2		µg/kg wet		20.0		96	70-130	0.6	25
Toluene	18.4		ug/kg wet		20.0		92	70-130	3	25
1,2,3-Trichlorobenzene	19.0		µg/kg wet		20.0		95	70-130	3	25
1,2,4-Trichlorobenzene	20.3		µg/kg wet		20.0		101	70-130	1	25
1,3,5-Trichlorobenzene	20.2		ug/kg wet		20.0		101	70-130	2	25
1,1,1-Trichloroethane	19.5		µg/kg wet		20.0		98	70-130	9	25
1,1,2-Trichloroethane	18.2		µg/kg wet		20.0		91	70-130	3	25
Trichloroethene	16.5		ug/kg wet		20.0		82	70-130	5	25
Trichlorofluoromethane (Freon 11)	16.8		µg/kg wet		20.0		84	70-130	2	50
1,2,3-Trichloropropane	18.3		µg/kg wet		20.0		92	70-130	4	25
1,2,4-Trimethylbenzene	17.9		ug/kg wet		20.0		90	70-130	2	25
1,3,5-Trimethylbenzene	17.6		µg/kg wet		20.0		88	70-130	3	25
Vinyl chloride	20.3		µg/kg wet		20.0		101	70-130	0.3	25
m,p-Xylene	36.0		ug/kg wet		40.0		90	70-130	1	25
o-Xylene	19.0		µg/kg wet		20.0		95	70-130	4	25
Tetrahydrofuran	19.0		µg/kg wet		20.0		95	70-130	5	25
Ethyl ether	18.8		ug/kg wet		20.0		94	70-130	0.4	50
Tert-amyl methyl ether	21.0		µg/kg wet		20.0		105	70-130	2	25
Ethyl tert-butyl ether	21.5		µg/kg wet		20.0		108	70-130	3	25
Di-isopropyl ether	19.5		ug/kg wet		20.0		98	70-130	9	25
Tert-Butanol / butyl alcohol	208		µg/kg wet		200		104	70-130	4	25
1,4-Dioxane	228	QR7	µg/kg wet		200		114	70-130	27	25
trans-1,4-Dichloro-2-butene	17.8		ug/kg wet		20.0		89	70-130	8	25
Ethanol	354		ug/kg wet		400		89	70-130	0.8	30
Surrogate: 4-Bromofluorobenzene	*32.0*		µg/kg wet		*30.0*		*107*	*70-130*		
Surrogate: Toluene-d8	32.3		µg/kg wet		*30.0*		*108*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*26.8*		ug/kg wet		*30.0*		*89*	*70-130*		
Surrogate: Dibromofluoromethane	*29.1*		µg/kg wet		*30.0*		*97*	*70-130*		

Extractable Petroleum Hydrocarbons - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1019440 - SW846 3545A										
Blank (1019440-BLK1)					Prepared: 14-Sep-10 Analyzed: 15-Sep-10					
Gasoline	BRL		mg/kg wet	13.3						
Fuel Oil #2	BRL		mg/kg wet	13.3						
Fuel Oil #4	BRL		mg/kg wet	13.3						
Fuel Oil #6	BRL		mg/kg wet	13.3						
Motor Oil	BRL		mg/kg wet	13.3						
Ligroin	BRL		mg/kg wet	13.3						
Aviation Fuel	BRL		mg/kg wet	13.3						
Hydraulic Oil	BRL		mg/kg wet	13.3						
Dielectric Fluid	BRL		mg/kg wet	13.3						
Unidentified	BRL		mg/kg wet	13.3						
Other Oil	BRL		mg/kg wet	13.3						
Total Petroleum Hydrocarbons	BRL		mg/kg wet	13.3						
Surrogate: 1-Chlorooctadecane	*2.49*		mg/kg wet		*3.33*		*75*	*40-140*		
LCS (1019440-BS1)					Prepared: 14-Sep-10 Analyzed: 15-Sep-10					
Fuel Oil #2	559		mg/kg wet	13.3	667		84	40-140		
Surrogate: 1-Chlorooctadecane	*2.41*		mg/kg wet		*3.33*		*72*	*40-140*		

Notes and Definitions

OR2	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
R05	Elevated Reporting Limits due to the presence of high levels of non-target analytes.
BRL	Below Reporting Limit - Analyte NOT DETECTED at or above the reporting limit
dry	Sample results reported on a dry weight basis
NR	Not Reported
RPD	Relative Percent Difference

A plus sign (+) in the Method Reference column indicates the method is not accredited by NELAC.

Interpretation of Total Petroleum Hydrocarbon Report

Petroleum identification is determined by comparing the GC fingerprint obtained from the sample with a library of GC fingerprints obtained from analyses of various petroleum products. Possible match categories are as follows:

Gasoline - includes regular, unleaded, premium, etc.
Fuel Oil #2 - includes home heating oil, #2 fuel oil, and diesel
Fuel Oil #4 - includes #4 fuel oil
Fuel Oil #6 - includes #6 fuel oil and bunker "C" oil
Motor Oil - includes virgin and waste automobile oil
Ligroin - includes mineral spirits, petroleum naphtha, vm&p naphtha
Aviation Fuel - includes kerosene, Jet A and JP-4
Other Oil - includes lubricating and cutting oil, and silicon oil

At times, the unidentified petroleum product is quantified using a calibration that most closely approximates the distribution of compounds in the sample. When this occurs, the result is qualified as *TPH (Calculated as).

Laboratory Control Sample (LCS): A known matrix spiked with compound(s) representative of the target analytes, which is used to document laboratory performance.

Matrix Duplicate: An intra-laboratory split sample which is used to document the precision of a method in a given sample matrix.

Matrix Spike: An aliquot of a sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Method Blank: An analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. The method blank is used to document contamination resulting from the analytical process.

Method Detection Limit (MDL): The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

Reportable Detection Limit (RDL): The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes the RDL analyte concentration is selected as the lowest non-zero standard in the calibration curve. While the RDL is approximately 5 to 10 times the MDL, the RDL for each sample takes into account the sample volume/weight, extract/digestate volume, cleanup procedures and, if applicable, dry weight correction. Sample RDLs are highly matrix-dependent.

Surrogate: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. These compounds are spiked into all blanks, standards, and samples prior to analysis. Percent recoveries are calculated for each surrogate.

Continuing Calibration Verification: The calibration relationship established during the initial calibration must be verified at periodic

Validated by:
Hanibal C. Tayeh, Ph.D.
June O'Connor

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

CHAIN OF CUSTODY RECORD

Page 1 of 1

Special Handling:
- ☐ Standard TAT - 7 to 10 business days
- ☒ Rush TAT - Date Needed: ASAP
- All TATs subject to laboratory approval. Min. 24-hour notification needed for rushes.
- Samples disposed of after 60 days unless otherwise instructed.

Report To: AECOM
3 Technology Park Drive
Westford, MA 01886

Project Mgr.: Jen Hadden

Invoice To: Gulf Oil LP

P.O. No.: _____ RQN: _____

Project No.: 60158361 - 400
Site Name: Norman's Lakeville Gulf
Location: New Hyde Park, NY State: NY
Sampler(s): Joanne Newell

1=$Na_2S_2O_3$ 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid
7=CH_3OH 8=$NaHSO_4$ 9= methanol DI H2O 10= _____

DW=Drinking Water GW=Groundwater WW=Wastewater
O=Oil SW= Surface Water SO=Soil SL=Sludge A=Air
X1= _____ X2= _____ X3= _____

G=Grab C=Composite

Lab Id:	Sample Id:	Date:	Time:	Type	Matrix	Preservative	Containers: # of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	Analyses: Age Dating	8100	8260	forensic petro					QA Reporting Notes: (check if needed)
386179601	S-1 (7')	9/9/10	1230	G	SO	9	3	2			X	/	/	/					per C.W

QA Reporting Notes (check if needed):
- ☐ Provide MA DEP MCP CAM Report
- ☐ Provide CT DEP RCP Report

QA/QC Reporting Level:
- ☐ Standard ☐ No QC
- ☐ Other _____

State specific reporting standards: NY

☐ Fax results when available to (____) _____
☒ E-mail to: jennifer.hadden@aecom.com
EDD Format _____

Condition upon receipt: ☐ Iced ☐ Ambient ☒ °C 3.0

Relinquished by:	Received by:	Date:	Time:
		9-10-10	1052
		9/10/10	0940
		9/10/10	14:55

Appendix E

Waste Manifests

Log Number

SOIL SAFE, INC.

NON-HAZARDOUS MATERIAL MANIFEST

GENERATOR

Generator Name Gulf Oil Limited Partnership
Address 100 Crossing Blvd. Framingham, MA
Phone No. 508-270-8300

Generator Site/Location
Address 77-40 Hewlett St. New Hyde Park, NY
Phone No. 978-589-3000

Approval Number L4-7383

Description of Material
Non-Regulated Petroleum Contaminated Soil
Non DOT/RCRA Regulated

ID 180
GROSS 33.17 T GROSS
TARE 11.79 T TARE
RECALLED
NET 21.38 T NET
LOG 2-6
08/09/2010 10:44AM TONNAGE

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Jaime Hussey as Agent for Gulf Oil — Jaime Hussey — 8/9/10
Generator Authorized Agent Name — Signature — Shipment Date

TRANSPORTER

Transporter Name R&B Debris LLC
Address Hampton NJ
Driver Name (Print) LAWSON MCELROY II
Vehicle License No. / State / EPA No. AM206J
Truck Number 667 180

I hereby certify that the above named material was picked up at the generator site listed above.
Driver Signature — 8/8/2010 Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.
Driver Signature — 8/8/10 Delivery Date

DESTINATION

Site Name **Soil Safe, Inc. - Bridgeport** Phone No. **1-856-467-8030**
Address **378 Route 130, Logan Township, NJ 08085**
No left turn on Rt. 130 North into the facility.
Business hours are: Monday through Friday 7 AM to 5 PM. 5 PM to 10 PM By Appointment only. Saturday by appointment only.

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

Name of Authorized Agent — J. Garcia — Signature — 8/9/10 Receipt Date

White - Facility Green - Facility Yellow - Generator Pink - Broker Goldenrod - Contractor Blue - Trucking Co.

Log Number

SOIL SAFE, INC.

NON-HAZARDOUS MATERIAL MANIFEST

GENERATOR

Generator Name Gulf Oil Limited Partnership

Address 100 Crossing Blvd
Framingham, MA

Phone No. 508-270-8300

Generator Site/Location

Address 77-40 Hewett St
New Hyde Park, NY

Phone No. 978-589-3000

Approval Number
L4-7383

Description of Material

Non-Regulated Petroleum
Contaminated Soil

Non DOT/RCRA Regulated

GROSS 39.92 T
TARE 12.55
RECALLED
NET 27.37 T
08/09/2010
12:21PM

GROSS
TARE
NET
TONNAGE

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Jaime Hussey Agent for Gulf Oil Jaime Hussey 8/9/10
Generator Authorized Agent Name Signature Shipment Date

TRANSPORTER

Transporter Name Coner

Address Mountain NJ

Driver Name (Print) S. Zywicki

Vehicle License No. / State / EPA No. MM1H5E

Truck Number 8-8-10

I hereby certify that the above named material was picked up at the generator site listed above.

Driver Signature 8-9-10 Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Driver Signature 8-10-10 Delivery Date

DESTINATION

Site Name **Soil Safe, Inc. - Bridgeport** Phone No. **1-856-467-8030**

Address **378 Route 130 Logan Township, NJ 08085**

No left turn on Rt. 130 North into the facility.
Business hours are: Monday through Friday 7 AM to 5 PM. 5 PM to 10 PM By Appointment only. Saturday by appointment only.

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

Name of Authorized Agent J. Garcia Signature 8-9-10 Receipt Date

White - Facility Green - Facility Yellow - Generator Pink - Broker Goldenrod - Contractor Blue - Trucking Co.

Log Number

SOIL SAFE, INC.

NON-HAZARDOUS MATERIAL MANIFEST

GENERATOR

Generator Name: Gulfoil limited Partnership
Address: 100 Crossing Blvd. Framingham, MA
Phone No.: 508-270-8300

Generator Site/Location
Address: 77-40 Hewett St. New Hyde Park, NY
Phone No.: 978-589-3000

Approval Number: L4-7383

Description of Material: Non-Regulated Petroleum Contaminated Soil
Non DOT/RCRA Regulated

ID 613
GROSS 49.07 T GROSS
TARE 13.62 T TARE
RECALLED
NET 35.45 T NET
LOG 49
08/09/2010
12:32PM
TONNAGE

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Jaime Hussey Agent for Gulf Oil Jaime Hussey 8/9/10
Generator Authorized Agent Name / Signature / Shipment Date

TRANSPORTER

Transporter Name: R. B Debris LLC
Address: Hainespoart NJ
Driver Name (Print): Ayhan Saglam
Vehicle License No. / State / EPA No.: AL3827N
Truck Number: #73 #613

I hereby certify that the above named material was picked up at the generator site listed above.

Ayhan Saglam 08-09-10
Driver Signature / Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Ayhan Saglam 08-09-10
Driver Signature / Delivery Date

DESTINATION

Site Name: Soil Safe, Inc. - Bridgeport
Phone No.: 1-856-467-8030
Address: 378 Route 130 Logan Township, NJ 08085
No left turn on Rt. 130 North into the facility.
Business hours are: Monday through Friday 7 AM to 5 PM. 5 PM to 10 PM By Appointment only. Saturday by appointment only.

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

Name of Authorized Agent / Signature / Receipt Date: 8.9.10

White - Facility Green - Facility Yellow - Generator Pink - Broker Goldenrod - Contractor Blue - Trucking Co.

Log Number

SOIL SAFE, INC.

NON-HAZARDOUS MATERIAL MANIFEST

GENERATOR

Generator Name Gulf Oil Limited Partnership

Address 100 Crossing Blvd.
Framingham, MA

Phone No. 508-270-8300

Generator Site/Location

Address 77-40 Hewlett St.
New Hyde Park, NY

Phone No. 978-589-3000

Approval Number: L4-7383

Description of Material: Non-Regulated Petroleum Contaminated Soil; Non DOT/RCRA Regulated

ID 754
GROSS 37.53 T GROSS
TARE 12.74 T TARE
RECALLED
NET 24.79 T NET
LOG SO
08/09/2010
12:35PM
TONNAGE

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Janine Hussey Agent for Gulf Oil — Janine Hussey — 8/9/10
Generator Authorized Agent Name — Signature — Shipment Date

TRANSPORTER

Transporter Name R&B DoBBs LLC

Address Hammonton NJ

Driver Name (Print) Dave Wadsworth

Vehicle License No. / State / EPA No. AM911G

Truck Number 8

I hereby certify that the above named material was picked up at the generator site listed above.

Driver Signature — 8/9/10 — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Driver Signature — 8/9/2010 — Delivery Date

DESTINATION

Site Name **Soil Safe, Inc. - Bridgeport** Phone No. **1-856-467-8030**

Address **378 Route 130 Logan Township, NJ 08085**

No left turn on Rt. 130 North into the facility.

Business hours are: Monday through Friday 7 AM to 5 PM. 5 PM to 10 PM By Appointment only. Saturday by appointment only.

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

Name of Authorized Agent — J. Garcia — Signature — 8.9.10 — Receipt Date

White - Facility Green - Facility Yellow - Generator Pink - Broker Goldenrod - Contractor Blue - Trucking Co.

Log Number

SOIL SAFE, INC.

NON-HAZARDOUS MATERIAL MANIFEST

GENERATOR

Generator Name Gulf Oil Limited Partnership

Address 100 Crossing Blvd.
Framingham, MA

Phone No. 508-270-8300

Generator Site/Location

Address 77-40 Hewett St
New Hyde Park, NY

Phone No. 978-589-3000

Approval Number: L4-7383

Description of Material: Non-Regulated Petroleum Contaminated Soil

Non DOT/RCRA Regulated

ID 533
GROSS
GROSS 37.33 T
TARE 12.57 T TARE
RECALLED
NET 24.76 T NET
LOG 52
08/09/2010 TONNAGE
12:38PM

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

James Hussey Agent for Gulf Oil — James Hussey — 8/9/10
Generator Authorized Agent Name — Signature — Shipment Date

TRANSPORTER

Transporter Name CAMER

Address MORISTOWN NJ 08057

Driver Name (Print) YASAR

Vehicle License No. / State / EPA No. (A) 8043 NJ

Truck Number 256

I hereby certify that the above named material was picked up at the generator site listed above.

Yasar Akkaya
Driver Signature — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Yasar Akkaya
Driver Signature — Delivery Date

DESTINATION

Site Name Soil Safe, Inc. - Bridgeport Phone No. 1-856-467-8030

Address 378 Route 130, Logan Township, NJ 08085

No left turn on Rt. 130 North into the facility.

Business hours are: Monday through Friday 7 AM to 5 PM. 5 PM to 10 PM By Appointment only. Saturday by appointment only.

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

rized Agent — J. Garcia — 8910
Signature — Receipt Date

Green - Facility Yellow - Generator Pink - Broker Goldenrod - Contractor Blue - Trucking Co.

Log Number

SOIL SAFE, INC.

NON-HAZARDOUS MATERIAL MANIFEST

GENERATOR

Generator Name Gulf Oil Limited Partnership

Address 100 Crossing Blvd.
Framingham, MA

Phone No. 508-270-8300

Generator Site/Location

Address 77-40 Hewlett St.
New Hyde Park, NY

Phone No. 978-589-3000

Approval Number

NJ47383

Description of Material

Non-Regulated Petroleum Contaminated Soil

Non DOT/RCRA Regulated

ID 754
GROSS 46.07 T GROSS
TARE 12.74 T TARE
RECALLED
NET 33.33 T NET
LOG 9
08/10/2010 TONNAGE
09:38AM

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Jaime Hussey Agent for Gulf Oil L.P. Jaime Hussey 8/10/10
Generator Authorized Agent Name — Signature — Shipment Date

TRANSPORTER

Transporter Name Carter Trans

Address Moorestown NJ
R+B

Driver Name (Print) Javier Rivera

Vehicle License No. / State / EPA No. Am911e

Truck Number 8 754

I hereby certify that the above named material was picked up at the generator site listed above.

Driver Signature — 8/10/10 Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Driver Signature — 8/10/10 Delivery Date

DESTINATION

Site Name **Soil Safe, Inc. - Bridgeport** Phone No. **1-856-467-8030**

Address **378 Route 130 Logan Township, NJ 08085**

No left turn on Rt. 130 North into the facility.
Business hours are: Monday through Friday 7 AM to 5 PM. 5 PM to 10 PM By Appointment only. Saturday by appointment only.

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

Name of Authorized Agent — J. Garcia Signature — 8.10.10 Receipt Date

White - Facility Green - Facility Yellow - Generator Pink - Broker Goldenrod - Contractor Blue - Trucking Co.

Log Number

SOIL SAFE, INC.

NON-HAZARDOUS MATERIAL MANIFEST

GENERATOR

Generator Name Gulf Oil Limited Partnership

Address 100 Crossing Blvd.
Framingham, MA

Phone No. 508-270-8300

Generator Site/Location

Address 77-40 Hewett St.
New Hyde Park, NY

Phone No. 978-589-3000

Approval Number ~~L47383~~ L47383

Description of Material: Non-Regulated Petroleum Contaminated Soil
Non DOT/RCRA Regulated

ID 535
GROSS 48.61 T GROSS
TARE 12.05 T TARE
RECALLED
NET 36.56 T NET
LOG 26
08/10/2010
10:32AM
TONNAGE

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Jaime Hussey Agent for Gulf Oil L.P. Jaime Hussey 8/10/10
Generator Authorized Agent Name — Signature — Shipment Date

TRANSPORTER

Transporter Name R&B Debris

Address 5900 Sylon Blvd
Hauppauge - NJ

Driver Name (Print) M. Kalyoncuoglu

Vehicle License No. / State / EPA No. AKZ7CA

Truck Number 5

I hereby certify that the above named material was picked up at the generator site listed above.

Driver Signature 8/10/10 Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Driver Signature 8/10/10 Delivery Date

DESTINATION

Site Name Soil Safe, Inc. - Bridgeport

Phone No. 1-856-467-8030

Address 378 Route 130, Logan Township, NJ 08085

No left turn on Rt. 130 North into the facility.
Business hours are: Monday through Friday 7 AM to 5 PM. 5 PM to 10 PM By Appointment only. Saturday by appointment only.

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

J. Garcia 8 10 10
Name of Authorized Agent — Signature — Receipt Date

White - Facility Green - Facility Yellow - Generator Pink - Broker Goldenrod - Contractor Blue - Trucker 2

Log Number

SOIL SAFE, INC.

NON-HAZARDOUS MATERIAL MANIFEST

GENERATOR

Generator Name Gulf Oil Limited Partnership

Address 100 Crossing Blvd.
Framingham, MA

Phone No. 508-270-8300

Generator Site/Location

Address 77-40 Hewett St.
New Hyde Park, NY

Phone No. 978-589-3000

Approval Number L4-7383

Description of Material

Non-Regulated, Petroleum Contaminated Soil

Non DOT/RCRA Regulated

ID 613
GROSS 49.84 T GROSS
TARE 13.62 T TARE
RECALCED
NET 41 36.22 T NET
LOG
08/10/2010
11:16AM TONNAGE

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Jaime Hussey Agent for Gulf Oil L.P. Jaime Hussey 8/10/10
Generator Authorized Agent Name — Signature — Shipment Date

TRANSPORTER

Transporter Name R-B Debris LLC

Address 5900 Dylan Blvd
Hainepast NJ

Driver Name (Print) Ayhan Saglam

Vehicle License No. / State / EPA No. AL587N

Truck Number 73 #613

I hereby certify that the above named material was picked up at the generator site listed above.

Ayhm Saglm 8-10-10
Driver Signature — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Ayhm Saglm 8-10-10
Driver Signature — Delivery Date

DESTINATION

Site Name **Soil Safe, Inc. - Bridgeport**

Phone No. **1-856-467-8030**

Address **378 Route 130 Logan Township, NJ 08085**

No left turn on Rt. 130 North into the facility.
Business hours are: Monday through Friday 7 AM to 5 PM. 5 PM to 10 PM By Appointment only. Saturday by appointment only.

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

J. Cocci 8.10.10
Name of Authorized Agent — Signature — Receipt Date

White - Facility Green - Facility Yellow - Generator Pink - Broker Goldenrod - Contractor Blue - Trucking Co.

Log Number

SOIL SAFE, INC.

NON-HAZARDOUS MATERIAL MANIFEST

GENERATOR

Generator Name Gulf Oil Limited Partnership

Address 100 Crossing Blvd
Framingham, MA

Phone No. 508-270-8300

Generator Site/Location

Address 77-40 Hewlett St
New Hyde Park, NY

Phone No. 978-589-3000

Approval Number L4 7383

Description of Material: Non-Regulated Petroleum Contaminated Soil

Non DOT/RCRA Regulated

ID 839
GROSS 45.24 GROSS
TARE 13.10 T
RECALLED TARE
NET 32.14 T NET
LOC S2
08/10/2010
12:23PM TONNAGE

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Dane Hussey Agent for Gulf Oil L.P. Dane Hussey 8/10/10
Generator Authorized Agent Name — Signature — Shipment Date

TRANSPORTER

Transporter Name R & B Debris

Address 5900 Sykes Blvd
Hainsport NJ

Driver Name (Print) GOKSEL HOTMANOGLU

Vehicle License No. / State / EPA No. AL431N-NJ

Truck Number 839 (HOT 51)

I hereby certify that the above named material was picked up at the generator site listed above.

Driver Signature — 08/10/10 Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Driver Signature — 08/10/10 Delivery Date

DESTINATION

Site Name **Soil Safe, Inc. - Bridgeport** Phone No. **1-856-467-8030**

Address **378 Route 130, Logan Township, NJ 08085**

No left turn on Rt. 130 North into the facility.
Business hours are: Monday through Friday 7 AM to 5 PM. 5 PM to 10 PM By Appointment only. Saturday by appointment only.

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

J. Garcia — 8.10.10
Name of Authorized Agent — Signature — Receipt Date

White - Facility Green - Facility Yellow - Generator Pink - Broker Goldenrod - Contractor Blue - Trucking Co.

Log Number

SOIL SAFE, INC.

NON-HAZARDOUS MATERIAL MANIFEST

GENERATOR

Generator Name: Gulf Oil Limited Partnership

Address: 100 Crossing Blvd.
Framingham, MA

Phone No.: 508-370-8300

Generator Site/Location:

Address: T7-40 Hewett St.
New Hyde Park, NY

Phone No.: 978-589-3000

Approval Number: L47383

Description of Material: Non-Regulated Petroleum Contaminated Soil

Non DOT/RCRA Regulated

ID 551
GROSS 44.03 T GROSS
TARE 12.70 T TARE
RECALLED
NET 31.33 T NET
LOG 53
08/10/2010 TONNAGE
12:26PM

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Jaime Hussey Agent for Gulf Oil L.P. Jaime Hussey 8/10/10
Generator Authorized Agent Name — Signature — Shipment Date

TRANSPORTER

Transporter Name: R B Debras

Address: 5900 Sylon Blvd
Hainesport NJ

Driver Name (Print): Israel Olivera

Vehicle License No. / State / EPA No.: AM88K

Truck Number: 47

I hereby certify that the above named material was picked up at the generator site listed above.

8-10-10
Driver Signature — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Driver Signature — Delivery Date

DESTINATION

Site Name: Soil Safe, Inc. - Bridgeport Phone No.: 1-856-467-8030

Address: 378 Route 130, Logan Township, NJ 08085
No left turn on Rt. 130 North into the facility.
Business hours are: Monday through Friday 7 AM to 5 PM. 5 PM to 10 PM By Appointment only. Saturday by appointment only.

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

J Garai 8-10-10
Name of Authorized Agent — Signature — Receipt Date

White - Facility Green - Facility Yellow - Generator Pink - Broker Goldenrod - Contractor Blue - Trucking Co.

Log Number

SOIL SAFE, INC.

NON-HAZARDOUS MATERIAL MANIFEST

GENERATOR

Generator Name Gulf Oil Limited Partnership

Address 100 Crossing Blvd.
Framingham, MA

Phone No. 508-270-8300

Generator Site/Location

Address 77-40 Hewlett St.
New Hyde, Park, NY

Phone No. 978-589-3000

ID 613
GROSS 49.58 T GROSS
TARE 13.62 T TARE
RECALLED
NET 35.96 T NET
LOG 39
08/11/2010
10:38AM TONNAGE

Approval Number
L4-7328

Description of Material

Non-Regulated Petroleum Contaminated Soil

Non DOT/RCRA Regulated

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Jamie Hussey As Agent for Gulf Oil L.P. Jamie Hussey 8/11/10
Generator Authorized Agent Name Signature Shipment Date

TRANSPORTER

Transporter Name R.B Debris LLC

Address Hainesport NJ

Driver Name (Print) Ayhan Saglam

Vehicle License No. / State / EPA No AL387AA

Truck Number 73

I hereby certify that the above named material was picked up at the generator site listed above.

Ayhan Saglam 8-11-10
Driver Signature Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Ayhan Saglam 8-11-10
Driver Signature Delivery Date

DESTINATION

Site Name Soil Safe, Inc. - Bridgeport Phone No. 1-856-467-8030

Address 378 Route 130 Logan Township, NJ 08085

No left turn on Rt. 130 North into the facility.
Business hours are: Monday through Friday 7 AM to 5 PM. 5 PM to 10 PM By Appointment only. Saturday by appointment only.

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

J. Coarci 8.11.10
Name of Authorized Agent Signature Receipt Date

White - Facility Green - Facility Yellow - Generator Pink - Broker Goldenrod - Contractor Blue - Trucking Co.

Log Number 002

SOIL SAFE, INC.

NON-HAZARDOUS MATERIAL MANIFEST

GENERATOR

Generator Name Gulf Oil Limited Partnership

Address 100 Crossing Blvd
Framingham, MA

Phone No. 508-270-8300

Generator Site/Location

Address 77-40 Hewlett St.
New Hyde Park, NY

Phone No. 978-589-3000

Approval Number L47383

Description of Material: Non-Regulated Petroleum Contaminated Soil; Non DOT/RCRA Regulated

ID 754
GROSS 47.33 T
TARE 12.74 T
RECALLED
NET 34.59 T
LOG 59
08/11/2010
11:29AM

GROSS
TARE
NET
TONNAGE

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Jaime Hussey Agent for Gulf Oil L.P. Jaime Hussey 8/11/10
Generator Authorized Agent Name — Signature — Shipment Date

TRANSPORTER

Transporter Name Coeur Transportation — Driver Name (Print) Javier Rivera

Address Moorestown NJ
R+B — Vehicle License No. / State / EPA No. Am 91LC

Truck Number 5

I hereby certify that the above named material was picked up at the generator site listed above.

Driver Signature — Shipment Date 10/11/10

I hereby certify that the above named material was delivered without incident to the destination listed below.

Driver Signature — Delivery Date 10/11/10

DESTINATION

Site Name **Soil Safe, Inc. - Bridgeport** Phone No. **1-856-467-8030**

Address **378 Route 130 Logan Township, NJ 08085**

No left turn on Rt. 130 North into the facility.
Business hours are: Monday through Friday 7 AM to 5 PM. 5 PM to 10 PM By Appointment only. Saturday by appointment only.

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

Name of Authorized Agent — Signature J. Garau — Receipt Date 8.11.10

White - Facility Green - Facility Yellow - Generator Pink - Broker Goldenrod - Contractor Blue - Trucking Co.

Log Number

SOIL SAFE, INC.

NON-HAZARDOUS MATERIAL MANIFEST

GENERATOR

Generator Name Gulf Oil Limited Partnership

Address 100 Crossing Blvd.
Framingham, MA

Phone No. 508-270-8300

Generator Site/Location

Address 77-40 Hewett St.
New Hyde Park, NY

Phone No. 978-589-3000

ID 175
GROSS 40.13 GROSS
TARE 12.92 T TARE
RECALLED
NET 27.21 T NET
LOG 68
08/11/2010
12:08PM TONNAGE

Approval Number: L4-7383

Description of Material: Non-Regulated Petroleum Contaminated Soil

Non DOT/RCRA Regulated

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Jaime Hussey Agent for Gulf Oil L.P. Jaime Hussey 8-11-10
Generator Authorized Agent Name — Signature — Shipment Date

TRANSPORTER

Transporter Name Ceylan Tankerglu

Address Delran NJ 08075

Driver Name (Print) OKAN CEYLAN

Vehicle License No. / State / EPA No. AM5507 (NJ)

Truck Number 175

I hereby certify that the above named material was picked up at the generator site listed above.

Driver Signature — 8/4/10 Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Driver Signature — 8/11/10 Delivery Date

DESTINATION

Site Name **Soil Safe, Inc. - Bridgeport** Phone No. **1-856-467-8030**

Address **378 Route 130 Logan Township, NJ 08085**

No left turn on Rt. 130 North into the facility.

Business hours are: Monday through Friday 7 AM to 5 PM. 5 PM to 10 PM By Appointment only. Saturday by appointment only.

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

J. Garcia — 8/11/10
Name of Authorized Agent — Signature — Receipt Date

White - Facility Green - Facility Yellow - Generator Pink - Broker Goldenrod - Contractor Blue - Trucking Co.

Log Number

SOIL SAFE, INC.

NON-HAZARDOUS MATERIAL MANIFEST

GENERATOR

Generator Name Gulf Oil Limited Partnership

Address 100 Crossing Blvd.
Framingham, MA

Phone No. 508-270-8300

Generator Site/Location

Address 27-40 Hewlett St.
New Hyde Park, NY

Phone No. 978-589-3000

Approval Number L4-7383

Description of Material: Non-Regulated Petroleum Contaminated Soil

Non DOT/RCRA Regulated

ID 307

GROSS	43.25 T	GROSS
TARE	13.25 T	TARE
RECALLED NET	30.00 T	NET
LOG 6K		TONNAGE

08/11/2010
12:14PM

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

John Hussey Agent for Gulf O/L.P. John Hussey 8/11/10

Generator Authorized Agent Name — Signature — Shipment Date

TRANSPORTER

Transporter Name Typhoon Tox.

Address DELRAN NJ

R&B Debris

Driver Name (Print) Tayfun Kilic

Vehicle License No. / State / EPA No. AK2718-NJ

Truck Number 307

I hereby certify that the above named material was picked up at the generator site listed above.

Driver Signature — 8-11-10 Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Driver Signature — 8-11-10 Delivery Date

DESTINATION

Site Name **Soil Safe, Inc. - Bridgeport** Phone No. **1-856-467-8030**

Address **378 Route 130 Logan Township, NJ 08085**

No left turn on Rt. 130 North into the facility.

Business hours are: Monday through Friday 7 AM to 5 PM. 5 PM to 10 PM By Appointment only. Saturday by appointment only.

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

J. Coarc. 8.11.10

Name of Authorized Agent — Signature — Receipt Date

White - Facility Green - Facility Yellow - Generator Pink - Broker Goldenrod - Contractor Blue - Trucking Co.

Log Number

SOIL SAFE, INC.

NON-HAZARDOUS MATERIAL MANIFEST

GENERATOR

Generator Name Gulf Oil Limited Partnership
Address 100 Crossing Blvd.
Framingham, MA
Phone No. 508-270-8300

Generator Site/Location
Address 77-40 Hewett St.
New Hyde Park, NY
Phone No. 978-589-3000

Approval Number: LY-7303

Description of Material: Non-Regulated Petroleum Contaminated Soil
Non DOT/RCRA Regulated

ID .1068
GROSS 41.31 T GROSS
RECALLED
TARE 13.98 T TARE
NET 27.35 T NET
LOG 68
08/11/2010 TONNAGE
12:18PM

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Jaime Hussey Agent for Gulf Oil L.P. Jaime Hussey 8/11/10
Generator Authorized Agent Name — Signature — Shipment Date

TRANSPORTER

Transporter Name FD
Address Bridgeport NJ

Driver Name (Print) Frank
Vehicle License No. / State / EPA No. A1 950 M / NJ
Truck Number FD #3

I hereby certify that the above named material was picked up at the generator site listed above.

8-11-10
Driver Signature — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

8-11-10
Driver Signature — Delivery Date

DESTINATION

Site Name **Soil Safe, Inc. - Bridgeport** Phone No. **1-856-467-8030**
Address **378 Route 130 Logan Township, NJ 08085**
No left turn on Rt. 130 North into the facility.
Business hours are: Monday through Friday 7 AM to 5 PM. 5 PM to 10 PM By Appointment only. Saturday by appointment only.

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

J. Garcia 8.11.10
Name of Authorized Agent — Signature — Receipt Date

White - Facility Green - Facility Yellow - Generator Pink - Broker Goldenrod - Contractor Blue - Trucking Co.

Log Number

SOIL SAFE, INC.

NON-HAZARDOUS MATERIAL MANIFEST

GENERATOR

Generator Name Gulf Oil Limited Partnership
Address 100 Crossing Blvd.
Framingham, MA
Phone No. 508-270-8300

Generator Site/Location
Address 77-40 Hewett St.
New Hyde Park, NY
Phone No. 978-589-3000

Approval Number L-4738

Description of Material
Non-Regulated Petroleum Contaminated Soil
Non DOT/RCRA Regulated

ID 608
GROSS 47.76 T GROSS
TARE 13.23 T TARE
RECALLED
NET 34.53 T NET
LOG 73
08/11/2010 TONNAGE
01:32PM

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Jaime Hussey Agent for Gulf Oil L.P. Jaime Hussey 8/11/10
Generator Authorized Agent Name Signature Shipment Date

TRANSPORTER

Transporter Name R J B DEBRIS
Address Hanesport, NJ

Driver Name (Print) Mehmet Y. AK
Vehicle License No. / State / EPA No. AB-107 (NJ)
Truck Number MARCO-04

I hereby certify that the above named material was picked up at the generator site listed above.
Mehmet Y. AK
Driver Signature Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.
Mehmet Y. AK
Driver Signature Delivery Date

DESTINATION

Site Name Soil Safe, Inc. - Bridgeport Phone No. 1-856-467-8030
Address 378 Route 130, Logan Township, NJ 08085
No left turn on Rt. 130 North into the facility.
Business hours are: Monday through Friday 7 AM to 5 PM. 5 PM to 10 PM By Appointment only. Saturday by appointment only.

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

J. Garcia 8.11.10
Name of Authorized Agent Signature Receipt Date

White - Facility Green - Facility Yellow - Generator Pink - Broker Goldenrod - Contractor Blue - Trucking Co.

Log Number

SOIL SAFE, INC.

NON-HAZARDOUS MATERIAL MANIFEST

GENERATOR

Generator Name Gulf Oil Limited Partnership

Address 100 Crossing Blvd

Framingham, MA

Phone No. 508 - 270 - 8300

Generator Site/Location

Address 77-40 Hewlett St.

New Hyde Park, NY

Phone No. 978 - 589 - 3000

Approval Number: 7383

Description of Material: Non-Regulated Petroleum Contaminated Soil

Non DOT/RCRA Regulated

ID 132
GROSS 47.25 T GROSS
TARE 12.90 T TARE
RECALCED
NET 34.35 T NET
LOG 74
08/11/2010
01:38PM
TONNAGE

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Julie Hussey Agent for Gulf O.L.P. Julie Hussey 8/11/10

Generator Authorized Agent Name — Signature — Shipment Date

TRANSPORTER

Transporter Name MEM

Address Burlington NJ

Driver Name (Print) Erin Ceyran

Vehicle License No. / State / EPA No. [redacted] AJ 365 U

Truck Number 4

I hereby certify that the above named material was picked up at the generator site listed above.

Driver Signature — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Driver Signature — 08 - 11 - 2010 Delivery Date

DESTINATION

Site Name Soil Safe, Inc. - Bridgeport Phone No. 1-856-467-8030

Address 378 Route 130 Logan Township, NJ 08085

No left turn on Rt. 130 North into the facility.

Business hours are: Monday through Friday 7 AM to 5 PM. 5 PM to 10 PM By Appointment only. Saturday by appointment only.

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

J. Coarse 8.11.10

Name of Authorized Agent — Signature — Receipt Date

White - Facility Green - Facility Yellow - Generator Pink - Broker Goldenrod - Contractor Blue - Trucking Co.

Log Number

SOIL SAFE, INC.

NON-HAZARDOUS MATERIAL MANIFEST

GENERATOR

Generator Name Gulf Oil

Address

Phone No.

Generator Site/Location Gulf Oil

Address 77-40 Hewitt
New Hyde Park, NY

Phone No. 718-347-3400

Approval Number 7383

Description of Material: Non-Regulated Petroleum Contaminated Soil; Non DOT/RCRA Regulated

GROSS	45.43
TARE	13.96
NET	31.47
TONNAGE	WS 125

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Jeff Smith As Agent of Gulf Oil — Generator Authorized Agent Name

Signature

9-2-10 — Shipment Date

TRANSPORTER

Transporter Name EMREDENKTAS LLC

Address DELRAN NJ

Driver Name (Print) EMRE

Vehicle License No. / State / EPA No. AL95OUA/NJ

Truck Number ED #3

I hereby certify that the above named material was picked up at the generator site listed above.

Driver Signature — 9-2-10 Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Driver Signature — 9-2-10 Delivery Date

DESTINATION

Site Name **Soil Safe, Inc. - Bridgeport** Phone No. **1-856-467-8030**

Address **378 Route 130 Logan Township, NJ 08085**

No left turn on Rt. 130 North into the facility.

Business hours are: Monday through Friday 7 AM to 5 PM. 5 PM to 10 PM By Appointment only. Saturday by appointment only.

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

Name of Authorized Agent — Signature — Receipt Date

White - Facility Green - Facility Yellow - Generator Pink - Broker Goldenrod - Contractor Blue - Trucking Co.

Log Number

SOIL SAFE, INC.

NON-HAZARDOUS MATERIAL MANIFEST

GENERATOR

Generator Name Gulf Oil | Generator Site/Location Gulf Oil

Address | Address 77-40 Hewlitt St

New Hyde Pk., NY

Phone No. | Phone No. 718-347-3400

Approval Number 7383

Description of Material: Non-Regulated Petroleum Contaminated Soil; Non DOT/RCRA Regulated

ID 307
GROSS 51.27 T
TARE 13.25 T
RECALCED
NET 38.02 T
LOG 142
09/02/2010
05:59PM

GROSS TARE NET TONNAGE

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Jeff Smith — Account of Gulf Oil | Signature | 9-2-10

Generator Authorized Agent Name | Signature | Shipment Date

TRANSPORTER

Transporter Name Typhoon Trk | Driver Name (Print) TAYFUN KILIC

Address Delran NJ | Vehicle License No. / State / EPA No. AK 271 R

R&B Debris | Truck Number 1 — 307

I hereby certify that the above named material was picked up at the generator site listed above.

Driver Signature | 9/2/10 Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Driver Signature | 9/2/10 Delivery Date

DESTINATION

Site Name **Soil Safe, Inc. - Bridgeport** | Phone No. **1-856-467-8030**

Address **378 Route 130 Logan Township, NJ 08085**

No left turn on Rt. 130 North into the facility.

Business hours are: Monday through Friday 7 AM to 5 PM. 5 PM to 10 PM By Appointment only. Saturday by appointment only.

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

J Garcia | 9 2 10

Name of Authorized Agent | Signature | Receipt Date

White - Facility | Green - Facility | Yellow - Generator | Pink - Broker | Goldenrod - Contractor | Blue - Trucking Co.

Log Number

SOIL SAFE, INC.

NON-HAZARDOUS MATERIAL MANIFEST

GENERATOR

Generator Name Gulf Oil Limited Partnership

Address 100 Crossing Boulevard

Framingham, MA

Phone No. 508-270-8300

Generator Site/Location

Address 77-40 Hewlett Street

New Hyde Park, NY

Phone No. 978-589-3000

Approval Number 1494171383

Description of Material

Non-Regulated Petroleum Contaminated Soil

Non DOT/RCRA Regulated

ID 839

GROSS	46.70 T	GROSS
TARE	13.10 T	TTARE
RECALLED		
NET	33.60 T	NET

LOG 66

09/09/2010 12:00PM

TONNAGE

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Joanne Newell of AECOM as agent for Gulf Oil Ltd. Joanne Newell 9/9/10

Generator Authorized Agent Name — Signature — Shipment Date

TRANSPORTER

Transporter Name R&B DEBRIS L.L.C.

Address 5900 Sylon Blvd.

Hainsport NJ 08036

Driver Name (Print) GOKSEL HOTMANOGLU

Vehicle License No. / State / EPA No. AL431N-NJ

Truck Number 839 (HOT 51)

I hereby certify that the above named material was picked up at the generator site listed above.

Driver Signature — 09/09/2010 Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Driver Signature — 09/09/2010 Delivery Date

DESTINATION

Site Name **Soil Safe, Inc. - Bridgeport** Phone No. **1-856-467-8030**

Address **378 Route 130 Logan Township, NJ 08085**

No left turn on Rt. 130 North into the facility.

Business hours are: Monday through Friday 7 AM to 5 PM. 5 PM to 10 PM By Appointment only. Saturday by appointment only.

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

J. Garcia — 9/10

Name of Authorized Agent — Signature — Receipt Date

White - Facility Green - Facility Yellow - Generator Pink - Broker Goldenrod - Contractor Blue - Trucking Co.

Log Number

SOIL SAFE, INC.

NON-HAZARDOUS MATERIAL MANIFEST

GENERATOR

Generator Name Gulf Oil Limited Partnership

Address 100 Crossing Boulevard

Framingham, MA

Phone No. 508-270-8300

Generator Site/Location

Address 77-40 Hewlett Street

New Hyde Park, NY

Phone No. 978-589-3000

Approval Number 04 7383

Description of Material

Non-Regulated Petroleum Contaminated Soil

Non DOT/RCRA Regulated

ID 754
GROSS 47.33 T GROSS
TARE 12.74 T TARE
RECALLED
NET 34.59 T NET
LOG 01
09/09/2010
12:28PM
TONNAGE

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Jason Newell of Tasco as agent for Gulf Oil LP — 9/9/10

Generator Authorized Agent Name — Signature — Shipment Date

TRANSPORTER

Transporter Name Conner Transport

Address Moorestown NJ R+B

Driver Name (Print) Javier Rivera

Vehicle License No. / State / EPA No. AM9HC

Truck Number 8

I hereby certify that the above named material was picked up at the generator site listed above.

Driver Signature — 9/9/10 Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Driver Signature — 9/9/10 Delivery Date

DESTINATION

Site Name Soil Safe, Inc. - Bridgeport Phone No. 1-856-467-8030

Address 378 Route 130 Logan Township, NJ 08085

No left turn on Rt. 130 North into the facility.

Business hours are: Monday through Friday 7 AM to 5 PM. 5 PM to 10 PM By Appointment only. Saturday by appointment only.

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

J. Garcia — 9 9 10

Name of Authorized Agent — Signature — Receipt Date

White - Facility Green - Facility Yellow - Generator Pink - Broker Goldenrod - Contractor Blue - Trucking Co.

Log Number

SOIL SAFE, INC.

NON-HAZARDOUS MATERIAL MANIFEST

GENERATOR

Generator Name Gulf Oil Limited Partnership

Address 100 Crossing Boulevard

Framingham, MA

Phone No. 508-270-8300

Generator Site/Location

Address 77-40 Hewlett Street

New Hyde Park, NY

Phone No. 978-589-3000

Approval Number 14-7383

Description of Material

Non-Regulated Petroleum Contaminated Soil

Non DOT/RCRA Regulated

ID 175 GROSS
GROSS 44.44 TTARE
TARE 12.92 T
RECALLED NET
NET 31.52 T NET
LOG 113 TONNAGE
09/09/2010
02:34PM

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Joanne Newell of Arcom as agent for Gulf Oil LP — Joanne Newell — 9/9/10

Generator Authorized Agent Name — Signature — Shipment Date

TRANSPORTER

Transporter Name Ceylan Trucker

Driver Name (Print) OKAN CEYLAN

Address Delran NJ 08075

Vehicle License No. / State / EPA No. AM55OT

Truck Number Cey01 175

I hereby certify that the above named material was picked up at the generator site listed above.

Driver Signature — 9/9/10 Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Driver Signature — 9/9/10 Delivery Date

DESTINATION

Site Name **Soil Safe, Inc. - Bridgeport** Phone No. **1-856-467-8030**

Address **378 Route 130, Logan Township, NJ 08085**

No left turn on Rt. 130 North into the facility.

Business hours are: Monday through Friday 7 AM to 5 PM. 5 PM to 10 PM By Appointment only. Saturday by appointment only.

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

Name of Authorized Agent — J. Garcia Signature — 9.9.10 Receipt Date

White - Facility Green - Facility Yellow - Generator Pink - Broker Goldenrod - Contractor Blue - Trucking Co.

Log Number

SOIL SAFE, INC.

NON-HAZARDOUS MATERIAL MANIFEST

GENERATOR

Generator Name Gulf Oil Limited Partnership Generator Site/Location

Address 100 Crossing Boulevard Address 77-40 Hewlett Street

Framingham, MA New Hyde Park, NY

Phone No. 508-270-8300 Phone No. 978-589-3000

Approval Number L-4 7383

Description of Material: Non-Regulated Petroleum Contaminated Soil; Non DOT/RCRA Regulated

ID 1068
GROSS 49.56 T GROSS
TARE 13.96 T TARE
RECALLED
NET 35.60 T NET
LOG 114
09/09/2010
02:36PM TONNAGE

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Jeanne Newell as Agent for Gulf Oil LP — 9/8/10

Generator Authorized Agent Name — Signature — Shipment Date

TRANSPORTER

Transporter Name TIRE DERIVATIVES (TD) Driver Name (Print)

Address DELRAN NJ Vehicle License No. / State / EPA No. AL9PUM/N

Truck Number TD # 1068

I hereby certify that the above named material was picked up at the generator site listed above.

Driver Signature — 9-9-10 Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Driver Signature — 9-9-10 Delivery Date

DESTINATION

Site Name **Soil Safe, Inc. - Bridgeport** Phone No. **1-856-467-8030**

Address **378 Route 130 Logan Township, NJ 08085**

No left turn on Rt. 130 North into the facility.
Business hours are: Monday through Friday 7 AM to 5 PM. 5 PM to 10 PM By Appointment only. Saturday by appointment only.

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

J. Garcia — 9/9/10

Name of Authorized Agent — Signature — Receipt Date

White - Facility Green - Facility Yellow - Generator Pink - Broker Goldenrod - Contractor Blue - Trucking Co.

Log Number

SOIL SAFE, INC.

NON-HAZARDOUS MATERIAL MANIFEST

GENERATOR

Generator Name: GULF OIL CO
Generator Site/Location:
Address: 77-40 HOWLETT ST
NEW HYDE PARK NY
Address: SAME
Phone No.:
Phone No.:

Approval Number: L4-7383

Description of Material: Non-Regulated Petroleum Contaminated Soil; Non DOT/RCRA Regulated

ID 613
GROSS 51.67 T GROSS
TARE 13.62 T TARE
RECALLED
NET 38.05 T NET
LOG 74
09/10/2010 TONNAGE
01 M

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

TIM CERNIGLIA — Generator Authorized Agent Name
Signature
9-10-10 — Shipment Date

TRANSPORTER

Transporter Name: R. B Debris
Address: Hainespact NJ
Driver Name (Print): Ayhan Saglam
Vehicle License No. / State / EPA No.: AL387N
Truck Number: SAGLAM #73

I hereby certify that the above named material was picked up at the generator site listed above.

Ayhn Saglam 9-10-10
Driver Signature — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Ayhn Saglam 9-10-10
Driver Signature — Delivery Date

DESTINATION

Site Name: **Soil Safe, Inc. - Bridgeport** Phone No.: **1-856-467-8030**

Address: **378 Route 130 Logan Township, NJ 08085**

No left turn on Rt. 130 North into the facility.
Business hours are: Monday through Friday 7 AM to 5 PM. 5 PM to 10 PM By Appointment only. Saturday by appointment only.

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

J. Garcia — Signature
9 10 10 — Receipt Date
Name of Authorized Agent

White - Facility Green - Facility Yellow - Generator Pink - Broker Goldenrod - Contractor Blue - Trucking Co.

Log Number

SOIL SAFE, INC.

NON-HAZARDOUS MATERIAL MANIFEST

GENERATOR

Generator Name GULF OIL

Address 77-40 HENLETT ST
NEW HYDE PARK

Generator Site/Location

Address SAME

Phone No.

Phone No.

Approval Number L47383

Description of Material
Non-Regulated Petroleum
Contaminated Soil
Non DOT/RCRA Regulated

ID 608
GROSS 52.42 T GROSS
TARE 13.23 T TARE
RECALLED
NET 39.19 T NET
LOG 78
09/10/2010
01:46PM
TONNAGE

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

TIM CONNIGAN

Generator Authorized Agent Name | Signature | Shipment Date

TRANSPORTER

Transporter Name RTB-Debris

Address Hampton NJ

Driver Name (Print)

Vehicle License No. / State / EPA No. [illegible] NJ

Truck Number MARCH-04

I hereby certify that the above named material was picked up at the generator site listed above.

Driver Signature | 9/10/10 Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Driver Signature | 9/10/2010 Delivery Date

DESTINATION

Site Name Soil Safe, Inc. - Bridgeport Phone No. 1-856-467-8030

Address 378 Route 130, Logan Township, NJ 08085

No left turn on Rt. 130 North into the facility.

Business hours are: Monday through Friday 7 AM to 5 PM. 5 PM to 10 PM By Appointment only. Saturday by appointment only.

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

J Garcia 9 10 10

Name of Authorized Agent | Signature | Receipt Date

White - Facility Green - Facility Yellow - Generator Pink - Broker Goldenrod - Contractor Blue - Trucking Co.

MID ISLAND SALVAGE CORPORATION
SCRAP IRON & METAL
631-667-5040

1007 Long Island Ave
Deer Park NY 11729
11729

37389

8:17:47 AM 08/05/2010

	Gross	Tare	Net Lbs	Price	Amount
310 - LIGHT IRON				5.00	
	38,500	31,120	7,380		369.00
			Total		369.00

*THREE HUNDRED SIXTY-NINE AND XX / 100

Date	Mode	Ter #	Amount
8/5/2010	Cash		369.00

Print Name: HUGO MARROQUI H
Address: 1010 MOTOR PARKWAY
City/ST/Zip: CENTRAL ISLIP/NY/11722

State of issuance:

Ownership:
I hereby state that I'm the lawful owner of the material described heron, that I have a right to sell same and that for payment received in full, hereby acknowledged, I sell and convey title of same to:

Mid Island Salvage

NK YOU FOR YOUR BUSINESS!

SE COME AGAIN! FAC I.D. # 7002

MID ISLAND SALVAGE CORPORATION
SCRAP IRON & METAL
631-667-5040

1007 Long Island Ave
Deer Park NY 11729
11729

37323

12:15:45 PM 08/04/2010

Gross	Tare	Net Lbs	Price	Amount
310 - LIGHT IRON			5.00	
38,500	31,100			370.00
		Total		370.00

* THREE HUNDRED SEVENTY AND XX/100

Date	Mode	Trn #	Amount
8/4/2010	Cash		370.00

Print Name: HUGO MARROQUIN
Address: 1010 MOTOR PARKWAY
City/ST/Zip: CENTRAL ISLIP/NY/11722

State of issuance:

Ownership:

I hereby state that I'm the lawful owner of the material described heron, that I have a right to sell same and that for payment received in full, hereby acknowledged, I sell and convey title of same to:

Mid Island Salvage

X

THANK YOU FOR YOUR BUSINESS!

PLEASE COME AGAIN! FAC I.D. # 7002738

MID ISLAND SALVAGE CORPORATION
SCRAP IRON & METAL
631-667-5040

1007 Long Island Ave
Deer Park NY 11729
11729

37340

2:11:47 PM 08/04/2010

Gross	Tare	Net Lbs	Price	Amount
310 - LIGHT IRON			5.00	375.00
38,600	31,100	7,500		
		Total		375.00

* THREE HUNDRED SEVENTY-FIVE AND XX/100

Date	Mode	Txn #	Amount
8/4/2010	Cash		375.00

Print Name: HUGO MARROQUIN
Addr: 1010 MOTOR PARKWAY
City/ST/Zip: CENTRAL ISLIP/NY/11722

State of issuance:

Ownership:
I hereby state that I'm the lawful owner of the material described heron, that I have a right to sell same and that for payment received in full, hereby acknowledged, I sell and convey title of same to:

Mid Island Salvage

X _____

THANK YOU FOR YOUR BUSINESS.

PLEASE COME AGAIN! I.D. # 002738

MID ISLAND SALVAGE CORPORATION
SCRAP IRON & METAL
631-667-5040

1007 Long Island Ave
Deer Park NY 11729
11729

37415

11:19:04 AM 08/05/2010

Gross	Tare	Net Lbs	Price	Amount
310 - LIGHT IRON			5.00	
34,800	31,100	3,700		185.00
		Total		185.00

* ONE HUNDRED EIGHTY-FIVE AND XX / 100

Date	Mode	Ten #	Amount
8/5/2010	Cash		185.00

Print Name: HUGO MARROQUI N
Address: 1010 MOTOR PARKWAY
City/ST/Zip: CENTRAL ISLIP/NY/11722
State of issuance: NY

JW Tank

Ownership:
I hereby state that I'm the lawful owner of the material described heron, that I have a right to sell same and that for payment received in full, hereby acknowledged, I sell and convey title of same to:

Mid Island Salvage

X

THANK YOU FOR YOUR BUSINESS!

PLEASE COME AGAIN! FAC I.D. # 7002738

RETAIL TICKET

GERSHOW RECYCLING

TME IN: 08/04/10 10:30 AM
TME OUT: 08/04/10 10:41 AM
STATUS: PAID
VENDOR: 20658 Hugo Marroquin (20658)
1010 Motor Pkwy
Central Islip, NY 11722

D.L.IC#: NYS DMV 613 396 517
PHONE:
FAX:
CELL:
EMAIL:

24 Denton Ave
New Hyde Park, NY 11040
Phone 516 746-1081
Fax 516 746-1127
NYD7086593

TICKET#: 2619714
CONTRACT#:
CARRIER:
TRUCK NO:
DESCRIP:
DRIVER:
WEIGHER: Paul T
TOTAL $: $345.60
TOTAL LBS: 8,640

Code	Commodity	Gross	Tare	Contamination	Tare2	Net U		Price	Total
		39,600	30,960			8,640	C	4.0000	345.60
20203	Tanks	39,600	30,960			8,640			345.60

Notes:
5000 GAL TANK

Feb. 22. 2011 7:04PM ISLAND PUMP & TANK CORP. NO. 7102 P. 3/3

APPENDIX B
Quality Assurance Project Plan

77-40 Hewlett Street
New Hyde Park, New York
TAX MAP ID: BLOCK 8555, LOT 60
NYSDEC Site No: 241308

QUALITY ASSURANCE PROJECT PLAN

SUBMITTED TO:

New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12233-7016

PREPARED FOR:

Norman Dawson Realty, LLC
c/o Dawn Dawson, Executrix
State of Norman Dawson
48 Wildflower Drive
Ridge, NY 11961

PREPARED BY:

P.W. Grosser Consulting Engineer & Hydrogeologist, D.P.C.
630 Johnson Ave., Suite 7
Bohemia, NY 11716
Phone: 631-589-6353

Zeb Youngman, Senior Project Manager — zyoungman@pwgrosser.com
Andres Ballares, Project Hydrogeologist — aballares@pwgrosser.com

PWGC Project Number: NDR2601

SEPTEMBER 2026

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ACRONYM	DEFINITION
µg/L	microgram per liter
ASP	Analytical Services Protocol
BCP	Brownfield Cleanup Program
CHASP	Construction Health and Safety Plan
DER	Division of Environmental Remediation
DI	Deionized
DUSR	Data Usability Summary Report
ELAP	Environmental Laboratory Approval Program
ESA	Environmental Site Assessment
HDPE	High Density Polyethylene
HSM	Health and Safety Manager
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NYC OER	New York City Office of Environmental Remediation
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
PCBs	Polychlorinated Biphenyls
PFAS	Per- and Poly-fluorinated Alkyl Substances
PID	Photoionization Detector
PPE	Personal Protective Equipment
PWGC	P.W. Grosser Consulting, Inc.
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
RAWP	Remedial Action Work Plan
SCOs	Soil Cleanup Objectives
SDG	sample delivery group
SHSO	Site Health and Safety Officer
SOP	Standard Operating Procedure
SRI	Supplemental Remedial Investigation
SVOC	Semivolatile Organic Compound
TAGM	Technical and Administrative Guidance Manual
TAL	Target Analyte List
TBD	To Be Determined
TCL	Target Compound List
USEPA	United States Environmental Protection Agency
UST	underground storage tank
VCP	Voluntary Cleanup Program
VOC	Volatile Organic Compound

1.0 QUALITY ASSURANCE PROJECT PLAN

This Quality Assurance Project Plan (QAPP) presents the objectives, functional activities, methods, and quality assurance/quality control (QA/QC) requirements associated with sample collection and laboratory analysis for site characterization activities at the property located at 77-40 Hewlett Street, New Hyde Park, NY (the Site). The QAPP follows requirements detailed in New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation's (DER's) Technical Guidance for Site Investigation and Remediation (DER-10), Section 2.

The Site is located at 77-40 Hewlett St, New Hyde Park, NY and is located in the borough of Queens in Queens County. The Site is identified on the NYC Tax Map as Block 8555, Lot 60.

The Site measures approximately 13,250 square feet and is improved with a one-story commercial building built in 1960 and is utilized as an automobile service garage and convenience store with a retail gasoline dispensing services.

The Site has historically been used as follows:

- Norman Dawson Realty, LLC has owned the property since 1975, with no available ownership records before that date. Since 1992, at least two different parties have operated underground petroleum storage at the Site. According to the NYSDEC Petroleum Bulk Storage Database (Site No. 2-188808), the Site has 25 registered underground storage tanks (USTs), 18 of which are identified as decommissioned. Decommissioned USTs consist of five 4,000-gallon gasoline tanks and thirteen 550-gallon USTs with "other" identified as the product. Active tanks consist of one 1,000-gallon #2 fuel oil tank, one 1,000-gallon waste oil tank, one 12,000-gallon gasoline tank, one 6,000-gallon gasoline tank, one 6,000-gallon diesel tank, one 8,000-gallon gasoline tank, and one 4,000-gallon gasoline tank.

Based upon the results of an Underground Storage Tank System and Hydraulic Lift Removal Report prepared by AECOM in February 2011, P. W. Grosser Consulting Engineer & Hydrogeologist, D.P.C. (PWGC) has prepared a Site Characterization Work Plan (SCWP) to obtain additional subsurface quality data, delineate areas of concern within the Site boundary, and evaluate whether offsite adjacent properties may be impacted.

2.0 PROJECT ORGANIZATION

The site characterization efforts defined in the SCWP will be implemented by PWGC on behalf of Norman Dawson Realty, LLC. The following identifies the responsibilities of various organizations supporting the Site Characterization:

- The NYSDEC Project Manager (Marlen Salazar) will be responsible for reviewing and approving this work plan, coordinating approval of requested modifications, and providing guidance on regulatory requirements.
- The PWGC Program Manager (Zeb Youngman) will provide technical expertise for review of the project plans, reports, and ongoing field activities.
- The PWGC Quality Assurance Manager (Jennifer Lewis) will confirm the quality of work associated with the project is in accordance with all project plans.
- PWGC Project Manager (Zeb Youngman) will be responsible for the day-to-day project management, task leadership, and project engineering support and for the planning and implementation of characterization activities. The Project Manager is responsible for ensuring that the requirements of the SCWP are implemented. The project manager will also act as the Site Health and Safety Manager (HSM).
- PWGC Field Team Leader (or designee) will be responsible for sample collection, oversight of subcontractor personnel, and coordination of daily field activities. The Field Team Leader will act as the Site Health and Safety Officer (SHSO) ensuring implementation of the Site Construction Health and Safety Plan (CHASP).
- A New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) certified laboratory (Pace Analytical Laboratories of Westborough, Massachusetts ELAP ID 11148 and 11627 or similar) will be contracted to perform required analyses and reporting, including Analytical Services Protocol (ASP) Category B Deliverables, which will allow for data validation.
- An independent third-party data validator (Laboratory Data Consultants of Carlsbad, California or similar) will be contracted to perform data validation and prepare a Data Usability Summary Report (DUSR) in accordance with Section 3.6.
- Subcontractors will perform surveying, drilling, and/or sampling at the direction of the Field Team Leader in accordance with the SCWP.

Qualifications for the project team are included in the SCWP.

3.0 LABORATORY ANALYSIS

Requirements for sample analysis are described below. All samples will be submitted to a NYSDOH Environmental Laboratory Approval Program (ELAP) certified laboratory for analysis. Analytical methods, preservation, container requirements, and holding times are summarized below.

ANALYTICAL METHODS (SOIL)

Analyte/ Analyte Group	Matrix	Method/ SOP	Container(s) (number, size & type per sample)	Preservation	Preparation Holding Time	Analytical Holding Time	Estimated Number of Samples to be Collected
TCL VOCs	Soil	USEPA 8260C	3 x 40 ml VOA, glass vial	1 x Methanol 2 x DI H_2O Cool $\leq$ 4 °C	48 hours	14 Days	10

ANALYTICAL METHODS (SOIL VAPOR)

Analyte/ Analyte Group	Matrix	Method/ SOP	Container(s) (number, size & type per sample)	Preservation	Preparation Holding Time	Analytical Holding Time	Estimated Number of Samples to be Collected
VOCs	Soil Vapor	USEPA TO-15	6L SUMMA Canister	None	None	30	10

3.1 Soil Samples

Soil samples will be collected as described in the SCWP. Analysis will conform to NYSDEC ASP Category B data deliverables in accordance with NYSDEC DER-10, Appendix 2B, 1.0 (b), including calibration standards, surrogate recoveries, and chromatograms.

3.2 Soil Vapor Samples

Soil vapor samples will be collected as described in the SCWP. Analysis will conform to NYSDEC ASP Category B data deliverables in accordance with NYSDEC DER-10, Appendix 2B, 1.0 (b), including calibration standards, surrogate recoveries, and chromatograms.

3.3 Field/Laboratory Data Control Requirements

QC procedures will be followed in the field and at the laboratory to facilitate that reliable data are obtained. When performing field sampling, care shall be taken to prevent the cross-contamination of sampling equipment, sample bottles, and other equipment that could compromise sample integrity. QC samples will include the following:

- Blind Duplicates – one per 20 environmental samples for soil samples.

- Matrix Spike/Matrix Spike Duplicate (MS/MSD) - one per 20 environmental samples for soil samples.
- Equipment Blank – one per day for soil samples when non-disposable sampling equipment is utilized.
- Trip Blank – one per day.

The table below summarizes the expected number of QA/QC samples to be collected based upon the number of samples to be collected per sample media and the number of days the sample collection will take.

ESTIMATED QA/QC SAMPLE FREQUENCY

Sample Media	# of Samples	Days	Blind Duplicate	MS/MSD	Equipment Blank	Field Blank	Trip Blank
Soil	10	1	1	1	1	0	1

QA/QC Sample analysis will conform to NYSDEC ASP Category B data deliverables in accordance with NYSDEC DER-10, Appendix 2B, 1.0 (b), including calibration standards, surrogate recoveries, and chromatograms.

3.4 Sample Identification

Each sample will be identified with a set of information relating individual sample characteristics. Required information consists of Sample Designation, Depth, Date, Time, and Matrix. Examples of sample IDs are shown below.

- SB001 (0-2') (soil sample, boring 001 from 0 to 2 feet)
- SV001 (temporary soil vapor point 001)
- SS001 (temporary sub-slab soil vapor point 001)

Sample frequency, locations, depths, and nomenclature may change subject to field decisions and professional judgment.

3.5 Chain-of-Custody, Sample Packaging and Shipment

A chain-of-custody/request for analysis form will be completed and submitted to the laboratory with samples to be analyzed. A copy of the chain-of-custody will be retained by the Project Manager. The chain-of-custody will include the project name, sampler's signature, sample IDs, date and time of sample collection, and analysis requested.

Samples will be packaged and shipped in a manner that maintains sample preservation requirements during transport (i.e., ice to keep samples cool until receipt at the laboratory), ensures that sample holding times can be achieved by the laboratory, and prevents samples from being tampered with.

If a commercial carrier ships samples, a bill of lading (waybill) will be used as documentation of sample custody. Receipts for bills of lading and other documentation of shipment shall be maintained as part of the permanent custody documentation. Commercial carriers are not required to sign the chain-of-custody as long as it is enclosed in the shipping container and evidence tape (custody seal) remains in place on the shipping container.

3.6 Data Usability and Validation

The main purpose of the data is for obtaining additional subsurface soil and soil vapor quality data, delineate areas of concern within the Site boundary, and evaluate whether off-site adjacent properties may be impacted. Based upon this, data usability and validation will be performed as described below. Complete data packages will be archived in the project files and, if deemed necessary, additional validation can be performed using procedures in the following sections.

3.6.1 Data Usability and Validation Requirements

Data usability and validation are performed on analytical data sets, primarily to confirm that sampling and chain-of-custody documentation are complete, sample IDs can be tied to specific sampling locations, samples were analyzed within the required holding times, temperature ranges are met, pressure in air canisters is within acceptable ranges, and analyses are reported in conformance with NYSDEC ASP, Category B data deliverable requirements as applicable to the method utilized.

3.6.2 Data Usability and Validation Methods

A designee of the PWGC Project Manager will complete a data usability evaluation for the data collected during the Site Characterization and a data usability summary report (DUSR) will be prepared. The DUSR will be prepared in accordance with NYSDEC DER-10, Appendix 2B.

Independent third-party data validation will be performed on 5% of the sample data, or on one sample from each sample delivery group (SDG), whichever is greater. Data validation will be performed by Laboratory Data Consultants or similar.

4.0 FIELD EQUIPMENT CALIBRATION

Equipment will be inspected and approved by the Field Team Leader before being used. Equipment will be calibrated to factory specifications, if required. Monitoring equipment will be calibrated following manufacturers' recommended schedules. Daily field response checks and calibrations will be performed as necessary (i.e. PID calibrations) following manufacturers' standard operating procedures. Equipment calibrations will be documented in a designated field logbook.

5.0 EQUIPMENT DECONTAMINATION

In order to minimize the potential for cross-contamination, non-dedicated drilling and sampling equipment shall be properly decontaminated prior to and between sampling/drilling locations.

5.1 General Procedures

Drilling equipment will be decontaminated in a designated area. Sampling equipment and probes will be decontaminated in an area covered with plastic sheeting near the sampling location. Waste material generated during decontamination activities will be containerized, stored and disposed of in accordance with the procedures detailed in Section 5.5. Decontamination of sampling equipment shall be kept to a minimum, and wherever possible, dedicated sampling equipment shall be used. Personnel directly involved in equipment decontamination shall wear appropriate personal protective equipment (PPE).

5.2 Drilling Equipment

Drilling equipment shall be decontaminated prior to performance of the first boring/excavation and between all subsequent borings/excavations. This shall include hand tools, casing, augers, drill rods, temporary well material and other related tools and equipment. Water used during drilling and/or steam cleaning operations shall be from a potable source.

5.3 Sampling Equipment

Sampling equipment (i.e., trowels, knives, split-spoons, bowls, hand augers, etc...) will be decontaminated prior to each use as follows:

- Laboratory-grade glassware detergent and tap water scrub to remove visual contamination (not Liquinox)
- Generous tap water rinse
- Distilled water rinse (triple rinse)

5.4 Meters and Probes

All meters and probes that are used in the field (other than those used solely for air monitoring purposes, e.g., PID meters) will be decontaminated between uses as follows:

- Laboratory-grade detergent and tap water solution wash
- Tap water rinse
- Distilled water rinse (triple rinse)

5.5 Management of Investigation Derived Waste

Waste materials generated from the field operations may consist of soil and rock cuttings, purge water, and miscellaneous solid materials such as PPE and supplies. Investigative derived waste (IDW) generated during field operations will be disposed of in accordance with applicable regulations.

Soil cuttings generated from soil borings exhibiting evidence of contamination and well installation activities will be stored in 55-gallon drums. Drums will be labeled to indicate the source of the material and will be stored in a designated area onsite. Soil and/or rock cores and cuttings will be field screened using a PID, while performing drilling operations. Drummed material will be disposed of at an off-site disposal facility. Following receipt of the analytical results, recommendations for disposition of the drummed material will be provided to the NYSDEC.

Although not anticipated, if groundwater is encountered, development and purge water generated during the field activities will be stored in a portable holding tank and/or 55-gallon drums. Drums will be labeled to indicate the source of the fluid and will be stored in a designated area onsite. Drummed groundwater will be sampled to determine if discharge to the surface of the site is appropriate or offsite disposal is required. Following receipt of the groundwater sampling results, recommendations for disposition of the water will be provided to NYSDEC.

6.0 FIELD DOCUMENTATION

Documentation will take place on either appropriate forms or in a dedicated site logbook. Permanent black or blue ink will be used to record information in the logbook. Errors in field documentation will be lined through, initialed, dated, and corrected. Forms will be kept by the PWGC Field Team Leader during the field activities. Field activities will be documented in the field logbook. The logbook will contain pages that are consecutively numbered and be permanently bound with a hard cover. Upon completion of daily activities, unused portions of pages will be lined-through and initialed. Appropriate supplies will be used during days of PFAS sampling to reduce the potential for cross-contamination.

The primary purpose of the field logbook is to document the daily field activities and to provide descriptions of each activity. All entries in the field logbook will be recorded and dated by the person making the entry.

APPENDIX C
Health and Safety Plan

77-40 Hewlett Street
New Hyde Park, New York
TAX MAP ID: BLOCK 8555, LOT 60
NYSDEC Site No: 241308

Health and Safety Plan

Submitted To:

New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12233-7016

Prepared For:

Norman Dawson Realty, LLC
c/o Dawn Dawson, Executrix
State of Norman Dawson
48 Wildflower Drive
Ridge, NY 11961

Prepared By:

P.W. Grosser Consulting Engineer & Hydrogeologist, D.P.C.
630 Johnson Avenue, Suite 7
Bohemia, NY 11716
Phone: 631-589-6353

Zeb Youngman, Senior Project Manager zyoungman@pwgrosser.com
Andres Ballares, Project Hydrogeologist aballares@pwgrosser.com

PWGC Project Number: NDR2601

SEPTEMBER 2026

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1.0 STATEMENT OF COMMITMENT

Onsite employees may be exposed to chemical contaminants of concern identified within the soil/fill during the planned investigation activities to be performed at the property located at 77-40 Hewlett Street, New Hyde Park, NY (the Site). PWGC's policy is to minimize the possibility of work-related exposure through awareness and qualified supervision, health and safety training, use of appropriate PPE, and the following activity specific safety protocols contained in this Health and Safety Plan (HASP). PWGC has established a guidance program to implement this policy in a manner that protects personnel to the maximum reasonable extent.

This HASP describes emergency response procedures for actual and potential chemical hazards. Persons are to acknowledge that they understand the potential hazards and the contents of this Health and Safety policy by signing off on receipt of their individual copy of the document. Contractors and suppliers are retained as independent contractors and are responsible for ensuring the health and safety of their own employees as it relates to general construction practices.

2.0 INTRODUCTION AND SITE ENTRY REQUIREMENTS

This document describes the health and safety guidelines developed by PWGC at the request of Norman Dawson Realty, LLC for the proposed Site Characterization to be performed at the 77-40 Hewlett Street Site to protect on-site personnel, visitors, and the public from exposure to potential hazardous materials or wastes. In accordance with the most recently adopted and applicable Occupational Safety and Health Administration (OSHA) 29 Code of Federal Regulations (CFR) Part 1910.120 Hazardous Waste Operations and Emergency Response Final rule and 29 CFR 1926 Construction Safety Standards, this HASP, including the attachments, addresses safety and health hazards relating to each phase of site operations and is based on the best information available. The HASP may be revised by PWGC at the request of Norman Dawson Realty, LLC upon receipt of new information regarding site conditions. Changes will be documented by written amendments.

2.1 Site Safety Plan Acceptance, Acknowledgement, and Amendments

The project superintendent and the site safety officer are responsible for informing personnel entering the work area of the contents of this plan and ensuring that each person signs the safety plan acknowledging the on-site hazards and procedures required to minimize exposure to adverse effects of these hazards. A copy of the Acknowledgement Form is included as **Appendix A**. Site conditions may warrant an amendment to the HASP. Amendments to the HASP are acknowledged by completing the form in **Appendix B**.

2.2 Daily Safety Meetings

Each day before work begins; the site safety officer will hold safety (tailgate or toolbox) meetings to ensure that onsite personnel understand the site conditions and operating procedures and to address safety questions and concerns. Meeting minutes and attendance will be recorded. Project staff will discuss and remedy health and safety issues at these meetings.

2.3 Key Personnel – Roles and Responsibilities

The following key personnel are planned for this project:

- Project Manager – Mr. Zeb Youngman or alternate
- Site Safety Officer – Mr. Robert D'Albora or alternate

The project manager is responsible for overall project administration and, with guidance from the site safety officer, for supervising the implementation of this HASP. The site safety officer will conduct daily (tail gate or toolbox) safety meetings at the project site and oversee daily safety issues. Each

subcontractor and supplier (defined as an OSHA employer) is also responsible for the health and safety of its employees. If there is any dispute about health and safety or project activities, on-site personnel will attempt to resolve the issue. If the issue cannot be resolved at the site, then the project manager will be consulted.

The site safety officer is responsible for the following:

- Educating personnel about information in this HASP and other safety requirements to be observed during site operations, including, but not limited to, designation of work zones and levels of protection and emergency procedures dealing with fire and first aid.
- Coordinating site safety decisions with the project manager.
- Monitoring the condition and status of known on-site hazards specified in this HASP.
- Maintaining records of safety problems, corrective measures and documentation of chemical exposures or physical injuries (the site safety officer will document these conditions in a bound notebook and maintain a copy of the notebook on-site).

The person who observes safety concerns and potential hazards that have not been addressed in the daily safety meetings should immediately report their observations/concerns to the site safety officer or appropriate key personnel.

3.0 HAZARDS OF THE SITE

3.1 Chemical Hazards

Safety data sheets for the known and suspected chemicals that may be encountered at the site are included as **Appendix C**.

3.1.1 Soil

Volatile organic compounds (VOCs) exceeding Unrestricted Use Soil Cleanup Objectives (UUSCOs) were detected in soils where tanks and lifts have been removed. VOC contaminants of concern (COCs) include tetrachloroethylene (PCE), Benzene, Ethylbenzene, Toluene, 1,2,4-trimethylbenzene, 1,3,4-trimethylbenzene and total xylenes.

3.2 Biological Hazards

Work will be performed in an urban environment; however, during the course of the project, there is potential for workers to come into contact with biological hazards such as animals, insects, and plants.

3.2.1 Animals

The Site is located in a predominantly urban area. It is possible that dogs, cats, rats, and mice may be present. Workers shall use discretion and avoid all contact with animals.

3.2.2 Insects

Insects, such as mosquitoes, ticks, bees, and wasps may be present during certain times of the year. Workers will be encouraged to wear repellents and PPE, if deemed necessary, when working in areas where insects are expected to be present.

During the months of April through October, particular caution must be exercised to minimize exposure to deer ticks and the potential for contracting Lyme disease. Specific precautionary work practices that are recommended include the following:

- Cover your body as much as possible. Wear long pants and long-sleeved shirts. Light color clothing makes spotting of ticks easier.
- Try to eliminate possible paths by which the Deer Tick may reach unprotected skin. For example, tuck bottoms of pants into socks or boots and sleeves into gloves. (Duct tape may be utilized to help seal cuffs and ankles). If heavy concentrations of ticks or insects are anticipated or encountered, Tyvek coveralls may be utilized for added protection when the potential for heat stress is not a concern.

- Conduct periodic and frequent, (e.g., hourly), surveys of your clothing for the presence of ticks. Remove any tick, save it and report to the clinic with the tick.
- Use insect /tick repellents that contain the chemical DEET (n,n-Diethyltoluamide). Apply repellents in accordance with manufacturers' recommendations. These repellents are readily available and include such brands as Deep Woods OFF and Maximum Strength OFF.

3.2.3 Plants

The site is currently operating as a gasoline fueling station and plants are not anticipated; however, portions of the exterior may contain poison ivy, sumac, or oak. The FTL/SHSO should identify susceptible individuals. Worker shall avoid all contact with these plants.

3.3 Physical Hazards

Most safety hazards are discussed in the Activity Hazard Analyses (AHA) in **Appendix B** for the different phases of the project. In addition to the AHAs, general work rules and other safety procedures are described in Section 11.0 of this HASP.

3.3.1 Temperature Extremes

3.3.1.1 Heat Stress

Heat stress is a significant potential hazard, which is greatly exacerbated with the use of PPE in hot environments. The potential hazards of working in hot environments include dehydration, cramps, heat rash, heat exhaustion, and heat stroke.

3.3.1.2 Cold Stress

At certain times of the year, workers may be exposed to the hazards of working in cold environments. Potential hazards in cold environments include frostbite, trench foot or immersion foot, hypothermia as well as slippery surfaces, brittle equipment, and poor judgment.

PWGC's Heat/Cold Stress Protocols are specified in **Appendix D**.

3.3.2 Steam, Heat, and Splashing

Exposure to steam/heat/splashing hazards can occur during steam cleaning activities. Splashing can also occur during well development and sampling activities. Exposure to steam/heat/splashing can result in scalding/burns, eye injury, and puncture wounds.

3.3.3 Noise

Noise is a potential hazard associated with the operation of heavy equipment, drill rigs, pumps and engines. Workers will wear hearing protection while in the work zone when these types of machinery are operating.

3.3.4 Fire and Explosion

When conducting excavation or drilling activities, the opportunity of encountering fire and explosion hazards may exist from encountering underground utilities, from the use of diesel engine equipment, and other potential ignition sources. During dry periods there is an increased chance of forest and brush fires starting at the job site. If these conditions occur no smoking will be permitted at the site and all operations involving potential ignition sources will be monitored continuously (fire watch).

3.3.5 Manual Lifting/Material Handling

Manual lifting of heavy objects may be required. Failure to follow proper lifting technique can result in back injuries and strains. Back injuries are a serious concern as they are the most common workplace injury, often resulting in lost or restricted work time, and long treatment and recovery periods.

3.3.6 Slips, Trips, and Falls

Working in and around the site will pose slip, trip and fall hazards due to slippery surfaces that may be oil covered, or from rough terrain, surfaces that are steep inclines, surfaced debris, or surfaces which are wet from rain or ice. Falls may result in twisted ankles, broken bones, head trauma or back injuries.

3.3.7 Heavy Equipment Operation

An excavator/backhoe will be used to excavate where required. Working with or near heavy equipment poses many potential hazards, including electrocution, fire/explosion, being struck by or against, or pinched/caught/crushed by, and can result in serious physical harm.

3.3.8 Electrocution

Encountering underground utilities may pose electrical hazards to workers. Additionally, overhead electrical lines can be a concern during drilling operations. Potential adverse effects of electrical hazards include burns and electrocution, which could result in death.

4.0 PERSONAL PROTECTIVE EQUIPMENT

PPE shall be selected in accordance with OSHA 29 CFR 1910.120(c), (g), and 1910.132. Protective equipment shall be National Institute for Occupational Safety and Health (NIOSH) approved and respiratory protection shall conform to OSHA 29 CFR Part 1910.133 and 1910.134 specifications; head protection shall conform to 1910.135; eye and face protection shall conform to 1910.133; and foot protection shall conform to 1910.136. The only true difference among the levels of protection from D thru B is the addition of the type of respiratory protection. It is anticipated that work will be performed in Level D PPE.

4.1 Level D

Level D PPE shall be donned when the atmosphere contains no known hazards and work functions preclude splashes, immersion, or the potential for inhalation of, or contact with, hazardous concentrations of harmful chemicals. Level D PPE consists of:

- standard work uniform, coveralls, or Tyvek*, as needed;
- steel toe work boots;
- hard hat;
- gloves, as needed;
- safety glasses;
- hearing protection;
- equipment replacements are available as needed.

*Tyvek shall not be worn when sampling for PFAS.

4.2 Level C

Level C PPE shall be donned when the concentrations of measured total organic vapors in the breathing zone exceed background concentrations (using a portable PID, or equivalent), but are less than 5 ppm. The specifications on the air purifying respirator (APR) filters used must be appropriate for contaminants identified or expected to be encountered. Level C PPE shall be donned when the identified contaminants have adequate warning properties and criteria for using APR have been met. Level C PPE consists of:

- chemical resistant or coated Tyvek* coveralls;
- steel-toe work boots;
- chemical resistant over boots or disposable boot covers;
- disposable inner gloves (surgical gloves);

- disposable outer gloves;
- full face APR fitted with organic vapor/dust and mist filters or filters appropriate for the identified or expected contaminants;
- hard hat;
- splash shield, as needed; and,
- ankles/wrists taped with duct tape.

*Tyvek shall not be worn when sampling for PFAS.

The site safety officer will verify if Level C is appropriate by checking organic vapor concentrations using compound and/or class-specific detector tubes.

4.3 Level B

Level B PPE shall be donned when the contaminants have not been identified and/or the concentrations of unknown measured total organic vapors in the breathing zone exceed 5 ppm (using a portable PID, or equivalent). Level B PPE shall be donned if the Immediately Dangerous to Life and Health (IDLH) of a known contaminant is exceeded. If a contaminant is identified or is expected to be encountered for which the NIOSH and/or OSHA recommend the use of a positive pressure self-contained breathing apparatus (SCBA) when that contaminant is present, Level B PPE shall be donned even though the total organic vapors in the breathing zone may not exceed 5 ppm. Level B shall be donned for confined space entry, and when the atmosphere is oxygen deficient (oxygen less than 19.5%) or potentially oxygen deficient. If Level B PPE is required for a task, at least three people shall be donned in Level B at any one time during that task. PPE shall only be donned at the direction of the site safety officer. Level B PPE consists of:

- supplied air SCBA or airline system with five-minute egress system;
- chemical resistant coveralls;
- steel-toe work boots;
- chemical resistant over boots or disposable boot covers;
- disposable inner gloves;
- disposable outer gloves;
- hard hat; and,
- ankles/wrists taped.

The exact PPE ensemble is decided on a site-by-site basis by the PWGC Health and Safety Officer with the intent to provide the most protective and efficient worker PPE.

5.0 CONTINGENCY PLAN

Site personnel must be prepared in the event of an emergency. Emergencies can take many forms: illnesses, injuries, chemical exposure, fires, explosions, spills, leaks, releases of harmful contaminants, or sudden changes in the weather.

Emergency telephone numbers and a map to the hospital (**Figure 1**) will be posted in the command post. Site personnel should be familiar with the emergency procedures, and the locations of site safety, first aid, and communication equipment.

5.1 Emergency Equipment Onsite

- Private telephones: Site personnel.
- Two-way radios: Site personnel where necessary.
- Emergency Alarms: Onsite vehicle horns*.
- First aid kits: Onsite, in vehicles or office.
- Fire extinguisher: Onsite, in office or on equipment.

* Horns: Air horns will be supplied to personnel at the discretion of the project superintendent or site safety officer.

5.2 Emergency Telephone Numbers

- General Emergencies 911
- New York City Police 911
- Long Island Jewish Medical Center 1-718-470-7000
- NYSDEC Spills Division 1-800-457-7362
- NYSDEC Hazardous Waste Division 1-718-482-4996
- NYCDEP 1-212-639-9675
- NYC Department of Health 1-212-788-4711
- NYC Fire Department 911
- National Response Center 1-800-424-8802
- Poison Control 1-212-764-7667

A copy of this page shall be posted in the office.

5.3 Personnel Responsibilities During an Emergency

The project manager is primarily responsible for responding to and correcting any emergency situations. However, in the absence of the project manager, the site safety officer shall act as the project manager's on-site designee and perform the following tasks:

- Take appropriate measures to protect personnel;
- Ensure that appropriate federal, state, and local agencies are informed, and emergency response plans are coordinated. In the event of fire or explosion, the local fire department should be summoned immediately. If toxic materials are released to the air, the local authorities should be informed in order to assess the need for evacuation;
- Ensure appropriate decontamination, treatment, or testing for exposed or injured personnel;
- Determine the cause of incidents and make recommendations to prevent recurrence; and,
- Ensure that all required reports have been prepared.

5.4 Medical Emergencies

A person who becomes ill or injured, first aid will be administered while waiting for an ambulance or paramedics. A Field Accident Report (**Appendix E**) must be filled out for any injury.

A person transporting an injured/exposed person to a clinic or hospital for treatment will take the directions to the hospital and information on the chemical(s) to which they may have been exposed.

5.5 Fire or Explosion

In the event of a fire or explosion, the local fire department will be summoned immediately. The site safety officer or his designated alternate will advise the fire commander of the location, nature and identification of the hazardous materials on-site. If it is safe to do so, site personnel may:

- use firefighting equipment available on site; or,
- remove or isolate flammable or other hazardous materials that may contribute to the fire.

5.6 Evacuation Routes

Evacuation routes established by work area locations will be reviewed prior to commencing site operations. As the work areas change, the evacuation routes will be altered accordingly and the new route will be reviewed.

Under extreme emergency conditions, evacuation is to be immediate without regard for equipment. The evacuation signal will be a continuous blast of a vehicle horn, if possible, and/or by verbal/radio communication. When evacuating the site, personnel will follow these instructions:

- Keep upwind of smoke, vapors, or spill location.
- Exit through the decontamination corridor if possible.
- If evacuation through the decontamination corridor is not possible, personnel should remove contaminated clothing once they are in a safe location and leave it near the exclusion zone or in a safe place.
- The site safety officer will conduct a head count to ensure that all personnel have been evacuated safely. The head count will be correlated to the site and/or exclusion zone entry/exit log.
- If emergency site evacuation is necessary, all personnel are to escape the emergency situation and decontaminate to the maximum extent practical.

FIGURES



Document Path: W:\Projects\M-R\NDR\2601\MapFiles\SitePlan.aprx

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REVISION	DATE	INITIAL	COMMENTS

DRAWING INFORMATION:

Project:	NDR2601	Designed by:	AB
Date:	9/21/2026	Drawn by:	AM
Scale:	AS SHOWN	Approved by:	AB

Hospital Route Map

77-40 Hewlett Street
Queens, NY

FIGURE NO:

1

HEALTH AND SAFETY WORK PLAN

APPENDIX A
Site Safety Plan Acknowledgement Form

PWGC
ENVIRONMENTAL ENGINEERING & CONSULTING

SITE SAFETY PLAN ACKNOWLEDGMENT FORM

I have been informed and understand the procedures set forth in the HASP and amendments:

Printed Name	Signature	Representing	Date

HEALTH AND SAFETY WORK PLAN

APPENDIX B
Site Safety Plan Amendment Form

PWGC
ENVIRONMENTAL ENGINEERING & CONSULTING

SITE SAFETY PLAN AMENDMENT FORM

Site Safety Plan Amendment #_____

Site Name: _____

Reason for Amendment:

_____
_____
_____
_____

Alternative Procedures: _____
_____
_____
_____

Required Changes in PPE:_____
_____
_____
_____

_____ _____
Project Superintendent Date

_____ _____
Health & Safety Consultant Date

_____ _____
Site Safety Officer Date

HEALTH AND SAFETY WORK PLAN

APPENDIX C
Safety Data Sheets

TCI AMERICA
SAFETY DATA SHEET

Revision number: 1
Revision date: 07/06/2018

1. IDENTIFICATION

Product name: 1,1,1,2-Tetrachloroethane
Product code: T0695

Product use: For laboratory research purposes.
Restrictions on use: Not for drug or household use.

Company:
TCI America
9211 N. Harborgate Street
Portland, OR 97203 U.S.A.
Telephone:
+1-800-423-8616 / +1-503-283-1681
Fax:
+1-888-520-1075 / +1-503-283-1987
e-mail:
sales-US@TCIchemicals.com
www.TCIchemicals.com

Emergency telephone number:
Chemical Emergencies:
TCI America (8:00am - 5:00pm) PST
+1-503-286-7624
Transportation Emergencies:
Chemtrec 24-Hour
+1-800-424-9300 (U.S.A.)
+1-703-527-3887 (International)
Responsible department:
TCI America
Environmental Health Safety and Security
+1- 503-286-7624

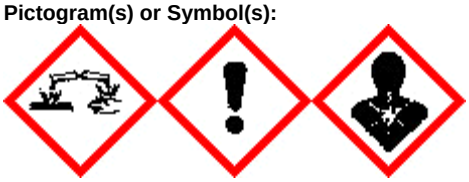
2. HAZARD(S) IDENTIFICATION

OSHA Haz Com: CFR 1910.1200:
WHMIS 2015:
Acute Toxicity - Oral [Category 4]
Acute Toxicity - Inhalation [Category 4]
Skin Corrosion/Irritation [Category 2]
Eye Damage/Irritation [Category 1]
Carcinogenicity [Category 2]
Aquatic Hazard (Acute) [Category 3]

Signal word: Danger!

Hazard Statement(s):
Harmful if swallowed or if inhaled
Causes skin irritation
Causes serious eye damage
Suspected of causing cancer
Harmful to aquatic life

Pictogram(s) or Symbol(s):



Precautionary Statement(s):

[Prevention] Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid breathing mist, vapors or spray. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Do not eat, drink or smoke when using this product. Wash hands and face thoroughly after handling. Wear protective gloves, protective clothing, face protection.

[Response] If swallowed: Call a poison center or doctor if you feel unwell. Rinse mouth. If on skin: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice or attention. Take off contaminated clothing and wash it before reuse. 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. Immediately call a poison center or doctor. If exposed or concerned: Get medical advice or attention.

[Storage] Store locked up.

[Disposal] Dispose of contents and container in accordance with local, regional, national regulations (e.g. US: 40 CFR Part 261, EU:91/156/EEC, JP: Waste Disposal and Cleaning Act, etc.).

Hazards not otherwise classified: [HNOC] None.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/mixture: Substance
Components: 1,1,1,2-Tetrachloroethane
Percent: >99.0%(GC)
CAS RN: 630-20-6
Molecular Weight: 167.84
Chemical Formula: $C_2H_2Cl_4$

4. FIRST-AID MEASURES

Description of first aid measures

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention.

Skin contact: Remove/Take off immediately all contaminated clothing. Gently wash with plenty of soap and water. Get medical advice/attention.

Eye contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Get medical advice/attention.

Ingestion: Get medical advice/attention.Rinse mouth.

Symptoms/effects:

Acute: Pain. Redness.

Delayed: No data available

Indication of any immediate medical attention:
Not available.
Notes to physician:
No data available

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media: Dry chemical, foam, water spray, carbon dioxide.

Specific hazards arising from the chemical: Take care as it may decompose upon combustion or in high temperatures to generate poisonous fume.

Hazardous combustion products: These products include: Carbon oxides Halogenated compounds

Other specific hazards: WARNING: Highly toxic HCl gas is produced during combustion.

Advice for firefighters: Wear self-contained breathing apparatus if possible.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Entry to non-involved personnel should be controlled around the leakage area by roping off, etc.

Environmental precautions: Prevent product from entering drains.

Methods and materials for containment and cleaning up: Absorb spilled material in a suitable absorbent (e.g. rag, dry sand, earth, saw-dust). In case of large amount of spillage, contain a spill by bunding. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

7. HANDLING AND STORAGE

Precautions for safe handling: Handling is performed in a well ventilated place. Wear suitable protective equipment. Prevent generation of vapour or mist. Wash hands and face thoroughly after handling.
Use a closed system if possible. Use a ventilation, local exhaust if vapour or aerosol will be generated.
Avoid all contact!

Conditions for safe storage, including any incompatibilities

Storage conditions: Keep container tightly closed. Store in a cool and dark place.
Store locked up.
Store away from incompatible materials such as oxidizing agents.

Packaging material: Comply with laws.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Appropriate engineering controls: Follow safe industrial engineering/laboratory practices when handling any chemical. Install a closed system or local exhaust. Also install safety shower and eye bath.

Personal protective equipment

Respiratory protection: Half or full facepiece respirator, self-contained breathing apparatus(SCBA), supplied air respirator, etc. Use respirators approved under appropriate government standards and follow local and national regulations.

Hand protection: Impervious gloves.

Eye protection: Safety goggles. A face-shield, if the situation requires.

Skin and body protection: Impervious protective clothing. Protective boots, if the situation requires.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state (20°C): Liquid
Form: Clear
Colour: Colorless - Almost colorless
Odour: No data available
Odor threshold: No data available
Odour threshold: No data available

Melting point/freezing point:	No data available	pH:	No data available
Boiling point/range:	131°C (268°F)	**Vapour pressure:**	No data available.
Decomposition temperature:	No data available	**Vapour density:**	No data available
Relative density:	1.56	**Dynamic Viscosity:**	No data available
Kinematic viscosity:	No data available		
Log Pow:	No data available	**Evaporation rate(Butyl Acetate=1):**	No data available
Flash point:	No data available	**Autoignition temperature:**	No data available
Flammability(solid, gas):	No data available	**Flammability or explosive limits:**	
		Lower:	No data available
		Upper:	No data available

Solubility(ies):
[Water] No data available
[Other solvents]
Soluble: Ether, Alcohols, Benzene, Acetone, Chloroform

10. STABILITY AND REACTIVITY

Reactivity: No data available
Chemical stability: Stable under proper conditions.
Possibility of hazardous reactions: No special reactivity has been reported.
Incompatible materials: Oxidizing agents
Hazardous decomposition products: Carbon dioxide, Carbon monoxide, Hydrogen chloride

11. TOXICOLOGICAL INFORMATION

RTECS Number: KI8450000

Acute Toxicity:
ihl-rat LC50:2100 ppm/4H
orl-rat LD50:670 mg/kg

Skin corrosion/irritation:
No data available

Serious eye damage/irritation:
No data available

Respiratory or skin sensitization:
No data available

Germ cell mutagenicity:
mmo-sat 10 ug/plate (+/-S9)
msc-mus-lym 200 mg/L

Carcinogenicity:
No data available

IARC: Group 2B (Possibly carcinogenic to humans) .
NTP: No data available
OSHA: No data available

Reproductive toxicity:
No data available

Target organ(s): No data available

12. ECOLOGICAL INFORMATION

Ecotoxicity:
Fish: No data available
Crustacea: No data available
Algae: No data available

Persistence / degradability: No data available
Bioaccumulative potential(BCF): No data available
Mobility in soil
Log Pow: No data available
Soil adsorption (Koc): No data available
Henry's Law (PaM ^{3}/mol): No data available

13. DISPOSAL CONSIDERATIONS

Disposal of product: Recycle to process if possible. It is the generator's responsibility to comply with Federal, State and Local rules and regulations. 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. This section is intended to provide assistance but does not replace these laws, nor does compliance in accordance with this section ensure regulatory compliance according to the law. US EPA guidelines for Identification and Listing of Hazardous Waste are listed in 40 CFR Parts 261. The product should not be allowed to enter the environment, drains, water ways, or the soil.
Disposal of container: Dispose of as unused product. Do not re-use empty containers.
Other considerations: Observe all federal, state and local regulations when disposing of the substance.

14. TRANSPORT INFORMATION

DOT (US)

UN number:	Proper Shipping Name:	Class or Division:	Packing Group:
UN2810	Toxic, liquids, organic, n.o.s	6.1 Toxic material.	III

IATA

UN number:	Proper Shipping Name:	Class or Division:	Packing Group:
UN2810	Toxic liquid, organic, n.o.s	6.1 Toxic material.	III

IMDG

UN number:	Proper Shipping Name:	Class or Division:	Packing Group:
UN2810	Toxic liquid, organic, n.o.s	6.1 Toxic material.	III

EmS number: F-A, S-A

15. REGULATORY INFORMATION

Toxic Substance Control Act (TSCA 8b.):
This product is ON the EPA Toxic Substances Control Act (TSCA) inventory.

US Federal Regulations

CERCLA Hazardous substance and Reportable Quantity:

SARA 313:	Listed
SARA 302:	Not Listed

State Regulations

State Right-to-Know

Massachusetts	Listed
New Jersey	Listed
Pennsylvania	Listed
California Proposition 65:	Listed

Other Information

NFPA Rating:		HMIS Classification:	
Health:	2	**Health:**	2
Flammability:	0	**Flammability:**	0
Instability:	0	**Physical:**	0

International Inventories

Canada: DSL	On DSL
EC-No:	211-135-1

16. OTHER INFORMATION

Revision date: 07/06/2018
Revision number: 1

TCI 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 affiliates or 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 SDS 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 SDS 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, face mask, fume hood). For proper handling and disposal, always comply with federal, state and local regulations.

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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

Matheson Tri-Gas, Inc. makes no express or implied warranties, guarantees or representations regarding the product or the information herein, including but not limited to any implied warranty or merchantability or fitness for use. Matheson Tri-Gas, Inc. shall not be liable for any personal injury, property or other damages of any nature, whether compensatory, consequential, exemplary, or otherwise, resulting from any publication, use or reliance upon the information herein.

End of Sheet MAT14370

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

1. Identification

Product identifier	**1,1-Dichloropropene**
Other means of identification	
Item	N-10125
CAS number	563-58-6
Recommended use	Not available.
Recommended restrictions	None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company name	Chem Service, Inc.	
Address	660 Tower Lane West Chester, PA 19380 United States	
Telephone	Toll Free	800-452-9994
	Direct	610-692-3026
Website	www.chemservice.com	
E-mail	info@chemservice.com	
Emergency phone number	Chemtrec US	800-424-9300
	Chemtrec outside US	+1 703-527-3887

2. Hazard(s) identification

Physical hazards	Flammable liquids	Category 2
Health hazards	Acute toxicity, oral	Category 3
Environmental hazards	Hazardous to the aquatic environment, long-term hazard	Category 3
OSHA defined hazards	Not classified.	

Label elements



Signal word	Danger
Hazard statement	Highly flammable liquid and vapor. Toxic if swallowed. Harmful to aquatic life with long lasting effects.

Precautionary statement

Prevention	Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Use explosion-proof electrical/ventilating/lighting equipment. Keep container tightly closed. Wash thoroughly after handling. Ground/bond container and receiving equipment. Wear protective gloves/eye protection/face protection. Use only non-sparking tools. Take precautionary measures against static discharge. Do not eat, drink or smoke when using this product. Avoid release to the environment.
Response	If swallowed: Immediately call a poison center/doctor. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Rinse mouth. In case of fire: Use appropriate media to extinguish.
Storage	Store in a well-ventilated place. Keep cool. Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	100% of the mixture consists of component(s) of unknown acute dermal toxicity. 100% of the mixture consists of component(s) of unknown acute inhalation toxicity. 100% of the mixture consists of component(s) of unknown acute hazards to the aquatic environment.

3. Composition/information on ingredients

Substances

Chemical name	Common name and synonyms	CAS number	%
1,1-Dichloropropene		563-58-6	100

4. First-aid measures

Inhalation
Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact
Take off immediately all contaminated clothing. Rinse skin with water/shower. Get medical attention if irritation develops and persists.

Eye contact
Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Get medical attention if irritation develops and persists.

Ingestion
Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Most important symptoms/effects, acute and delayed
Direct contact with eyes may cause temporary irritation.

Indication of immediate medical attention and special treatment needed
Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

General information
Take off all contaminated clothing immediately. 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 reuse.

5. Fire-fighting measures

Suitable extinguishing media
Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media
Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical
Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters
Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions
In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.

Specific methods
Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards
Highly flammable liquid and vapor.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures
Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up
Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area).

Large Spills: Stop the flow of material, if this is without risk. Keep combustibles (wood, paper, oil, etc.) away from spilled material. Take precautionary measures against static discharge. Use only non-sparking tools. Dike the spilled material, where this is possible. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Prevent product from entering drains. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. For waste disposal, see section 13 of the SDS.

Never return spills to original containers for re-use.

Environmental precautions	Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Contact local authorities in case of spillage to drain/aquatic environment. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling	Explosion-proof general and local exhaust ventilation. 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. Do not taste or swallow. Wear appropriate personal protective equipment. When using, do not eat, drink or smoke. Wash hands thoroughly after handling. Avoid release to the environment. Observe good industrial hygiene practices.
Conditions for safe storage, including any incompatibilities	Store locked up. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in original tightly closed container. Keep container tightly closed. Store in a cool, dry place out of direct sunlight. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS). Keep in an area equipped with sprinklers.

8. Exposure controls/personal protection

Occupational exposure limits	This substance has no PEL, TLV, or other recommended exposure limit.
Biological limit values	No biological exposure limits noted for the ingredient(s).
Appropriate engineering controls	Explosion-proof general and local exhaust ventilation. Eye wash fountain and emergency showers are recommended.

Individual protection measures, such as personal protective equipment

Eye/face protection	Face shield is recommended. Wear safety glasses with side shields (or goggles).
Skin protection	
Hand protection	Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier.
Other	Wear suitable protective clothing.
Respiratory protection	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Respiratory protection not required.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	When using do not smoke. Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance	
Physical state	Liquid.
Form	Liquid
Color	Colorless
Odor	Not available.
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	168.8 - 170.6 °F (76 - 77 °C)
Flash point	32.0 °F (0 °C)
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.

Explosive limit - upper (%)	Not available.
Vapor pressure	3.2 kPa (77 °F (25 °C))
Vapor density	Not available.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Density	1.186 g/ml
Explosive properties	Not explosive.
Flammability class	Flammable IB estimated
Molecular formula	C3-H4-Cl2
Molecular weight	110.98 g/mol
Oxidizing properties	Not oxidizing.
Percent volatile	100 %
VOC	100 %

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Avoid heat, sparks, open flames and other ignition sources. Contact with incompatible materials.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation	No adverse effects due to inhalation are expected.
Skin contact	No adverse effects due to skin contact are expected.
Eye contact	Direct contact with eyes may cause temporary irritation.
Ingestion	Toxic if swallowed.
Symptoms related to the physical, chemical and toxicological characteristics	Direct contact with eyes may cause temporary irritation.

Information on toxicological effects

Acute toxicity	Toxic if swallowed. Not known.
Skin corrosion/irritation	Prolonged skin contact may cause temporary irritation.
Serious eye damage/eye irritation	Direct contact with eyes may cause temporary irritation.
Respiratory or skin sensitization	
Respiratory sensitization	Not a respiratory sensitizer.
Skin sensitization	This product is not expected to cause skin sensitization.
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity	Not classifiable as to carcinogenicity to humans.

IARC Monographs. Overall Evaluation of Carcinogenicity

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

US. National Toxicology Program (NTP) Report on Carcinogens

Not listed.

Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity - single exposure	Not classified.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	Not an aspiration hazard.

12. Ecological information

Ecotoxicity	Harmful to aquatic life with long lasting effects.
Persistence and degradability	
Bioaccumulative potential	No data available.
Mobility in soil	No data available.
Other adverse effects	The product contains volatile organic compounds which have a photochemical ozone creation potential.

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT

UN number	UN2047
UN proper shipping name	Dichloropropenes
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
Packing group	II
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	IB2, T4, TP1
Packaging exceptions	150
Packaging non bulk	202
Packaging bulk	242

IATA

UN number	UN2047
UN proper shipping name	Dichloropropenes
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	No.
ERG Code	3L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

Other information

Passenger and cargo aircraft	Allowed with restrictions.
Cargo aircraft only	Allowed with restrictions.

IMDG

UN number	UN2047
UN proper shipping name	DICHLOROPROPENES
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	
Marine pollutant	No.
EmS	F-E, S-D
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 established.

DOT



IATA; IMDG



15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

1,1-Dichloropropene (CAS 563-58-6) Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories	Immediate Hazard - Yes Delayed Hazard - No Fire Hazard - Yes Pressure Hazard - No Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Clean Water Act (CWA) Section 112(r) (40 CFR 68.130) Hazardous substance
Toxic pollutant

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

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)	Yes
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
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
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply 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 11-19-2014

Revision date 09-05-2018

Version # 02

NFPA ratings Health: 3
Flammability: 3
Instability: 0

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Revision information

This document has undergone significant changes and should be reviewed in its entirety.

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH)

1,2,4-trimethylbenzene

Version number: GHS 2.0
Replaces version of: 25.02.2016 (GHS 1)

Revision: 13.10.2017

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Identification of the substance	**1,2,4-trimethylbenzene**
Registration number (REACH)	01-2119472135-42-xxxx
EC number	202-436-9
Index No	-
CAS number	95-63-6
Additional relevant and available information	Pseudocumene

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	industrial use (SCC)

1.3 Details of the supplier of the safety data sheet

DHC Solvent Chemie GmbH
Timmerhellstraße 28
D-45478 Mülheim an der Ruhr
Germany

Telephone: +49 (208) 9940-0
Telefax: +49 (208) 9940-150

Competent person responsible for the safety data sheet	Vanessa Manz
e-mail (competent person)	productsafety@dhc-solvent.de

1.4 Emergency telephone number

Emergency information service

Poison centre	
Country	**Telephone**
United Kingdom	+44 1235 239670

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP)

Hazard class	Category	Hazard class and category	Hazard statement
flammable liquid	Cat. 3	(Flam. Liq. 3)	H226
acute toxicity (inhal.)	Cat. 4	(Acute Tox. 4)	H332
skin corrosion/irritation	Cat. 2	(Skin Irrit. 2)	H315
serious eye damage/eye irritation	Cat. 2	(Eye Irrit. 2)	H319
specific target organ toxicity - single exposure (respiratory tract irritation)	Cat. 3	(STOT SE 3)	H335
aspiration hazard	Cat. 1	(Asp. Tox. 1)	H304
hazardous to the aquatic environment - chronic hazard	Cat. 2	(Aquatic Chronic 2)	H411

Remarks

For full text of H-phrases: see SECTION 16.
Substance with a community indicative occupational exposure limit value.

The most important adverse physicochemical, human health and environmental effects

May be fatal if swallowed and enters airways.
The product is combustible and can be ignited by potential ignition sources.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP)

Signal word **Danger**

Pictograms

GHS02, GHS07, GHS08, GHS09



Hazard statements

H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statements

Precautionary statements - prevention

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P243	Take action to prevent static discharges.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary statements - response

P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/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.
P331	Do NOT induce vomiting.
P370+P378	In case of fire: Use sand, carbon dioxide or powder extinguisher to extinguish.

Precautionary statements - storage

P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P403+P235	Store in a well-ventilated place. Keep cool.

Precautionary statements - disposal

P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3 Other hazards

According to the results of its assessment, this substance is not a PBT or a vPvB.
Vapour heavier than air, may form an explosive mixture in air: it may be ignited at some distance away from the spill resulting in flashbacks. Flowing product can create electrostatic charge, resulting sparks may ignite or cause an explosion.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Name of substance	1,2,4-trimethylbenzene
Registration number (REACH)	01-2119472135-42-xxxx
EC number	202-436-9
CAS number	95-63-6
Index No	-
Molecular formula	C9H12

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General notes

Do not leave affected person unattended. Remove victim out of the danger area. Keep affected person warm, still and covered. Take off immediately all contaminated clothing. In all cases of doubt, or when symptoms persist, seek medical advice. In case of unconsciousness place person in the recovery position. Never give anything by mouth.

Following inhalation

If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions. Provide fresh air.

Following skin contact

Wash with plenty of soap and water.

Following eye contact

Irrigate copiously with clean, fresh water, holding the eyelids apart. Remove contact lenses, if present and easy to do. Continue rinsing. In all cases of doubt, or when symptoms persist, seek medical advice.

Following ingestion

Do NOT induce vomiting. Rinse mouth with water (only if the person is conscious).

4.2 Most important symptoms and effects, both acute and delayed

Choking and suffocation risks. Deficits in perception and coordination, reaction time, or sleepiness.

4.3 Indication of any immediate medical attention and special treatment needed

none

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

carbon dioxide (CO2), BC-powder, foam, alcohol resistant foam, water mist

Unsuitable extinguishing media

water jet

5.2 Special hazards arising from the substance or mixture

Solvent vapours are heavier than air and may spread along floors. In case of insufficient ventilation and/or in use, may form flammable/explosive vapour-air mixture. May produce toxic fumes of carbon monoxide if burning.

Hazardous combustion products

carbon monoxide (CO), carbon dioxide (CO2)

5.3 Advice for firefighters

Wear breathing apparatus if exposed to vapours/dust/spray/gases. Co-ordinate firefighting measures to the fire surroundings. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal precautions from a reasonable distance. Keep containers cool with water spray.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Remove persons to safety. Avoid inhaling sprayed product. Wearing of suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. Remove/take off immediately all contaminated clothing and wash it before reuse.

For emergency responders

Wear breathing apparatus if exposed to vapours/dust/spray/gases.

6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it. If substance has entered a water course or sewer, inform the responsible authority.

6.3 Methods and material for containment and cleaning up

Advices on how to contain a spill

Covering of drains.

Advices on how to clean up a spill

Wipe up with absorbent material (e.g. cloth, fleece). Collect spillage (sawdust. , kieselgur (diatomite), sand, universal binder).

Appropriate containment techniques

Use of adsorbent materials. - covering of drains

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Recommendations

• Measures to prevent fire as well as aerosol and dust generation

Use only in well-ventilated areas. Use local and general ventilation. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools.

• Warning

Vapours are heavier than air, spread along floors and form explosive mixtures with air.

Advice on general occupational hygiene

Wash hands after use. Do not eat, drink and smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. Never keep food or drink in the vicinity of chemicals. Never place chemicals in containers that are normally used for food or drink. Keep away from food, drink and animal feedingstuffs.

7.2 Conditions for safe storage, including any incompatibilities

Managing of associated risks

• Explosive atmospheres

Keep container tightly closed and in a well-ventilated place. Use local and general ventilation. Keep cool. Protect from sunlight.

• Flammability hazards

Keep away from sources of ignition - No smoking. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take precautionary measures against static discharge. Protect from sunlight.

Incompatible substances or mixtures

Observe hints for combined storage.

Consideration of other advice

• Ventilation requirements

Keep any substance that emits harmful vapours or gases in a place that allows these to be permanently extracted. Use local and general ventilation. Ground/bond container and receiving equipment.

• Packaging compatibilities

Only packagings which are approved (e.g. acc. to ADR) may be used.
Suitable materials and coatings for container/equipment: Carbon Steel, Stainless Steel, Polyester, Polytetrafluoroethylene (PTFE), Polyvinyl Alcohol (PVA)
Unsuitable Materials and Coatings for container/equipment: Butyl Rubber, Natural Rubber, Ethylene-propylene-diene monomer (EPDM), Polystyrene, Polyethylene, Polyacrylonetrile.

7.3 Specific end use(s)

See attached exposure scenarios

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

National limit values

Occupational exposure limit values (Workplace Exposure Limits)

Country	Name of agent	CAS No	Identifier	TWA [ppm]	TWA [mg/m³]	STEL [ppm]	STEL [mg/m³]	Source
DE	1,2,4-trimethylbenzene	95-63-6	AGW	20	100	40	200	TRGS 900
EU	1,2,4-trimethylbenzene	95-63-6	IOELV	20	100			2017/164/EU
GB	aromatics	95-63-6	WEL		500			EH40/2005
IE	1,2,4-trimethylbenzene	95-63-6	OELV	20	100			S.I. No. 619 of 2001

Notation

STEL	Short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period unless otherwise specified.
TWA	Time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average.

Relevant DNELs/DMELs/PNECs and other threshold levels

• human health values

Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
DNEL	100 mg/m³	human, inhalatory	worker (industry)	acute - local effects
DNEL	100 mg/m³	human, inhalatory	worker (industry)	acute - systemic effects
DNEL	100 mg/m³	human, inhalatory	worker (industry)	chronic - local effects
DNEL	16,171 mg/kg	human, dermal	worker (industry)	chronic - systemic effects
DNEL	100 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects
DNEL	29.4 mg/m³	human, inhalatory	consumer (private households)	acute - systemic effects
DNEL	29.4 mg/m³	human, inhalatory	consumer (private households)	chronic - local effects
DNEL	15 mg/kg	human, oral	consumer (private households)	chronic - systemic effects
DNEL	9,512 mg/kg	human, dermal	consumer (private households)	chronic - systemic effects
DNEL	29.4 mg/m³	human, inhalatory	consumer (private households)	chronic - systemic effects

• environmental values

End-point	Threshold level	Organism	Environmental compart-ment	Exposure time
PNEC	0.12 mg/l	aquatic organisms	freshwater	short-term (single instance)
PNEC	0.12 mg/l	aquatic organisms	marine water	short-term (single instance)
PNEC	2.41 mg/l	microorganisms	sewage treatment plant (STP)	short-term (single instance)
PNEC	13.56 mg/kg	benthic organisms	sediments	short-term (single instance)
PNEC	13.56 mg/kg	pelagic organisms	sediments	short-term (single instance)
PNEC	2.34 mg/kg	terrestrial organisms	soil	short-term (single instance)
PNEC	0.12 mg/l	aquatic organisms	water	intermittent release

8.2 Exposure controls

Appropriate engineering controls

Technical measures and the appliance of appropriate working methods take priority over the use of personal protective equipment.
Safety and necessary control measures vary according to exposure conditions. Appropriate measures are:
Open windows, door, to allow sufficient ventilation. If this is not possible employ a fan to increase air exchange (see attached exposure scenarios).

Individual protection measures (personal protective equipment)

Eye/face protection

Use safety goggle with side protection.

Skin protection

• hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374.
Short-term contact with the skin: Disposable gloves
Long-term contact with the skin: Gloves with long cuffs
Check leak-tightness/impermeability prior to use.

- **type of material**

NBR: acrylonitrile-butadiene rubber, FKM: fluoro-elastomer

- **material thickness**

0,40 mm.

- **breakthrough times of the glove material**

>480 minutes (permeation: level 6)

- **other protection measures**

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended. Wash hands thoroughly after handling.
Body protection:
Suitable protective clothing: Flame resistant clothing
Suitable safety shoes: Anti static safety shoes according to EN 345 S3

Respiratory protection

For activities in enclosed areas at elevated temperatures of the substance, local extraction or explosion protected ventilation equipment is recommended. In case this is not sufficient for the intended use, then apply a suitable respiratory protection according to EN 140 type A or better (see exposure scenarios). .

Environmental exposure controls

Do not empty into drains.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	
Physical state	liquid
Colour	colourless
Odour	characteristic
Other physical and chemical parameters	
pH (value)	not determined
Melting point/freezing point	-43.77 °C
Initial boiling point and boiling range	169.4 °C at 101.3 kPa
Flash point	44 °C at 101.3 kPa
Explosive limits	
• lower explosion limit (LEL)	0.9 vol%
• upper explosion limit (UEL)	6.4 vol%
Vapour pressure	0.3 kPa at 25 °C
Density	0.88 $^{g}/_{cm^3}$ at 20 °C
Solubility(ies)	
Water solubility	57 $^{mg}/_{l}$ at 25 °C
Partition coefficient	
n-octanol/water (log KOW)	This information is not available.
Auto-ignition temperature	500 °C
Viscosity	
• kinematic viscosity	0.843 $^{mm^2}/_{s}$ at 20 °C

Explosive properties

in use, may form flammable/explosive vapour-air mixture

Oxidising properties none

9.2 Other information

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

risk of ignition

• if heated

risk of ignition

10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure (see below "Conditions to avoid").

10.3 Possibility of hazardous reactions

No known hazardous reactions.

10.4 Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Hints to prevent fire or explosion

Use only non-sparking tools.

10.5 Incompatible materials

oxidisers

10.6 Hazardous decomposition products

No known hazardous decomposition products.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Classification according to GHS (1272/2008/EC, CLP)

Acute toxicity

Harmful if inhaled.

• Acute toxicity estimate (ATE)

inhalation: vapour 11 $^{mg}/_{l}$/4h

Exposure route	Endpoint	Value	Species
oral	LD50	6,000 $^{mg}/_{kg}$	rat

Skin corrosion/irritation

Causes skin irritation.

Serious eye damage/eye irritation

Causes serious eye irritation.

Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

Summary of evaluation of the CMR properties

Shall not be classified as germ cell mutagenic, carcinogenic nor as a reproductive toxicant.

Specific target organ toxicity (STOT)

• Specific target organ toxicity - single exposure

May cause respiratory irritation.

• Specific target organ toxicity - repeated exposure

Shall not be classified as a specific target organ toxicant (repeated exposure).

Aspiration hazard

May be fatal if swallowed and enters airways.

Information on likely routes of exposure

If on skin. If inhaled.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Aquatic toxicity (acute)

Endpoint	Value	Species	Exposure time
LC50	7.72 $^{mg}/_{l}$	fish	96 h
EC50	2.356 $^{mg}/_{l}$	algae	96 h

Aquatic toxicity (chronic)

May cause long-term adverse effects in the aquatic environment.

12.2 Persistence and degradability

Data are not available.

12.3 Bioaccumulative potential

Data are not available.

BCF 243

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

12.6 Other adverse effects

Data are not available.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste treatment-relevant information

Solvent reclamation/regeneration.

Sewage disposal-relevant information

Do not empty into drains.

Waste treatment of containers/packagings

Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately re-conditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

List of wastes

Proposed waste code(s) for the used product:
07 01 04x Other organic solvents, washing liquids and mother liquors

Remarks

Please consider the relevant national or regional provisions. Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities.

SECTION 14: TRANSPORT INFORMATION

14.1	UN number	**1993**
14.2	UN proper shipping name	**FLAMMABLE LIQUID, N.O.S.**
	Technical name	1,2,4-trimethylbenzene
14.3	Transport hazard class(es)	
	Class	3 (flammable liquids)
14.4	Packing group	III (substance presenting low danger)
14.5	Environmental hazards	hazardous to the aquatic environment

14.6 Special precautions for user

Provisions for dangerous goods (ADR) should be complied within the premises.

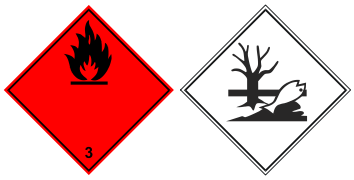
14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

The cargo is not intended to be carried in bulk.

Information for each of the UN Model Regulations

• Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN)

UN number	1993
Proper shipping name	FLAMMABLE LIQUID, N.O.S.
Technical name (hazardous constituents)	1,2,4-trimethylbenzene
Class	3
Classification code	F1
Packing group	III
Danger label(s)	3 + "fish and tree"

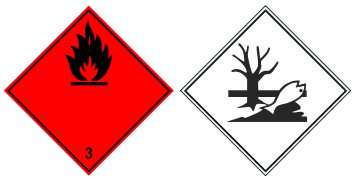


Environmental hazards	yes (hazardous to the aquatic environment)
Special provisions (SP)	274, 601
Excepted quantities (EQ)	E1
Limited quantities (LQ)	5 L
Transport category (TC)	3
Tunnel restriction code (TRC)	D/E
Hazard identification No	30
Emergency Action Code	3YE

• International Maritime Dangerous Goods Code (IMDG)

UN number	1993
Proper shipping name	FLAMMABLE LIQUID, N.O.S.
Particulars in the shipper's declaration	UN1993, FLAMMABLE LIQUID, N.O.S., (1,2,4-trimethylbenzene), 3, III, 44 °C c.c., MARINE POLLUTANT
Class	3

Marine pollutant	yes (hazardous to the aquatic environment)
Packing group	III
Danger label(s)	3 + "fish and tree"



Special provisions (SP)	223, 274, 955
Excepted quantities (EQ)	E1
Limited quantities (LQ)	5 L
EmS	F-E, S-E
Stowage category	A

• International Civil Aviation Organization (ICAO-IATA/DGR)

UN number	1993
Proper shipping name	Flammable liquid, n.o.s.
Class	3
Environmental hazards	yes (hazardous to the aquatic environment)
Packing group	III
Danger label(s)	3



Special provisions (SP)	A3
Excepted quantities (EQ)	E1
Limited quantities (LQ)	10 L

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Relevant provisions of the European Union (EU)

• Restrictions according to REACH, Annex XVII

Name of substance	CAS No	Wt%	Type of registration	No
1,2,4-trimethylbenzene		100	1907/2006/EC annex XVII	3
1,2,4-trimethylbenzene		100	1907/2006/EC annex XVII	40

• List of substances subject to authorisation (REACH, Annex XIV)

not listed

• 2012/18/EU (Seveso III)

No	Dangerous substance/hazard categories	Qualifying quantity (tonnes) for the application of lower and upper-tier requirements		Notes
E2	environmental hazards (hazardous to the aquatic environment, cat. 2)	200	500	57)

Notation

57) Hazardous to the Aquatic Environment in category Chronic 2.

• Limitation of emissions of volatile organic compounds due to the use of organic solvents in certain paints and varnishes and vehicle refinishing products (2004/42/EC, Deco-Paint Directive)

VOC content 100 %

• Directive on industrial emissions (VOCs, 2010/75/EU)

VOC content 100 %

• Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) - Annex II

not listed

• Regulation 166/2006/EC concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)

not listed

• Directive 2000/60/EC establishing a framework for Community action in the field of water policy (WFD)

not listed

National inventories

Country	Inventory	Status
AU	AICS	substance is listed
CA	DSL	substance is listed
CN	IECSC	substance is listed
EU	ECSI	substance is listed
EU	REACH Reg.	substance is listed
JP	CSCL-ENCS	substance is listed
KR	KECI	substance is listed
MX	INSQ	substance is listed
NZ	NZIoC	substance is listed
PH	PICCS	substance is listed
TR	CICR	substance is listed
TW	TCSI	substance is listed
US	TSCA	substance is listed

Legend

AICS	Australian Inventory of Chemical Substances.
CICR	Chemical Inventory and Control Regulation.
CSCL-ENCS	List of Existing and New Chemical Substances (CSCL-ENCS).
DSL	Domestic Substances List (DSL).
ECSI	EC Substance Inventory (EINECS, ELINCS, NLP).
IECSC	Inventory of Existing Chemical Substances Produced or Imported in China.
INSQ	National Inventory of Chemical Substances.
KECI	Korea Existing Chemicals Inventory.
NZIoC	New Zealand Inventory of Chemicals.
PICCS	Philippine Inventory of Chemicals and Chemical Substances.
REACH Reg.	REACH registered substances.
TCSI	Taiwan Chemical Substance Inventory.
TSCA	Toxic Substance Control Act.

15.2 Chemical Safety Assessment

For this substance a chemical safety assessment has been carried out.

SECTION 16: OTHER INFORMATION

16.1 Indication of changes (revised safety data sheet)

Section	Former entry (text/value)	Actual entry (text/value)
1.3	Competent person responsible for the safety data sheet: Christian Knappe	Competent person responsible for the safety data sheet: Vanessa Manz
1.4		Poison centre: change in the listing (table)
2.2		Precautionary statements - prevention: change in the listing (table)
2.2		Precautionary statements - disposal: change in the listing (table)
6.2	Environmental precautions: Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.	Environmental precautions: Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it. If substance has entered a water course or sewer, inform the responsible authority.
8.1		Occupational exposure limit values (Workplace Exposure Limits): change in the listing (table)
11.1		Information on likely routes of exposure: If on skin. If inhaled.
15.1		• Restrictions according to REACH, Annex XVII: change in the listing (table)
15.1		National inventories: change in the listing (table)
16		Abbreviations and acronyms: change in the listing (table)
16	Key literature references and sources for data: - Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU - Regulation (EC) No. 1272/2008 (CLP, EU GHS) - See attached exposure scenarios http://www.dhc-solvent.de/dhc_sdbreach.html http://www.dhc-solvent.de/en/dhc_sdbreach.html Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN). International Maritime Dangerous Goods Code (IMDG). International Air Transport Association (IATA).	Key literature references and sources for data: - Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU - Regulation (EC) No. 1272/2008 (CLP, EU GHS) - The exposure scenarios are available at www.dhc-solvent.de in the Service section. Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN). International Maritime Dangerous Goods Code (IMDG). International Air Transport Association (IATA).
16		Disclaimer: This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product. The information concerning legal regulations can lay no claim to completeness. In addition to this, other provisions may also apply to the product.

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
2017/164/EU	Comission Directive establishing a fourth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC, and amending Commission Directives 91/322/EEC, 2000/39/EC and 2009/161/EU
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)
ADR	Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
AGW	Workplace exposure limit

Abbr.	Descriptions of used abbreviations
BCF	Bioconcentration factor
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
CMR	Carcinogenic, Mutagenic or toxic for Reproduction
DGR	Dangerous Goods Regulations (see IATA/DGR)
DMEL	Derived Minimal Effect Level
DNEL	Derived No-Effect Level
EH40/2005	EH40/2005 Workplace exposure limits (http://www.nationalarchives.gov.uk/doc/open-government-licence/)
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code
index No	The Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008
IOELV	Indicative occupational exposure limit value
MARPOL	International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant")
NLP	No-Longer Polymer
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
ppm	Parts per million
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
S.I. No. 619 of 2001	Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001
STEL	Short-term exposure limit
TRGS 900	Arbeitsplatzgrenzwerte (TRGS 900)
TWA	Time-weighted average
VOC	Volatile Organic Compounds
vPvB	Very Persistent and very Bioaccumulative
WEL	Workplace exposure limit

Key literature references and sources for data

- Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU
- Regulation (EC) No. 1272/2008 (CLP, EU GHS)
- The exposure scenarios are available at www.dhc-solvent.de in the Service section.

Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN).
International Maritime Dangerous Goods Code (IMDG).
International Air Transport Association (IATA).

List of relevant phrases (code and full text as stated in chapter 2 and 3)

Code	Text
H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H411	Toxic to aquatic life with long lasting effects.

Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product. The information concerning legal regulations can lay no claim to completeness. In addition to this, other provisions may also apply to the product.

SAFETY DATA SHEET

Creation Date 26-Sep-2009 **Revision Date** 18-Jan-2018 **Revision Number** 4

1. Identification

Product Name **Mesitylene**

Cat No. : **AC161320000; AC161320010; AC161320025; AC161320050; AC161322500**

CAS-No 108-67-8
Synonyms 1,3,5-Trimethylbenzene

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 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, Central nervous system (CNS).	
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
May cause drowsiness or dizziness



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
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
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 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

Component	CAS-No	Weight %
1,3,5-Trimethylbenzene	108-67-8	97-99

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 soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention.

Inhalation Remove to fresh air. If breathing is difficult, give oxygen. Get medical attention. Risk of serious damage to the lungs (by aspiration).

Ingestion Clean mouth with water and drink afterwards plenty of water. Do NOT induce vomiting. Call a physician or poison control center immediately. If vomiting occurs naturally, have victim lean forward.

Most important symptoms and effects . Difficulty in breathing. Vapors may cause drowsiness and dizziness: Symptoms may be delayed: 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 (CO2), dry chemical, alcohol-resistant foam. Water mist may be used to cool closed containers.

Unsuitable Extinguishing Media No information available

Flash Point 44 °C / 111.2 °F

Method - No information available

Autoignition Temperature 550 °C / 1022 °F

Explosion Limits

Upper	6.00%
Lower	1.00%
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.

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 as required. 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. 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/face protection. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Take precautionary measures against static discharges. Use spark-proof tools and explosion-proof equipment.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks and flame. Flammables area.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
1,3,5-Trimethylbenzene			TWA: 25 ppm TWA: 125 mg/m³	

Legend

NIOSH IDLH: NIOSH - National Institute for Occupational Safety and 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 Tight sealing safety goggles. Face protection 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	aromatic
Odor Threshold	No information available
pH	No information available
Melting Point/Range	-45 °C / -49 °F
Boiling Point/Range	163 - 166 °C / 325.4 - 330.8 °F @ 760 mmHg
Flash Point	44 °C / 111.2 °F
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	6.00%

Lower	1.00%
Vapor Pressure	2.5 mbar @ 20 °C
Vapor Density	4.1 (Air = 1.0)
Specific Gravity	0.868
Solubility	slightly soluble
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	550 °C / 1022 °F
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C9 H12
Molecular Weight	120.19

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, Nitric acid

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
1,3,5-Trimethylbenzene	LD50 = 5000 mg/kg (Rat)	Not listed	LC50 = 24 g/m³ (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, 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
1,3,5-Trimethylbenzene	108-67-8	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 Central nervous system (CNS)

STOT - repeated exposure None known

Aspiration hazard Category 1

Symptoms / effects,both acute and delayed Vapors may cause drowsiness and dizziness: Symptoms may be 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.

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
1,3,5-Trimethylbenzene	Not listed	LC50: = 3.48 mg/L, 96h (Pimephales promelas)	Not listed	EC50: = 50 mg/L, 24h (Daphnia magna)

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

UN-No UN2325
Proper Shipping Name 1,3,5-TRIMETHYLBENZENE
Hazard Class 3
Packing Group III

TDG

UN-No UN2325
Proper Shipping Name 1,3,5-TRIMETHYLBENZENE
Hazard Class 3
Packing Group III

IATA

UN-No UN2325
Proper Shipping Name 1,3,5-TRIMETHYLBENZENE
Hazard Class 3
Packing Group III

IMDG/IMO

UN-No UN2325
Proper Shipping Name 1,3,5-TRIMETHYLBENZENE
Hazard Class 3
Packing Group III

15. Regulatory information

United States of America Inventory

Component	CAS-No	TSCA	TSCA Inventory notification - Active/Inactive	TSCA - EPA Regulatory Flags
1,3,5-Trimethylbenzene	108-67-8	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
1,3,5-Trimethylbenzene	108-67-8	X	-	203-604-4	X	X	X	X	KE-34411

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

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
1,3,5-Trimethylbenzene	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 Moderate risk, Grade 2

16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 26-Sep-2009
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

SAFETY DATA SHEET

Creation Date 05-May-2009 **Revision Date** 18-Jan-2018 **Revision Number** 3

1. Identification

Product Name **1,4-Dioxane**

Cat No. : **D111-4; D111-4LC; D111-500; D56S-4; D116-4; D116-200**

CAS-No 123-91-1
Synonyms Diox

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
Serious Eye Damage/Eye Irritation	Category 2
Carcinogenicity	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system, Central nervous system (CNS), Eyes.	
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 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
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 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 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 form explosive peroxides
Repeated exposure may cause skin dryness or cracking
WARNING. Cancer - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
1,4-Dioxane	123-91-1	>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 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. 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. Cool closed containers exposed to fire with water spray.

Unsuitable Extinguishing Media Water may be ineffective

Flash Point 12 °C / 53.6 °F

Method - No information available

Autoignition Temperature 355 °C / 671 °F

Explosion Limits

Upper 22%

Lower 2%

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. May form explosive peroxides. Vapors may form explosive mixtures with air.

Hazardous Combustion Products

Carbon monoxide (CO) Carbon dioxide (CO_2) peroxides

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 Remove all sources of ignition. Use personal protective equipment. Take precautionary measures against static discharges. Do not get in eyes, on skin, or on clothing. Ensure adequate ventilation.

Environmental Precautions Should not be released into 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. Take precautionary measures against static discharges. Keep in suitable, closed containers for disposal. Use spark-proof tools and explosion-proof equipment.

7. Handling and storage

Handling Wear personal protective equipment. Ensure adequate ventilation. Handle under an inert atmosphere. Keep away from open flames, hot surfaces and sources of ignition. Do not breathe vapors or spray mist. Do not get in eyes, on skin, or on clothing. Take precautionary measures against static discharges. If peroxide formation is suspected, do

not open or move container. Use only non-sparking tools. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Wash hands before breaks and immediately after handling the product.

Storage

Keep containers tightly closed in a dry, cool and well-ventilated place. Store under an inert atmosphere. Flammables area. May form explosive peroxides. Containers should be dated when opened and tested periodically for the presence of peroxides. Should crystals form in a peroxidizable liquid, peroxidation may have occurred and the product should be considered extremely dangerous. In this instance, the container should only be opened remotely by professionals. 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)
1,4-Dioxane	TWA: 20 ppm Skin	(Vacated) TWA: 25 ppm (Vacated) TWA: 90 mg/m^3 Skin TWA: 100 ppm TWA: 360 mg/m^3	IDLH: 500 ppm Ceiling: 1 ppm Ceiling: 3.6 mg/m^3	TWA: 25 ppm TWA: 90 mg/m^3 STEL: 100 ppm STEL: 360 mg/m^3

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 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

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	Liquid
Appearance	Colorless
Odor	Petroleum distillates
Odor Threshold	No information available
pH	6-8 500 g/l aq.sol
Melting Point/Range	12 °C / 53.6 °F
Boiling Point/Range	101 °C / 213.8 °F @ 760 mmHg
Flash Point	12 °C / 53.6 °F
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	22%
Lower	2%

Vapor Pressure	41 mbar @ 20 °C
Vapor Density	3
Specific Gravity	1.034
Solubility	Soluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	355 °C / 671 °F
Decomposition Temperature	No information available
Viscosity	1.32 mPa.s @ 20 °C
Molecular Formula	C4 H8 O2
Molecular Weight	88.11

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability May form explosive peroxides. Hygroscopic.

Conditions to Avoid Incompatible products. Heat, flames and sparks. Exposure to air or moisture over prolonged periods. Keep away from open flames, hot surfaces and sources of ignition.

Incompatible Materials Strong oxidizing agents, Reducing agents, Halogens

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2), peroxides

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions May form explosive peroxides.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
1,4-Dioxane	5170 mg/kg (Rat) 4200 mg/kg (Rat)	LD50 = 7600 mg/kg (Rabbit)	48.5 mg/L (Rat) 4 h

Toxicologically Synergistic Products Acetonitrile; Tetrachloroethylene

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
1,4-Dioxane	123-91-1	Group 2B	Reasonably Anticipated	A3	X	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)

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) Eyes
STOT - repeated exposure Kidney 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 See actual entry in RTECS for complete information.

12. Ecological information

Ecotoxicity

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Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
1,4-Dioxane	Not listed	LC50: = 9850 mg/L, 96h (Pimephales promelas) LC50: 10306 - 14742 mg/L, 96h static (Pimephales promelas) LC50: = 9850 mg/L, 96h flow-through (Pimephales promelas) LC50: > 10000 mg/L, 96h semi-static (Lepomis macrochirus) LC50: > 10000 mg/L, 96h static (Lepomis macrochirus)	EC50 = 610 mg/L 5 min EC50 = 668 mg/L 15 min EC50 = 733 mg/L 30 min	EC50 = 163 mg/L 48h

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.

Component	log Pow
1,4-Dioxane	-0.42

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
1,4-Dioxane - 123-91-1	U108	-

14. Transport information

DOT

UN-No UN1165
Proper Shipping Name DIOXANE

Hazard Class 3
Packing Group II

TDG
UN-No UN1165
Proper Shipping Name DIOXANE
Hazard Class 3
Packing Group II

IATA
UN-No UN1165
Proper Shipping Name DIOXANE
Hazard Class 3
Packing Group II

IMDG/IMO
UN-No UN1165
Proper Shipping Name DIOXANE
Hazard Class 3
Packing Group II

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
1,4-Dioxane	X	X	-	204-661-8	-		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 %
1,4-Dioxane	123-91-1	>95	0.1

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act) Not applicable

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
1,4-Dioxane	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
1,4-Dioxane	100 lb	-

California Proposition 65 This product contains the following proposition 65 chemicals

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
1,4-Dioxane	123-91-1	Carcinogen	30 µg/day	Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
1,4-Dioxane	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

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 05-May-2009
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

SAFETY DATA SHEET

Creation Date 04-Jun-2010 **Revision Date** 19-Jan-2018 **Revision Number** 3

1. Identification

Product Name **Acenaphthene**

Cat No. : **AC201340000; AC201340050; AC201341000; AC201345000**

CAS-No 83-32-9
Synonyms 1,2-Dihydroacenaphthylene; Naphthyleneethylene; 1,8-Ethylenenaphthalene

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)

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
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
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
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

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Acenaphthene	83-32-9	>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 soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention.

Inhalation Remove from exposure, lie down. Remove to fresh air. If not breathing, give artificial respiration. Get medical attention.

Ingestion Clean mouth with water. 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 (CO_2). Dry chemical. Chemical foam.

Unsuitable Extinguishing Media No information available

Flash Point 135 °C / 275 °F

Method - No information available

Autoignition Temperature 450 °C / 842 °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
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.
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.

7. Handling and storage

Handling Avoid contact with skin and eyes. Do not breathe dust.

Storage Keep in a dry, cool and well-ventilated place. Refer product specification and/or product label for specific storage temperature requirement. Keep container tightly closed.

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 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	Brown
Odor	No information available
Odor Threshold	No information available
pH	Not applicable
Melting Point/Range	90 - 95 °C / 194 - 203 °F
Boiling Point/Range	279 °C / 534.2 °F
Flash Point	135 °C / 275 °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	10 mmHg @ 131 °C
Vapor Density	Not applicable
Specific Gravity	1.060
Solubility	insoluble
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	450 °C / 842 °F
Decomposition Temperature	No information available
Viscosity	Not applicable
Molecular Formula	C12 H10
Molecular Weight	154.21

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Excess heat. Incompatible products.

Incompatible Materials Strong oxidizing agents, Metals, Strong acids

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

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Acenaphthene	LD50 = 10000 mg/kg (Rat)	Not listed	Not listed

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
Acenaphthene	83-32-9	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

The product contains following substances which are hazardous for the environment. Very toxic to aquatic organisms.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Acenaphthene	EC50: 0.23 - 1.15 mg/L, 96h (Pseudokirchneriella subcapitata)	LC50: 1.3 - 2.1 mg/L, 96h static (Lepomis macrochirus) LC50: = 0.509 mg/L, 96h flow-through (Pimephales promelas) LC50: 0.6 - 0.75 mg/L, 96h flow-through (Oncorhynchus mykiss)	EC50 = 0.58 mg/L 15 min	EC50: 1.102 - 1.475 mg/L, 48h Static (Daphnia magna) EC50: = 3.45 mg/L, 48h (Daphnia magna) EC50: = 41 mg/L, 48h (Daphnia magna)

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
Acenaphthene	4.43

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 substances, solid, n.o.s.
Technical Name	Acenaphthene
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
Acenaphthene	83-32-9	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
Acenaphthene	83-32-9	X	-	201-469-6	X	X	X	X	KE-10602

U.S. Federal Regulations

SARA 313 Not applicable

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Acenaphthene	83-32-9	>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
Acenaphthene	-	-	X	X

Clean Air Act Not applicable

OSHA - Occupational Safety and Not applicable

Health Administration

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
Acenaphthene	100 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
Acenaphthene	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

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 04-Jun-2010
Revision Date 19-Jan-2018
Print Date 19-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).

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End of SDS

SAFETY DATA SHEET

Version 5.6
Revision Date 05/24/2016
Print Date 01/23/2017

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Acenaphthylene

Product Number : 416703
Brand : Aldrich

CAS-No. : 208-96-8

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 4), H302
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 Warning

Hazard statement(s)
H302 Harmful if swallowed.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.

Precautionary statement(s)
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 eye protection/ face protection.

P280	Wear protective gloves.
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 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.
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	:	$C_{12}H_8$
Molecular weight	:	152.19 g/mol
CAS-No.	:	208-96-8
EC-No.	:	205-917-1

Hazardous components

Component	Classification	Concentration
Acenaphthylene		
	Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2A; STOT SE 3; H302, 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
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
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.
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
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
Do not let product enter drains.

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: 78 - 82 °C (172 - 180 °F) - lit.
f)	Initial boiling point and boiling range	280 °C (536 °F) - lit.
g)	Flash point	122.0 °C (251.6 °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	0.899 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
No data available

10.4 Conditions to avoid
No data available

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
LD50 Oral - Mouse - 1,760 mg/kg
Remarks: Autonomic Nervous System:Other (direct) parasympathomimetic. Respiratory disorder Blood: Hemorrhage.

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.

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.

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
Inhalation - May cause respiratory irritation.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: AB1254000

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)
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substances, solid, n.o.s. (Acenaphthylene)
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
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
Acenaphthylene	208-96-8	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Acenaphthylene	208-96-8	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Acenaphthylene	208-96-8	1993-04-24

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer. Acenaphthylene	CAS-No. 208-96-8	Revision Date 2007-09-28
WARNING! This product contains a chemical known to the State of California to cause cancer. Acenaphthylene	CAS-No. 208-96-8	Revision Date 2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Eye Irrit.	Eye irritation
H302	Harmful if swallowed.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
Skin Irrit.	Skin irritation

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: 5.6 Revision Date: 05/24/2016 Print Date: 01/23/2017

SAFETY DATA SHEET

Creation Date 19-May-2010 **Revision Date** 07-Apr-2020 **Revision Number** 5

1. Identification

Product Name **Acetophenone**

Cat No. : **A22-500**

CAS-No 98-86-2
Synonyms Methyl Phenyl Ketone; 1-Phenylethanone; Hypnone (Certified)

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 liquids	Category 4
Acute oral toxicity	Category 4
Serious Eye Damage/Eye Irritation	Category 2

Label Elements

Signal Word
Warning

Hazard Statements
Combustible liquid
Harmful if swallowed
Causes serious eye irritation



Precautionary Statements
Prevention
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Wear protective gloves/protective clothing/eye protection/face protection
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 in a well-ventilated place. Keep cool
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 %
Acetophenone	98-86-2	>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. 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.

Most important symptoms and effects None reasonably foreseeable. 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 (CO2), dry chemical, alcohol-resistant foam. Water mist may

be used to cool closed containers.

Unsuitable Extinguishing Media No information available

Flash Point 77 °C / 170.6 °F

Method - No information available

Autoignition Temperature 535 °C / 995 °F

Explosion Limits
Upper 6.7 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
Combustible material. Containers may explode when heated. Keep product and empty container away from heat and sources of ignition. Risk 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	2	0	N/A

6. Accidental release measures

Personal Precautions Use personal protective equipment as required. Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.

Environmental Precautions Should not be released into the environment.

Methods for Containment and Clean Up Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition.

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. Keep away from open flames, hot surfaces and sources of ignition.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks and flame.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Acetophenone	TWA: 10 ppm			TWA: 10 ppm

Legend

ACGIH - American Conference of Governmental Industrial Hygienists

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	Tight sealing safety goggles. Face protection 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	Light yellow
Odor	aromatic
Odor Threshold	No information available
pH	No information available
Melting Point/Range	19.6 °C / 67.3 °F
Boiling Point/Range	202 °C / 395.6 °F @ 760 mmHg
Flash Point	77 °C / 170.6 °F
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	6.7 vol %
Lower	1.1 vol %
Vapor Pressure	1.3 mbar @ 20°C
Vapor Density	No information available
Specific Gravity	1.028
Solubility	Soluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	535 °C / 995 °F
Decomposition Temperature	No information available
Viscosity	1.8 mPa.s at 20 °C
Molecular Formula	C8 H8 O
Molecular Weight	120.15

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
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
Acetophenone	900 mg/kg (Rat) 815 mg/kg (Rat)	3300 mg/kg (Rat)	LC50 > 2.130 mg/L (Rat) 8 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
Acetophenone	98-86-2	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 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.

12. Ecological information

Ecotoxicity

.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Acetophenone	Not listed	Brachydanio rerio: LC50 = 155 mg/L 96h	EC50 = 15.5 mg/L 15 min	EC50 = 162 mg/L 48h

Persistence and Degradability Persistence is unlikely

Bioaccumulation/ Accumulation No information available.

Mobility . Will likely be mobile in the environment due to its water solubility.

Component	log Pow
Acetophenone	1.7

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
Acetophenone - 98-86-2	U004	-

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
Acetophenone	98-86-2	X	ACTIVE	TP

Legend:
TSCA - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed
TP - Indicates a substance that is the subject of a proposed TSCA Section 4 test rule

TSCA 12(b) - Notices of Export Not applicable

International Inventories
China, X = listed, Australia, U.S.A. (TSCA), Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Australia (AICS), Korea (ECL), China (IECSC), Japan (ENCS), Philippines (PICCS).

Component	CAS-No	DSL	NDSL	EINECS	PICCS	ENCS	AICS	IECSC	KECL
Acetophenone	98-86-2	X	-	202-708-7	X	X	X	X	KE-28355

U.S. Federal Regulations

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Acetophenone	98-86-2	>95	1.0

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act) Not applicable

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Acetophenone	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
Acetophenone	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
Acetophenone	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 Moderate risk, Grade 2

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date	19-May-2010
Revision Date	07-Apr-2020
Print Date	07-Apr-2020
Revision Summary	SDS sections updated. 16.

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 – Benzene

Revision Nr: 3
Issue date: 15/12/2014
Supersedes: 12/08/2011

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Chemical name	:	benzene
EC Index	:	601-020-00-8
EC No	:	200-753-7
CAS No.	:	71-43-2
REACH registration No.	:	01-2119447106-44
Formula	:	C6H6

1.2. Relevant identified uses of the substance or mixture and uses advised against

Specific use(s) : Use as an intermediate

The substance/product is registered with strictly controlled conditions as defined in Article 18(4) of Regulation (EC) No. 1907/2006 (REACH Regulation) and must therefore be handled as such.

1.3. Details of the supplier of the safety data sheet

Company : Transcor Energy
Parc de L'Alliance, Boulevard de France 7
1420 Braine-L'Alleud , Belgium
Telephone +32 2 663 19 00
Telefax: +32 2 675 49 99
E-mail: reach@transcor.be

1.4. Emergency telephone number

Emergency telephone : +32 3 575 03 30 (This telephone number is available 24 hours per day, 7 days per week.)

IRELAND (REPUBLIC OF) National Poisons Information Centre Beaumont Hospital	+353 18 37 99 64/+353 1 809 21 66
UNITED KINGDOM National Poisons Information Service (Newcastle Centre) Regional Drugs and Therapeutics Centre, Wolfson Unit	0844 892 0111 (UK only, Monday to Friday, 08.00 to 18.00 hours)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

2.1.1. Classification according to Regulation (EU) 1272/2008

CLP-Classification : The product is classified as hazardous in accordance with Regulation (EC) No. 1272/2008.

Flam. Liq. 2	H225
Skin Irrit. 2	H315
Eye Irrit. 2	H319
Muta. 1B	H340
Carc. 1A	H350
STOT RE 1	H372
Asp. Tox. 1	H304

Full text of H-phrases: see section 16

2.1.2. Classification according to EU Directives 67/548/EEC or 1999/45/EC

Classification : This substance is classified as hazardous according to 67/548/EEC.

F; R11
Xn; R65
T; R48/23/24/25
Xi; R36/38
Carc.Cat.1; R45
Muta.Cat.2; R46

Full text of R-phrases: see section 16

2.2. Label elements

2.2.1. Labelling according to Regulation (EU) 1272/2008

Hazard pictograms :



GHS02 GHS07 GHS08

Signal word : Danger

Hazard statements :
H225 - Highly flammable liquid and vapour.
H304 - May be fatal if swallowed and enters airways.
H315 - Causes skin irritation.
H319 - Causes serious eye irritation.
H340 - May cause genetic defects.
H350 - May cause cancer.
H372 - Causes damage to organs through prolonged or repeated exposure.

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.
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/doctor/.
P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P331 - Do NOT induce vomiting.

2.2.2. Labelling according to Directives (67/548 - 1999/45)

Not relevant

2.3. Other hazards

Other hazards : Vapours can form explosive mixtures with air.
Results of PBT and vPvB assessment :
Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance name	Product identifier	%	Classification according to Directive 67/548/EEC
Benzene	(CAS No.) 71-43-2 (EC No) 200-753-7 (EC Index) 601-020-00-8 (REACH-no) 01-2119447106-44-0099	100	F; R11 Xn; R65 T; R48/23/24/25 Xi; R36/38 Carc.Cat.1; R45 Muta.Cat.2; R46

Substance name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Benzene	(CAS No.) 71-43-2 (EC No) 200-753-7 (EC Index) 601-020-00-8 (REACH-no) 01-2119447106-44-0099	100	Flam. Liq. 2, H225 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Muta. 1B, H340 Carc. 1A, H350 STOT RE 1, H372 Asp. Tox. 1, H304

Full text of R- and H-phrases: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation : Remove person to fresh air and keep comfortable for breathing.
When in doubt or if symptoms are observed, get medical advice.
If breathing is irregular or stopped, administer artificial respiration.
Get medical advice/attention.

Skin contact : Take off contaminated clothing.
Gently wash with plenty of soap and water.
Get medical advice/attention.

Eye contact : Rinse immediately carefully and thoroughly with eye-bath or water.
Remove contact lenses, if present and easy to do. Continue rinsing.
Get immediate medical advice/attention.

In case of ingestion : Rinse mouth thoroughly with water.
Do NOT induce vomiting.
Get immediate medical advice/attention.

Additional advice : First aider: Pay attention to self-protection!
Personal protection equipment: see section 8
Never give anything by mouth to an unconscious person or a person with cramps.
When in doubt or if symptoms are observed, get medical advice.
Show this safety data sheet to the doctor in attendance.
Treat symptomatically.

4.2. Most important symptoms and effects, both acute and delayed

Inhalation : Causes damage to organs through prolonged or repeated exposure. The following symptoms may occur: Dizziness Drowsiness Unconsciousness Headache Nausea Convulsions Shortness of breath.

Skin contact	:	Causes skin irritation. Causes damage to organs through prolonged or repeated exposure. The following symptoms may occur: Dry skin Pain erythema (redness).
Eye contact	:	Causes serious eye irritation. The following symptoms may occur: Redness, pain.
Ingestion	:	May be fatal if swallowed and enters airways. Causes damage to organs through prolonged or repeated exposure. The following symptoms may occur: Abdominal pain Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea. Sore throat.
Other adverse effects	:	Causes damage to organs through prolonged or repeated exposure. May cause cancer. May cause genetic defects.

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 spray, alcohol resistant foam, Dry extinguishing powder, Carbon dioxide
Extinguishing media which must not be used for safety reasons	:	Strong water jet

5.2. Special hazards arising from the substance or mixture

Fire hazard	:	Highly flammable liquid and vapour.
Specific hazards	:	Heating causes rise in pressure with risk of bursting. Vapours can form explosive mixtures with air. Vapours are heavier than air, spread along floors and form explosive mixtures with air. Vapours can travel considerable distances to a source of ignition where they can ignite, flash back, or explode. Hazardous combustion products: Carbon oxides Nitrogen oxides (NOx) Volatile organic compounds

5.3. Advice for firefighters

Advice for firefighters	:	Special protective equipment for firefighters. In case of fire: Wear self-contained breathing apparatus. Use water spray jet to protect personnel and to cool endangered containers. Do not allow run-off from fire-fighting to enter drains or water courses. Dispose according to legislation. Evacuate area.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	:	Evacuate area. Stay upwind/keep distance from source. Provide adequate ventilation. Use personal protective equipment as required. Personal protection equipment: see section 8 Do not breathe vapour/spray. Avoid contact with skin, eyes and clothes. Keep away from heat, hot surfaces, sparks, open flames and other ignition

sources. No smoking.
Ensure that the equipment is adequately grounded.
Use explosion-proof machinery, apparatus, ventilation facilities, tools etc.
Use only non-sparking tools.

For emergency responders : Ensure procedures and training for emergency decontamination and disposal are in place.
Personal protection equipment: see section 8.

6.2. Environmental precautions

Environmental precautions : Do not allow to enter into ground-water, surface water or drains.
If the product contaminates rivers and lakes or drains inform respective authorities.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Use foam on spills to minimise vapours.
Stop leak if safe to do so.
Dam up.
Clean-up methods - small spillage: Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents)., Collect in closed and suitable containers for disposal.
Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents).
Sweep or shovel spills into appropriate container for disposal
Clean-up methods - large spillage: Large spills should be collected mechanically (remove by pumping) for disposal., Collect in closed and suitable containers for disposal.
Large spills should be collected mechanically (remove by pumping) for disposal.
Use only explosion-proof equipment.
Dispose of waste product or used containers according to local regulations.

6.4. Reference to other sections

Personal protection equipment: see section 8
Disposal: see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Handling : Provide adequate ventilation.
Use personal protective equipment as required.
Personal protection equipment: see section 8
Do not breathe vapour/spray.
Avoid contact with skin, eyes and clothes.
Take any precaution to avoid mixing with incompatible materials.
See also section 10
Ensure proper process control to avoid excess waste discharge (temperature, concentration, pH value, time).
Do not allow contact with soil, surface or ground water.
Obtain special instructions before use.
(Do not handle until all safety precautions have been read and understood.)
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Ensure that the equipment is adequately grounded.
Use explosion-proof machinery, apparatus, ventilation facilities, tools etc.
Use only non-sparking tools.

The substance/product is registered with strictly controlled conditions as defined in Article 18(4) of Regulation (EC) No. 1907/2006 (REACH Regulation) and must therefore be handled as such.

Advices on general occupational hygiene : Keep good industrial hygiene.
Wash hands before breaks and immediately after using the product.
When using do not eat, drink or smoke.
Keep away from food, drink and animal feedingstuffs.
Keep work clothes separately.
Take off contaminated clothing.
Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Storage : Keep in a dry, cool and well-ventilated place.
Do not store near or with any of the incompatible materials listed in section 10.
Bund storage facilities to prevent soil and water pollution in the event of spillage.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Packaging materials : Keep/Store only in original container.

7.3 Specific end use(s)

Intermediate.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limit values :

Benzene (71-43-2)		
Belgium	Limit value (mg/m³)	3,25 mg/m³
Belgium	Limit value (ppm)	1 ppm
Bulgaria	OEL TWA (mg/m³)	3,25 mg/m³
Croatia	GVI (granična vrijednost izloženosti) (mg/m³)	3,25 mg/m³
Croatia	GVI (granična vrijednost izloženosti) (ppm)	1 ppm
Cyprus	OEL TWA (mg/m³)	3,25 mg/m³
Cyprus	OEL TWA (ppm)	1 ppm
France	VME (mg/m³)	3,25 mg/m³ (restrictive limit)
France	VME (ppm)	1 ppm (restrictive limit)
Greece	OEL TWA (mg/m³)	3,19 mg/m³
Greece	OEL TWA (ppm)	1,0 ppm
Italy - Portugal - USA ACGIH	ACGIH TWA (ppm)	0,5 ppm
Italy - Portugal - USA ACGIH	ACGIH STEL (ppm)	2,5 ppm
Italy	OEL TWA (mg/m³)	3,25 mg/m³
Italy	OEL TWA (ppm)	1 ppm
Latvia	OEL TWA (mg/m³)	3,25 mg/m³
Latvia	OEL TWA (ppm)	1 ppm
Spain	VLA-ED (mg/m³)	3,25 mg/m³ (manufacturing, commercialization, and use restrictions under REACH; worker protection to carcinogens in the workplace)

Spain	VLA-ED (ppm)	1 ppm (manufacturing, commercialization, and use restrictions under REACH; worker protection to exposure to carcinogens and mutagens in the workplace)
Switzerland	VME (mg/m³)	1,6 mg/m³
Switzerland	VME (ppm)	0,5 ppm
Netherlands	Grenswaarde TGG 8H (mg/m³)	3,25 mg/m³
United Kingdom	WEL TWA (mg/m³)	3,25 mg/m³
United Kingdom	WEL TWA (ppm)	1 ppm
United Kingdom	WEL STEL (mg/m³)	9,75 mg/m³ (calculated)
United Kingdom	WEL STEL (ppm)	3 ppm (calculated)
Czech Republic	Expoziční limity (PEL) (mg/m³)	3 mg/m³
Denmark	Grænseværdie (langvarig) (mg/m³)	1,6 mg/m³
Denmark	Grænseværdie (langvarig) (ppm)	0,5 ppm
Finland	HTP-arvo (8h) (mg/m³)	3,25 mg/m³
Finland	HTP-arvo (8h) (ppm)	1 ppm
Hungary	MK-érték	3 mg/m³
Ireland	OEL (8 hours ref) (mg/m³)	3 mg/m³
Ireland	OEL (8 hours ref) (ppm)	1 ppm
Ireland	OEL (15 min ref) (mg/m3)	9 mg/m³ (calculated)
Ireland	OEL (15 min ref) (ppm)	3 ppm (calculated)
Lithuania	IPRV (mg/m³)	3,25 mg/m³
Lithuania	IPRV (ppm)	1 ppm
Lithuania	TPRV (mg/m³)	19 mg/m³
Lithuania	TPRV (ppm)	6 ppm
Norway	Gjennomsnittsverdier (AN) (mg/m³)	3 mg/m³
Norway	Gjennomsnittsverdier (AN) (ppm)	1 ppm
Norway	Gjennomsnittsverdier (Korttidsverdi) (mg/m3)	6 mg/m³
Norway	Gjennomsnittsverdier (Korttidsverdi) (ppm)	3 ppm
Poland	NDS (mg/m³)	1,6 mg/m³
Romania	OEL TWA (mg/m³)	3,25 mg/m³
Romania	OEL TWA (ppm)	1 ppm
Sweden	nivågränsvärde (NVG) (mg/m³)	1,5 mg/m³
Sweden	nivågränsvärde (NVG) (ppm)	0,5 ppm
Sweden	kortidsvärde (KTV) (mg/m³)	9 mg/m³
Sweden	kortidsvärde (KTV) (ppm)	3 ppm

Recommended monitoring procedures : Personal air monitoring
Room air monitoring

8.2. Exposure controls

Personal protection equipment : The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection : In case of insufficient ventilation, wear suitable respiratory equipment.
Half-face mask (EN 140)
Full face mask (EN 136)
Filter type: AP (EN 141)
The filter class must be suitable for the maximum contaminant

		concentration (gas/vapour/aerosol/particulates) that may arise when handling the product. If the concentration is exceeded, self-contained breathing apparatus must be used. (EN 137)
Hand protection	:	Wear chemically resistant gloves (tested to EN374) ,Suitable material:,NBR (Nitrile rubber) (> 0.45 mm, BTT > 30 min.),PVA (Polyvinyl alcohol) (BTT > 480 min.),Fluoropolymers (BTT > 480 min.),The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances.
Eye protection	:	Use suitable eye protection. (EN166): Goggles
Body protection	:	Wear suitable protective clothing. Wear suitable coveralls to prevent exposure to the skin. Chemical resistant safety shoes
Thermal hazard protection	:	Not required under normal use. Use dedicated equipment.
Engineering control measures	:	The substance/product is registered with strictly controlled conditions as defined in Article 18(4) of Regulation (EC) No. 1907/2006 (REACH Regulation) and must therefore be handled as such. Provide adequate ventilation. Organisational measures to prevent /limit releases, dispersion and exposure Safe handling: see section 7 . Transfer and handle product only in closed systems. Guarantee that the eye flushing systems and safety showers are closely located to the working place. Store locked up. Take precautionary measures against static discharges. Ensure that the equipment is adequately grounded. Use explosion-proof machinery, apparatus, ventilation facilities, tools etc.
Environmental exposure controls	:	Do not allow contact with soil, surface or ground water. Comply with applicable Community environmental protection legislation.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	:	liquid
Colour	:	clear
Odour	:	characteristic
Odour threshold	:	No data available
pH	:	No data available
Melting point/freezing point	:	5,49 °C
Initial boiling point and boiling range	:	80,09 °C
Flash point	:	11 °C
Evaporation rate	:	No data available
Flammability (solid, gas)	:	Not applicable, liquid
Upper/lower flammability or explosive limits	:	< No data available
Vapour pressure	:	10 kPa (20 °C) 100 kPa (79.9 °C)
Vapour density	:	No data available

Density	:	0,8765 g/cm³ (20 °C)
Relative density	:	No data available
Water solubility	:	≈ 1,88 g/l (23.5 °C)
Solubility in different media	:	Justification for data waiving not relevant
Partition coefficient n-octanol/water	:	2,13
Auto-ignition temperature	:	498 °C
Decomposition temperature	:	No data available
Viscosity	:	0,604 mPa.s (25 °C)
Explosive properties	:	Not applicable The study does not need to be conducted because there are no chemical groups associated with explosive properties present in the molecule.
Oxidising properties	:	Not applicable The classification procedure needs not to be applied because there are no chemical groups present in the molecule which are associated with oxidising properties.

9.2. Other information

Surface tension	:	Justification for data waiving not relevant

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	:	Highly flammable liquid and vapour. Reference to other sections: 10.4 & 10.5

10.2. Chemical stability

Stability	:	The product is stable under storage at normal ambient temperatures.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	:	Vapours can form explosive mixtures with air.

10.4. Conditions to avoid

Conditions to avoid	:	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Safe handling: see section 7

10.5. Incompatible materials

Incompatible materials	:	Oxidising substances, Strong acids, Halogens, Safe handling: see section 7

10.6. Hazardous decomposition products

Hazardous decomposition products	:	Reference to other sections: 5.2

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity	:	Not classified (Based on available data, the classification criteria are not met.)

Benzene (71-43-2)	
LD50/oral/rat	> 2000 mg/kg
LD50/dermal/rabbit	> 5000 mg/kg
ATE CLP (vapours)	44,5 mg/l/4h

Skin corrosion/irritation : Causes skin irritation.
pH: No data available

Serious eye damage/eye irritation : Causes serious eye irritation.
pH: No data available

Respiratory or skin sensitisation : Not classified (Based on available data, the classification criteria are not met.)

Germ cell mutagenicity : May cause genetic defects.

Carcinogenicity : May cause cancer.
LOAEL, Oral, Rat: 25 mg/kg bw/day

Reproductive toxicity : Not classified (Based on available data, the classification criteria are not met.)
NOAEC, Inhalation: 960 mg/m³
NOAEC, Developmental toxicity, Inhalation, Rat: 32 mg/m³

STOT-single exposure : Not classified (Based on available data, the classification criteria are not met.)

STOT-repeated exposure : Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard : May be fatal if swallowed and enters airways.

Other information

Reference to other sections: 4.2,Symptoms related to the physical, chemical and toxicological characteristics,For further information see section 4

SECTION 12: Ecological information

12.1. Toxicity

Benzene (71-43-2)	
LC50 fish 1	eco mg/l (96 h)
EC50 Daphnia 1	10 mg/l (48h)
ErC50 (algae)	100 mg/l (72 h)
LOEC (chronic)	1,6 mg/l
NOEC (chronic)	3 mg/l Invertebrates.
NOEC chronic fish	0,8 mg/l
NOEC chronic crustacea	3 mg/l
NOEC chronic algae	≈
Additional information	ErC10, Biomass, 72h, algae: 10 mg/l ErC10, Growth rate, 72h, algae: 34 mg/l IC50, 24h, micro-organisms: 13 mg/l

12.2. Persistence and degradability

Persistence and degradability : Readily biodegradable.

12.3. Bioaccumulative potential

Bioaccumulation : Low potential
Partition coefficient n-octanol/water : 2,13
Bioconcentration factor (BCF) : < 10

12.4. Mobility in soil

Mobility :
Surface tension : Justification for data waiving

12.5. Results of PBT and vPvB assessment

PBT/vPvB data :

12.6. Other adverse effects

Other information :

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product waste: : Do not allow contact with soil, surface or ground water.
Dispose of empty containers and wastes safely.
Safe handling: see section 7
Refer to manufacturer/supplier for information on recovery/recycling
Recycling is preferred to disposal or incineration
If recycling is not possible, eliminate in accordance with local valid waste disposal regulations

Contaminated packaging : Never use pressure to empty container.
Do not pierce or burn, even after use.
Handle contaminated packages in the same way as the substance itself.
Dispose according to legislation.

List of proposed waste codes/waste designations in accordance with EWC : This material and its container must be disposed of as hazardous waste.
Waste codes should be assigned by the user based on the application for which the product was used.

SECTION 14: Transport information

14.1. UN number

UN number : 1114

14.2. UN proper shipping name

Proper Shipping Name : BENZENE
Proper Shipping Name (IATA) : BENZENE
Proper Shipping Name (IMDG) : BENZENE
Proper Shipping Name (ADN) : BENZENE

14.3. Transport hazard class(es)

14.3.1. Overland transport

Class(es) : 3 - Flammable liquid
Hazard identification number (Kemler No.) : 33
Classification code : F1

ADR/RID-Labels : 3 - Flammable liquid



14.3.2. Inland waterway transport (ADN)

Class (UN) : 3

14.3.3. Transport by sea

Class or Division : 3 - flammable liquids

14.3.4. Air transport

Class or Division : 3 - flammable liquids

14.4. Packing group

Packing group : II

14.5. Environmental hazards

Other information : No supplementary information available.

14.6 Special precautions for user

Special precautions for user : No data available.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

No data available

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations

The following restrictions are applicable according to Annex XVII of the REACH Regulation (EC) No 1907/2006	:
3. Liquid substances or mixtures which are regarded as dangerous in accordance with Directive 1999/45/EC or are fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008	: Benzene
5. Benzene	: Benzene
28. Substances which appear in Part 3 of Annex VI to Regulation (EC) No 1272/2008 classified as Carcinogen category 1A or 1B (Table 3.1) or Carcinogen category 1 or 2 (Table 3.2) and listed as follows: Carcinogen category 1A (Table 3.1)/Carcinogen category 1 (Table 3.2) listed in Appendix 1 Carcinogen category 1B (Table 3.1)/Carcinogen category 2 (Table 3.2) listed in Appendix 2	: Benzene

29. Substances which appear in Part 3 of Annex VI to Regulation (EC) No 1272/2008 classified as Germ cell Mutagen category 1A or 1B (Table 3.1) or Mutagen category 1 or 2 (Table 3.2) and listed as follows: Mutagen category 1A (Table 3.1)/Mutagen category 1 (Table 3.2) listed in Appendix 3 Mutagen category 1B (Table 3.1)/Mutagen category 2 (Table 3.2) listed in Appendix 4	: Benzene
40. Substances classified as flammable gases category 1 or 2, flammable liquids categories 1, 2 or 3, flammable solids category 1 or 2, substances and mixtures which, in contact with water, emit flammable gases, category 1, 2 or 3, pyrophoric liquids category 1 or pyrophoric solids category 1, regardless of whether they appear in Part 3 of Annex VI to Regulation (EC) No 1272/2008 or not.	: Benzene
This product contains an ingredient according to the candidate list of Annex XIV of the REACH Regulation 1907/2006/EC.	: none
Authorisations	: Not applicable

15.1.2. National regulations

DE : WGK	: 3
NL : ABM	: 2 - May cause heritable genetic damage.,3 - May cause cancer.
NL : NeR (Nederlandse emissie Richtlijn)	: Organic substances in vapour or gaseous form

15.2. Chemical safety assessment

Chemical Safety Assessment : For this substance a chemical safety assessment has been carried out.

SECTION 16: Other information

Full text of R-, H- and EUH-phrases:

Asp. Tox. 1	: Aspiration hazard, Category 1
Carc. 1A	: Carcinogenicity, Category 1A
Eye Irrit. 2	: Serious eye damage/eye irritation Category 2
Flam. Liq. 2	: Flammable liquids, Category 2
Muta. 1B	: Germ cell mutagenicity, hazard categories 1B
Skin Irrit. 2	: Skin corrosion/irritation, Category 2
STOT RE 1	: Specific target organ toxicity — Repeated exposure, Category 1
H225	: Highly flammable liquid and vapour.
H304	: May be fatal if swallowed and enters airways.
H315	: Causes skin irritation.
H319	: Causes serious eye irritation.
H340	: May cause genetic defects.
H350	: May cause cancer.
H372	: Causes damage to organs through prolonged or repeated exposure.
R11	: Highly flammable.
R36/38	: Irritating to eyes and skin.
R45	: May cause cancer.
R46	: May cause heritable genetic damage.
R48/23/24/25	: Toxic: danger of serious damage to health by prolonged exposure through inhalation,

		in contact with skin and if swallowed.
R65	:	Harmful: may cause lung damage if swallowed.
F	:	Highly flammable
T	:	Toxic
Xi	:	Irritant
Xn	:	Harmful

Key literature references and sources for data	:	CSR
Safety datasheet sections which have been updated	:	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16
Abbreviations and acronyms	:	ABM = Algemene beoordelingsmethodiek ADN = Accord Européen relatif au Transport International des Marchandises Dangereuses par voie de Navigation du Rhin ADR = Accord européen relatif au transport international des marchandises Dangereuses par Route CLP = Classification, Labelling and Packaging Regulation according to 1272/2008/EC IATA = International Air Transport Association IMDG = International Maritime Dangerous Goods Code LEL = Lower Explosive Limit/Lower Explosion Limit UEL = Upper Explosion Limit/Upper Explosive Limit REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals BTT = Breakthrough time (maximum wearing time) DMEL = Derived minimal effect level DNEL = Derived No Effect Level EC50 = Median Effective Concentration EL50 = Median effective level ErC50 = EC50 in terms of reduction of growth rate ErL50 = EL50 in terms of reduction of growth rate EWC = European Waste Catalogue LC50 = Median lethal concentration LD50 = Median lethal dose LL50 = Median lethal level NA = Not applicable NOEC = No observed effect concentration NOEL: no-observed-effect level NOELR = No observed effect loading rate NOAEC = No observed adverse effect concentration NOAEL = No observed adverse effect level N.O.S. = Not Otherwise Specified OEL = Occupational Exposure Limits - Short Term Exposure Limits (STELs) PNEC = Predicted No Effect Concentration Quantitative structure-acivity relationship (QSAR) STOT = Specific Target Organ Toxicity TWA = time weighted average VOC = Volatile organic compounds WGK = Wassergefährdungsklasse (Water Hazard Class under German Federal Water Management Act)

The contents and format of this SDS are in accordance with EEC Commission Directive 1999/45/EC, 67/548/EC, 1272/2008/EC and EEC Commission Regulation 1907/2006/EC (REACH) Annex II.

DISCLAIMER OF LIABILITY The information in this SDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods of

handling, storage, use or disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This SDS was prepared and is to be used only for this product. If the product is used as a component in another product, this SDS information may not be applicable.

SAFETY DATA SHEET

Creation Date 22-Sep-2009 **Revision Date** 23-Jan-2018 **Revision Number** 3

1. Identification

Product Name **cis-1,2-Dichloroethylene**

Cat No. : **AC113380000; AC113380025; AC113380100; AC113380500**

Synonyms cis-Acetylene dichloride.

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 2
Acute oral toxicity	Category 4
Acute Inhalation Toxicity - Vapors	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
Danger

Hazard Statements
Highly flammable liquid and vapor
Harmful if swallowed
Harmful if inhaled

Causes serious eye irritation
Causes skin irritation
May cause respiratory irritation



Precautionary Statements
Prevention
Wear protective gloves/protective clothing/eye protection/face protection
Use only outdoors or in a well-ventilated area
Avoid breathing 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
Take precautionary measures against static discharge
Do not eat, drink or smoke when using this product
Response
Call a POISON CENTER or doctor/physician 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: 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
Ingestion
Rinse mouth
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Fire
Explosion risk in case of fire
Fight fire with normal precautions from a reasonable distance
Evacuate area
Storage
Store in a well-ventilated place. Keep cool
Store in a closed container
Store locked up
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 %
cis-1,2-Dichloroethylene	156-59-2	97

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. Get medical attention. If not breathing, give artificial respiration.
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	6 °C / 42.8 °F
Method -	No information available
Autoignition Temperature	440 °C / 824 °F

Explosion Limits

Upper	12.80%
Lower	9.70%
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical
Flammable. Vapors may travel to source of ignition and flash back. Containers may explode when heated. Vapors may form explosive mixtures with air.

Hazardous Combustion Products
Carbon monoxide (CO). Carbon dioxide (CO_2). Hydrogen chloride gas.
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	0	N/A

6. Accidental release measures

Personal Precautions	Ensure adequate ventilation. Use personal protective equipment as required. Remove all sources of ignition. Take precautionary measures against static discharges. Avoid contact with skin, eyes or clothing.
Environmental Precautions	See Section 12 for additional Ecological Information. Do not flush into surface water or sanitary sewer system.
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

Ensure adequate ventilation. Wear personal protective equipment/face protection. Use spark-proof tools and explosion-proof equipment. Use only non-sparking tools. Avoid contact with skin, eyes or clothing. Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid ingestion and inhalation. Keep away from open flames, hot surfaces and sources of ignition. 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 in a dry, cool and well-ventilated place. Refer product specification and/or product label for specific storage temperature requirement. Keep container tightly closed. Keep away from heat, sparks and flame. Flammables area. Keep container tightly closed in a dry and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
cis-1,2-Dichloroethylene	TWA: 200 ppm			TWA: 200 ppm

Legend

ACGIH - American Conference of Governmental Industrial Hygienists

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

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	Liquid
Appearance	Colorless
Odor	aromatic
Odor Threshold	No information available
pH	No information available
Melting Point/Range	-80 °C / -112 °F
Boiling Point/Range	60 °C / 140 °F @ 760 mmHg
Flash Point	6 °C / 42.8 °F
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	12.80%
Lower	9.70%
Vapor Pressure	201 mmHg @ 25 °C
Vapor Density	3.34 (Air = 1.0)
Specific Gravity	1.280
Solubility	No information available
Partition coefficient; n-octanol/water	No data available

Autoignition Temperature	440 °C / 824 °F
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C2 H2 Cl2
Molecular Weight	96.94

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. Exposure to air. Exposure to light. Incompatible products. Exposure to moist air or water.

Incompatible Materials Bases

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2), Hydrogen chloride gas

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 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
cis-1,2-Dichloroethylene	156-59-2	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 Respiratory system

STOT - repeated exposure None known

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.

12. Ecological information

Ecotoxicity

Do not empty into drains. Do not flush into surface water or sanitary sewer system. Harmful 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
cis-1,2-Dichloroethylene	Not listed	Not listed	EC50 = 721 mg/L 5 min EC50 = 905 mg/L 30 min	Not listed

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.

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 UN1150
Proper Shipping Name 1,2-DICHLOROETHYLENE
Hazard Class 3
Packing Group II

TDG

UN-No UN1150
Proper Shipping Name 1,2-DICHLOROETHYLENE
Hazard Class 3
Packing Group II

IATA

UN-No UN1150
Proper Shipping Name 1,2-DICHLOROETHYLENE
Hazard Class 3
Packing Group II

IMDG/IMO

UN-No UN1150
Proper Shipping Name 1,2-DICHLOROETHYLENE
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
cis-1,2-Dichloroethylene	156-59-2	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
cis-1,2-Dichloroethylene	156-59-2	-	X	205-859-7	-	X	X	X	KE-10124

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

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
cis-1,2-Dichloroethylene	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

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 22-Sep-2009
Revision Date 23-Jan-2018
Print Date 23-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

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: H-135N

Description: Dibenz(a,h)anthracene

CAS No.: 53-70-3

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

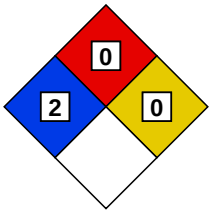
1.4 - Emergency Telephone Number

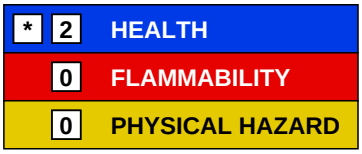
Emergency Phone #: AccuStandard, Inc.
1-203-786-5290
Hours: Monday to Friday 8:00am to 5:00pm EST

SECTION 2 - HAZARDS IDENTIFICATION

2.1 - GHS Label Elements







Signal Word: Danger

Hazard Codes:

H302 - Harmful if swallowed. (Acute toxicity, oral, category 4)

H315 - Irritating to skin. (Skin corrosion/irritation, category 2)

H320 - Irritating to eyes. (Eye damage/irritation, category 2B)

H350 - California Proposition 65 Warning: This product contains a component (or components) that may cause cancer in a concentration greater than or equal to 0.1%.

H350 - This product is or contains a component that is classified (ACGIH, IARC, NTP, OSHA) as a possible cancer hazard. (Carcinogenicity, category 1B)

H371 - May cause liver damage. (Specific target organ toxicity, single exposure, category 2)

H371 - May cause lung damage. (Specific target organ toxicity - single exposure, inhalation) Category 2

H402 - Harmful to fish and other water organisms.

H413 - May cause long-term adverse effects in the aquatic environment.

SECTION 2 - HAZARDS IDENTIFICATION *- continued*

2.1 - GHS Label Elements *- continued*

Precautionary Codes:

P202 - This product should only by used by persons trained in the safe handling of hazardous chemicals.

P235 - Store in a cool dry place.

P260 - Do not breathe dust.

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.

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.

P338 - 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.

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.

P404 - Store in a tightly closed container.

2.2 - Other Hazards

2.2.1 - Symptom of Exposure Health/Environment

Harmful.

May cause lung damage. (Specific target organ toxicity - single exposure, inhalation) Category 2

May cause liver damage. (Specific target organ toxicity, single exposure, category 2)

Causes photosensitivity. Exposure to light can result in allergic reactions resulting in dermatologic lesions.

Bioaccumulation of this chemical may occur. It is strongly advised that this substance does not enter the environment.

Harmful to fish and other water organisms. (H402)

May cause long-term adverse effects in the aquatic environment. (H413)

2.2.2 - Potential Health Effects

Irritating to eyes. (Eye damage/irritation, category 2B)

Irritating to skin. (Skin corrosion/irritation, category 2)

May be harmful if absorbed through the skin. (Acute toxicity, dermal, category 5)

Irritating to mucous membrane and upper respiratory system.

May be harmful if inhaled. (Acute toxicity, inhalation, category 5)

Harmful if swallowed. (Acute toxicity, oral, category 4)

2.2.3 - Routes of Entry

Inhalation, ingestion or skin contact.

2.2.4 - Carcinogenicity

California Proposition 65 cancer hazard.

This product is or contains a component that is classified (ACGIH, IARC, NTP, OSHA) as a possible cancer hazard. (Carcinogenicity, category 1B)

California Proposition 65 Warning: This product contains a component (or components) that may cause cancer in a concentration greater than or equal to 0.1%.

SECTION 3 - COMPOSITION / ANALYTES DATA

Description: Dibenz(a,h)anthracene

Synonyms: 1,2:5,6-Dibenzanthracene; 1,2:5,6-Dibenz(a)anthracene

Molecular Weight: 278.35

Molecular Formula: C22H14

EC#: 200-181-8

Index#: 601-041-00-2

			ACGIH -TLV (mg/m^3)			OSHA -PEL (mg/m^3)		
Analyte	CAS Number	% Concentration	TWA	STEL	Skin	TWA	STEL	Skin
Dibenz(a,h)anthracene	53-70-3	100.000						

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 and 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: 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

5.1 - Flammable Properties

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, or 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. Avoid raising dust. 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)

Store in a cool dry place. (P235)

Do not breathe dust. (P260)

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.

Compatible chemical-resistant protective gloves must be worn to prevent skin contact. Inspect gloves prior to use. Use proper glove removal technique to avoid contact with product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash hands thoroughly and dry.

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: Crystalline solid

Odor: N/A

Odor Threshold: N/A

pH: N/A

Melting Point: 504 °F / 262 °C

Boiling Point: 975 °F / 524 °C

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): N/A

Specific Gravity: 1.28 g/cm3

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES *- continued*

Solubility in Water: Insoluble

Partition Coefficient: log Pow: 6.5

Autoignition Temperature: N/A

Decomposition Temperature: N/A

Viscosity: N/A

VOC Content: N/A

Percent Volatile: Negligible

SECTION 10 - STABILITY AND REACTIVITY

Stability: Stable

Materials to Avoid: Oxidizers

Hazardous Decomposition: Oxides of carbon

Hazardous Polymerization: Will not occur

Condition to Avoid: Excessive heat

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

Dibenz[a,h]anthracene produced carcinomas in mice following oral or dermal exposure and injection site tumors in several species and has induced DNA damage and gene mutations in bacteria.

WARNING: This product contains chemical(s) known to the state of California to cause cancer.

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

The potential for bioconcentration in aquatic organisms is considered high.

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)

SECTION 14 - TRANSPORT INFORMATION *- continued*

UN Number: UN3077

UN Shipping Class: 9

UN Packing Group: III

UN Proper Shipping Name: Environmentally hazardous substance, solid, n.o.s. (Dibenz(a,h)anthracene)

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.

This product is subject to SARA section 313 reporting requirements.

The CAS number of this product is 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.

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 ****

SAFETY DATA SHEET

Creation Date 06-Aug-2010 **Revision Date** 17-Jan-2018 **Revision Number** 6

1. Identification

Product Name **Ethylbenzene**

Cat No. : **O2751-1**

CAS-No 100-41-4
Synonyms Ethylbenzol; Phenylethane

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 Inhalation Toxicity - Vapors	Category 4
Carcinogenicity	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 2
Aspiration Toxicity	Category 1

Label Elements

Signal Word
Danger

Hazard Statements
Highly flammable liquid and vapor
May be fatal if swallowed and enters airways
Harmful if inhaled
May cause respiratory irritation
May cause drowsiness or dizziness
Suspected of causing 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
Use only outdoors or in a well-ventilated area
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
Skin
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
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)
Harmful to aquatic life with long lasting effects
WARNING. Cancer - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Ethylbenzene	100-41-4	>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. Get 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. Aspiration into lungs can produce severe lung damage.

Ingestion Clean mouth with water and drink afterwards plenty of water. Do not induce vomiting. Call a physician or Poison Control Center immediately. If vomiting occurs naturally, have victim lean forward.

Most important symptoms and effects Breathing difficulties. . Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: May cause central nervous system depression

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 Do not use a solid water stream as it may scatter and spread fire

Flash Point 22 °C / 71 °F

Method - No information available

Autoignition Temperature 432 °C / 810 °F

Explosion Limits

Upper 6.8%

Lower 1.2%

Sensitivity to Mechanical Impact No information available

Sensitivity to Static Discharge Yes

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)

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	3	0	N/A

6. Accidental release measures

Personal Precautions Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.

Environmental Precautions Should not be released into the environment. Do not flush into surface water or sanitary sewer system. See Section 12 for additional ecological information. 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.

7. Handling and storage

Handling Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Ensure adequate ventilation. 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. Flammables area.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Ethylbenzene	TWA: 20 ppm	(Vacated) TWA: 100 ppm (Vacated) TWA: 435 mg/m³ (Vacated) STEL: 125 ppm (Vacated) STEL: 545 mg/m³ TWA: 100 ppm TWA: 435 mg/m³	IDLH: 800 ppm TWA: 100 ppm TWA: 435 mg/m³ STEL: 125 ppm STEL: 545 mg/m³	TWA: 100 ppm TWA: 435 mg/m³ STEL: 125 ppm STEL: 545 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. 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	aromatic
Odor Threshold	No information available
pH	No information available
Melting Point/Range	-95 °C / -139 °F
Boiling Point/Range	136 °C / 276.8 °F
Flash Point	22 °C / 71 °F
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	6.8%
Lower	1.2%
Vapor Pressure	No information available
Vapor Density	No information available
Specific Gravity	0.860
Solubility	Slightly soluble in water
Partition coefficient; n-octanol/water	No data available

Autoignition Temperature	432 °C / 810 °F
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C8 H10
Molecular Weight	106.17

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

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
Ethylbenzene	3500 mg/kg (Rat)	15400 mg/kg (Rabbit)	17.2 mg/L (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 May cause eye, skin, and respiratory tract irritation

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
Ethylbenzene	100-41-4	Group 2B	Not listed	A3	X	Not listed

IARC: (International Agency for Research on Cancer)
Group 2B - Possibly Carcinogenic to Humans
IARC: (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2A - Probably Carcinogenic to Humans

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 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 None known

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: May cause central nervous system depression

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. 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
Ethylbenzene	EC50: 1.7 - 7.6 mg/L, 96h static (Pseudokirchneriella subcapitata) EC50: 2.6 - 11.3 mg/L, 72h static (Pseudokirchneriella subcapitata) EC50: > 438 mg/L, 96h (Pseudokirchneriella subcapitata) EC50: = 4.6 mg/L, 72h (Pseudokirchneriella subcapitata)	LC50: 11.0 - 18.0 mg/L, 96h static (Oncorhynchus mykiss) LC50: = 4.2 mg/L, 96h semi-static (Oncorhynchus mykiss) LC50: = 32 mg/L, 96h static (Lepomis macrochirus) LC50: 7.55 - 11 mg/L, 96h flow-through (Pimephales promelas) LC50: 9.1 - 15.6 mg/L, 96h static (Pimephales promelas) LC50: = 9.6 mg/L, 96h static (Poecilia reticulata)	EC50 = 9.68 mg/L 30 min EC50 = 96 mg/L 24 h	EC50: 1.8 - 2.4 mg/L, 48h (Daphnia magna)

Persistence and Degradability Insoluble 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 volatility.

Component	log Pow
Ethylbenzene	3.2

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 UN1175
Proper Shipping Name ETHYLBENZENE
Hazard Class 3
Packing Group II

TDG

UN-No UN1175
Proper Shipping Name ETHYLBENZENE
Hazard Class 3
Packing Group II

IATA

UN-No	UN1175
Proper Shipping Name	ETHYLBENZENE
Hazard Class	3
Packing Group	II

IMDG/IMO

UN-No	UN1175
Proper Shipping Name	ETHYLBENZENE
Hazard Class	3
Packing Group	II

15. Regulatory information

All of the components in the product are on the following Inventory lists: X = listed The product is classified and labeled according to EC directives or corresponding national laws The product is classified and labeled in accordance with Directive 1999/45/EC

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Ethylbenzene	X	X	-	202-849-4	-		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 %
Ethylbenzene	100-41-4	>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
Ethylbenzene	X	1000 lb	X	X

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Ethylbenzene	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
Ethylbenzene	1000 lb	-

California Proposition 65 This product contains the following proposition 65 chemicals

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Ethylbenzene	100-41-4	Carcinogen	54 µg/day 41 µg/day	Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Ethylbenzene	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 Serious risk, Grade 3

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 06-Aug-2010
Revision Date 17-Jan-2018
Print Date 17-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

SAFETY DATA SHEET

Creation Date 26-Sep-2009 **Revision Date** 06-Feb-2020 **Revision Number** 5

1. Identification

Product Name **m-Xylene**

Cat No. : **AC610470000; AC610471000**

CAS-No 108-38-3
Synonyms 1,3-Dimethylbenzene

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 3
Acute dermal toxicity	Category 4
Acute Inhalation Toxicity - Vapors	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.	
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
Harmful in contact with skin or if inhaled
May cause respiratory irritation



Precautionary Statements
Prevention
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
Wash face, hands and any exposed skin thoroughly after handling
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
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
Call a POISON CENTER or doctor/physician if you feel unwell
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 cool
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 %
m-Xylene	108-38-3	>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. 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. Risk of serious damage to the lungs (by aspiration).

Ingestion Clean mouth with water and drink afterwards plenty of water. Do NOT induce vomiting. Call a physician or poison control center immediately. If vomiting occurs naturally, have victim lean forward.

Most important symptoms and effects None reasonably foreseeable. 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 (CO2), dry chemical, alcohol-resistant foam. Water mist may be used to cool closed containers.

Unsuitable Extinguishing Media No information available

Flash Point 25 °C / 77 °F

Method - No information available

Autoignition Temperature 465 °C / 869 °F

Explosion Limits

Upper 7.0%

Lower 1.1%

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.

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	3	0	N/A

6. Accidental release measures

Personal Precautions Use personal protective equipment as required. Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.

Environmental Precautions Do not flush into surface water or sanitary sewer system.

Methods for Containment and Clean Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

Up Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

7. Handling and storage

Handling Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Ensure adequate ventilation. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Take precautionary measures against static discharges.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Flammables area. Keep away from heat, sparks and flame.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
m-Xylene	TWA: 100 ppm STEL: 150 ppm		IDLH: 900 ppm TWA: 100 ppm TWA: 435 mg/m³ STEL: 150 ppm STEL: 655 mg/m³	TWA: 100 ppm STEL: 150 ppm

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas. 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	aromatic
Odor Threshold	No information available
pH	No information available
Melting Point/Range	-48 °C / -54.4 °F
Boiling Point/Range	139 - 139 °C / 282.2 - 282.2 °F
Flash Point	25 °C / 77 °F
Evaporation Rate	0.7
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	7.0%
Lower	1.1%

Vapor Pressure	8 mbar @ 20 °C
Vapor Density	3.66
Specific Gravity	0.864
Solubility	Slightly soluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	465 °C / 869 °F
Decomposition Temperature	No information available
Viscosity	0.62 mPa.s at 20 °C
Molecular Formula	C8 H10
Molecular Weight	106.17

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, Strong acids

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
m-Xylene	LD50 = 5 g/kg (Rat)	LD50 = 12.18 g/kg (Rabbit) LD50 = 14100 µL/kg (Rabbit)	LC50 = 5984 ppm (Rat) 6 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 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
m-Xylene	108-38-3	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 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.

12. Ecological information

Ecotoxicity

The product contains following substances which are hazardous for the environment. Contains a substance which is:. Toxic to aquatic organisms.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
m-Xylene	EC50: = 4.9 mg/L, 72h static (Pseudokirchneriella subcapitata)	LC50: = 12.9 mg/L, 96h semi-static (Poecilia reticulata) LC50: = 8.4 mg/L, 96h semi-static (Oncorhynchus mykiss) LC50: 14.3 - 18 mg/L, 96h flow-through (Pimephales promelas)	EC50 = 0.0084 mg/L 24 h	EC50: 2.81 - 5.0 mg/L, 48h Static (Daphnia magna)

Persistence and Degradability Persistence is unlikely

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its volatility. Is not likely mobile in the environment due its low water solubility.

Component	log Pow
m-Xylene	3.2

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 UN1307
Proper Shipping Name XYLENES
Hazard Class 3
Packing Group III

TDG

UN-No UN1307
Proper Shipping Name XYLENES
Hazard Class 3
Packing Group III

IATA

UN-No UN1307
Proper Shipping Name XYLENES
Hazard Class 3
Packing Group III

IMDG/IMO

UN-No UN1307
Proper Shipping Name XYLENES
Hazard Class 3

Packing Group III

15. Regulatory information

United States of America Inventory

Component	CAS-No	TSCA	TSCA Inventory notification - Active/Inactive	TSCA - EPA Regulatory Flags
m-Xylene	108-38-3	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
m-Xylene	108-38-3	X	-	203-576-3	X	X	X	X	KE-35428

U.S. Federal Regulations

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
m-Xylene	108-38-3	>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
m-Xylene	X	-	-	-

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
m-Xylene	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
m-Xylene	1000 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
m-Xylene	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

16. Other information

Prepared By	Regulatory Affairs Thermo Fisher Scientific Email: EMSDS.RA@thermofisher.com
Creation Date	26-Sep-2009
Revision Date	06-Feb-2020
Print Date	06-Feb-2020
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

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End of SDS

SAFETY DATA SHEET

Creation Date 15-Jun-2010 **Revision Date** 31-Jul-2019 **Revision Number** 7

1. Identification

Product Name **o-Xylene**

Cat No. : **O5081-4; O5081-4LC; O5081-500; O5081FB-200; DO5081-500**

CAS-No 95-47-6
Synonyms 1,2-Dimethylbenzene (Certified)

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

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 3
Acute dermal toxicity	Category 4
Acute Inhalation Toxicity - Vapors	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, Central nervous system (CNS).	
Specific target organ toxicity - (repeated exposure)	Category 2
Target Organs - Liver.	
Aspiration Toxicity	Category 1

Label Elements

Signal Word
Danger

Hazard Statements
Flammable liquid and vapor
May be fatal if swallowed and enters airways
Harmful in contact with skin
Causes skin irritation
Causes serious eye irritation
Harmful if inhaled
May cause respiratory 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
Wash face, hands and any exposed skin thoroughly after handling
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
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
Call a POISON CENTER or doctor/physician if you feel unwell
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)
Harmful to aquatic life with long lasting effects

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
o-Xylene	95-47-6	>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. 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 Move to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur. Risk of serious damage to the lungs.

Ingestion Clean mouth with water and drink afterwards plenty of water. Do not induce vomiting. Call a physician or Poison Control Center immediately. If vomiting occurs naturally, have victim lean forward.

Most important symptoms and 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 Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Cool closed containers exposed to fire with water spray.

Unsuitable Extinguishing Media Do not use a solid water stream as it may scatter and spread fire

Flash Point 31 °C / 87.8 °F

Method - No information available

Autoignition Temperature 465 °C / 869 °F

Explosion Limits

Upper 6.7 vol %

Lower 0.9 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.

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	3	0	N/A

6. Accidental release measures

Personal Precautions Use personal protective equipment. 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. Avoid release to the environment. Collect spillage. Do not flush into surface water or sanitary sewer system.

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. Avoid ingestion and inhalation. Ensure adequate ventilation. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. 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. Flammables area.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
o-Xylene	TWA: 100 ppm STEL: 150 ppm		IDLH: 900 ppm TWA: 100 ppm TWA: 435 mg/m^3 STEL: 150 ppm STEL: 655 mg/m^3	TWA: 100 ppm STEL: 150 ppm

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
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. Ensure adequate ventilation, especially in confined areas. 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 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	Liquid
Appearance	Colorless
Odor	aromatic
Odor Threshold	No information available

pH	Not applicable
Melting Point/Range	-25 °C / -13 °F
Boiling Point/Range	143 - 145 °C / 289.4 - 293 °F
Flash Point	31 °C / 87.8 °F
Evaporation Rate	0.7
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	6.7 vol %
Lower	0.9 vol %
Vapor Pressure	882 Pa @ 25 °C
Vapor Density	3.7
Specific Gravity	0.884
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	465 °C / 869 °F
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C8 H10
Molecular Weight	106.17

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, Strong acids

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
o-Xylene	LD50 = 3608 mg/kg (Rat)	14100 mg/kg (Rabbit)	LC50 = 4330 ppm (Rat) 6 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
o-Xylene	95-47-6	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 Central nervous system (CNS)
STOT - repeated exposure Liver

Aspiration hazard Category 1

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.

12. Ecological information

Ecotoxicity

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Do not empty into drains. The product contains following substances which are hazardous for the environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
o-Xylene	EC50: = 4.2 mg/L, 192h (Pseudokirchneriella subcapitata) EC50: = 4.7 mg/L, 72h static (Pseudokirchneriella subcapitata)	LC50: 16.1 mg/L/96h (Lepomis macrochirus) LC50: 13 mg/L/24h (Carassius auratus)	EC50 = 0.0084 mg/L 24 h	EC50: 2.61 - 5.59 mg/L, 48h Flow through (Daphnia magna) EC50: 0.78 - 2.51 mg/L, 48h Static (Daphnia magna) EC50: = 3.2 mg/L, 48h (Daphnia magna)

Persistence and Degradability Insoluble 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 volatility.

Component	log Pow
o-Xylene	3.12

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 UN1307
Proper Shipping Name XYLENES
Hazard Class 3
Packing Group III

TDG

UN-No UN1307
Proper Shipping Name XYLENES
Hazard Class 3
Packing Group III

IATA

UN-No UN1307
Proper Shipping Name Xylenes
Hazard Class 3

Packing Group III

IMDG/IMO

UN-No UN1307
Proper Shipping Name Xylenes
Hazard Class 3
Packing Group III

15. Regulatory information

United States of America Inventory

Component	CAS-No	TSCA	TSCA Inventory notification - Active/Inactive	TSCA - EPA Regulatory Flags
o-Xylene	95-47-6	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
o-Xylene	95-47-6	X	-	202-422-2	X	X	X	X	KE-35429

U.S. Federal Regulations

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
o-Xylene	95-47-6	>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
o-Xylene	X	-	-	-

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
o-Xylene	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
o-Xylene	1000 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

o-Xylene	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

16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 15-Jun-2010
Revision Date 31-Jul-2019
Print Date 31-Jul-2019
Revision Summary SDS sections updated. 11. 16.

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: PERCHLOROETHYLENE

IN CASE OF TRANSPORTATION EMERGENCY CONTACT:
CHEMTREC:(800) 424-9300

ALL OTHER INQUIRIES:
(770) 904-7042 // www.ciscochem.com
266 Rue Cezzan Lavonia, GA 30553



1. IDENTIFICATION
SUBSTANCE: TETRACHLOROETHYLENE

TRADE NAMES/SYNONYMS:
PERCHLOROETHYLENE; 1,1,2,2-TETRACHLOROETHYLENE; ETHYLENE TETRACHLORIDE; PERC; TETRACHLORETHYLENE; PERCHLORETHYLENE; TETRACHLOROETHENE

CHEMICAL FAMILY: halogenated, aliphatic

2. HAZARDS IDENTIFICATION
NFPA RATINGS (SCALE 0-4): HEALTH=3 FIRE=0 REACTIVITY=0

EMERGENCY OVERVIEW:
COLOR: colorless
PHYSICAL FORM: volatile liquid
ODOR: faint odor, sweet odor
MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, central nervous system depression, cancer hazard (in humans)

POTENTIAL HEALTH EFFECTS:
INHALATION:
SHORT TERM EXPOSURE: irritation, nausea, vomiting, chest pain, difficulty breathing, irregular heartbeat, headache, drowsiness, dizziness, disorientation, mood swings, loss of coordination, blurred vision, lung congestion, kidney damage, liver damage
LONG TERM EXPOSURE: irritation, nausea, stomach pain, loss of appetite, headache, drowsiness, dizziness, disorientation, sleep disturbances, pain in extremities, loss of coordination, blurred vision, hormonal disorders, internal bleeding, heart damage, liver damage, birth defects, brain damage, tumors, cancer
SKIN CONTACT:
SHORT TERM EXPOSURE: irritation (possibly severe)
LONG TERM EXPOSURE: irritation
EYE CONTACT:
SHORT TERM EXPOSURE: irritation
LONG TERM EXPOSURE: irritation
INGESTION:
SHORT TERM EXPOSURE: same as effects reported in short term inhalation
LONG TERM EXPOSURE: same as effects reported in long term inhalation

3. COMPOSITION
COMPONENT: TETRACHLOROETHYLENE
CAS NUMBER: 127-18-4
PERCENTAGE: 100.0

Hazardous: YES

4. FIRST AID MEASURES

Inhalation:
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Ingestion:
Aspiration hazard. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Skin Contact:
Wash skin with soap or mild detergent and water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Call a physician.

Eye Contact:
Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

Note to Physician:
Do not administer adrenaline or epinephrine to a victim of chlorinated solvent poisoning.

5. FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS: Negligible fire hazard.

EXTINGUISHING MEDIA: carbon dioxide, regular dry chemical
Large fires: Use regular foam or flood with fine water spray.

FIRE FIGHTING: Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. For tank, rail car or tank truck, evacuation radius: 800 meters (1/2 mile).

FLASH POINT: No data available.

Special Information:
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode

6. ACCIDENTAL RELEASE MEASURES

SOIL RELEASE:
Dig holding area such as lagoon, pond or pit for containment. Dike for later disposal. Absorb with sand or other non-combustible material.

WATER RELEASE:
Absorb with activated carbon. Remove trapped material with suction hoses. Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). Keep out of water supplies and sewers.

OCCUPATIONAL RELEASE:
Avoid heat, flames, sparks and other sources of ignition. Stop leak if possible without personal risk. Small liquid spills: Absorb with sand or other non-combustible material. 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).

7. HANDLING AND STORAGE

Store in a cool, dry, ventilated area away from sources of heat or ignition. Isolate from flammable materials. Protect from direct sunlight. Wear special protective equipment (Sec. 8) for maintenance break-in or where exposures may exceed established exposure levels. Wash hands, face, forearms and neck when exiting restricted areas. Shower, dispose of outer clothing, change to clean garments at the end of the day. Avoid cross-contamination of street clothes. Wash hands before eating and do not eat, drink, or

smoke in workplace. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

8. EXPOSURE CONTROLS AND PERSONAL PROECTION

Airborne Exposure Limits:
-OSHA Permissible Exposure Limit (PEL): 100 ppm (TWA), 200 ppm (ceiling),
300 ppm/5min/3-hour (max)
-ACGIH Threshold Limit Value (TLV):
25 ppm (TWA), 100 ppm (STEL); listed as A3, animal carcinogen

Ventilation System:
A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, Industrial Ventilation, A Manual of Recommended Practices, most recent edition, for details.

Personal Respirators (NIOSH Approved):
If the exposure limit is exceeded, wear a supplied air, full-facepiece respirator, airlined hood, or full-facepiece self-contained breathing apparatus.

Skin Protection:
Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Eye Protection:
Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

CLOTHING: Wear appropriate chemical resistant clothing. GLOVES: Wear appropriate chemical resistant gloves.

RESPIRATOR: The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA.

At any detectable concentration -
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.

For Unknown Concentrations or Immediately Dangerous to Life or Health -
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.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: liquid
APPEARANCE: clear
COLOR: colorless
PHYSICAL FORM: volatile liquid
ODOR: faint odor, sweet odor
MOLECULAR WEIGHT: 165.83
MOLECULAR FORMULA: Cl2-C-C-Cl2
BOILING POINT: 250 F (121 C)
FREEZING POINT: -2 F (-19 C)
VAPOR PRESSURE: 14 mmHg @ 20 C

VAPOR DENSITY (air=1): 5.83
SPECIFIC GRAVITY (water=1): 1.6227
WATER SOLUBILITY: 0.015%
PH: Not available
VOLATILITY: Not available
ODOR THRESHOLD: 50 ppm
EVAPORATION RATE: 2.8 (butyl acetate=1)
COEFFICIENT OF WATER/OIL DISTRIBUTION: Not available
SOLVENT SOLUBILITY:
Soluble: alcohol, ether, benzene, chloroform, oils

10. STABILITY AND REACTIVITY

Stability:
Stable under ordinary conditions of use and storage. Slowly decomposed by light. Deteriorates rapidly in warm, moist climates.

Hazardous Decomposition Products:
Carbon dioxide and carbon monoxide may form when heated to decomposition. Hydrogen chloride gas and phosgene gas may be formed upon heating. Decomposes with moisture to yield trichloroacetic acid and hydrochloric acid.

Hazardous Polymerization:
Will not occur.

Incompatibilities:
Strong acids, strong oxidizers, strong alkalis, especially NaOH, KOH; finely divided metals, especially zinc, barium, lithium. Slowly corrodes aluminum, iron and zinc.

Conditions to Avoid:
Moisture, light, heat and incompatibles.

11. TOXICOLOGICAL INFORMATION

TETRACHLOROETHYLENE:
IRRITATION DATA: 810 mg/24 hour(s) skin-rabbit severe; 500 mg/24 hour(s) skin-rabbit mild; 162 mg eyes-rabbit mild; 500 mg/24 hour(s) eyes-rabbit mild

TOXICITY DATA: 4100 ppm/6 hour(s) inhalation-rat LC50; >10000 mg/kg skin-rabbit LD50 (Dow); 2629 mg/kg oral-rat LD50

CARCINOGEN STATUS: NTP: Anticipated Human Carcinogen; IARC: Human Limited Evidence, Animal Sufficient Evidence, Group 2A; ACGIH: A3 -Confirmed Animal Carcinogen; EC: Category 2

LOCAL EFFECTS:
Irritant: inhalation, skin, eye

ACUTE TOXICITY LEVEL:
Moderately Toxic: ingestion
Slightly Toxic: inhalation

TARGET ORGANS: central nervous system

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: eye disorders, heart or cardiovascular disorders, kidney disorders, liver disorders, nervous system disorders, skin disorders and allergies

TUMORIGENIC DATA: Available.

MUTAGENIC DATA: Available.

REPRODUCTIVE EFFECTS DATA: Available.

ADDITIONAL DATA: May be excreted in breast milk. Alcohol may enhance the toxic effects. Stimulants such as epinephrine may induce ventricular fibrillation.

12. ECOLOGICAL INFORMATION

ECOTOXICITY DATA:

FISH TOXICITY: 8430 ug/L 96 hour(s) LC50 (Mortality) Flagfish (Jordanella floridae)

INVERTEBRATE TOXICITY: 7500 ug/L 48 hour(s) EC50 (Immobilization) Water flea (Daphnia magna)

ALGAL TOXICITY: 509000 ug/L 96 hour(s) EC50 (Photosynthesis) Diatom (Skeletonema costatum)

FATE AND TRANSPORT:

BIOCONCENTRATION: 49 ug/L 1-21 hour(s) BCF (Residue) Bluegill (Lepomis macrochirus) 3.43 ug/L

Environmental Fate:
When released into the soil, this material is expected to quickly evaporate. When released into the soil, this material may leach into groundwater. When released into the soil, this material may biodegrade to a moderate extent. When released to water, this material is expected to quickly evaporate. When released into water, this material is not expected to biodegrade. This material is not expected to significantly bioaccumulate. When released into the air, this material may be moderately degraded by reaction with photochemically produced hydroxyl radicals.

Environmental Toxicity:
The LC50/96-hour values for fish are between 1 and 10 mg/l. The LC50/96-hour values for fish are between 10 and 100 mg/l. This material is expected to be toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved incinerator or disposed in a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. TRANSPORT INFORMATION

Domestic (Land, D.O.T.)

Proper Shipping Name: TETRACHLOROETHYLENE Hazard Class: 6.1
UN/NA: UN1897
Packing Group: III
Information reported for product/size: 20L
International (Water, I.M.O.)

Proper Shipping Name: TETRACHLOROETHYLENE Hazard Class: 6.1
UN/NA: UN1897
Packing Group: III
Information reported for product/size: 20L

Proper shipping paperwork:

UN 1897, Tetrachoroethylene, 6.1, PG III

Marine Pollutant

15. REGULATORY INFORMATION

U.S. REGULATIONS:
CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4): TETRACHLOROETHYLENE (PERCHLOROETHYLENE): 100 LBS RQ

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES

(40 CFR 355 Subpart B): Not regulated.

SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES
(40 CFR 355 Subpart C): Not regulated.

SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370 Subparts B and C):
ACUTE: Yes
CHRONIC: Yes
FIRE: No
REACTIVE: No
SUDDEN RELEASE: No

SARA TITLE III SECTION 313 (40 CFR 372.65): TETRACHLOROETHYLENE (PERCHLOROETHYLENE)

OSHA PROCESS SAFETY (29 CFR 1910.119): Not regulated.
STATE REGULATIONS:
California Proposition 65:
Known to the state of California to cause the following: TETRACHLOROETHYLENE (PERCHLOROETHYLENE) Cancer (Apr 01, 1988)

CANADIAN REGULATIONS: WHMIS CLASSIFICATION: D2

NATIONAL INVENTORY STATUS:
U.S. INVENTORY (TSCA): Listed on inventory.

TSCA 12(b) EXPORT NOTIFICATION: Not listed. CANADA INVENTORY (DSL/NDSL): Not determined.

16. OTHER INFORMATION

NFPA Ratings: Health: 2 Flammability: 0 Reactivity: 0

Label Hazard Warning:
WARNING! HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. AFFECTS CENTRAL NERVOUS SYSTEM, LIVER AND KIDNEYS. SUSPECT CANCER HAZARD. MAY CAUSE CANCER. Risk of cancer depends
on level and duration of exposure.

Label Precautions:
Do not get in eyes, on skin, or on clothing.
Do not breathe vapor or mist.
Keep container closed.
Use only with adequate ventilation.
Wash thoroughly after handling.

Label First Aid:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. In all cases call a physician.

Product Use:
Laboratory Reagent.

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Date Created: 5/18/2015
Date Updated: 6/11/2015

SAFETY DATA SHEET

Creation Date 11-Jun-2009 **Revision Date** 17-Jan-2018 **Revision Number** 4

1. Identification

Product Name **Toluene**

Cat No. : **T326F-1GAL; T326P-4; T326S-20; T326S-20LC**

CAS-No 108-88-3
Synonyms Tol; Methylbenzene

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
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 2
Target Organs - Kidney, Liver, spleen, 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 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
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)

WARNING. Reproductive Harm - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Toluene	108-88-3	>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. 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 Move to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur. Risk of serious damage to the lungs.

Ingestion Clean mouth with water and drink afterwards plenty of water. Do not induce vomiting. Call a physician or Poison Control Center immediately. If vomiting occurs naturally, have victim lean forward.

Most important symptoms and effects Breathing difficulties. Causes central nervous system depression: 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. Cool closed containers exposed to fire with water spray.

Unsuitable Extinguishing Media No information available

Flash Point 4 °C / 39.2 °F

Method - No information available

Autoignition Temperature 535 °C / 995 °F

Explosion Limits
Upper 7.1 vol %
Lower 1.1 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. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

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	3	0	N/A

6. Accidental release measures

Personal Precautions Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.

Environmental Precautions Should not be released into the environment. Do not flush into surface water or sanitary sewer system.

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. Avoid ingestion and inhalation. Ensure adequate ventilation. 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. Flammables area. 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)
Toluene	TWA: 20 ppm	(Vacated) TWA: 100 ppm (Vacated) TWA: 375 mg/m³ Ceiling: 300 ppm (Vacated) STEL: 150 ppm (Vacated) STEL: 560 mg/m³ TWA: 200 ppm	IDLH: 500 ppm TWA: 100 ppm TWA: 375 mg/m³ STEL: 150 ppm STEL: 560 mg/m³	TWA: 50 ppm TWA: 188 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. Use explosion-proof electrical/ventilating/lighting/equipment. 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	Liquid
Appearance	Colorless
Odor	aromatic
Odor Threshold	1.74 ppm
pH	Not applicable
Melting Point/Range	-95 °C / -139 °F

Boiling Point/Range	111 °C / 231.8 °F @ 760 mmHg
Flash Point	4 °C / 39.2 °F
Evaporation Rate	2.4 (Butyl acetate = 1.0)
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	7.1 vol %
Lower	1.1 vol %
Vapor Pressure	29 mbar @ 20 °C
Vapor Density	3.1
Specific Gravity	0.866
Solubility	Insoluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	535 °C / 995 °F
Decomposition Temperature	No information available
Viscosity	0.6 mPa.s @ 20 °C
Molecular Formula	C7 H8
Molecular Weight	92.14

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, Strong acids, Strong bases, Halogenated compounds

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
Toluene	> 5000 mg/kg (Rat)	LD50 = 12000 mg/kg (Rabbit)	26700 ppm (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
Toluene	108-88-3	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects Not mutagenic in AMES Test

Reproductive Effects Experiments have shown reproductive toxicity effects on laboratory animals.

Developmental Effects Developmental effects have occurred in experimental animals.

Teratogenicity Possible risk of harm to the unborn child.

STOT - single exposure Respiratory system Central nervous system (CNS)
STOT - repeated exposure Kidney Liver spleen Blood

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Causes central nervous system depression: 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

Contains a substance which is:. The product contains following substances which are hazardous for the environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Toluene	EC50: = 12.5 mg/L, 72h static (Pseudokirchneriella subcapitata) EC50: > 433 mg/L, 96h (Pseudokirchneriella subcapitata)	50-70 mg/L LC50 96 h 5-7 mg/L LC50 96 h 15-19 mg/L LC50 96 h 28 mg/L LC50 96 h 12 mg/L LC50 96 h	EC50 = 19.7 mg/L 30 min	EC50: = 11.5 mg/L, 48h (Daphnia magna) EC50: 5.46 - 9.83 mg/L, 48h Static (Daphnia magna)

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.

Component	log Pow
Toluene	2.7

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
Toluene - 108-88-3	U220	-

14. Transport information

DOT

UN-No UN1294
Proper Shipping Name TOLUENE
Hazard Class 3
Packing Group II

TDG

UN-No UN1294
Proper Shipping Name TOLUENE
Hazard Class 3
Packing Group II

IATA

UN-No UN1294
Proper Shipping Name TOLUENE
Hazard Class 3

Packing Group II

IMDG/IMO

UN-No UN1294
Proper Shipping Name TOLUENE
Hazard Class 3
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
Toluene	X	X	-	203-625-9	-		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 %
Toluene	108-88-3	>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
Toluene	X	1000 lb	X	X

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Toluene	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
Toluene	1000 lb 1 lb	-

California Proposition 65 This product contains the following proposition 65 chemicals

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Toluene	108-88-3	Developmental	-	Developmental

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Toluene	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

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 11-Jun-2009
Revision Date 17-Jan-2018
Print Date 17-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

SAFETY DATA SHEET

Creation Date 03-Feb-2010 **Revision Date** 14-Jul-2016 **Revision Number** 2

1. Identification

Product Name **Trichloroethylene**

Cat No. : **T340-4; T341-4; T341-20; T341-500; T403-4**

Synonyms Trichloroethene (Stabilized/Technical/Electronic/Certified ACS)

Recommended Use Laboratory chemicals.
Uses advised against

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
Skin Sensitization	Category 1
Germ Cell Mutagenicity	Category 2
Carcinogenicity	Category 1A
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, Heart, spleen, Blood.	

Label Elements

Signal Word
Danger

Hazard Statements
Causes skin irritation
Causes serious eye irritation
May cause an allergic skin reaction
May cause drowsiness or dizziness
Suspected of causing genetic defects
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
Contaminated work clothing should not be allowed out of the workplace
Do not breathe dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Wear protective gloves/protective clothing/eye protection/face protection
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
Take off contaminated clothing and wash before reuse
If skin irritation or rash 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 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)
Harmful to aquatic life with long lasting effects
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 %
Trichloroethylene	79-01-6	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 Move 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/effects	None reasonably foreseeable. May cause allergic skin reaction. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: 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	410 °C / 770 °F
Explosion Limits	
Upper	10.5 vol %
Lower	8 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
Thermal decomposition can lead to release of irritating gases and vapors. Containers may explode when heated. Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
Hydrogen chloride gas Chlorine Phosgene 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. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas.
Environmental Precautions	Should not be released into the environment. Do not flush into surface water or sanitary sewer system.
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. Use only under a chemical fume hood. Do not breathe vapors or spray mist. Do not ingest.
Storage	Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from light. Do not store in aluminum containers.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Trichloroethylene	TWA: 10 ppm STEL: 25 ppm	(Vacated) TWA: 50 ppm (Vacated) TWA: 270 mg/m³ Ceiling: 200 ppm (Vacated) STEL: 200 ppm (Vacated) STEL: 1080 mg/m³ TWA: 100 ppm	IDLH: 1000 ppm	TWA: 100 ppm TWA: 535 mg/m³ STEL: 200 ppm STEL: 1080 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 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 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	Liquid
Appearance	Colorless
Odor	Characteristic
Odor Threshold	No information available
pH	No information available
Melting Point/Range	-85 °C / -121 °F
Boiling Point/Range	87 °C / 188.6 °F
Flash Point	No information available
Evaporation Rate	0.69 (Carbon Tetrachloride = 1.0)
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	10.5 vol %
Lower	8 vol %
Vapor Pressure	77.3 mbar @ 20 °C
Vapor Density	4.5 (Air = 1.0)
Specific Gravity	1.460
Solubility	Slightly soluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	410 °C / 770 °F
Decomposition Temperature	> 120°C
Viscosity	0.55 mPa.s (25°C)

Molecular Formula C2 H Cl3
Molecular Weight 131.39

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Light sensitive.

Conditions to Avoid Incompatible products. Excess heat. Exposure to light. Exposure to moist air or water.

Incompatible Materials Strong oxidizing agents, Strong bases, Amines, Alkali metals, Metals,

Hazardous Decomposition Products Hydrogen chloride gas, Chlorine, Phosgene, 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
Trichloroethylene	LD50 = 4290 mg/kg (Rat) LD50 = 4920 mg/kg (Rat)	LD50 > 20 g/kg (Rabbit) LD50 = 29000 mg/kg (Rabbit)	LC50 = 26 mg/L (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
Trichloroethylene	79-01-6	Group 1	Reasonably Anticipated	A2	X	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)

Mutagenic Effects Mutagenic effects have occurred in humans.

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 Heart spleen 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: 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 The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Do not empty into drains. The product contains following substances which are hazardous for the environment. Contains a substance which is:. Harmful to aquatic organisms. Toxic to aquatic organisms.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Trichloroethylene	EC50: = 175 mg/L, 96h (Pseudokirchneriella subcapitata) EC50: = 450 mg/L, 96h (Desmodesmus subspicatus)	LC50: 39 - 54 mg/L, 96h static (Lepomis macrochirus) LC50: 31.4 - 71.8 mg/L, 96h flow-through (Pimephales promelas)	EC50 = 0.81 mg/L 24 h EC50 = 115 mg/L 10 min EC50 = 190 mg/L 15 min EC50 = 235 mg/L 24 h EC50 = 410 mg/L 24 h EC50 = 975 mg/L 5 min	EC50: = 2.2 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
Trichloroethylene	2.4

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
Trichloroethylene - 79-01-6	U228	-

14. Transport information

DOT

UN-No UN1710
Proper Shipping Name TRICHLOROETHYLENE
Hazard Class 6.1
Packing Group III

TDG

UN-No UN1710
Proper Shipping Name TRICHLOROETHYLENE
Hazard Class 6.1
Packing Group III

IATA

UN-No UN1710
Proper Shipping Name TRICHLOROETHYLENE

Hazard Class 6.1
Packing Group III

IMDG/IMO

UN-No UN1710
Proper Shipping Name TRICHLOROETHYLENE
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
Trichloroethylene	X	X	-	201-167-4	-		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

Component	TSCA 12(b)
Trichloroethylene	Section 5

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Trichloroethylene	79-01-6	100	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)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Trichloroethylene	X	100 lb	X	X

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Trichloroethylene	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
Trichloroethylene	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
Trichloroethylene	79-01-6	Carcinogen Developmental Male Reproductive	14 µg/day 50 µg/day	Developmental Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Trichloroethylene	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

16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 03-Feb-2010
Revision Date 14-Jul-2016
Print Date 14-Jul-2016
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).

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End of SDS

SAFETY DATA SHEET

Vinyl Chloride

Airgas
an Air Liquide company

Section 1. Identification

GHS product identifier : Vinyl Chloride

Chemical name : vinyl chloride

Other means of identification : chloroethylene; Ethene, chloro-; Chloroethene; Vinyl chloride, monomer; Ethene, chloro- (vinyl chloride); Vinyl chloride monomer; Monochloroethylene; Monochloroethene; Ethylene monochloride; VCM; VC

Product type : Gas.

Product use : Synthetic/Analytical chemistry.

Synonym : chloroethylene; Ethene, chloro-; Chloroethene; Vinyl chloride, monomer; Ethene, chloro- (vinyl chloride); Vinyl chloride monomer; Monochloroethylene; Monochloroethene; Ethylene monochloride; VCM; VC

SDS # : 001067

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
CARCINOGENICITY - Category 1
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (liver) - Category 2

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 cause frostbite
May displace oxygen and cause rapid suffocation.
May cause cancer.
May cause damage to organs through prolonged or repeated exposure. (liver)

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 : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves. Wear eye or face protection. Wear protective clothing. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not breathe gas.

Section 2. Hazards identification

Response : Get medical attention if you feel unwell. IF exposed or concerned: Get medical attention. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so.

Storage : Store locked up. Protect from sunlight. Store in a well-ventilated place.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

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 : vinyl chloride

Other means of identification : chloroethylene; Ethene, chloro-; Chloroethene; Vinyl chloride, monomer; Ethene, chloro-(vinyl chloride); Vinyl chloride monomer; Monochloroethylene; Monochloroethene; Ethylene monochloride; VCM; VC

Product code : 001067

CAS number/other identifiers

CAS number : 75-01-4

Ingredient name	%	CAS number
vinyl chloride	100	75-01-4

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.

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.

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. Continue to rinse for at least 10 minutes. Get medical attention. 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

Section 4. First aid measures

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.

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)

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
halogenated compounds

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".

Section 6. Accidental release measures

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. Do not get in eyes or on skin or clothing. 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. 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. Do not breathe gas. Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood.

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). Store locked up. 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
vinyl chloride	**ACGIH TLV (United States, 3/2017).** TWA: 1 ppm 8 hours. **OSHA PEL (United States, 6/2016).** 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.

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.

Section 8. Exposure controls/personal protection

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. 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. [COLORLESS GAS OR LIQUID (BELOW 7 F) WITH A PLEASANT ODOR AT HIGH CONCENTRATIONS. [NOTE: SHIPPED AS A LIQUEFIED COMPRESSED GAS.]

Color : Colorless.

Odor : Characteristic.

Odor threshold : Not available.

pH : Not available.

Melting point : -153.8°C (-244.8°F)

Boiling point : -13.4°C (7.9°F)

Critical temperature : 158.45°C (317.2°F)

Flash point : Closed cup: -78°C (-108.4°F)
Open cup: -78°C (-108.4°F)

Evaporation rate : Not available.

Flammability (solid, gas) : Not available.

Lower and upper explosive (flammable) limits : Lower: 3.8%
Upper: 29.3%

Section 9. Physical and chemical properties

Vapor pressure : Not available.

Vapor density : 2.2 (Air = 1)

Specific Volume (ft ^{3}/lb) : 6.25

Gas Density (lb/ft ^{3}) : 0.16129 (21.1°C / 70 to °F)

Relative density : Not applicable.

Solubility : Not available.

Solubility in water : 1.1 g/l

Partition coefficient: n-octanol/water : 1.38

Auto-ignition temperature : 472°C (881.6°F)

Decomposition temperature : Not available.

Viscosity : Not applicable.

Flow time (ISO 2431) : Not available.

Molecular weight : 62.5 g/mole

Aerosol product

Heat of combustion : -18924336 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

Not available.

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Section 11. Toxicological information

Classification

Product/ingredient name	OSHA	IARC	NTP
vinyl chloride	+	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
vinyl chloride	Category 2	Not determined	liver

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.

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 : May cause damage to organs through prolonged or repeated exposure.

Carcinogenicity : May cause cancer. Risk of cancer depends on duration and level of exposure.

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.

Section 11. Toxicological information

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
vinyl chloride	1.38	-	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.

United States - RCRA Toxic hazardous waste "U" List

Ingredient	CAS #	Status	Reference number
Vinyl chloride; Ethene, chloro-	75-01-4	Listed	U043

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1086	UN1086	UN1086	UN1086	UN1086
UN proper shipping name	VINYL CHLORIDE, STABILIZED	VINYL CHLORIDE, STABILIZED	VINYL CHLORIDE, STABILIZED	VINYL CHLORIDE, STABILIZED	VINYL CHLORIDE, STABILIZED

Section 14. Transport information

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 : **Reportable quantity** 1 lbs / 0.454 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.
Quantity limitation Passenger aircraft/rail: Forbidden. Cargo aircraft: 150 kg.
Special provisions 21, B44, 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 Road or Rail Index Forbidden

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 Water Act (CWA) 307: vinyl chloride
Clean Air Act (CAA) 112 regulated flammable substances: vinyl chloride

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.

Section 15. Regulatory information

SARA 311/312

Classification : Refer to Section 2: Hazards Identification of this SDS for classification of substance.

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	vinyl chloride	75-01-4	100
Supplier notification	vinyl chloride	75-01-4	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 can expose you to Vinyl chloride, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

Ingredient name	No significant risk level	Maximum acceptable dosage level
Vinyl chloride	Yes.	-

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): This material is listed or exempted.

Malaysia : This material is listed or exempted.

New Zealand : This material is listed or exempted.

Philippines : This material is listed or exempted.

Republic of Korea : This material is listed or exempted.

Taiwan : This material is listed or exempted.

Thailand : Not determined.

Turkey : This material is listed or exempted.

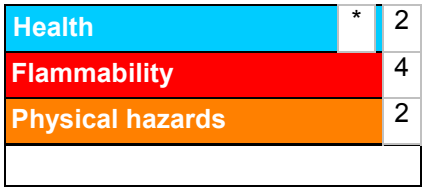
Section 15. Regulatory information

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.)



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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.

Procedure used to derive the classification

Classification	Justification
FLAMMABLE GASES - Category 1	Expert judgment
GASES UNDER PRESSURE - Liquefied gas	Expert judgment
CARCINOGENICITY - Category 1	Expert judgment
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (liver) - Category 2	Expert judgment

History

Date of printing : 7/9/2018

Date of issue/Date of revision : 7/9/2018

Date of previous issue : 10/11/2016

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 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

Section 16. Other information

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.

HEALTH AND SAFETY WORK PLAN

APPENDIX D
Heat/Cold Stress Protocols

HEAT STRESS

Heat Stress (Hyperthermia)

Heat stress is the body's inability to regulate the core temperature. A worker's susceptibility to heat stress can vary according to his/her physical fitness, degree of acclimation to heat, humidity, age and diet.

1. Prior to site activity, the field team leader may make arrangements for heat stress monitoring (i.e., monitoring heart rate, body temperature, and body water loss) during actual site work if conditions warrant. In addition, the FTL is to ensure that each team member has been acclimatized to the prevailing environmental conditions, that personnel are aware of the signs and symptoms of heat sickness, that they have been adequately trained in first aid procedures, and that there are enough personnel on-site to rotate work assignments and schedule work during hours of reduced temperatures. Personnel should not consume alcoholic or caffeinated beverages but rather drink moderate levels of an electrolyte solution and eat well prior to commencing site work.

2. Although there is no specific test given during a baseline physical that would identify a person's intolerance to heat, some indicators are tobacco or medication use, dietary habits, body weight, and chronic conditions such as high blood pressure or diabetes.

3. *Heat cramps*, caused by profuse perspiration with inadequate fluid intake and salt replacement, most often afflict people in good physical condition who work in high temperature and humidity. Heat cramps usually come on suddenly during vigorous activity. Untreated, heat cramps may progress rapidly to heat exhaustion or heat stroke. First aid treatment: remove victim to a cool place and replace lost fluids with water.

4. Thirst is not an adequate indicator of heat exposure. Drinking fluid by itself does not indicate sufficient water replacement during heat exposure. A general rule, the amount of water administered should replace the amount of water lost, and it should be administered at regular intervals throughout the day. For every half pound of water lost, 8 ounces of water should be ingested. Water should be replaced by drinking 2 – 4 ounce servings during every rest period. A recommended alternative to water is an electrolyte drink split 50/50 with water.

5. *Heat exhaustion* results from salt and water loss along with peripheral pooling of blood. Like heat cramps, heat exhaustion tends to occur in persons in good physical health who are working in high temperatures and humidity. Heat exhaustion may come on suddenly as dizziness and collapse. Untreated, heat exhaustion may progress to heat stroke.

6. *Treatment for heat exhaustion*: Move the victim to a cool environment (e.g. air-conditioned room/car), lay victim down and fan him/her. If the air-conditioning is not available, remove the victim to a shaded area, remove shirt, and fan. If symptoms do not subside within an hour, notify 911 to transport to hospital.

7. *Heat stroke* results from the body's inability to dissipate excess heat. A true medical emergency that requires immediate care, it usually occurs when one ignores the signs of heat exhaustion and continues strenuous activities. Working when the relative humidity exceeds 60% is a particular problem. Workers in the early phase of heat stress may not be coherent of they will be confused, delirious or comatose. Changes in behavior, irritability and combativeness are useful early signs of heat stroke.

8. *Treatment of heat stroke*: Move the victim to a cool, air-conditioned environment. Place victim in a semi-reclined position with head elevated and strip to underclothing. Cool victim as rapidly as possible, applying ice packs to the arms and legs and massaging the neck and torso. Spray victim with tepid water and constantly fan to promote evaporation. Notify 911 to transport to hospital as soon as possible.

TABLE 1

SYMPTOMS OF HEAT STRESS

Heat cramps are caused by heavy sweating with inadequate fluid intake. Symptoms include;

- Muscle cramps
- Cramps in the hands, legs, feet and abdomen

Heat exhaustion occurs when body organs attempt to keep the body cool. Symptoms include;

- Pale, cool moist skin
- Core temperature elevated 1-2°
- Thirst
- Anxiety
- Rapid heart rate
- Heavy sweating
- Dizziness
- Nausea

Heat stroke is the most serious form of heat stress. Immediate action must be taken to cool the body before serious injury and death occur. Symptoms are;

- Red, hot, dry skin
- Lack of perspiration
- Seizures
- Dizziness and confusion
- Strong, rapid pulse
- Core temperature of 104° or above
- Coma

TABLE 2

HEAT STRESS INDICATORS

Heat stress indicator	When to measure	If Exceeds...	Action
Heart rate (pulse)	Beginning of rest period	110 beats per minute	Shorten next work period by 33%
Oral temperature	Beginning of rest period	99°F (after thermometer is under tongue for 3 minutes) 100.6°F	Shorten next work period by 33% Prohibit work in impermeable clothing
Body weight	1. Before workday begins (a.m.) 2. After workday ends (p.m.)		Increase fluid intake

COLD STRESS

Cold stress (Hypothermia)

In hypothermia the core body temperature drops below 95°F. Hypothermia can be attributed to a decrease in heat production, increased heat loss or both.

Prevention

Institute the following steps to prevent overexposure of workers to cold:

1. Maintain body core temperature at 98.6°F or above by encouraging workers to drink warm liquids during breaks (preferably not coffee) and wear several layers of clothing that can keep the body warm even when the clothing is wet.
2. Avoid frostbite by adequately covering hands, feet and other extremities. Clothing such as insulated gloves or mittens, earmuffs and hat liners should be worn. To prevent contact frostbite (from touching metal and cold surfaces below 20°F), workers should wear gloves. Tool handles should be covered with insulating material.
3. Adjust work schedules to provide adequate rest periods. When feasible, rotate personnel and perform work during the warmer hours of the day.
4. Provide heated shelter. Workers should remove their outer layer(s) of clothing while in the shelter to allow sweat to evaporate.
5. In the event that wind barriers are constructed around an intrusive operation (such as drilling), the enclosure must be properly vented to prevent the buildup of toxic or explosive gases or vapors. Care must be taken to keep a heat source away from flammable substances.
6. Using a wind chill chart such as the one in Table 3, obtain the equivalent chill temperature (ECT) based on actual wind speed and temperature. Refer to the ECT when setting up work warm-up schedules, planning appropriate clothing, etc. Workers should use warming shelters at regular intervals at or below an ECT of 20°F. For exposed skin, continuous exposure should not be permitted at or below an ECT of -25°F.

Frostbite

Personnel should be aware of symptoms of frostbite/hypothermia. If the following symptoms are noticed in any worker, he/she should immediately go to a warm shelter.

Condition	Skin Surface	Tissue Under Skin	Skin Color
Frostnip	Soft	Soft	Initially red, then white
Frostbite	Hard	Soft	White and waxy
Freezing	Hard	Hard	Blotchy, white to yellow-gray to gray

1. *Frostnip* is the incipient stage of frostbite, brought about by direct contact with a cold object or exposure of a body part to cool/cold air. Wind chill or cold water also can be major factors. This condition is not serious. Tissue damage is minor and the response to care is good. The tip of the nose, tips of ears, upper cheeks and fingers (all areas generally exposed) are most susceptible to frostnip.

2. *Treatment of frostnip*: Care for frostnip by warming affected areas. Usually the worker can apply warmth from his/her bare hands, blow warm air on the site, or, if the fingers are involved, hold them in the armpits. During recovery, the worker may complain of tingling or burning sensation, which is normal. If the condition does not respond to this simple care, begin treatment for frostbite.

3. *Frostbite*: The skin and subcutaneous layers become involved. If frostnip goes untreated, it becomes superficial frostbite. This condition is serious. Tissue damage may be serious. The worker must be transported to a medical facility for evaluation. The tip of the nose, tips of ears, upper cheeks and fingers (all areas generally exposed) are most susceptible to frostbite. The affected area will feel frozen, but only on the surface. The tissue below the surface must still be soft and have normal response to touch. *DO NOT* squeeze or poke the tissue. The condition of the deeper tissues can be determined by gently palpating the affected area. The skin will turn mottled or blotchy. It may also be white and then turn grayish-yellow.

4. *Treatment of frostbite*: When practical, transport victim as soon as possible. Get the worker inside and keep him/her warm. Do not allow any smoking or alcohol consumption. Thaw frozen parts by immersion, re-warming in a 100°F to 106°F water bath. Water temperature will drop rapidly, requiring additional warm water throughout the process. Cover the thawed part with a dry sterile dressing. Do not puncture or drain any blisters.

   NOTE: Never listen to myths and folk tales about the care of frostbite. *Never* rub a frostbitten or frozen area. *Never* rub snow on a frostbitten or frozen area. Rubbing the area may cause

serious damage to already injured tissues. Do not attempt to thaw a frozen area if there is any chance it will be re-frozen.

5. *General cooling/Hypothermia*: General cooling of the body is known as systemic hypothermia. This condition is not a common problem unless workers are exposed to cold for prolonged periods of time without any shelter.

Body Temperature	°C	Symptoms
99-96	37-35.5	Intense, uncontrollable shivering
95-91	35.5-32.7	Violent shivering persists. If victim is conscious, he has difficulty speaking.
90-86	32-30	Shivering decreases and is replaced by strong muscular rigidity. Muscle coordination is affected. Erratic or jerkey movements are produced. Thinking is less clear. General comprehension is dulled. There may be total amnesia. The worker is generally still able to maintain the appearance of psychological contact with his surroundings.
85-81	29.4-27.2	Victim becomes irrational, loses contact with his environment, and drifts into a stuporous state. Muscular rigidity continues. Pulse and respirations are slow and the worker may develop cardiac arrhythmias.
80-78	26.6-18.5	Victim becomes unconscious. He does not respond to the spoken word. Most reflexes cease to function. Heartbeat becomes erratic
Below 78	25.5	Cardiac and respiratory centers of the brain fail. Ventricular fibrillation occurs; probably edema and hemorrhage in the lungs; death.

6. *Treatment of hypothermia*: Keep worker dry. Remove any wet clothing and replace with dry clothes, or wrap person in dry blankets. Keep person at rest. Do not allow him/her to move around. Transport the victim to a medical facility as soon as possible.

TABLE 3[1]
COOLING POWER OF WIND ON EXPOSED FLESH EXPRESSED AS AN EQUIVALENT TEMPERATURE (UNDER CALM CONDITIONS)

Estimated wind Speed (in mph)	Actual Temperature Reading (°F)P											
	50	40	30	20	10	0	10	20	30	40	50	60
	Equivalent Chill Temperature (°F)											
Calm	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
5	48	37	27	16	6	-5	-15	-26	-36	-47	-57	-68
10	40	28	15	4	-9	-24	-33	-46	-58	-70	-83	-95
15	36	22	9	-5	-18	-32	-45	-58	-72	-85	-99	-112
20	32	18	4	-10	-25	-39	-53	-67	-82	-96	-110	-121
25	30	16	0	-15	-29	-44	-59	-74	-88	-104	-118	-133
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109	-125	-140
35	27	11	-4	-20	-35	-51	-67	-82	-98	-113	-129	-145
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116	-132	-146
(Wind speeds greater than 40 mph have little additional effect.)	LITTLE DANGER in < hr with dry skin. Maximum danger of false sense of security.				INCREASING DANGER Danger from freezing of exposed flesh within one minute			GREAT DANGER may freeze within 30 seconds.				Flesh
	Trench foot and imersion foot may occur at any point on this chart											

Developed by U.S. Army Research Institute of Environmental Medicine, Natick, MA.

(1) Reproduced from American Conference of Governmental Industrial Hygienists, Threshold Limit Values and Biological Exposure Indices for 1985-1986, p.01.

HEALTH AND SAFETY WORK PLAN

APPENDIX E
Field Accident Report

FIELD ACCIDENT REPORT

This report is to be filled out by the designated Site Safety Officer after EVERY accident.

PROJECT NAME: _____ PROJECT. NO.: _____

Date of Accident: _____ Time: _____ Report By: _____

Type of Accident (Check One):

( ) Vehicular ( ) Personal ( ) Property

Name of Injured: _____ DOB or Age _____

How Long Employed: _____

Names of Witnesses: _____

Description of Accident: _____

_____

_____

Action Taken: _____

_____

_____

Did the Injured Lose Any Time? _____ How Much (Days/Hrs.)? _____

Was Safety Equipment in Use at the Time of the Accident (Hard Hat, Safety Glasses, Gloves, Safety Shoes, etc.)? _____

_____

_____

(If not, it is the EMPLOYEE'S sole responsibility to process his/her claims through his/her Health and Welfare Fund.)

INDICATE STREET NAMES, DESCRIPTION OF VEHICLES, AND NORTH ARROW

_____

_____

_____

APPENDIX D
Community Air Monitoring Plan

77-40 Hewlett Street
New Hyde Park, New York
TAX MAP ID: BLOCK 8555, LOT 60
NYSDEC Site No: 241308

Community Air Monitoring Plan

Submitted To:

New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 11th Floor
Albany, NY 12207

Prepared For:

Norman Dawson Realty, LLC
c/o Dawn Dawson, Executrix
State of Norman Dawson
48 Wildflower Drive
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1.0 INTRODUCTION

This Community Air Monitoring Plan (CAMP) provides measures for protection for on-site workers and the downwind community (i.e., off-site receptors including residences, businesses, and on-site workers not directly involved in the site characterization) from potential airborne contaminant releases resulting from the site characterization activities performed at 77-40 Hewlett Street, New Hyde Park, New York.

The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that the site characterization does not spread contamination off-site through the air.

Based on previous investigations at the site, the primary concerns for this site are volatile organic compounds (VOCs) and dust particulates.

2.0 REGULATORY REQUIREMENTS

This CAMP was established in accordance with the following requirements:

- 29 CFR 1910.120(h): This regulation specifies that air shall be monitored to identify and quantify levels of airborne hazardous substances and health hazards, and to determine the appropriate level of protection for workers.
- New York State Department of Health's (NYSDOH) Generic Community Air Monitoring Plan: This guidance specifies that a community air-monitoring program shall be implemented to protect the surrounding community and to confirm that the work does not spread contamination off-site through the air.
- New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation (DER)-10, Appendix 1B – Fugitive Dust and Particulate Monitoring. This guidance provides a basis for developing and implementing a fugitive dust suppression and particulate monitoring program as an element of a site's health and safety program.

3.0 AIR MONITORING

The following sections contain information describing the types, frequency and location of real-time monitoring.

This section addresses the real-time monitoring that will be conducted within the work area, and along the site perimeter, during intrusive activities such as excavation, product recovery, manipulation of soil piles, extraction of sheet piling, etc.

3.1 Volatile-Organic Vapor Monitoring, Response-Levels, and Actions

Volatile organic vapors will be monitored at the downwind perimeter of the immediate work area on a continuous basis during invasive work. Upwind concentrations will be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work will be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment will be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment will 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 ppm above background for the 15-minute average, work activities will be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities will resume with continued monitoring.
- If total organic vapor levels at the downwind perimeter of the work area persist at levels in excess of 5 ppm over 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 200 feet downwind of the work area 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 will be shutdown.

Time-weighted 15-minute readings will be recorded and be available for NYSDEC personnel to review. Instantaneous readings, if any, used for decision purposes will also be recorded.

3.2 Particulate Monitoring, Response-Levels, and Actions

Particulate concentrations will be monitored continuously at the upwind and downwind perimeters of the work area at temporary particulate monitoring stations. The particulate monitoring will be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of calculating 15-minute running average concentrations for comparison to the airborne particulate action level. The equipment will be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during work activities.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter ($\mu g/m^3$) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques will be employed. Work will continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 $\mu g/m^3$ 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 $\mu g/m^3$ above the upwind level, work will be stopped, and a re-evaluation of activities initiated. Work will resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 $\mu g/m^3$ of the upwind level and in preventing visible dust migration.

Readings will be recorded and be available for NYSDEC personnel to review.

3.3 Odor and Dust Control

3.3.1 Odor Control

Necessary means will be employed to prevent on and offsite odor nuisances. At a minimum, procedures will include: (a) limiting the area of open excavations; (b) shrouding open excavations with tarps and other covers; and (c) use of foams to cover exposed odorous soils. If odors develop and cannot otherwise be controlled, additional means to eliminate odor nuisances will include: (d) use of chemical odorants in spray or misting systems.

This odor control plan is capable of controlling emissions of nuisance odors. If nuisance odors are identified, work will be halted, and the source of odors will be identified and corrected. Work will not resume until nuisance odors have been abated. NYSDEC will be notified of odor complaint events. Implementation of odor controls will be the responsibility of the contractor.

3.3.2 Dust Control

Dust management during invasive on-site work will include, at a minimum:

- Use of a dedicated water spray methodology for roads, excavation areas and stockpiles.
- Exercise extra care during dry and high-wind periods.
- Use of gravel or RCA on egress and other roadways to provide a clean and dust-free road surface.

This dust control plan is capable of controlling emissions of dust. If nuisance dust emissions are identified, work will be halted, and the source of dusts will be identified and corrected. Work will not resume until nuisance dust emissions have been abated. NYSDEC will be notified of dust complaint events. Implementation of dust controls will be the responsibility of the contractor.

3.4 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 part-per-million, monitoring should occur within the occupied structure(s). Depending upon the nature of contamination, chemical-specific colorimetric tubes of sufficient sensitivity may be necessary for comparing the exposure point concentrations with appropriate pre-determined response levels (response actions should also be pre-determined). 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 micrograms per cubic meter, work activities should be suspended until controls are implemented and are successful in reducing the total particulate concentration to 150 micrograms per cubic meter 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.

4.0 RECORD KEEPING

Copies of the CAMP monitoring logs for VOCs and dust particulates will be provided in the applicable report documenting the work activities conducted. If odor or dust suppression techniques were required, they will also be documented in the report.