July 23, 2025

Mr. Alexander Klein
New York State Department of Environmental Conservation
Division of Environmental Remediation, Remedial Bureau A
625 Broadway, 12th Floor, Albany, NY 12233-7014

Re: Pre-Design Investigation Work Plan
American Drive-In Cleaners of Hewlett
1345 Peninsula Boulevard, Hewlett, NY 11557
NYSDEC Site No. 130228

Dear Mr. Klein:

LaBella Associates (LaBella) has prepared this Pre-Design Investigation (PDI) Work Plan for the American Drive-In Cleaners of Hewlett Site (Site No. 130228) located at 1345 Peninsula Boulevard in the Town of Hewlett, New York. We propose to screen sub-slab and soil vapor conditions throughout the site to support the preparation of a soil sampling plan to characterize the vertical and horizontal extent of chlorinated volatile organic compound (CVOC) concentrations in soil. In addition, groundwater will be sampled to evaluate existing conditions. The data will be evaluated to identify remedial alternatives and implement and / or design an appropriate source area Interim Remedial Measure (IRM). As part of this effort, the existing Vapor Extraction System (VES) will be evaluated.

1.0 INTRODUCTION

The Site is an active dry-cleaning facility in the State Superfund Program (Site No. 130228). The Site consists of a triangular-shaped 0.69-acre lot with a one-story 10,000-square-foot cinder block building on a concrete slab. The Site has a history of environmental investigations dating back to 2005. The dry-cleaning solvent Tetrachloroethane (PCE) and its breakdown products, have been identified in groundwater, soil, and soil gas. A March 2023 Supplemental Remedial Investigation Work Plan has been approved by the New York State Department of Environmental Conservation (NYSDEC), and a Draft Interim Remedial Measures Work Plan has been disapproved by NYSDEC on January 2, 2025.

LaBella will perform a PDI in order to complete the delineation of the source area and identify and design an appropriate source area IRM. The PDI will be performed in phases, including soil vapor sampling which will be followed by soil sampling. The PDI will inform the IRM design, as necessary, as well as additional long-term remedial solutions for on-site / source area treatment. The scope of work includes a geophysical survey, sub-slab soil vapor, soil, and groundwater investigation, and a vapor extraction system (VES) evaluation. The scope of work is detailed in **Section 3.0.**

A PDI Report will be submitted to NYSDEC following receipt of the laboratory analytical results.

2.0 BACKGROUND

2.1 Site Description

The Site is an active dry cleaner located in a commercial and residential area at 1345 Peninsula Boulevard in Town of Hewlett, Nassau County, New York (**Figure 1**). The Site consists of approximately 0.66 acres and is developed with an approximately 10,000 square foot single-story slab-on-grade building. The undeveloped portion of the Site consists of an asphalt parking lot. The Site boundary is shown on **Figure 2.**

The Site is bounded to the east by the Long Island Railroad (LIRR) right-of-way (ROW), to the north by Peninsula Boulevard and a commercial shopping center, to the west by a vacant parking lot and former bank, and to the south by residential houses.

2.2 Site History

Based on previous interviews with Mr. Moreida, the Site owner, the Site was first developed from vacant land in 1958-1959 as a dry cleaner. Mr. Moreida purchased solely the dry-cleaning business at the Site in 1960 and the property in 1965 from the Estate of Philip Basser. A boiler room was added in 1963, and a dry-cleaning machine room was added in 1985. Dry cleaning operations have occurred at the Site for at least 66 years. The Site continues to be used as an active dry cleaner.

2.3 Topography

Based on the USGS Topographic Map – Lynbrook Quadrangle, the site is located approximately 25 to 30 feet above mean sea level (AMSL). The Site surface is relatively flat with a topographic slope to the south-southwest towards Motts Creek.

2.4 Geology and Hydrogeology

The geologic setting consists of the Long Island Outwash Plain which is a broad, low sandy plain extending southward from the Ronkonkoma Moraines, with a very gradual slope to the sea. Bedrock, generally absent from Long Island, is buried under glacial deposits. According to the USGS NYC Region Geologic Map, the area is underlain by Pleistocene glacial/terrace deposits.

Based upon previous investigations, soil on-Site consists of organic fill with silt and sand to a depth of approximately 5 feet below ground surface (ft bgs), underlain by medium sand to a depth of approximately 20 ft bgs. Boring logs indicate the presence of clay at varying depths, beginning at approximately 25 ft bgs to 35 ft bgs, with thicknesses of up to ten feet, indicating that this clay may be acting as a confining unit. Groundwater was encountered at an average depth of 4.5 ft bgs.

Based upon available information, local groundwater flows to the northwest. Regional groundwater flow is generally to the south-southwest.

2.5 Prior Environmental Reports

LaBella has reviewed prior information, including historical reports, documents, and work plans, dating back to 2005, including, but not limited to, periodic sampling results through August 2018, as well as the following documents:

- June 2005 – Voluntary Cleanup Program Investigation Report by Berninger Environmental, Inc. (BEI)
- May 2008 – Summary Report for Soil Vapor Migration Study by BEI
- July 2018 – NYSDEC Order on Consent and Administrative Settlement
- June 2019 – Supplemental Remedial Investigation Work Plan by John V. Soderberg, P.E.
- August 2022 – Revised Supplemental Remedial Investigation Report by John V. Soderberg, P.E.
- March 2023 – Supplemental Remedial Investigation Work Plan2 by John V. Soderberg, P.E.
- November 2024 – Draft Interim Remedial Measures Work Plan by John V. Soderberg, P.E.

As part of the review, LaBella has also performed a Freedom of Information Act (FOIA) request with state and local agencies in order to obtain any additional relevant and applicable documents regarding site history and what is known about the site history and environmental contamination, including a vapor extraction system (VES) that was installed in 2013. There were no records pertaining to the VES based on the available documents received from state and local agencies. Based upon available information provided by the Site owner, the VES consists of three 2-inch wells that were installed in 2015. The current conditions and the duration of operation of the VES are unknown. The system is not currently in operation.

The VES assessment would be a short-term, temporary test to assess efficacy after the collection of the soil and groundwater samples. The system would be operated for up to 2 weeks to allow the system to equilibrate. Pressure field extension (PFE) readings would be collected 1) after initial start-up, 2) between 24 and 48 hours after start-up and, 3) between 10 and 14 days after start-up. The exact timing will depend on field scheduling and facility access. Concurrent with the PFE readings, LaBella will also collect PID readings on the effluent of the system and approximately 15 ft. downgradient (based on wind direction at the time) or at the edge of the building, whichever is less. If the initial downgradient PID readings exceed 5 ppm, the system will be shut down and NYSDEC will be contacted to discuss alternative measures. If the PID readings downgradient of the effluent are below 5ppm, the system will continue to operate for 2 weeks to equilibrate and then the final readings will be collected and the system shut down. Results will be evaluated to determine the viability of continuing to operate the system as part of an Interim Remedial Measure (IRM).

A public water supply well (Well No. N-01346) for the Jameco Aquifer is located approximately one half mile northwest of the Site, hydraulically downgradient. A FOIA request was submitted to NYSDEC for documentation related to the public water supply well. The documentation received from NYSDEC indicates that the supply well is no longer active.

The previous reports are summarized below, chronologically, and included in **Appendix A.**

2.5.1 2002 Nassau County Department of Health Sampling Program

Based on the 2002 Nassau County Department of Health sampling program, wastewater that originated from the Site contained PCE at concentrations of 7.3 to 16 µg/L. Soil samples from the southeastern corner of the building contained 4,000 µg/L PCE and 7,400 µg/L 1,2-dichloroethane (1,2-DCE). PCE and TCE were not detected in soil vapor.

2.5.2 2005 BEI Voluntary Cleanup Program Investigation Report

In 2005, BEI implemented the NYSDEC-approved Voluntary Investigation Work Plan, which included a soil, soil gas, and groundwater investigation in order to delineate the lateral and vertical extent of contamination (PCE and its breakdown products) in all media and confirm off-site impacts. Elevated concentrations of PCE in soil gas were noted in the eastern portion of the Site, as well as in a soil gas sample along the southwest perimeter of the Site. Elevated concentrations of PCE and its breakdown products, including TCE, 1,2-DCE, and vinyl chloride, were detected in soil on the eastern perimeter of the building on-Site. Soil samples from 0 to 4 feet below ground surface (ft bgs) collected east of the building on-Site contained PCE at concentrations ranging from 51,000 to 7,000,000 µg/L. No VOCs or CVOCs were detected at elevated concentrations from the west side of the building.

The highest concentrations of PCE and its breakdown products were identified in shallow groundwater at the eastern perimeter of the building. Groundwater samples collected hydraulically downgradient (north-northwest) of the Site also reported elevated concentrations of PCE and its breakdown products, with a notable decrease in VOC concentration with increased depth.

2.5.3 2008 BEI Soil Vapor Migration Study

Based on the May 2008 Summary Report for Soil Vapor Migration Study by BEI, three soil vapor samples collected from the backyards of each of the three homes closest to the site to the south did not contain PCE or TCE at concentrations in exceedance of New York State Department of Health (NYSDOH) soil vapor matrix threshold levels.

2.5.4 2019 & 2022 BEI Supplemental Remedial Investigation

In July 2018, NYSDEC issued an Order on Consent and Administrative Settlement outlining corrective actions for the Site. Per the 2018 Order on Consent, a Supplemental Remedial Investigation was conducted in 2019 by BEI. Samples were collected from a network of 10 monitoring wells including six permanent on-site wells (MW-1, MW-2, MW-3, MW-6A, MW-7, MW-8, MW-N) and three off-site temporary wells north of Peninsula Boulevard (GW-4, GW-5, GW-6) from 5 to 10 ft bgs, 15 to 20 ft bgs, and 30 to 35 ft bgs and analyzed for VOCs and Per- and Poly- Fluoroalkyl Substances (PFAS). Soil gas samples were also collected and analyzed for VOCs.

A groundwater flow gradient survey confirmed local groundwater flows to the northwest. PCE and breakdown products were detected in all on-Site monitoring wells at concentrations ranging from 110 µg/L in MW-3 (location) to 32,000 µg/L in MW-1. Degradation of PCE was observed through to vinyl chloride at on-site well locations at which cis-1,2 DCE was present at elevated levels from 2,000 µg/L to 14,000 µg/L and vinyl chloride was present at concentrations ranging from 5 to 140 µg/L. The historical groundwater sampling data, including the presence of PCE, TCE, and 1,2-DCE, indicate that degradation is taking place.

PCE and breakdown products were detected in two off-Site monitoring wells (GW-4 and GW-6). The highest concentration of CVOCs was detected at GW-4 from 15 to 19 ft bgs (cis-1,2 DCE at 35,000 µg/L). At the bottom of the well GW-4 (26-30'), CVOC concentrations were close to non-detect with the exception of 1,2-DCE, which was detected at 60 µg/L. A similar vertical distribution was observed at each off-site well, including GW-5 (15-19'), which contained 10,000 µg/L cis-1,2 DCE, and GW-6 (15-19'), which contained 110 µg/L cis-1,2 DCE and 12 µg/L PCE). PFAS was also detected in several wells, including MW-1 (181 ng/L PFOA and 3,530 ng/L PFOS), MW-3 (235 ng/L PFOA and 40.3 ng/L PFOS), and MW-6A (121 ng/L PFOA and 2,530 ng/L PFOS).

2.5.5 2023 BEI Supplemental Remedial Investigation Work Plan2

The March 2023 BEI Supplemental Remedial Investigation Work Plan 2 outlines additional investigation with the objective of determining the extent of PCE contamination and its breakdown products in off-site groundwater and soil vapor. The SRI scope proposed off-site groundwater sampling, including VOC and PFAS samples from three temporary monitoring wells north of the Foodtown (GW-7 through GW-9) and one permanent monitoring well (MW-9) northeast of the Site, east of the LIRR tracks. In addition, an off-site soil vapor investigation was proposed to analyze the potential for SVI at the commercial businesses to the north of the Site and to the northeast of the Site (east of the LIRR tracks). As of this writing, the 2023 BEI SRI Work Plan has not yet been implemented.

2.5.6 2024 BEI Draft Interim Remedial Measures Work Plan

The November 2024 BEI Draft Interim Remedial Measures Work Plan proposed interim remedial measures for the Site, including excavation of contaminated soil to the east of the building to a depth of 4 to 5 ft bgs, and groundwater treatment via biological injections to treat CVOCs and PFAS in groundwater. The 2024 IRM Work Plan was disapproved by the NYSDEC. In the IRM Disapproval letter dated January 2, 2025, NYSDEC recommended utilizing a treatment method that will remediate PFAS and VOC contamination in groundwater and prevent further migration of contaminants. Based on existing data gaps, LaBella proposed that additional investigation be conducted prior to implementing an IRM. We further note that excavation on the east side of the building is technically impracticable, given that the LIRR ROW is located approximately 18 inches to the east of the building, as indicated by the presence of a chain-link fence.

3.0 PRE-DESIGN INVESTIGATION

LaBella proposes to complete a pre-design investigation in order to identify remedial alternatives and implement and / or design an appropriate source area Interim Remedial Measure (IRM). The scope of work for the PDI will include the following tasks:

- Geophysical Survey
- Sub-Slab Soil Vapor Sampling
- Sub-Surface Soil Investigation
- Groundwater Investigation
- Vapor Extraction System Evaluation

Quality assurance/quality control (QA/QC) procedures will be followed in the field and at the laboratory to facilitate that reliable data are obtained. When performing field sampling, care will be taken to prevent the cross-contamination of sampling equipment, sample bottles, and other equipment that may compromise sample integrity. QA/QC samples will be collected for soil and groundwater and will include field duplicates and matrix spike/matrix spike duplicate (MS/MSD) samples. No QA/QC samples will be collected for soil vapor or for groundwater MNA parameters, since these data points are intended for screening level purposes only.

The samples will be collected and transported to an ELAP-certified laboratory following New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol (ASP) – Category B Deliverables. Analysis conformed to NYSDEC ASP Category B and data deliverables will be submitted

to the NYSDEC. A designee of the LaBella Project Manager will complete a data usability evaluation for the data collected during the RI and a data usability summary report (DUSR) will be prepared. The DUSR will be prepared in accordance with NYSDEC DER-10, Appendix 2B, and will be available within 10 weeks.

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 a qualified subcontractor independent of the project.

The PDI will inform the IRM design, as necessary, as well as additional long-term remedial solutions for on-site / source area treatment. The data from the PDI will also be evaluated to support the development of future off-site groundwater investigations consistent with previous work plan approvals. Proposed sampling locations are shown in **Figure 3.**

3.1 Geophysical Survey

LaBella will perform a geophysical survey and subsurface utility locating to clear drilling locations. The geophysical survey will include the use of electro-magnetic (EM) equipment and ground-penetrating radar (GPR) to identify subsurface anomalies and/or utilities that would preclude drilling in planned locations. LaBella will use the findings of the geophysical survey to determine where soil borings can be advanced safely.

3.2 Sub-Slab Soil Vapor Investigation

The objective of the sub-slab soil vapor investigation is to support the design of an IRM and to inform the location of soil sampling for the horizontal and vertical delineation of the source area in order to support the design of additional remedial measures, as necessary. The data from the sub-slab investigation would inform where supplemental soil sampling will be performed in order to identify and evaluate appropriate and feasible IRM and / or remedial alternatives.

Pre-Sampling Building Inspection and Preparation

A pre-sampling investigation will be performed prior to each soil vapor sampling event pursuant to the NYSDOH SVI Guidance to identify and minimize conditions that may interfere with the proposed testing. The inspection will evaluate the structure, floor layout, air flows, and physical conditions of the building(s) being studied. This information, along with information on sources of potential indoor air contamination [Section 2.11.2], will be identified on a building inventory form.

Soil Vapor Investigation Methodology

LaBella will collect approximately 10 sub-slab soil vapor air samples from the interior of the building and 6 soil vapor samples outside the building to evaluate the source area. To collect the interior sub-slab vapor samples, an approximate 1-inch diameter hole will be drilled through the floor slab using a rotary hammer drill to a depth of no more than 2 inches below the bottom of the concrete slab to allow for the installation of a Vapor Pin®. To collect the exterior sub-slab vapor samples, 3 ft bgs.

To collect exterior sub-slab vapor samples, the sampling point will be installed using either hand tools or a remote Geoprobe® direct-push drill rig or manually driven rods to a depth of approximately 3 ft bgs. Sampling points will be constructed of a dedicated stainless-steel screen fitted with inert tubing

(e.g., polyethylene or Teflon®) to grade. Porous, inert backfill material (e.g., glass beads, washed #1 crushed stone, etc.) will be added to create a sampling zone 3 ft in length. The sampling point will be sealed above the sampling zone with bentonite slurry for a minimum distance of 1.5 feet to prevent outdoor air infiltration and the remainder of the borehole will be backfilled with clean material.

The open holes will be screened for VOCs with a photoionization detector (PID). A seal will be created around each vapor sampling implant to prevent infiltration of ambient air into the subsurface vapor sample. A tracer gas (Helium, He) will be utilized to test if a competent seal exists around each subsurface vapor probe, both before and after sampling.

Prior to soil vapor sampling, approximately two to three probe volumes will be purged at a flow rate less than 0.2 liters per minute. VOC concentrations will be recorded during purging utilizing a MiniRae part per billion (PPB) PID equipped with a minimum 11.6eV lamp for detecting CVOCs. A tracer gas test with helium gas will be performed as a QA/QC device measure to verify the integrity of the sub-slab soil vapor probe seal.

Sampling will be performed consistent with the applicable procedures described in ASTM International (ASTM) E2600-15 "Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions" and the NYSDOH SVI Guidance protocols. Due to the active use as a dry-cleaner, a pre-sampling building inspection is not planned to be performed.

The sub-slab soil vapor air samples will be collected utilizing 1.4-liter individually certified-clean Summa® canisters (or equivalent) equipped with laboratory-calibrated flow controllers. The laboratory will provide batch certified-clean canisters with an initial vacuum of approximately 26 inches of mercury (in. of Hg) for sample collection and flow regulators pre-set to provide uniform sample collection. The samples will be collected over a 2-hour time period. This data is intended to provide screening-level information for further assessing the source area(s) and is not being utilized for a Soil Vapor Intrusion assessment or for determining final remedial limits and as such, quality assurance/quality control samples are not proposed to be collected as part of this task.

Based on field observations, sampling points may be added or removed. Each sample will be submitted to a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP)-certified laboratory for analysis of VOCs by United States Environmental Protection Agency (EPA) Method TO-15 with a standard 10 business day turnaround time.

The vapor pins will serve a dual purpose by also allowing for the evaluation of the influence of the VES once that system can be restarted.

A Community Air Monitoring Program (CAMP) will be implemented to monitor upwind and downwind conditions during all ground intrusive activities with the exception of activities taking place indoors when facility workers are not present. The CAMP will be implemented and executed in accordance with 29 codes of federal regulations (CFR) 1910.120(h), the NYSDOH Generic CAMP, and the NYSDEC Technical and Administrative Guidance Memorandum (TAGM) #4031 (**Appendix B**).

The health and safety plan will be implemented during all field activities (**Appendix C**).

3.3 Sub-surface Soil Investigation

The objective of the sub-surface soil investigation is to complete a horizontal and vertical delineation of the source area in order to support the design of an IRM and / or additional remedial measures, as necessary. Based on the results of the sub-slab soil vapor screening, LaBella will confirm the quantity and locations for a subsurface soil investigation. We assume that approximately 10 to 12 soil borings will be advanced to a depth of approximately 10 to 15 ft bgs. The quantity and location and rationale for sub-surface sampling locations and sampling intervals, will be discussed with DEC prior to beginning the sub-surface soil investigation.

Soil Investigation Methodology

The soil borings along the eastern side of the building will be manually advanced with hand tools. The soil borings in the asphalt parking lot will be advanced using a direct-push drill rig (Geoprobe ®, or equivalent). A LaBella environmental professional will characterize soils using the Unified Soil Classification System (USCS) and field screen samples for the presence of volatile organic compounds (VOCs) using a photoionization detector (PID) with a minimum 11.6eV lamp. Soil boring depths may be increased to vertically delineate subsurface impact, if encountered.

Soil boring locations will be backfilled with cuttings and cold-patched with asphalt, should they not exhibit signs of contamination, including odors, staining, or PID readings greater than 10 ppm. Should contaminated soil be encountered, cuttings will be placed in a 55-gallon drum for proper disposal in accordance with applicable regulations. Further disposal techniques are discussed in Section 3.6.

A DigSafely New York stakeout will be performed at the Site to locate subsurface utilities in the areas where the subsurface investigation will take place. LaBella assumes any relevant utility drawings and/or other information regarding underground utilities will be provided to the owner prior to implementation of subsurface work at the Site.

Each soil core will be documented with soil types, changes in lithology, and wastes (if any) encountered. LaBella utilized a photoionization detector (PID) to screen the soils from the soil cores for volatile organic vapors. A soil boring log will be developed for each boring. The soil samples will be collected and transported to a NYSDOH ELAP-certified laboratory under standard chain of custody procedures for analysis of VOCs via EPA Method 8260. In addition, one quarter of the soil samples will be analyzed for PFAS via EPA Method 1633 and one quarter of the soil samples will be held and analyzed pending results and pursuant to discussions with DEC. Sample analysis will be biased toward the highest concentration of VOCs in soil as well as PFAS sampling results. The hold time for PFAS in soil is 90 days. The samples will be held at the laboratory. Re-mobilization may be necessary should samples exceed the hold time. Investigation Derived Waste (IDW) is further discussed in Section 3.6.

3.4 Groundwater Investigation

The objective of the groundwater investigation is to support the design of an IRM to mitigate the off-site migration of contaminated groundwater. A total of 3 off-site temporary groundwater monitoring wells (GW-11, GW-12, and GW-13) will be installed downgradient of the property in the right-of-way on the southeastern side of Peninsula Blvd, as well as one temporary groundwater monitoring well (GW-

10) upgradient of the source area at the southeastern end of the property. The proposed well locations are shown on **Figure 3**.

In addition to the PDI wells (GW-10 through GW-13), the SRI wells (GW-7, GW-8, GW-9, and MW-9) will be installed per the previously approved 2023 SRI Work Plan, however we propose to install the PDI wells as well clusters with three separate 1-inch PVC screens as an alternative to the well construction details proposed in the 2023 SRI Work Plan.

Well Construction Methodology

Each PDI well cluster will be installed using a Geoprobe® rig to approximately 20 ft bgs with two screened intervals (5 to 9 ft bgs and 15 to 19 ft bgs). The well clusters will be constructed with 1-inch diameter, 0.010 slot PVC screen. Cuttings will be used to backfill the remainder of the boring to 2 feet below current grade and well-sealed with a 2-foot-thick layer of bentonite. The wells will be developed at least 48 hours prior to sampling.

The wells will be sampled via low-flow sampling techniques consistent with the procedures outlined in the SRIWP. Purge water will be containerized and run through a carbon filter and discharged to the ground surface. During sampling, the following parameters will be measured and recorded at three (3) to five (5) minute intervals:

- Water level drawdown (<0.3')
- Temperature (+/- 3%)
- pH (+/- 0.1 unit)
- Dissolved oxygen (+/- 10%)
- Specific conductance (+/- 3%)
- Oxidation reduction potential (+/- 10 millivolts)
- Turbidity (+/- 10%, <50 NTU for metals)

Groundwater Analytical Methodology

Samples will be collected when the parameters have stabilized within the specified range for three (3) consecutive intervals. The samples will be collected and transported to an ELAP-certified laboratory under standard chain of custody procedures for analysis of VOCs via EPA Method 8260 and PFAS via EPA Method 1633. Additionally, VOC samples will be collected from the existing / accessible on-site monitoring wells.

In addition, samples will be collected for additional monitored natural attenuation (MNA) parameters. NMA samples will be collected from three monitoring wells: GW-10 (upgradient location), MW-N (source area location), and GW-11 (downgradient location). MNA samples will be collected for the additional monitored natural attenuation parameters:

- Alkalinity, EPA Method 031.2
- Chloride, EPA Method 0300
- Hardness, EPA Method 130.1
- nitrate/nitrite, EPA Method 353.2
- sulfate/sulfide, EPA Method 300/376.1

- Ferrous iron, EPA Method 3010
- Total Organic Carbon (TOC), EPA Method 9060
-

One duplicate and trip blank will be collected for QA/QC purposes. The monitoring wells will be gauged with a water level meter. Purged groundwater will be treated through a carbon filter and discharged back into the environment.

3.5 Vapor Extraction System Evaluation

Limited information is available regarding a vapor extraction system (VES) that was installed and put into operation in 2013. The available information indicates that the VES consists of three 2-inch VES wells and an exhaust pipe that extends through the roof. LaBella will assess the current VES to determine if it is viable to activate.

If viable to activate, LaBella proposes to activate the existing fan and will then monitor the influence of the system utilizing the monitoring points installed as part of the sub-slab soil vapor investigation. Pressure will be monitored at each monitoring point in order to evaluate the radius of influence of the system. Pending the results of the PDI, we will determine whether any additional information is needed in order to operate the system effectively.

3.6 Investigation Derived Waste

Soil cuttings generated during the investigation will be placed in 55-gallon drums for off-site disposal in accordance with applicable regulations. Purged groundwater generated during the investigation will be treated through a carbon filter and discharged back into the environment.

3.7 Pre-Design Investigation Report

Following receipt of laboratory reports, LaBella will prepare a report that will document field activities, evaluate and summarize laboratory results, and provide conclusions and recommendations for interim remedial measures and / or additional remedial investigation and / or remedial action. Results will be compared to NYSDOH SVI Guidance as well as NYSDEC Standards and Guidance Values for soil and groundwater.

4.0 SCHEDULE

The schedule of field work and deliverables for the work performed as part of the PDI are noted below.

Field Work:

- Geophysical Survey, Sub-Slab Soil Vapor Investigation, and VES evaluation will be performed within 2 weeks of NYSDEC-approval of this PDI Work Plan, pending subcontractor availability.
- Soil and Groundwater Investigation will be performed within 2 weeks of receipt of soil vapor sampling results.

Deliverables:

- PDI Report will be submitted to NYSDEC within 3 weeks of receipt of soil and groundwater sampling results.

5.0 CERTIFICATION

I, Dan Noll, certify that I am currently a (NYS registered professional engineer as defined in 6 NYCRR Part 375) and that this Pre-Design Investigation Work Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).



7/23/2025
Date

If you have any questions, please contact me at (585) 295-6611.

Respectfully submitted,

LaBella Associates, D.P.C.

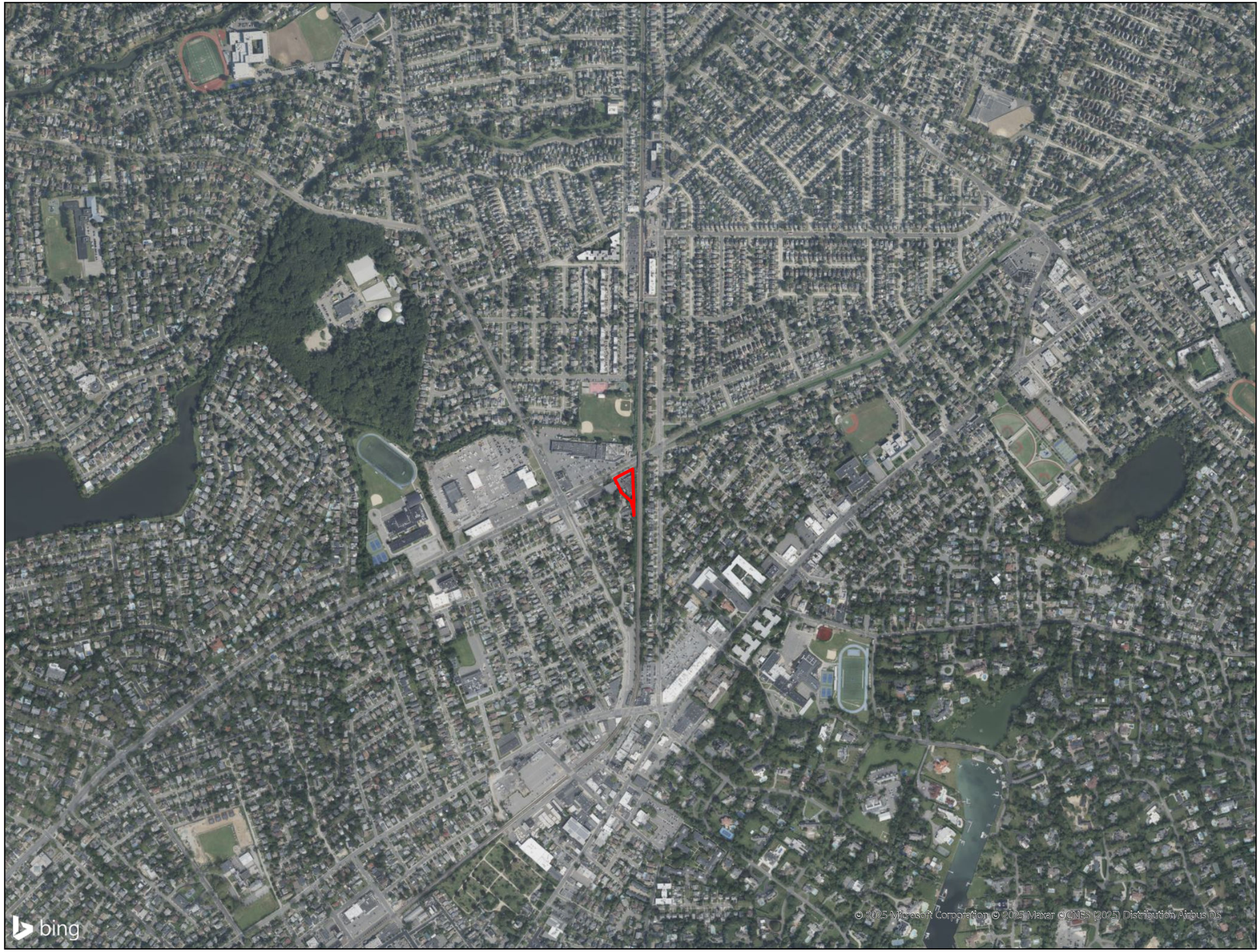
Dan Noll, PE
Vice President

Attachments

Figure 1 – Site Location
Figure 2 – Site Boundary
Figure 3 – Monitoring Well Network

Appendix A – Previous Reports
Appendix B – Community Air Monitoring Plan (CAMP)
Appendix C – Health and Safety Plan (HASP)

FIGURES



LaBella
Powered by partnership.

Pre-Design Investigation Work

American Drive-In Cleaners of Hewlett

1345 Peninsula Boulevard,
Hewlett, NY 11557

0 500 1,000
1 inch = 1,000 ft

Legend
Site Boundary

Site Location

FIGURE 1

LaBella Project No: 2252644
Date: July 2025



LaBella
Powered by partnership.

Pre-Design Investigation Work Plan

American Drive-In Cleaners of Hewlett

1345 Peninsula Boulevard, Hewlett, NY 11557

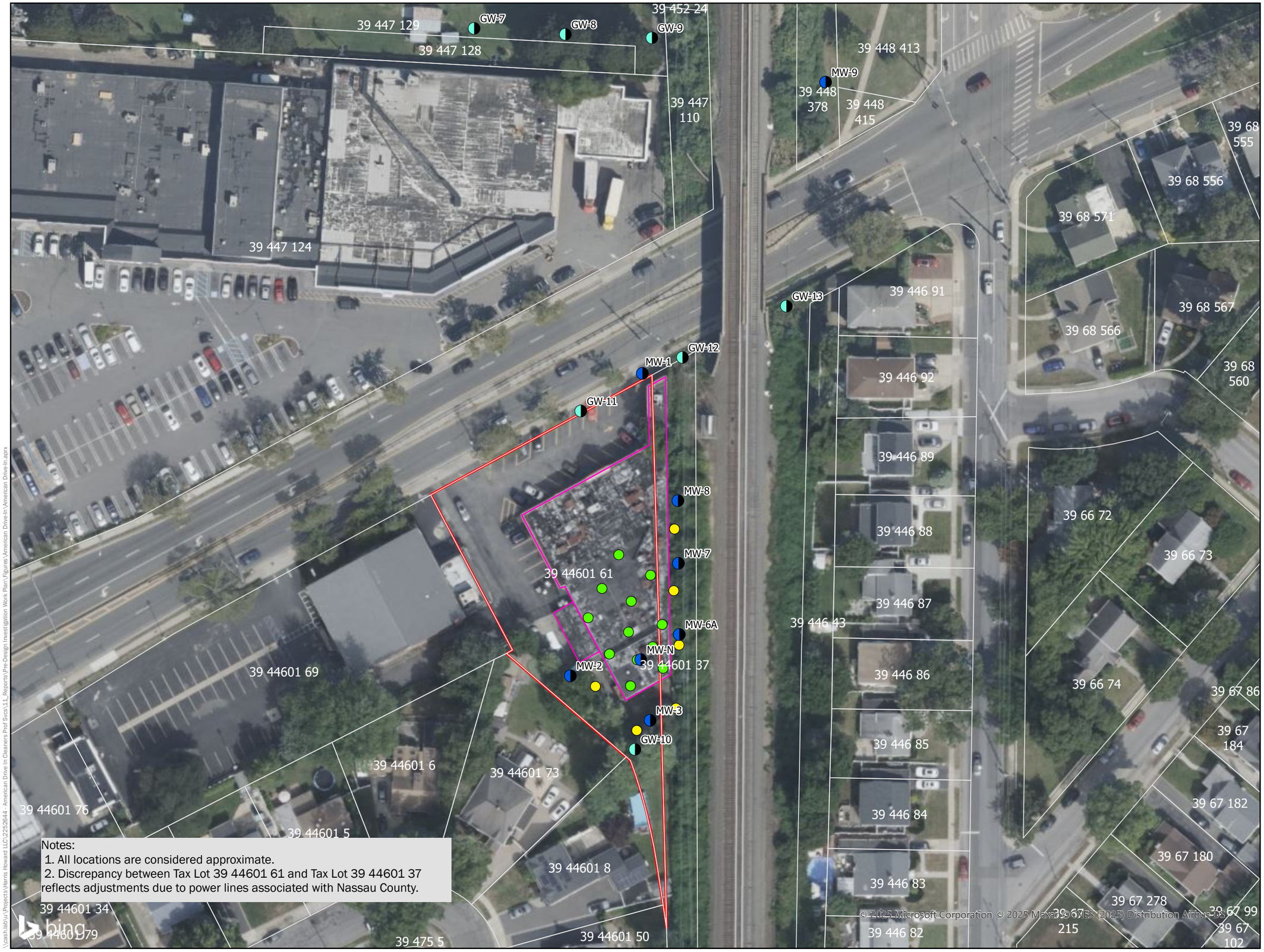
0 40 80
1 inch = 80 ft

Legend
- Site Boundary
- Building Footprint
- 2024 Nassau County Parcels

Site Boundary

FIGURE 2

LaBella Project No: 2252644
Date: July 2025



Notes:
1. All locations are considered approximate.
2. Discrepancy between Tax Lot 39 44601 61 and Tax Lot 39 44601 37 reflects adjustments due to power lines associated with Nassau County.

\\cashlabvu\Projects\Harris Howard LLC\2252644 - American Drive In Cleaners Prof Svcs\1.1_Reports\Pre Design Investigation Work Plan\Figures\American Drive-In.aprx

LaBella
Powered by partnership.

Pre-Design Investigation Work Plan

American Drive-In Cleaners of Hewlett

1345 Peninsula Boulevard, Hewlett, NY 11557

0 40 80
1 inch = 80 ft

Legend
- Site Boundary
- Building Footprint
- 2024 Nassau County Parcels
- Proposed Sub Slab Points
- Proposed Soil Vapor Points
- Proposed Temporary Monitoring Wells
- Permanent Monitoring Wells

Monitoring Well Network

FIGURE 3

LaBella Project No: 2252644
Date: July 2025

APPENDIX A

Prior Reports

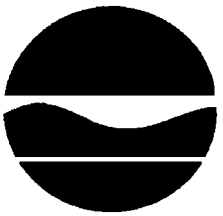
VOLUNTARY CLEANUP PROGRAM

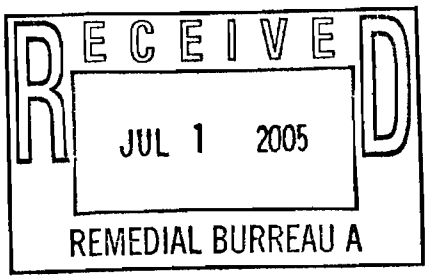
INVESTIGATION REPORT

FOR

AMERICAN DRIVE-IN CLEANERS OF HEWLETT, INC.

1345 PENINSULA BOULEVARD
HEWLETT, NEW YORK
Site No.: V-00616-1
Index No.: W1-0950-03-02





SUBMITTED TO:

NEW YORK STATE DEPARTMENT OF
ENVIRONMENTAL CONSERVATION
625 BROADWAY
ALBANY, NEW YORK 12233-7016

PREPARED BY

BEi

BERNINGER ENVIRONMENTAL, INC.

Draft Revision - A
June, 2005

TABLE OF CONTENTS

EXECUTIVE SUMMARY ..... Page i

1.0 INTRODUCTION ..... Page 1

2.0 SCOPE OF WORK ..... Page 2
2.1 Issues of Potential Environmental Concern ..... Page 2
2.2 Work Scope - Tasks 1-4 ..... Page 2
Task 1 - Piezometer Installation /Groundwater Flow Calculation
Task 2 - Soil Gas Investigation
Task 3 - Soil Investigation
Task 4 - Groundwater Investigation

3.0 INVESTIGATION RESULTS ..... Page 8
3.1 Task 1 - Piezometer Installation /Groundwater Flow Calculation ..... Page 9
3.2 Task 2 - Soil Gas Investigation ..... Page 9
3.3 Task 3 - Soil Investigation ..... Page 10
3.4 Task 4 - Groundwater Investigation ..... Page 11

4.0 UPGRADIENT PROPERTIES ..... Page 13
4.1 Adjoining Bank Building (HSBC) & Other Properties ..... Page 13

5.0 EXPOSURE ASSESSMENT ..... Page 14
5.1 Exposure Pathways Analysis ..... Page 14
5.1.1 *Soil Contact Exposure Pathways*
5.1.2 *Inhalation Exposure Pathways*
5.1.3 *Groundwater Ingestion Pathway*
5.1.4 *Discharge of Groundwater to Surface Water Pathway*
5.2 Exposure Assessment Summary ..... Page 18

6.0 SUMMARY AND CONCLUSIONS ..... Page 20
6.1 Groundwater Flow Direction ..... Page 20
6.2 Soil Gas Sampling Study ..... Page 21
6.3 Soil Sampling Study ..... Page 21
6.4 Groundwater Sampling ..... Page 21
6.5 Adjacent Properties ..... Page 22

7.0 SUPPLEMENTAL INVESTIGATION ..... Page 23
7.1 Indoor Air Quality ..... Page 23
7.2 Soil & Groundwater Sampling -Remedial Action Design ..... Page 23

TABLE OF CONTENTS - CON'T

List of Tables

Table 1 - Boring Log
Table 2 - Summary of Volatile Organic Compounds in Soil Gas by EPA Method TO-15
Table 3 - Summary of Volatile Organic Compounds Detected in Soil Samples and/or Elevated above NYSDEC Soil Cleanup Objectives.
Table 4 - Summary of Volatile Organic Compounds Detected in Groundwater and/or Elevated above NYSDEC Class Ga Standards and Guidance Values.

List of Figures

Figure - 1 Site Location Map
Figure - 2 Site Aerial Photograph
Figure - 3 Groundwater Elevation Map - Spring 2004
Figure - 4 Groundwater Elevation Map - January 2005
Figure - 5 Site Plan with Sampling Locations
Figure - 6 Location Map of Soil Gas Sampling Locations (Total VOCs and PCE)
Figure - 7a Location Map of Soil Sampling Locations (Total VOCs)
Figure - 7b Location Map of Soil Sampling Locations (PCE)
Figure - 8 Location Map of Groundwater Sampling Locations (VC/1,2-DCE/PCE/TCE)

List of Appendices

Appendix - A Photographic Log (January 2005), spill summaries, TEA data
Appendix - B Data Validation Reports and Sample Data Summary Package
Appendix - C Correspondence

EXECUTIVE SUMMARY

Tasks 1-4 of the approved Voluntary Investigation Work Plan were performed at The American Drive-In Cleaners of Hewlett, Inc., (the Volunteer) under the scrutiny of the New York State Department of Environmental Conservation, Division of Environmental Remediation (DER). This property is located at 1345 Peninsula Boulevard, Hewlett, New York 11557, fully described as Section 038, Block 446, Lot Nos. 61, 63, 70 and 72.

Task 1 (Piezometer Well Installation/Groundwater Flow Calculation), Task 2 (Soil Gas Investigation), Task 3 (Soil Investigation) and Task 4 (Groundwater Investigation) of the approved Voluntary Investigation Work Plan were implemented by Berninger Environmental Inc. (BEI) at the American Drive-In Cleaners property during January - February 2005. In order to confirm off-site influences[1] to regional and localized groundwater flow, Task 1 was completed prior to that date (March 2004).

The primary purpose of the site investigation was to delineate the lateral and vertical extent of contamination (tetrachloroethene and its breakdown products) in all media that may be emanating from the subject property. Additional objectives included the development of site-specific data to allow an evaluation of the actual and potential impacts to public health and the environment; selection and design of remedial action alternatives; and identification of potential feasible cleanup technologies and presumptive remedies.

Localized groundwater flow direction has been determined to be to the north-northwest, consistent with the regional groundwater flow direction established by the Grove Cleaners Project. Using a regionally established average value for horizontal hydraulic conductivity and an average porosity, horizontal groundwater flow velocity of 2.34 feet per day was calculated. This is somewhat higher than the regionally-established groundwater flow rates for the Upper Glacial aquifer.

High concentrations of Tetrachloroethene (PCE) in soil gas were noted at the eastern portion of the property, in the area of former discharges. An isolated soil gas sampling location along the southwestern perimeter also reported elevated concentrations of PCE. The source of the PCE in soil gas at this location is unknown. Other than PCE, typical degradation compounds were present such as trichloroethylene (TCE), cis 1,2 -Dichloroethene (1,2-DCE) and Vinyl Chloride (VC). Aromatic compounds were also identified. An open NYSDEC Spill (Spill No. 03-06046) is noted at the adjoining bank building.

Analytical testing results for the five soil samples collected along the eastern perimeter of the building reported elevated concentrations of PCE and common degradation products such as 1,2-DCE, VC and TCE. PCE represented the highest proportion of VOCs detected.

[1] A large shallow suction public water supply well field is present to the northwest of the subject property operated by Long Island Water Corporation (LIWC).

The soil sample collected at the historic and current dumpster location did not report actionable concentrations of dry cleaning chemicals.

A total of eight groundwater samples were collected from temporary monitoring wells located at the property perimeters which were sampled at multiple depths: shallow water table; intermediate and deep. The collection of deeper groundwater samples along the eastern perimeter of the property was limited due to the inaccessibility. A sample was also collected from an active on-site supply well.

The highest concentrations of PCE and other VOCs were noted in shallow groundwater collected at sampling locations located at the eastern perimeter of the building, in area of former discharges and elevated soil concentrations. Downgradient groundwater samples (north-northwest) also reported elevated concentrations of the same VOCs, with a notable decrease in VOC concentration with increased depth. A clay layer was noted at an approximate depth of 36-38 feet bgs. The supply well was noted to contain VOC concentrations of the same constituents above their respective SGVs. Groundwater sampling indicates that the origin of the VOCs are from the eastern portion of the building, consistent with the soil sampling data.

Several monitoring wells are present at the rear of the adjoining property, (an HSBC Bank building located at 1315 Peninsula Boulevard, Hewlett, New York) associated with an active NYSDEC Spill (Spill No. 03-06046). Another active spill (Spill No. 04-25140) was reported at the Sunoco Station located at 1291 Peninsula Boulevard, Hewlett, New York.

Based upon the data developed during Tasks 1-4 of the approved Voluntary Investigation Work Plan, BEI has identified supplemental investigatory data needs, required compliance activities and/or the need for remediation:

Indoor/Outdoor Air Quality

A two-three inch thick layer of concrete will be poured along the eastern side of the building to temporarily seal impacted shallow soils until remedial efforts are completed. Supplemental abatement activities to be performed will include checking on the integrity of the building's foundation and any holes or cracks sealed. Increased air exchange will be created through the use of active and/or passive venting, if required.

Soil & Groundwater Sampling

A remedial design work plan will be prepared to address the impacted soils and groundwater. This will include supplemental soil and groundwater sampling and/or pilot studies/testing, if required, in the area of the identified soil contamination at the easterly portion of the building, to allow for the design of appropriate remedial measures. Samples will be collected for disposal characterization purposes.

1.0 INTRODUCTION

This document serves as a report on site investigation work performed pursuant to the requirements of an executed Voluntary Cleanup Agreement (June, 2003) between the New York State Department of Environmental Conservation, Division of Environmental Remediation (DER) and American Drive-In Cleaners of Hewlett, Inc., the Volunteer. The site is located at 1345 Peninsula Boulevard, Hewlett, New York 11557 (see Figures 1 and 2), fully described as Section 038, Block 446, Lot Nos. 61, 63, 70 and 72. A Voluntary Investigation Work Plan is directed when available data collected by previous investigations demonstrates, and the NYSDEC concludes, that contamination is present at the site and further delineation of this contamination is needed to allow a decision by the DER regarding remedial action to be undertaken at said site.

Task 1 (Piezometer Well Installation/Groundwater Flow Calculation), Task 2 (Soil Gas Investigation), Task 3 (Soil Investigation) and Task 4 (Groundwater Investigation) of the approved Voluntary Investigation Work Plan were implemented by Berninger Environmental Inc. (BEI) at the American Drive-In Cleaners of Hewlett, Inc., (American) property during January - February 2005. In order to confirm off-site influences[2] to regional and localized groundwater Task 1 (Piezometer Well Installation/Groundwater Flow Calculation) was completed prior to that date in March 2004.

The main purpose of the voluntary investigation was to delineate the lateral and vertical extent of contamination (tetrachloroethene and its breakdown products) in all media that may be emanating from the subject property, to the satisfaction of the NYSDEC DER. Additional objectives include the following: development of site-specific data to allow an evaluation of the actual and potential impacts to public health and the environment; selection and design of remedial action alternatives; and identification of potential feasible cleanup technologies and presumptive remedies.

[2] A large shallow suction public water supply well field is present to the northwest of the subject property operated by Long Island Water Corporation (LIWC).

2.0 SCOPE OF WORK

The voluntary investigation field work performed during January- February 2005 followed the detailed specifications for the performance of sample collection and analysis of soil gas, subsurface soils and groundwater outlined in the approved work plan. An overview of the sampling protocols is provided below in addition to the field screening and sampling results. The methodology for the collection of soil gas samples was modified due to the fact that subsequent comments from the New York State Department of Health (NYSDOH) had been received on several VCP sites since the preparation of this work plan. The changes/modifications to this methodology are detailed in the soil gas investigation section. The required community air monitoring program was also performed continuously during the field investigation. A photographic log that documents the field investigation program is provided as Appendix A. Table 1 - Boring Log provides summary details (e.g., field screening results, field observations location and depths of samples, etc.) of the field investigation program.

2.1 Issues of Potential Environmental Concern

The work plan identified the primary issue of environmental concern at the subject property. Historic information available indicated that the Nassau County Department of Health (NCDH) had previously inspected, collected and analyzed samples of wastewater emanating from boiler blow-down water and/or former evaporative water discharges along the southeastern perimeter of the subject property. This investigation identified actionable concentrations of the Volatile Organic Compounds (VOCs) of concern in the very shallow (2 to 6 inches bgs) soils adjacent to the rear, exterior side (eastern), of the facility.

2.2 Work Scope - Tasks 1 to 4

The following tasks for the voluntary investigation were implemented in the manner described below:

Task 1 -Piezometer Installation / Groundwater Flow Calculation

BEI installed three (3) 2-inch diameter piezometers [3] at the subject property as part of the field program in order to determine the direction of localized groundwater flow and other aquifer characteristics at the site. Figures 3 and 4 indicate the location of three completed piezometers installed in March 2004. Depth to groundwater was determined to be approximately 4+ feet below grade surface. Therefore, the total depth of each piezometer was set at 10 feet bgs. Well construction consisted of 10 feet of 2 inch diameter, schedule 40, 0.020 inch slotted well screen, set approximately three feet above and seven feet below the water table interface. The remainder of the solid riser pipe was also schedule 40, flush joint threaded riser. The screen interval was backfilled with No. 0 Morie grit to a depth two feet above the screen. A two foot bentonite seal followed by clean sand was used to complete the annulus space backfill. A 5 inch cast iron manhole and cover was cemented in place to complete the installation. These wells were purged during the development process to remove fines from the formation. As the wells were installed via Geoprobe, no significant quantity of drill cuttings were generated.

Upon completion of the wells, the location and casing elevations were determined by a New York State Licensed Engineer in March 2004. Depth to groundwater was measured from each well to the nearest 0.01 foot using a sonic interface probe in Spring 2004 and January 2005. The collected data was used to generate groundwater gradient maps indicating the direction of groundwater flow (see Figures 3 and 4). Localized groundwater flow was confirmed to be consistent with prior studies (Grove Cleaners), to the north-northwest. This is due to the hydraulic interference from the Long Island Water Corp. public water supply field located to the northwest that consists of numerous shallow suction wells. Regional groundwater flow is to the south-southeast within the study area, outside the influence of the public well field.

[3] Only a one-inch piezometer (GP-1) could be installed at the northeastern perimeter due to subgrade obstructions.

Task 2 - Soil Gas Investigation

The concentrations of volatile organic compounds (VOCs) in soil gas were investigated to evaluate the potential for migration of vapors into off-site locations. Locations were selected in concurrence with the approved work plan and as discussed in the field with the NYSDEC Remedial Bureau, Division of Environmental Remediation, Project Manager, Mr. Larry Lampman.

Utilizing a Geoprobe equipped with a Post-Run Tubing System (PRT), an expendable tip and teflon tubing, discrete soil gas samples were collected from below the asphalt pavement at the site (two feet+ to 3 feet below grade surface [bgs]). This depth was selected in order to make a representation of conditions near building foundations, but was also set at this interval due to the shallow groundwater table.

The PRT tubing was advanced to the pre-determined depth. The expendable point was pushed out and a minimum of a six inch void was created in the subsurface. The area around the exterior annulus of the PRT tubing was sealed using a quick-setting hydraulic cement. After setting up the sealed penetration using the PRT, the tubing volume was purged using small (personal size) sampling pumps (Model 222-4) operating at flowrates less than 0.2 liters per minute. Subsequent to the purging of the tubing volume, a pre-set regulator and dedicated laboratory-prepared summa cannister were used to procure the soil gas sample. During purging and sampling, the flow rate did not exceed 0.2 liters per minute. Upon reaching the desired cannister pressure, the regulator was closed and cannister was labeled for transport to the laboratory. The sample was then screened using a Photoionziation Detector (PID). At the end of the field day, the soil gas sample was transported to an off-site laboratory (STL) for analysis for VOCs by TO-14 list constituents by TO-15 methodology. TO-15 methodology allows for the quantification of VOCs to the low level detections in micrograms per cubic meter (*ug/cm*) required by the NYSDOH. After removal of the PRT tubing, the shallow borings associated with the soil gas sampling locations were abandoned by bentonite grout to grade and the asphalt repaired.

A total of seven soil gas sample locations (SG-1 to SG-7) were installed as described above at the subject property (See Figure 5). Four soil gas sampling locations (SG-1 to SG-4) were installed on the west side of the property (in line with residences and adjoining commercial properties) with the remainder of soil gas sampling locations (SG-5 to SG-7) to the north and east central portion of the property perimeter.

Task 3 - Soil Investigation

BEI utilized either a Geoprobe model 540U direct push sampling rig mounted in a four wheel drive truck or a hand-driven unit for the collection of soil samples. A four foot long soil sampling tool was attached to the drive rods for the collection of continuous undisturbed soil samples. The samples were protected in a PVC liner that prevents the loss of VOCs prior to field analysis. Each sample was opened and logged to document subsurface conditions including soil types and description of non-soil materials, field instrument measurements and depth to groundwater, when encountered. Any other suspect field characteristics such as the presence of odors, vapors and soil discoloration were noted (see Table 1). A portion of each sample was placed in a resealable plastic bag and screened for total volatile organic compounds by an HNu Systems, Inc., Model P1-101 Photoionizer detector (PID) or equivalent. If field measurement readings were detected above background, the soil boring was extended until background (or low concentration) readings were achieved or groundwater was encountered. All sampling equipment was decontaminated between each sampling event.

The sample with the highest field measurement recorded at each boring or the deepest sample collected from a non-detection location was also containerized in certified-laboratory glassware at the time of its collection and immediately maintained in an ice-packed cooler. Upon completion of each day's sample collection, these samples were transported under strict chain-of-custody to an NYSDOH ELAP-certified laboratory (H2M Labs, Inc.) for analysis by EPA Method 8260 - Purgeable Organics by GC/MS inclusive of Tentatively Identified Compounds (TICs). Subsequent to sample collection, the borings were abandoned

by pumping a bentonite grout in the boring annular space to grade. All soil sampling was completed in one day, thereby limiting QA/QC samples to the following: one field blank and one Matrix Spike/Matrix Duplicate (MS/MSD).

A total of six soil borings (S-1 to S-6) were installed as described above at the subject property (See Figure 5 and 6). Five of the six soil borings (S-1, S-3 to S-6) were installed on the east side of the building/property perimeter. The one remaining soil boring location (S-2) was located at the area of the historic/current dumpster.

The lithology encountered during the installation of soil borings located along the extreme narrow corridor exterior to the east side of the building was as follows: fine grained orange–tinted silt and fine sand. It was difficult to determine the amount of disturbance of this material. However, given its location at the extreme edge of the building, and the fact it comprises the edge of the elevated LIRR abutment, it is likely that it is highly disturbed and is re-worked native materials used to backfill subsequent to site development activities. The lithology noted at the other sampling location, S-2, consisted of dark black organic-fill followed by fine sand and inter-bedded silt with wood chunks. The depth of termination of soil borings was based upon the feasibility of the installation of soil borings by hand. These borings were completed from 0-4 feet bgs to 0-6 ft bgs. After that depth, the hand-driven geoprobe slam bar could not be advanced further. It is possible that either highly compacted materials are present subgrade or the boring intersected the building foundation.

Extremely elevated PID responses (ppm) units were identified at the eastern side of the building (see Table 1); this was noted in conjunction with the presence of chemical odors. Insignificant PID responses were noted at the other remaining boring at the area of the historic/current dumpster. Subsequent to screening and sampling, the borings were abandoned by a bentonite grout.

Task 4 - Groundwater Investigation

A Geoprobe model 540U direct push drilling system was used to install temporary monitoring wells to collect groundwater samples at multiple depths within the shallow Upper Glacial Aquifer, with the exception of the sampling locations at the eastern edge of the building. These groundwater samples were collected via the installation of a Geoprobe screen into the upper water table by hand-driving. A field hydrogeologist supervised the installation of the temporary monitoring wells and recorded procedures, quantities and characteristics of water removed in the dedicated bound field notebook. Field sampling parameters such as temperature, pH, specific conductance and Terminal Electron Acceptors (TEAs) were also measured at select samples to ensure representative sampling (see Appendix A).

Upon reaching the pre-selected groundwater sampling horizon, new polyethylene tubing was used to procure a groundwater sample. The groundwater sampling interval was purged several tubing volumes until the turbidity decreased to the desired limit, where feasible. The groundwater samples collected at the eastern edge of the building were still turbid at the end of the purging period. With care to minimize agitation of the sample, groundwater was transferred from the tubing into the laboratory-supplied glassware. During groundwater sampling, two 40 ml glass containers were completely filled to ensure a zero headspace. The VOC glassware was pre-preserved by the laboratory to ensure a pH of <2. The filled glassware was then transferred to an ice-packed cooler and transported under strict chain-of-custody to a NYSDOH ELAP certified laboratory (H2M Labs) for TCL VOC analysis by EPA Method 8260 - Purgeable Organics by GC/MS plus TICs. All groundwater sampling was completed in one day, thereby limiting QA/QC samples to the following: one field and trip blank and one Matrix Spike/Matrix Duplicate (MS/MSD). After the completion of the groundwater sampling, the Geoprobe boreholes were grouted to seal same.

3.0 INVESTIGATION RESULTS

The field work performed during the implementation of the VCP followed the procedures identified in Section 2.0. Table 1 provides a description of the field screening results and sampling locations. The PID field screening results for soil gas sampling locations are also summarized in Table 1. A data usability (validation) analysis for data analyzed in accordance by NYSDEC ASP B deliverables was performed by a third party validator (Lab Validation, Inc.) before use in the investigation report. A copy of the summary analytical testing data and the data validation report is provided in Appendix B. The summary data tables provided (Tables 2 to 4) reflect the data validation/usability analysis wherein the data are qualified accordingly.

For the purposes of determining whether impact to the soils at the subject property has occurred from site operations, comparison was made to the Recommended Soil Cleanup Objectives (RSCOs) in the NYSDEC Technical Administrative Guidance Memorandum (TAGM) 94-4046, revised April, 1995. In order to evaluate groundwater, comparison was made to NYSDEC Groundwater Class Ga Potable Ambient Water Quality Standards and Guidance Values (SGVs) (NYSDEC TOGS 1.1.1) Revised April 2000.

In order to evaluate the soil gas sampling results, comparison was made to the *NYSDOH Draft Guidance for Evaluating Soil Vapor Intrusion in the State of New York, February 2005.* New York State does not have any standards, criteria or guidance values for concentrations of compounds in subsurface vapors. In absence of these and/or available background levels, the NYSDOH suggests that the soil gas results be compared to the background or site-related outdoor air concentrations (see NYSDOH's database for background concentrations for volatile chemicals in outdoor air). A comparison of the soil gas sampling investigation results and the aforementioned NYSDOH guidelines is provided in Table 2. Exceedances of these values are highlighted in bold.

3.1 Task 1 -Piezometer Installation /Groundwater Flow Calculation

Groundwater flow direction was projected based upon measurements of depth to water at several measurement events inclusive of the soil/groundwater sampling program. Groundwater elevations were determined from the surveying of the three groundwater peizometers at the subject property (see Figures 3 and 4). Localized groundwater flow direction has been determined to be to the northwest, consistent with the regional groundwater flow direction established by the Grove Cleaners Project. The horizontal groundwater flow gradient has been determined to be 0.0026 ft/ft. based upon a slope of 0.70 ft over a distance of 269 feet at the subject property. Using a regionally established average value for horizontal hydraulic conductivity of the Upper Glacial aquifer of 270 ft/day, an average porosity of 0.30, a horizontal groundwater flow velocity of 2.34 feet per day is calculated. This calculation is somewhat higher than the average literature regionally-established groundwater flow rates for the Upper Glacial aquifer (Perlmutter and Geraghty, 1963) of one foot per day.

3.2 Task 2 - Soil Gas Investigation

A total of seven soil gas sample/screening locations (SG-1 to SG-7) were installed at the subject property (See Figures 5and 6). As shown, tetrachloroethene and related degradation compounds and other volatile organic compounds (VOCs) are present at elevated concentrations relative to this comparative basis.

Tetrachloroethene (PCE), where present, was detected at concentrations ranging from a low of 2.1 micrograms per cubic meter (*ug/cm*) and 11.8 *ug/cm*, respectively, at locations SG-2 (western boundary) and SG-5 (northeastern perimeter of the property) to a high of 6,917 *ug/cm* at SG-1(southwestern perimeter), abutting a fence line (between residential and commercial properties). The source of elevated soil gas at the SG-1 location was not identified; this area may represent an unknown preferential pathway or be related to its low lying grade. As shown on Figure 6, high concentrations of PCE were also noted at the eastern portion of the property (SG-6), in the area of former discharges. Other than PCE, typical degradation compounds were present such as trichloroethylene (TCE), cis 1,2 -

Dichloroethene (1,2-DCE) and Vinyl Chloride (VC). The highest concentrations of degradation products were noted at two sampling locations: SG-5 and SG-7. This is inclusive of elevated concentrations of VC noted at SG-1 (83.9 *ug/cm*), SG-5 (230 *ug/cm* and SG-7 (145 *ug/cm*). 1,2-DCE was also reported at the following concentrations: SG-5 (355.8 *ug/cm* and SG-7 (231.3 *ug/cm*). Aromatic compounds such as toluene, xylenes, etc. were also identified. High concentrations of these aromatics were reported at SG-1, SG-4 and SG-6. An open NYSDEC Spill (Spill No. 03-06046) for fuel oil constituents is present at the adjoining bank building.

3.3 Task 3 - Soil Investigation

Six soil borings (S-1 to S-6) were installed as described at the subject property. All but one of the soil borings (S-2) were installed on the east side of the building. S-2 was installed at the area of the historic and current dumpster location. The S-2 location was noted to be organic fill with sand and interbedded silt; no suspect field characteristics were noted. Analytical testing results confirmed the absence of VOC impacts above regulatory action levels.

The sampling locations along the limited eastern perimeter of the property were obtained via manual geoprobing while standing on the edge of interior garage doors. The shallow soils were noted to be orange-brown silty-sand. Several of the sampling locations were slightly saturated (poor draining soils) and suspect field characteristics such as elevated PID responses (3,000 to 5,000 ppm PID response units) and strong chemical odors were noted. Several soil sampling locations were coincident with groundwater and/or soil gas sampling locations. As the groundwater table was high (within 4 feet of the land surface) the soil borings were installed to a total depth of 4 feet bgs.

Analytical testing results for the five soil samples collected along the eastern perimeter of the building reported elevated concentrations of PCE and common degradation products such as cis-1,2-DCE, VC and TCE. PCE represented the highest proportion of VOC detected (See Figures 7a and 7b). Specifically PCE was reported at S-3, S-4, S-5 and S-6 from 51,000

ug/kg to in excess of 1,800,000 *ug*/kg (S-6). PCE at concentrations lower than its RSCO of 1,400 *ug*/kg were reported at the northernmost soil boring location (S-1) at 9J *ug*/kg. These data are consistent with areas of known PCE impacts delineated along the path of prior discharges, previously documented from former operations.

3.4 Task 4 - Groundwater Investigation

A total of nine (9) groundwater samples (eight temporary monitoring wells (GW-1 to GW-8) and one interior supply well) were collected and submitted to a NYSDOH ELAP-certified laboratory. The temporary monitoring wells located at the property perimeters were sampled at multiple depths: shallow upper water table; intermediate (10-15 feet below the water table); and deep (approximately 30 feet below the water table). The depth of collection of groundwater samples (GW-1, GW-7 and GW-8) along the eastern perimeter of the property was limited due to the inability to use anything other than a manual-groundwater sampling system. The upgradient location (GW-5) was also only sampled at one horizon, the upper water table. A sample was also collected from the active on-site supply well (total depth of 60 feet bgs). This well had been pumping for more than 8 hours prior to sample collection. In order to determine groundwater quality, the analytical testing results for the groundwater samples were compared to the NYSDEC Groundwater Class Ga Potable Ambient Water Quality Standards and Guidance Values (SGVs) (NYSDEC TOGS 1.1.1) Revised April 2000.

Maps depicting both total volatile organic concentrations and the concentrations of four primary VOC compounds of interest (Vinyl chloride (VC), cis-1,2-Dichloroethene (1,2-DCE), tetrachloroethene (PCE) and Trichloroethene (TCE) are provided as Figure 8. These VOCs were quantified above their respective Method Detection Limits (MDLs) at the majority of the groundwater sampling locations and intervals. Specifically, these VOCs were present at the following concentrations indicated in parentheses: Vinyl Chloride (ND to 1,400 J *ug*/L); 1,2-dichloroethene (ND to 100,000 *ug*/L); tetrachloroethene (ND to 290,000 *ug*/L) and trichloroethene (ND to 46,000 *ug*/L). The highest concentrations were noted in

shallow groundwater collected at sampling locations (GW-7 and GW-8), located at the eastern perimeter of the building, in area of former discharges and elevated soil concentrations. Downgradient groundwater samples at locations, GW-4 and GW-3, also reported elevated concentrations of the same VOCs, with a notable decrease in concentration with increased depth. These same VOCs were either non-detect or present at very low concentrations at the 32-36 feet bg groundwater interval. Lower level concentrations of VOCs were reported at GW-2, located at the northwest corner of the property. Concentrations of VOCs slightly above the SGVs were noted at GW-6, located at the mid-western portion of the property. No VOCs above the SGVs were reported at the upgradient location (GW-5). The GW-4 location is also coincident with an area of known former discharges. The supply well sample was noted to contain VOC concentrations of the same constituents above their respective SGVs.

An evaluation of the data for the shallow downgradient groundwater samples indicates the origin of the VOCs as the eastern portion of the building, consistent with the soil sampling data. The concentrations increased from southeast to the north-northwest, consistent with localized groundwater flow direction. The intermediate zone (17-21 ft bgs or 19-21 ft bgs) also reported significant detections of elevated VOCs at the northern, downgradient boundary. No deeper groundwater data was available from the source area at the eastern side of the building due to sampling limitations. The deepest zone (32-36 ft bgs and 34-38 ft bgs) of groundwater sampled reported either non-detect or relatively low level detections of the same VOCs, the majority of which were below the NYSDEC SGVs. A clay layer was encountered at a depth of 36+ feet bgs at several locations at the subject property. The clay layer was purposely not penetrated during borings.

4.0 ADJACENT PROPERTIES

4.1 Adjoining Bank Building (HSBC) & Other Properties, along Peninsula Boulevard

Inspection of the adjoining property to the west indicated the presence of several monitoring wells. This property is the HSBC Bank building located at 1315 Peninsula Boulevard, Hewlett, New York. An underground fuel oil storage tank (UST) was reportedly removed with soil and groundwater contamination present. Spill No. 03-06046 was recorded in September 2003; this spill is still listed as active. Another active spill (Spill No. 04-25140) was reported at the Sunoco Station located at 1291 Peninsula Boulevard, Hewlett, New York, directly to the west. (See Appendix A).

5.0 EXPOSURE ASSESSMENT

A qualitative exposure assessment was performed initially as part of the investigation work plan process. As a result of the site investigation, site conditions have now been characterized and the site data can be used to develop a more quantitative exposure assessment. The previously identified exposure pathways were re-evaluated relative to an existing or potentially exposed population with respect to the site characterization sampling data. This analysis was performed for exposed media and an evaluation of the physical conditions of the contaminant sources at or near the study property which may pose an additional health risk to the community.

The site characterization data with quantified concentrations of tetrachloroethene and other VOCs on-property and off-property were evaluated in a three step process. First, an analysis was conducted to confirm potential exposure pathways. Second, concentrations of the chemicals of concern were assigned to the exposure points for each pathway based on the site data. Third, the exposure point concentrations were compared to acceptable regulatory action levels to determine if those concentrations could pose an unacceptable risk to human health and/or the environment.

5.1 Exposure Pathways Analysis

An exposure pathway describes the means by which an individual may be exposed to contaminants originating from a site. An exposure pathway has five elements: (1) a contaminant source; (2) contaminant release and transport mechanisms; (3) a point of exposure; (4) a route of exposure; and (5) a receptor population.

An exposure pathway is complete when all five elements of an exposure pathway are documented; a potential exposure pathway exists when any one or more of the five elements comprising an exposure pathway is not documented. Any exposure pathway may be eliminated from further evaluation when any one of the five elements comprising an

exposure pathway has not existed in the past, does not exist in the present, and will never exist in the future.

Potential exposure pathways for the tetrachloroethene and other chlorinated VOCs identified in the soils and groundwater within the study area were determined to include: 1) inhalation of indoor or outdoor air containing chemicals of concern that volatilized from underlying soils and groundwater; 2) ingestion of groundwater; and 3) discharge of groundwater to surface water with subsequent exposures. Potential receptors for each of these exposure pathways are identified below.

5.1.1 *Soil Contact Exposure Pathways*

The voluntary site investigation identified concentrations of the chemicals of concern in the soils located at the extreme eastern perimeter (exterior) of the building proximate to the LIRR railroad right-of-way. Theses soils reside at or on top of the building footing. Currently this area is accessible only via interior garage doors, which severely limits accessibility and/or exposure by unauthorized parties. The site investigation has determined that the soils require remediation. No other on-site soil VOC source areas were identified during the site investigation.

A two-three inch concrete layer will be poured along the eastern side of the building to temporarily seal impacted shall soils to eliminate the possibility of direct contact with these soils until remediation can occur. Therefore, no direct contact with soils is likely to occur with the exception to remediation workers during remediation. Appropriate health and safety provisions will be undertaken at that time to mitigate possible exposure. Future exposure pathways will be evaluated after remediation is complete and the collection of end point soil data is available. If the building were to be razed, exposure to contaminated soil is possible; however, this circumstance will be modified during remediation and should be re-evaluated at that time.

The transport mechanism of contaminants through soil is gravity drainage near the release source until contact with groundwater. Contaminant transport by advection and diffusion in

groundwater can cause additional soil contamination on and off site. This is limited, however, to a zone of soil in contact with groundwater. As any construction excavation activities undertaken would likely encounter groundwater (4+ feet bgs), soil contact exposure will be a complete pathway under this scenario; however, there are no plans nor the ability for construction or expansion in this area due to the limitations of the proximate LIRR property. Furthermore, these soils will be addressed during soil remediation and/or remediation directed to target groundwater. Therefore, the highest potential for an exposure pathways are those associated with dissolved VOCs in the groundwater and the volatilization of contaminants through the soil.

5.1.2 *Inhalation Exposure Pathways*

For inhalation exposures, potential receptors under current and future conditions include workers, customers and tenants at the site as well as possible occupants of neighboring commercial businesses and residences.

The potential exposure pathway at the site itself is inhalation of indoor and outdoor air by site workers and business customers. As the area of the property known to overlie contaminated groundwater is paved with asphalt in good condition or covered by a building, the outdoor inhalation pathway is not considered to be complete. A concrete poured floor exists interior to the building. The interior of the building is in fair condition and can be further evaluated with respect to maintaining or increasing the integrity of the floor. The area of soil at the eastern perimeter of the building at his time may pose an outdoor inhalation pathway. This would primarily only occur when the garage doors that abut the eastern side of the property are opened temporarily for ventilation. To address this issue a two-three inch concrete cap will be poured to eliminate this exposure pathway until the soil in this area is remediated to conditions that meet the RSCOs. Other forms of increased ventilation will be pursued, if required.

An evaluation of inhalation of indoor air is not feasible given the on-site use of dry cleaning chemicals. Furthermore, whether or not there is a completed soil gas

inhalation exposure pathway interior to the American Drive-in Cleaners property, it is occupied by workers. As cited on page 3 of the United State Environmental Protection Agency (USEPA) OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from groundwater and soils (November 2002), "OSHA and USEPA have agreed that OSHA generally takes the lead role in addressing occupational exposures. Workers generally understand the workplace regulations that already apply for their protection (e.g., hazard communication and monitoring plans). The other nearest off-site receptors are occupants of the adjoining commercial businesses on Peninsula Boulevard and residences located along Waverly Street. BEI is not aware of any indoor air testing data at these properties. In light of the findings of Task 2 -soil gas sampling, a preliminary report was submitted in March 2005 to provide timely information to the NYSDEC and NYSDOH regarding the findings of this task. (See Appendix C).

5.1.3 *Groundwater Ingestion Pathway*

It has been previously determined that potable water is supplied to the area by the Long Island Water Corporation (LIWC) Water Plant #5 from well fields located ½ mile northwest of the site. Due to the number of shallow suction wells (approximately 150 common suction shallow supply wells), the subject property is hydraulically upgradient of the well field. It is known that the well field currently uses treatment to remove VOC's. However, numerous plumes (active spills) inclusive of the Grove Cleaners site (DEC #1 -30-059) are present within the study area. At least ten other dry cleaners have been identified as potentially responsible parties for the Grove Cleaners site and the subject property is located much farther to the west than many of these other properties that may have impacted the well field.

Furthermore, the deeper groundwater quality from the property confirms that only low level VOCs are present and likely migrating off-site The findings indicate that the VOCs are primarily contained in the shallow and intermediate groundwater zones in the Upper Glacial aquifer. Therefore, although the potential exists for this site to impact the well field, the current data is not definitive relative to future impacts to the well field. Therefore, at this time, ingestion of impacted groundwater

originating from the subject property is not considered to be a completed exposure pathway.

5.5.1.4 *Discharge of Groundwater to Surface Water Pathway*

There are several surface water areas located within a one mile radius relative to the study property. These include Motts Creek (closest, to the northwest), Willow Pond, and Georges Creek within a one mile radius. Based upon an evaluation of topographic grade changes, the local surficial and hydraulic drainage pattern is likely into the drainage basin of Motts Creek or Georges Creek, which ultimately discharge to the areas of the south shore bays, and the Atlantic Ocean. The only surface water body observed within a ½ mile radius of the site is Motts Creek to the northwest. The localized groundwater flow direction due to the LI Water Corp. Plant 5 is to the northwest, away from the southerly surface water bodies. However, it can reasonably be assumed that under extreme circumstance that the Plant 5 suction wells would intercept site groundwater long before site groundwater would discharge to Motts Creek. Therefore, discharge of groundwater to surface water pathway is not considered to be a completed exposure pathway.

5.2 Exposure Assessment Summary

An evaluation of inhalation of indoor air is not feasible given the on-site use of dry cleaning chemicals. Furthermore, whether or not there is a completed soil gas inhalation exposure pathway within the American Drive-in Cleaners property, it is occupied by workers wherein OSHA generally takes the lead role in addressing occupational exposures. The other nearest off-site receptors are occupants of the adjoining commercial businesses and residences. It is understood that the NYSDOH may conduct indoor air testing at some of these properties.

The potential exposure pathway at the site itself is inhalation of outdoor air by site workers and business customers. As the area of the property known to overlie contaminated groundwater is paved with asphalt in good condition or covered by a building with a poured concrete floor, the outdoor inhalation pathway is not considered to be complete. The area of contaminated soils at the eastern perimeter of the building may pose an outdoor inhalation

pathway. However, this area cannot be occupied due to its narrowness and inaccessibility. However, due to a potential for volatilization from soil to outdoor air, a concrete layer will be poured to provide a temporary cap until the soil in this area is remediated to conditions that meet the RSCOs. Addtional abatement activities to be performed will include checking on the integrity of the building's foundation and any holes or cracks sealed. Increased air exchange will be created through the use of active and/or passive venting, if required. Future construction will be carefully controlled or prohibited until this exposure pathway is mitigated through additional soil and/or groundwater remediation.

6.0 SUMMARY AND CONCLUSIONS

Tasks 1-4 of the approved Voluntary Investigation Work Plan were performed at The American Drive-In Cleaners of Hewlett, Inc., the Volunteer, under the scrutiny of the New York State Department of Environmental Conservation, Division of Environmental Remediation (DER). This property is located at 1345 Peninsula Boulevard, Hewlett, New York 11557, fully described as Section 038, Block 446, Lot Nos. 61, 63, 70 and 72.

Task 1 (Piezometer Well Installation/Groundwater Flow Calculation), Task 2 (Soil Gas Investigation), Task 3 (Soil Investigation) and Task 4 (Groundwater Investigation) of the approved Voluntary Investigation Work Plan were implemented by Berninger Environmental Inc. (BEI) at the American Drive-In Cleaners of Hewlett, Inc., property during January - February 2005. In order to confirm off-site influences[4] to regional and localized groundwater flow, Task 1 (Piezometer Well Installation/Groundwater Flow Calculation) was completed prior to that date in March 2004.

The primary purpose of the site investigation was to delineate the lateral and vertical extent of contamination (tetrachloroethene and its breakdown products) in all media that may be emanating from the subject property. Additional objectives included the development of site-specific data to allow an evaluation of the actual and potential impacts to public health and the environment; selection and design of remedial action alternatives; and identification of potential feasible cleanup technologies and presumptive remedies.

6.1 Groundwater Flow Direction

Localized groundwater flow direction has been determined to be to the north-northwest, consistent with the regional groundwater flow direction established by the Grove Cleaners Project. Using a regionally established average value for horizontal hydraulic conductivity

[4] A large shallow suction public water supply well field is present to the northwest of the subject property operated by Long Island Water Corporation (LIWC).

and an average porosity, horizontal groundwater flow velocity of 2.34 feet per day was calculated. This calculation is somewhat higher than the average literature regionally-established groundwater flow rates for the Upper Glacial aquifer.

6.2. Soil Gas Sampling Study

High concentrations of Tetrachloroethene (PCE) were noted in soil gas at the eastern portion of the property, in the area of former discharges and elevated soil/groundwater concentrations. One location at the southwestern perimeter also reported elevated concentrations of PCE; the source of PCE in soil gas is unknown. Other than PCE, typical degradation compounds were present such as trichloroethylene (TCE), cis 1,2 - Dichloroethene (1,2-DCE) and Vinyl Chloride (VC). Aromatic compounds were also identified. An open NYSDEC Spill (Spill No. 03-06046) is noted at the adjoining bank building.

6.3 Soil Sampling Study

Analytical testing results for the five soil samples collected along the eastern perimeter of the building reported elevated concentrations of PCE and common degradation products such as 1,2-DCE, VC and TCE. PCE represented the highest proportion of VOCs detected. The soil sample collected at the historic and current dumpster location did not report actionable concentrations of dry cleaning chemicals.

6.4 Groundwater Sampling Study

A total of eight groundwater samples were collected from temporary monitoring wells located at the property perimeters sampled at multiple depths: shallow water table; intermediate (10-15 feet below the water table); and deep (approximately 30 feet below the water table). The collection of deeper groundwater samples along the eastern perimeter of the property was limited due to the inaccessibility. A sample was also collected from the active on-site supply well.

The highest concentrations of PCE and other VOCs were noted in shallow groundwater collected at sampling locations located at the eastern perimeter of the building, in area of former discharges and elevated soil concentrations. Downgradient groundwater samples (north-northwest) also reported elevated concentrations of the same VOCs, with a notable decrease in VOC concentration with increased depth. A clay layer was noted at an approximate depth of 36-38 feet bgs. The supply well was noted to contain VOC concentrations of the same constituents above their respective SGVs. Groundwater sampling indicates that the origin of the VOCs are from the eastern portion of the building, consistent with the soil sampling data.

6.5 Adjacent Properties

Several monitoring wells are present at the rear of the adjoining property, (an HSBC Bank building located at 1315 Peninsula Boulevard, Hewlett, New York) associated with an active NYSDEC Spill (Spill No. 03-06046). Another active spill (Spill No. 04-25140) was reported at the Sunoco Station located at 1291 Peninsula Boulevard, Hewlett, New York.

7.0 SUPPLEMENTAL INVESTIGATION, ACTIVITIES OR REMEDIATION

Based upon the data developed during Tasks 1-4 of the approved Voluntary Investigation Work Plan, BEI has identified supplemental investigatory data needs, required compliance activities and/or the need for remediation:

7.1 Indoor Air Quality

A concrete cap will be placed on top of the shallow impacted soils along the eastern edge of the building until remedial efforts are completed. Supplemental abatement activities to be performed will include checking on the integrity of the building's foundation and any holes or cracks sealed. Increased air exchange will be created through the use of active and/or passive venting, if required. If indoor air testing is required at of-site locations, it is BEI's understanding that it will be performed by the NYSDOH.

7.2 Soil & Groundwater Sampling -Remedial Action Design

Samples will be collected for disposal characterization purposes. A remedial design work plan will be prepared for implementation to address the impacted soils and groundwater at the subject property. This will include any supplemental soil and groundwater sampling and/or pilot studies/testing, if required, relative to the area of the identified soil contamination at the easterly portion of the building, to allow for the design of appropriate remedial measures.

TABLES

Berninger Environmental, Inc.

groundwater consultant and geologists
90-B Knickerbocker Avenue
Bohemia • New York • 11716

Phone: 631 • 589 • 6521
Fax: 631 • 589 • 6528

Table 1 - Soil Boring and Groundwater Sampling Log

Boring/Well No. S-1 to S_6
M.P. Elevation (1):
Project: American Drive-In Cleaners, Hewlett
Date: January 2005
Page: One
Logged By: Jill Haimson, CGWP
Drilling Started: 07:00 Ended: 13:00
Driller: Butch/Pete
Type of Rig: Geoprobe

BORE HOLE DATE
Hole Diameter: 2-inch
Total Depth (2):

SAMPLER
Type: Geoprobe
Hammer:

REMARKS: See attached figures for sampling locations

HNu Response Units, ppm	Sample				Sample Description/Lithology
	No.	Rec. %	Depth (ft) bgs	Color	
<5 ppm	S-1	90	0-2	Orange brown-dark black color	Along eastern perimeter. Organic fill with fine grained silt and fine sand. Same location as GW-1/SG-7.
<15 ppm	S-1	80	2-4	Orange brown	Fine grained silt and fine sand. Groundwater at 3.5-5.5 ft bgs (GW-1).
3 ppm	S-2	75	0-1.5	Dark Black	Historic dumpster location. Organic fill with sand and inter-bedded silt with wood chunks. No staining or odors.
<2 ppm	S-2	90	1.5-4	Orange brown	Silty sand. No staining or odors.
>3,300	S-3	95	0-4	Orange-rust brown	Along eastern perimeter. Fine grained silt and fine sand. Chemical (PERC) odor.
5,100	S-4	100	0-4	Orange-rust brown	Along eastern perimeter. Fine grained silt and fine sand. Same location as GW-7.
<200	S-5	75	0-4	Orange brown	Along eastern perimeter. Fine grained silt and fine sand.
>3000	S-6	100	0-4	Orange brown-dark black	Along eastern perimeter. Saturated fine grained silt and fine sand followed by organic rich dark colored fine sand with silt. Same location as GW-8.
0	SG-1	-	2.5-3	NA	Southwest side of property, in line with residences.
0	SG-2	-	2.5-3	NA	West side of property, in line with residences.
0	SG-3	-	2.-2.5	NA	Adjacent to the bank building; west side of property.

Berninger Environmental, Inc.

groundwater consultant and geologists

90-B Knickerbocker Avenue
Bohemia • New York • 11716

Phone: 631 • 589 • 6521
Fax: 631 • 589 • 6528

0	SG-4	-	2.0-2.5	NA	Northwestern corner of property, same location as GW-2.
0	SG-5	-	2.0-2.5	NA	Middle northern boundary of property; same location as GW-3.
0	SG-6	-	1.0-1.5	NA	Eastern side of the building; same location as GW-1 and S-1.
12	SG-7	-	1.0-1.5	NA	Eastern side of the building; same location as GW-7.
-	GW-1	-	4-6; 19-21; 34-38	clear	Eastern side of the building; same location as SG-6.
-	GW-2	-	4-6; 19-21; 34-38	clear	Northwestern corner of property, same location as SG-4. Clay layer at 38 ft bgs.
-	GW-3	-	4-8; 17-21; 32-36	clear	Middle northern boundary of property; same location as SG-5. Clay layer at 36 ft bgs.
-	GW-4	-	4-8; 17-21; 34-38	clear	Northwestern corner of property, near GP-1. No clay layer noted.
-	GW-5	-	4-8	clear	Upgradient; southeastern corner of property, near GP-3
-	GW-6	-	4-8; 17-21; 34-38	turbid	West side of property, in line with residences.
-	GW-7	-	4-6	turbid	Eastern side of the building.
-	GW-8		4-6	turbid	Southeastern side of the building; same location as S-6.
-	Supply Well	-	60	clear	South-central portion of building, interior. Total depth of well is 60 feet bgs. Supply well pump was on for at least 8 hours.
-	GP-1	-	3-10	NA	Piezometer: Casing Elevation 99.15. DTW: 95.90
-	GP-2	-	3-10	NA	Piezometer: Casing Elevation 99.97. DTW 95.74
-	GP-3	-	3-10	NA	Piezometer: Casing Elevation 100.01. DTW 95.04

Remarks: (1) In feet above mean sea level from measuring point located on top of well casing
(2) All depths in feet below land surface. NA= Not applicable.

TABLE 2 - SUMMARY OF VOLATILE ORGANIC COMPOUNDS DETECTED (TO-15) IN SOIL GAS WITH COMPARISON TO NYSDOH DATABASE FOR OUTDOOR AIR

	American Drive In Cleaners Peninsula Blvd, Hewlett NY																		NYSDOH
	SDG 104803																		Indoor Air
	Berninger Sample ID:		SG-1		SG-2		SG-3		SG-4		SG-5		SG-6		SG-7				Concentrations
	Laboratory ID:		604508		604509		604510		604511		604512		604513		604514				Database
	Sampling Date:		01/11		01/11		01/11		01/11		01/11		01/11		01/11				1989 to 1998
Cas #	Volume Air Analyzed		200ml		200ml		200ml		200ml		200ml		200ml		100ml				
75-71-8												U	0.64		1.3				
76-14-2	Analyte	Units:										U	0.20	U	0.40	U			
74-87-3	Dichlorodifluoromethane	ppbv	0.60		0.60		0.76		0.50	U	0.50	U	0.64		1.2				
75-01-4	1,2-Dichlorotetrafluoroethane	ppbv	0.20	U	0.20	U	0.20	U	0.20	U	0.20		0.20	U	56		<1		
106-99-0	Chloromethane	ppbv	0.50	U	0.50	U	0.57		0.50	U	0.20		0.20	U	0.40	U			
74-83-9	Vinyl Chloride	ppbv	0.20	U	0.58		0.20	U	0.20	U	89	U	0.20	U	0.40	U			
75-00-3	1,3-Butadiene	ppbv	1.0		0.20	U	0.20	U	0.89		4.6	U	0.20	U	0.40	U			
593-60-2	Bromomethane	ppbv	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.40	U			
75-69-4	Chloroethane	ppbv	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.28		0.53				
75-13-1	Bromoethene	ppbv	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.40	U			
75-35-4	Trichlorofluoromethene	ppbv	0.32		0.27		0.28		0.20	U	0.20		0.20	U	1.1		<1		
75-15-0	Freon TF	ppbv	0.20	U	0.20	U	0.20	U	0.20	U	0.20		0.50	U	1.0	U			
107-05-1	1,1-Dichloroethene	ppbv	0.20	U	0.20	U	0.20	U	0.20	U	0.62	U	0.20	U	0.40	U			
75-09-2	Carbon Disulfide	ppbv	0.50		0.50	U	0.50	U	0.96		3.6		0.50	U	1.0	U	<1		
156-60-5	3-Chloropropene	ppbv	0.20	U	0.20	U	0.20	U	0.20	U	0.20		0.20	U	2.2				
110-54-3	Methylene Chloride	ppbv	0.50	U	0.50	U	0.50	U	0.50	U	0.56		0.35		0.50				
75-34-3	trans-1,2-Dichloroethene	ppbv	1.6		0.20	U	0.20	U	0.20	U	18	U	0.20	U	0.40	U	<1		
156-59-2	n-Hexane	ppbv	0.69		0.64		0.30		4.2		1.2		1.1		91		<1		
67-66-3	1,1-Dichloroethane	ppbv	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.40	U	<2.4		
71-55-6	cis-1,2-Dichloroethene	ppbv	33		0.20	U	0.20	U	0.20	U	140	U	0.20	U	0.40	U	<2.0-2.8		
110-82-7	Chloroform	ppbv	1.9		0.20	U	0.20	U	0.20	U	0.20		0.42		0.40	U			
56-23-5	1,1,1-Trichloroethane	ppbv	0.31		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.40	U	<3.1		
540-84-1	Cyclohexane	ppbv	0.20	U	0.20	U	0.20	U	22		0.71		0.20	U	0.40	U			
71-43-2	Carbon Tetrachloride	ppbv	0.20	U	0.20	U	0.20	U	0.20	U	0.20		0.36		0.58		<1.6 - 4.7		
107-08-2	2,2,4-Trimethylpentane	ppbv	0.33		0.34		0.20		0.20	U	0.70	U	0.20	U	0.40	U	<1		
142-82-5	Benzene	ppbv	0.99		0.69		0.51		1.4		1.4		1.3		0.40	U			
79-01-6	1,2-Dichloroethane	ppbv	0.20	U	0.20	U	0.20	U	0.20	U	0.20		0.25		65		<1.7		
78-87-5	n-Heptane	ppbv	0.50		0.77		0.20	U	39		1.2	U	0.20	U	0.40	U	<1		
75-27-4	Trichloroethene	ppbv	110		0.20	U	0.20	U	0.20	U	0.61	U	0.20	U	0.40	U	<5.0		
10061-01-5	1,2-Dichloropropane	ppbv	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.40	U			
108-88-3	Bromodichloromethane	ppbv	0.20	U	0.20	U	0.20	U	0.20	U	0.20		18		1.5		1.0 - 6.1		
10061-02-6	cis-1,3-Dichloropropene	ppbv	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.40	U			
79-00-5	Toluene	ppbv	8.0		4.3		1.2		100	J	0.95	U	0.20	U	0.40	U	<1		
127-18-4	trans-1,3-Dichloropropene	ppbv	0.20	U	0.20	U	0.20	U	0.20	U	0.20		6.3		330		<3.7		
124-48-1	1,1,2-Trichloroethane	ppbv	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.40	U	<5.0		
106-93-4	Tetrachloroethene	ppbv	1000		0.31		0.20	U	3.0		1.7	U	0.20	U	0.40	U			
108-90-7	Dibromochloromethane	ppbv	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.40	U	<2		

TABLE 2 - SUMMARY OF VOLATILE ORGANIC COMPOUNDS DETECTED (TO-15) IN SOIL GAS WITH COMPARISON TO NYSDOH DATABASE FOR OUTDOOR AIR

Cas #	American Drive In Cleaners Peninsula Blvd, Hewlett NY SDG 104803 Berninger Sample ID: Laboratory ID: Sampling Date: Volume Air Analyzed		SG-1 604508 01/11 200ml	SG-2 604509 01/11 200ml	SG-3 604510 01/11 200ml	SG-4 604511 01/11 200ml	SG-5 604512 01/11 200ml	SG-6 604513 01/11 200ml	SG-7 604514 01/11 100ml	NYSDOH Indoor Air Concentrations Database 1989 to 1998
100-41-4	1,2-Dibromoethane	ppbv	0.20 U	0.20 U	0.20 U	0.20 U	0.20	0.34	0.40	<4.3
1330-20-7	Chlorobenzene	ppbv	0.20 U	0.20 U	0.20 U	0.20 U	0.20	1.1	1.3	<4.3
95-47-6	Ethylbenzene	ppbv	1.9	0.28	0.25	0.54	1.4	0.37	0.43	<4.3
100-42-5	Xylene (m,p)	ppbv	7.6	0.84	0.85	1.6	4.8	0.20 U	0.40 U	<1
75-25-2	Xylene (o)	ppbv	2.3	0.28	0.25	0.48	1.5 U	0.20 U	0.40 U	<1
79-34-5	Styrene	ppbv	0.20 U	0.20 U	0.20 U	0.20 U	0.22 U	0.20 U	0.40 U	<1.5
622-96-8	Bromoform	ppbv	0.20 U	0.20 U	0.20 U	0.20 U	0.20	0.33	0.50	<1
106-67-8	1,1,2,2-Tetrachloroethane	ppbv	0.20 U	0.20 U	0.20 U	0.20 U	0.20	0.20 U	0.40 U	<1
95-49-8	4-Ethyltoluene	ppbv	2.6	0.25	0.26	0.32	1.1 U	0.20 U	0.40 U	<2
95-63-6	1,3,5-Trimethylbenzene	ppbv	0.45	0.20 U	0.20 U	0.20 U	0.23	0.35	0.54	
541-73-1	2-Chlorotoluene	ppbv	0.20 U	0.20 U	0.20 U	0.20 U	0.20	0.20 U	0.40 U	<2
108-46-7	1,2,4-Trimethylbenzene	ppbv	2.4	0.23	0.26	0.32	1.0 U	0.20 U	0.40 U	
95-50-1	1,3-Dichlorobenzene	ppbv	0.20 U	0.20 U	0.20 U	0.45	0.36 U	0.20 U	0.40 U	
120-82-1	1,4-Dichlorobenzene	ppbv	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.50 U	1.0 U	
87-68-3	1,2-Dichlorobenzene	ppbv	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.40 U	
	1,2,4-Trichlorobenzene	ppbv	0.50 U	0.50 U	0.50 U	0.50 U	0.50	32.1	554	
	Hexachlorobutadiene	ppbv	0.20 U	0.20 U	0.20 U	0.20 U	0.20			
	Total VOC Concentration (ppbv)		1177	10.2	5.5	175	275			

TABLE 2 - SUMMARY OF VOLATILE ORGANIC COMPOUNDS DETECTED (TO-15) IN SOIL GAS WITH COMPARISON TO NYSDOH DATABASE FOR OUTDOOR AIR

	American Drive in Cleaners Peninsula Blvd, Hewlett NY														
	SDG 104803														
	Berninger Sample ID:		SG-1		SG-2		SG-3		SG-4		SG-5		SG-6		SG-7		NYSDOH
	Laboratory ID:		604508		604509		604510		604511		604512		604513		604514		Indoor Air
	Sampling Date:		01/11		01/11		01/11		01/11		01/11		01/11		01/11		Concentrations
	Volume Air Analyzed		200ml		200ml		200ml		200ml		200ml		200ml		100ml		Database
																	1989 to 1996
Cas #	Analyte	Units:															
75-71-8	Dichlorodifluoromethane	ug/m3	2.1		2.1		2.7		1.0	U	1.0	U	2.3		4.8		
76-14-2	1,2-Dichlorotetrafluoroethane	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	
74-87-3	Chloromethane	ug/m3	2.5	U	2.5	U	1.2	J	2.5	U	2.5	U	1.3		2.5		
75-01-4	Vinyl Chloride	ug/m3	1.0	U	1.6		1.0	U	1.0	U	230		1.0	U	145		<1
106-99-0	1,3-Butadiene	ug/m3	2.3		1.0	U	1.0	U	2.0		10.4		1.0	U	2.0	U	
74-83-9	Bromomethane	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	
75-00-3	Chloroethane	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	
593-60-2	Bromoethene	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	
75-69-4	Trichlorofluoromethane	ug/m3	1.3		1.1		1.2		1.0	U	1.0	U	1.2		2.2		
76-13-1	Freon TF	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	
75-35-4	1,1-Dichloroethene	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	2.5		1.0	U	4.4		<3.4
75-15-0	Carbon Disulfide	ug/m3	1.6		2.5	U	2.5	U	3.0		11.4		2.5	U	5.0	U	
107-05-1	3-Chloropropene	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	
75-09-2	Methylene Chloride	ug/m3	2.5	U	2.5	U	2.5	U	2.5	U	1.1		2.5	U	5.0	U	<1
156-60-5	trans-1,2-Dichloroethene	ug/m3	4.1		1.0	U	1.0	U	1.0	U	45.6		1.0	U	5.6		
110-54-3	n-Hexane	ug/m3	1.8		1.5		0.7	J	10.2		2.9		0.8	J	1.2	J	
75-34-3	1,1-Dichloroethane	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	<1
156-59-2	cis-1,2-Dichloroethene	ug/m3	83.9		1.0	U	1.0	U	1.0	U	355.8		2.8		231.3		<1
67-66-3	Chloroform	ug/m3	6.6		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	<2.4
71-55-6	1,1,1-Trichloroethane	ug/m3	4.4		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	<2.0-2.8
110-82-7	Cyclohexane	ug/m3	1.0	U	1.0	U	1.0	U	77.0		2.5		1.5		2.0	U	
56-23-5	Carbon Tetrachloride	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	<3.1
540-84-1	2,2,4-Trimethylpentane	ug/m3	0.8	J	0.8	J	0.5	J	1.0	U	1.7		1.0	U	2.0	U	
71-43-2	Benzene	ug/m3	3.2		2.2		1.7		4.6		4.6		1.2		1.9	J	<1.6 - 4.7
107-06-2	1,2-Dichloroethane	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	<1
142-82-5	n-Heptane	ug/m3	0.9	J	1.4		1.0	U	69.9		2.2		2.3		2.0	U	
79-01-6	Trichloroethene	ug/m3	435.4		1.0	U	1.0	U	1.0	U	2.4		1.0		267.3		<1.7
78-87-5	1,2-Dichloropropane	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	<1
75-27-4	Bromodichloromethane	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	<5.0
10061-01-5	cis-1,3-Dichloropropene	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	
108-88-3	Toluene	ug/m3	30.7		16.5		4.6		383.3		3.6		69.0		5.8		1.0 - 6.1
10061-02-6	trans-1,3-Dichloropropene	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	
79-00-5	1,1,2-Trichloroethane	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	<1

TABLE 2 - SUMMARY OF VOLATILE ORGANIC COMPOUNDS DETECTED (TO-15) IN SOIL GAS WITH COMPARISON TO NYSDOH DATABASE FOR OUTDOOR AIR

	American Drive In Cleaners Peninsula Blvd, Hewlett NY																			
	SDG 104803																			
	Berninger Sample ID:		SG-1		SG-2		SG-3		SG-4		SG-5		SG-6		SG-7		NYSDOH			
	Laboratory ID:		604508		604509		604510		604511		604512		604513		604514		Indoor Air			
127-18-4	Tetrachloroethene	ug/m3	6917		2.1		1.0	U	20.6		11.6		43.6		2282.0		<3.7			
124-48-1	Dibromochloromethane	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	<5.0			
106-93-4	1,2-Dibromoethane	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U				
108-90-7	Chlorobenzene	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	<2			
100-41-4	Ethylbenzene	ug/m3	7.2		1.0		0.9	J	2.0		5.3		1.3		1.5	J	<4.3			
1330-20-7	Xylene (m,p)	ug/m3	33.8		2.6		2.9		7.1		21.2		4.9		5.7		<4.3			
95-47-6	Xylene (o)	ug/m3	10.2		1.2		1.1		2.1		6.6		1.6		1.9	J	<4.3			
100-42-5	Styrene	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0		1.0	U	2.0	U	<1			
75-25-2	Bromoform	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	<1			
79-34-5	1,1,2,2-Tetrachloroethane	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	<1.5			
622-96-8	4-Ethyltoluene	ug/m3	11.4		1.1		1.1		1.4		4.6		1.4		2.2		<1			
108-67-8	1,3,5-Trimethylbenzene	ug/m3	2.0		1.0	U	1.0	U	1.0	U	1.0		1.0	U	2.0	U	<1			
95-49-8	2-Chlorotoluene	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U				
95-63-6	1,2,4-Trimethylbenzene	ug/m3	10.6		1.0		1.1		1.4		4.4		1.5		2.4		<1			
541-73-1	1,3-Dichlorobenzene	ug/m3	1.0	U	1.0	U	1.0	U	2.7		2.2		1.0	U	2.0	U	<2			
106-46-7	1,4-Dichlorobenzene	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U				
95-50-1	1,2-Dichlorobenzene	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U				
120-82-1	1,2,4-Trichlorobenzene	ug/m3	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	5.0	U				
87-68-3	Hexachlorobutadiene	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U				
	Total VOC Concentration (ug/m3)		7571		36.3		19.7		687.5		735.2		137.7		2956					
Note:	NYSDOH Database for Background Concer																			

TABLE 3 - SUMMARY OF VOLATILE ORGANIC COMPOUNDS DETECTED AND/OR ELEVATED ABOVE NYSDEC SOIL CLEANUP OBJECTIVES

American Drive-In Cleaners, 1345 Peninsula Blvd, Hewlett, New York SDG BER011, BER014 Berninger Sample ID: Laboratory ID: Sampling Date: % Moisture units: ug/kg (dry wt)	S-1 0-2 ft. 0501306-001A 01/12 15.5	S-2 0-1.5 ft. 0501306-002A 01/12 5.1	S-3 0-4 ft. 0501688-001A 01/31 19.8	S-4 0-4 ft. 0501688-002A 01/31 29.9	S-5 0-4 ft. 0501688-003A 01/31 22.2	S-6 0-4 ft. 0501688-004A 01/31 36.9	NYSDEC TAGM RECOMMENDED SOIL CLEANUP OBJECTIVES
Analyte							
Chloromethane	12 U	11 U	7800 U	8900 U	4000 U	9900 U	NA
Bromomethane	12 U	11 U	7800 U	8900 U	4000 U	9900 U	NA
Vinyl Chloride	3 J	7 J	7800 U	8900 U	4000 U	9900 U	200
Chloroethane	12 U	11 U	7800 U	8900 U	4000 U	9900 U	1,900
Methylene Chloride	**12 U**	**11 U**	7800 U	8900 U	4000 U	9900 U	100
Acetone	**8 J**	**6 J**	7800 U	8900 U	4000 U	9900 U	200
Carbon Disulfide	12 U	11 U	7800 U	8900 U	4000 U	9900 U	2,700
1,1-Dichloroethene	12 U	11 U	7800 U	8900 U	4000 U	9900 U	400
1,1-Dichloroethane	12 U	11 U	7800 U	8900 U	4000 U	9900 U	200
1,2-Dichloroethene (total)	97	28	7800 U	**8800 J**	**42000**	**110000**	**300**
2-Butanone	12 U	11 U	7800 U	8900 U	4000 U	9900 U	300
Chloroform	12 U	11 U	7800 U	8900 U	4000 U	9900 U	300
1,2-Dichloroethane	12 U	11 U	7800 U	8900 U	4000 U	9900 U	100
1,1,1-Trichloroethane	12 U	11 U	7800 U	8900 U	4000 U	9900 U	800
Carbon Tetrachloride	12 U	11 U	7800 U	8900 U	4000 U	9900 U	600
Bromodichloromethane	12 U	11 U	7800 U	8900 U	4000 U	9900 U	NA
1,2-Dichloropropane	12 U	11 U	7800 U	8900 U	4000 U	9900 U	NA
cis-1,3-Dichloropropene	12 U	11 U	7800 U	8900 U	4000 U	9900 U	NA
Trichloroethene	3 J	11 U	**56000**	**24000**	**17000**	**170000**	**700**
Benzene	12 U	11 U	7800 U	8900 U	4000 U	9900 U	60
Dibromochloromethane	12 U	11 U	7800 U	8900 U	4000 U	9900 U	300
trans-1,3-Dichloropropene	12 U	11 U	7800 U	8900 U	4000 U	9900 U	NA
1,1,2-Trichloroethane	12 U	11 U	7800 U	8900 U	4000 U	9900 U	NA
Bromoform	12 U	11 U	7800 U	8900 U	4000 U	9900 U	NA
4-Methyl-2-Pentanone	12 U	11 U	7800 U	8900 U	4000 U	9900 U	1,000
2-Hexanone	12 U	11 U	7800 U	8900 U	4000 U	9900 U	NA
Tetrachloroethene	9 J	3 J	**7000000 J**	**1300000**	**51000 J**	**1800000**	**1,400**
1,1,2,2-Tetrachloroethane	12 U	11 U	7800 U	8900 U	4000 U	9900 U	600
Toluene	12 U	11 U	7800 U	8900 U	4000 U	9900 U	1,500
Chlorobenzene	12 U	11 U	7800 U	8900 U	4000 U	9900 U	1,700
Ethylbenzene	12 U	11 U	7800 U	8900 U	4000 U	9900 U	5,500
Styrene	12 U	11 U	7800 U	8900 U	4000 U	9900 U	1,200
Xylene (total)	12 U	11 U	7800 U	8900 U	4000 U	9900 U	NA
TOTAL VOCS	**120**	**44**	**7056000**	**1332800**	**110000**	**2080000**	**10,000**
TOTAL TENTATIVELY IDENTIFIED CMPDS	**15 J**	**ND**	**ND**	**ND**	**10300**	**160600**	

NA=Not Applicable
ND=None Detected

TABLE 4 - SUMMARY OF VOLATILE ORGANIC COMPOUNDS DETECTED AND/OR ELEVATED ABOVE NYSDEC CLASS GA AMBIENT WATER QUALITY STANDARDS

American Drive-In Cleaners, 1345 Peninsula Blvd, Hewlett, New York
SDG BER012, BER013

Berninger Sample ID:	GW-1 3.5-5.5 ft.		GW-2 4-8 ft.		GW-2 19-21 ft.		GW-2 34-38 ft.		GW-3 4-8 ft.		GW-3 17-21 ft.		NYSDEC CLASS GA
Laboratory ID:	0501306-001A		0501306-002A		0501306-003A		0501306-004A		0501306-005A		0501306-006A		AMBIENT WATER
Sampling Date:	01/12		01/12		01/12		01/12		01/12		01/12		QUALITY STANDARDS
% Moisture	NA		NA		NA		NA		NA		NA		GUIDANCE VALUES
units: ug/L													units: ug/L
Analyte													
Chloromethane	5	U	5	U	5	U	5	U	5	U	5	U	NA
Bromomethane	5	U	5	U	5	U	5	U	5	U	5	U	5
Vinyl Chloride	**84**		5	U	**150**	**J**	5	U	**570**	**J**	**32**		2
Chloroethane	5	U	5	U	5	U	5	U	5	U	5	U	50
Methylene Chloride	5	U	5	U	5	U	5	U	5	U	5	U	5
Acetone	5	U	5	U	5	U	5	U	5	U	5	U	50
Carbon Disulfide	5	U	5	U	5	U	5	U	5	U	5	U	50
1,1-Dichloroethene	3	J	5	U	3	J	5	U	**16**		**85**		5
1,1-Dichloroethane	5	U	5	U	5	U	5	U	5	U	5	U	5
1,2-Dichloroethene (total)	**900**		5	U	**1100**		5	U	**6700**		**950**		5
2-Butanone	5	U	5	U	5	U	5	U	5	U	5	U	50
Chloroform	5	U	5	U	5	U	5	U	5	U	5	U	7
1,2-Dichloroethane	5	U	5	U	5	U	5	U	5	U	5	U	5
1,1,1-Trichloroethane	5	U	5	U	5	U	5	U	5	U	5	U	5
Carbon Tetrachloride	5	U	5	U	5	U	5	U	5	U	5	U	5
Bromodichloromethane	5	U	5	U	5	U	5	U	5	U	5	U	50
1,2-Dichloropropane	5	U	5	U	5	U	5	U	5	U	5	U	1
cis-1,3-Dichloropropene	5	U	5	U	5	U	5	U	5	U	5	U	5
Trichloroethene	2	J	5	U	**92**		5	U	**1400**		**11000**		5
Benzene	5	U	5	U	8		5	U	5	U	5	U	0.7
Dibromochloromethane	5	U	5	U	5	U	5	U	5	U	5	U	NA
trans-1,3-Dichloropropene	5	U	5	U	5	U	5	U	5	U	5	U	NA
1,1,2-Trichloroethane	5	U	5	U	5	U	5	U	5	U	5	U	5
Bromoform	5	U	5	U	5	U	5	U	5	U	5	U	50
4-Methyl-2-Pentanone	5	U	5	U	5	U	5	U	5	U	5	U	50
2-Hexanone	5	U	5	U	5	U	5	U	5	U	5	U	50
Tetrachloroethene	3	J	5	U	2	J	5	U	**1900**		**3800**		5
1,1,2,2-Tetrachloroethane	5	U	5	U	5	U	5	U	5	U	5	U	5
Toluene	5	U	5	U	**7**		5	U	2	J	5	U	5
Chlorobenzene	5	U	5	U	5	U	5	U	5	U	5	U	5
Ethylbenzene	5	U	5	U	4	J	5	U	5	U	5	U	5
Styrene	5	U	5	U	1	J	5	U	5	U	5	U	5
Xylene (total)	5	U	5	U	**6**		5	U	5	U	5	U	5
TOTAL VOCS	**1748**		**0**		**1367**		**0**		**10588**		**15867**		
TOTAL TENTATIVELY IDENTIFIED CMPDS	**ND**		**7**	**J**	**711**	**J**	**ND**		**ND**		**ND**		**NA = Not Applicable**

ND=None Detected

TABLE 4 - SUMMARY OF VOLATILE ORGANIC COMPOUNDS DETECTED AND/OR ELEVATED ABOVE NYSDEC CLASS GA AMBIENT WATER QUALITY STANDARDS

American Drive-In Cleaners, 1345 Peninsula Blvd, Hewlett, New York SDG BER012, BER013							
Beringer Sample ID:	GW-3 32-36 ft.	GW-4 4-8 ft.	GW-4 17-21 ft.	GW-4 34-38 ft.	GW-5 4-8 ft.	GW-6 4-8 ft.	NYSDEC CLASS GA
Laboratory ID:	0501306-007A	0501306-008A	0501306-009A	0501306-010A	0501306-011A	0501306-012A	AMBIENT WATER
Sampling Date:	01/12	01/12	01/12	01/12	01/12	01/12	QUALITY STANDARDS
% Moisture	NA	NA	NA	NA	NA	NA	GUIDANCE VALUES
units: ug/L							units: ug/L
Analyte							
Chloromethane	5 U	5 U	5 U	5 U	5 U	5 U	NA
Bromomethane	5 U	5 U	5 U	5 U	5 U	5 U	5
Vinyl Chloride	5 U	67	13	5 U	5 U	5 U	2
Chloroethane	5 U	5 U	5 U	5 U	5 U	5 U	50
Methylene Chloride	5 U	5 U	5 U	5 U	5 U	5 U	5
Acetone	5 U	5 U	8 J	5 U	5 U	7 J	50
Carbon Disulfide	5 U	5 U	5 U	5 U	5 U	5 U	50
1,1-Dichloroethene	5 U	5 U	21	5 U	5 U	5 U	5
1,1-Dichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5
1,2-Dichloroethene (total)	5 U	230	1500	2 J	1 J	20	5
2-Butanone	5 U	5 U	4 J	5 U	5 U	5 U	50
Chloroform	5 U	5 U	5 U	5 U	5 U	5 U	7
1,2-Dichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5
1,1,1-Trichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5
Carbon Tetrachloride	5 U	5 U	5 U	5 U	5 U	5 U	5
Bromodichloromethane	5 U	5 U	5 U	5 U	5 U	5 U	50
1,2-Dichloropropane	5 U	5 U	5 U	5 U	5 U	5 U	1
cis-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	5 U	5
Trichloroethene	5 U	81	8000	8	2 J	3 J	5
Benzene	5 U	5 U	5 U	5 U	5 U	5 U	0.7
Dibromochloromethane	5 U	5 U	5 U	5 U	5 U	5 U	NA
trans-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	5 U	NA
1,1,2-Trichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5
Bromoform	5 U	5 U	5 U	5 U	5 U	5 U	50
4-Methyl-2-Pentanone	5 U	5 U	5 U	5 U	5 U	5 U	50
2-Hexanone	5 U	5 U	5 U	5 U	5 U	5 U	50
Tetrachloroethene	5 U	210	10000	9	4 J	16	5
1,1,2,2-Tetrachloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5
Toluene	5 U	5 U	5 U	5 U	5 U	5 U	5
Chlorobenzene	5 U	5 U	5 U	5 U	5 U	5 U	5
Ethylbenzene	5 U	5 U	5 U	5 U	5 U	5 U	5
Styrene	5 U	5 U	5 U	5 U	5 U	5 U	5
Xylene (total)	5 U	5 U	5 U	5 U	5 U	5 U	5
TOTAL VOCS	0	588	19546	19	7	46	
TOTAL TENTATIVELY IDENTIFIED CMPDS	ND	ND	ND	ND	ND	ND	NA = Not Applicable

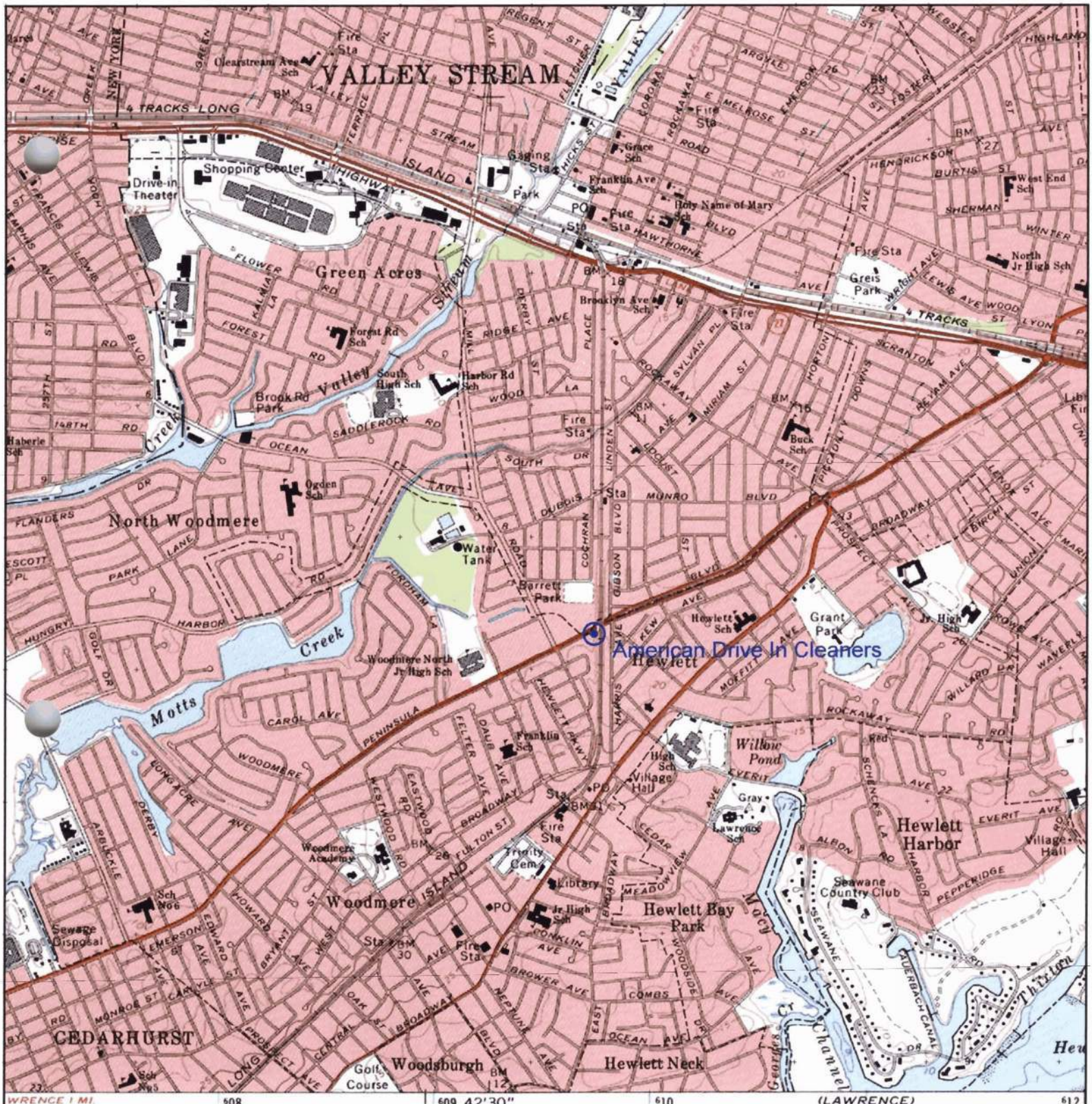
ND=None Detected

TABLE 4 - SUMMARY OF VOLATILE ORGANIC COMPOUNDS DETECTED AND/OR ELEVATED ABOVE NYSDEC CLASS GA AMBIENT WATER QUALITY STANDARDS

American Drive-In Cleaners, 1345 Peninsula Blvd, Hewlett, New York SDG BER012, BER013						
Berninger Sample ID:	GW-6 17-21 ft.	GW-6 34-38 ft.	Supply Well	GW-7 4-6 ft.	GW-8 4-6 ft.	NYSDEC CLASS GA
Laboratory ID:	0501306-013A	0501306-014A	0501306-015A	0501686-001A	0501686-002A	AMBIENT WATER
Sampling Date:	01/12	01/12	01/12	01/31	01/31	QUALITY STANDARDS
% Moisture	NA	NA	NA	NA	NA	GUIDANCE VALUES
units: ug/L						units: ug/L
Analyte						
Chloromethane	5 U	5 U	5 U	5 U	5 U	NA
Bromomethane	5 U	5 U	5 U	5 U	5 U	5
Vinyl Chloride	5 U	5 U	1 J	**1400 J**	**960 J**	2
Chloroethane	5 U	5 U	5 U	5 U	5 U	50
Methylene Chloride	5 U	5 U	5 U	5 U	5 U	5
Acetone	5 U	5 U	5 U	5 U	5 U	50
Carbon Disulfide	5 U	5 U	5 U	5 U	5 U	50
1,1-Dichloroethene	5 U	5 U	5 U	**68**	**46**	5
1,1-Dichloroethane	5 U	5 U	5 U	5 U	5 U	5
1,2-Dichloroethene (total)	5 U	5 U	**36**	**100000**	**100000**	5
2-Butanone	5 U	5 U	5 U	5 U	5 U	50
Chloroform	5 U	5 U	5 U	5 U	5 U	7
1,2-Dichloroethane	5 U	5 U	5 U	5 U	5 U	5
1,1,1-Trichloroethane	5 U	5 U	5 U	5 U	5 U	5
Carbon Tetrachloride	5 U	5 U	5 U	5 U	5 U	5
Bromodichloromethane	5 U	5 U	5 U	5 U	5 U	50
1,2-Dichloropropane	5 U	5 U	5 U	5 U	5 U	1
cis-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	5
Trichloroethene	3 J	5 U	**11**	**46000**	**13000**	5
Benzene	5 U	5 U	5 U	5 U	5 U	0.7
Dibromochloromethane	5 U	5 U	5 U	5 U	5 U	NA
trans-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	NA
1,1,2-Trichloroethane	5 U	5 U	5 U	5 U	5 U	5
Bromoform	5 U	5 U	5 U	5 U	5 U	50
4-Methyl-2-Pentanone	5 U	5 U	5 U	5 U	5 U	50
2-Hexanone	5 U	5 U	5 U	5 U	5 U	50
Tetrachloroethene	**280**	3 J	**95**	**290000 J**	**38000 J**	5
1,1,2,2-Tetrachloroethane	5 U	5 U	5 U	5 U	5 U	5
Toluene	5 U	5 U	5 U	**7**	2 J	5
Chlorobenzene	5 U	5 U	5 U	5 U	5 U	5
Ethylbenzene	5 U	5 U	5 U	**9**	2 J	5
Styrene	5 U	5 U	5 U	5 U	5 U	5
Xylene (total)	5 U	5 U	5 U	**10**	**8**	5
TOTAL VOCS	**283**	**3**	**143**	**437494**	**152018**	
TOTAL TENTATIVELY IDENTIFIED CMPDS	**ND**	**ND**	**ND**	**101 J**	**252 J**	**NA = Not Applicable**

ND=None Detected

FIGURES



the Geological Survey
County
s from aerial photographs
1954
m USC&GS Charts 542 (1969)
not intended for navigational

<Default> - 1 Markers, Length = 0 feet

American Drive In Cleaners - 040° 38' 39.2" N, 073° 42' 09.3" W

Name: LYNBROOK
Date: 6/6/105
Scale: 1 inch equals 2000 feet

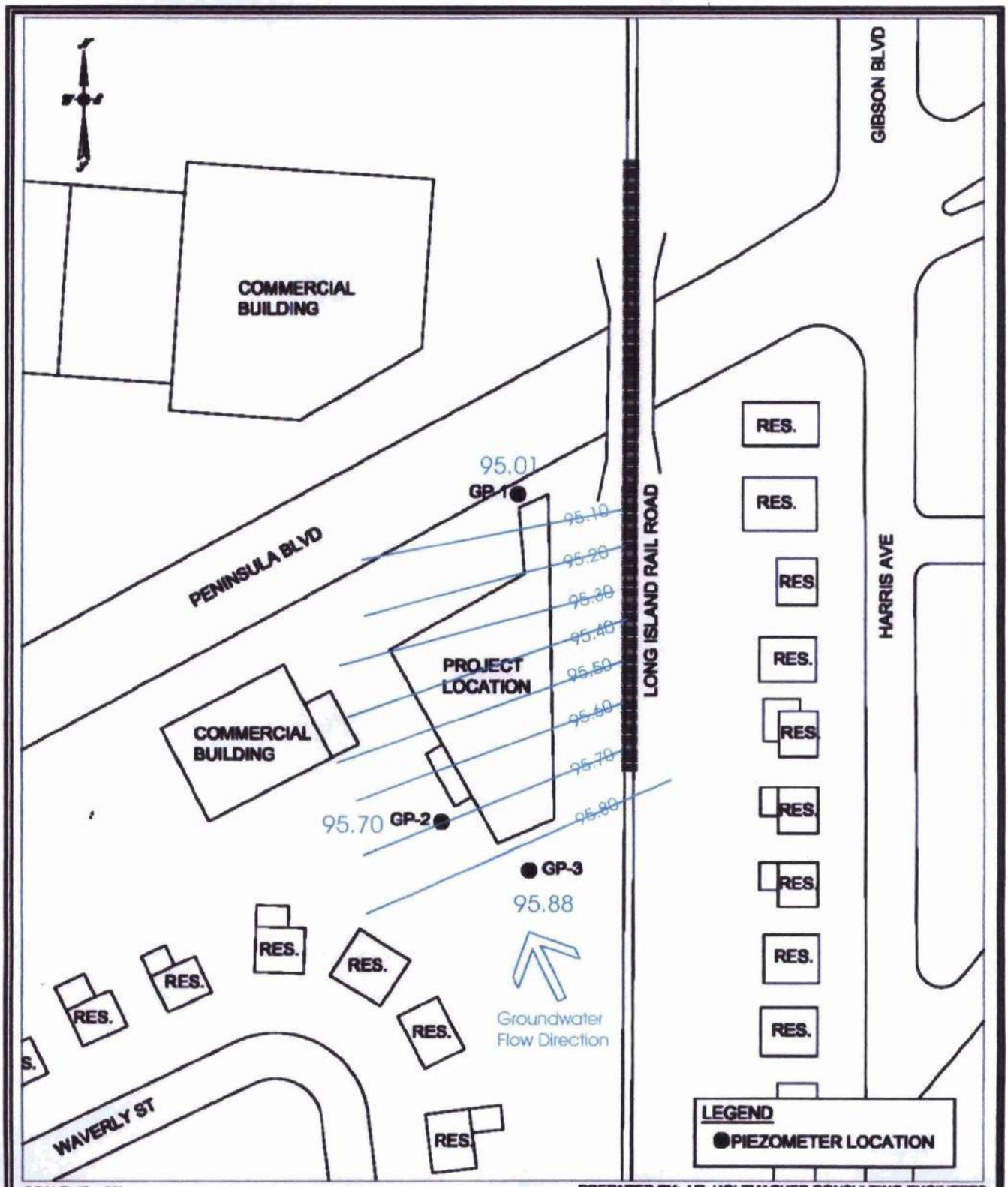
Location: 040° 38' 37.2" N 073° 42' 19.4" W
Caption: American Drive In Cleaners of Hewlett
Figure 1 - Site Location

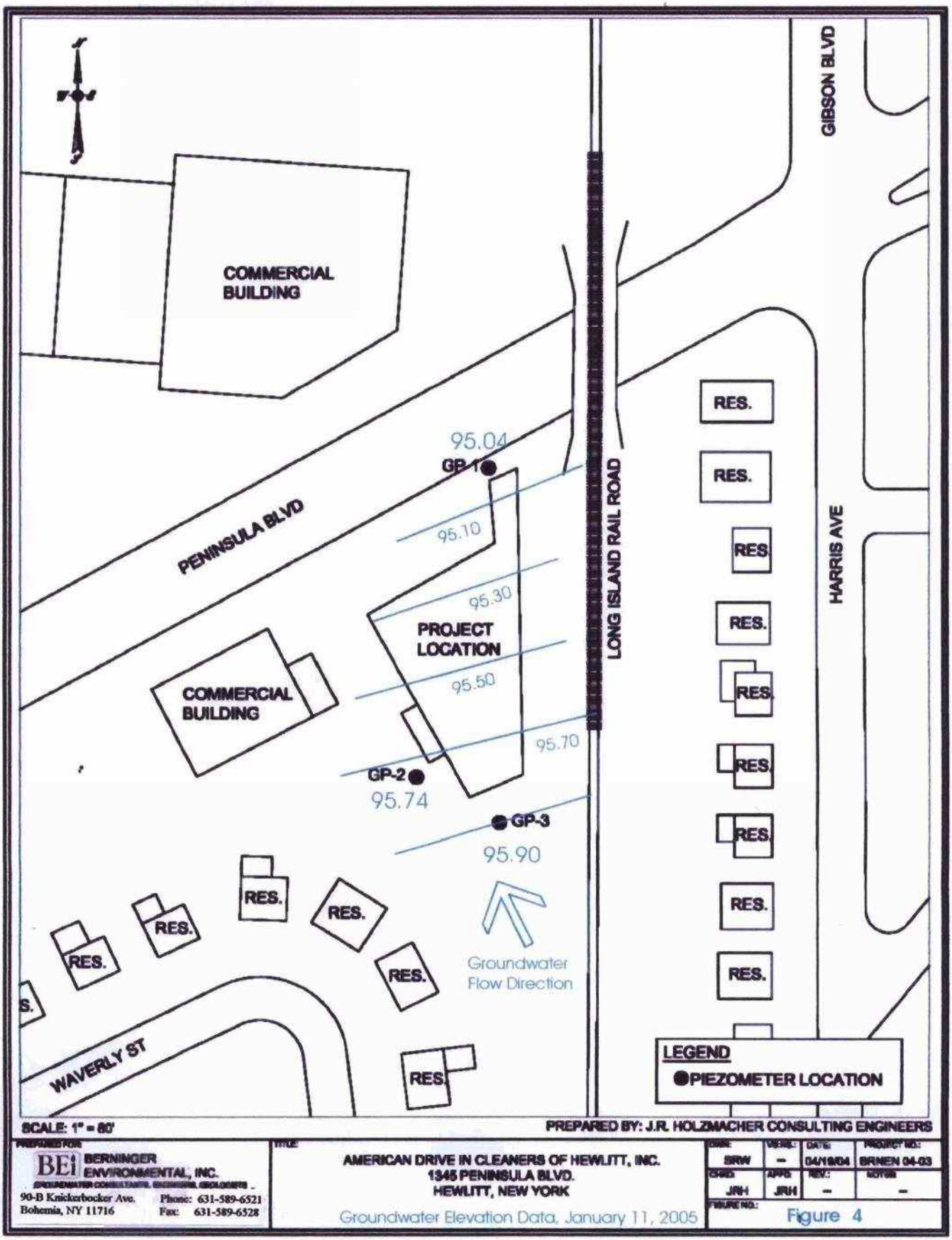
Copyright (C) 1997, Maptech, Inc.



No scale

Figure 2 -Aerial Photograph of Study Property & Surround


COMMERCIAL BUILDING
PENINSULA BLVD
95.01
GP-1
95.10
95.20
95.30
95.40
95.50
95.60
95.70
95.80
PROJECT LOCATION
COMMERCIAL BUILDING
95.70 GP-2
GP-3
95.88
Groundwater Flow Direction
LONG ISLAND RAIL ROAD
GIBSON BLVD
HARRIS AVE
RES.
WAVERLY ST
LEGEND
PIEZOMETER LOCATION
SCALE: 1" = 80'
PREPARED BY: J.R. HOLZMACHER CONSULTING ENGINEERS
PREPARED FOR:
BEI BERNINGER ENVIRONMENTAL, INC.
90-B Knickerbocker Ave.
Bohemia, NY 11716
Phone: 631-589-6521
Fax: 631-589-6528
TITLE:
AMERICAN DRIVE IN CLEANERS OF HEWLITT, INC.
1345 PENINSULA BLVD.
HEWLITT, NEW YORK
Groundwater Elevation Data, Spring 2004
DRW: SRW
VISIBLE: –
DATE: 04/19/04
PROJECT NO.: BRNEN 04-03
CHKD: JRH
APPD: JRH
REV.: –
–
FIGURE NO.: Figure 3

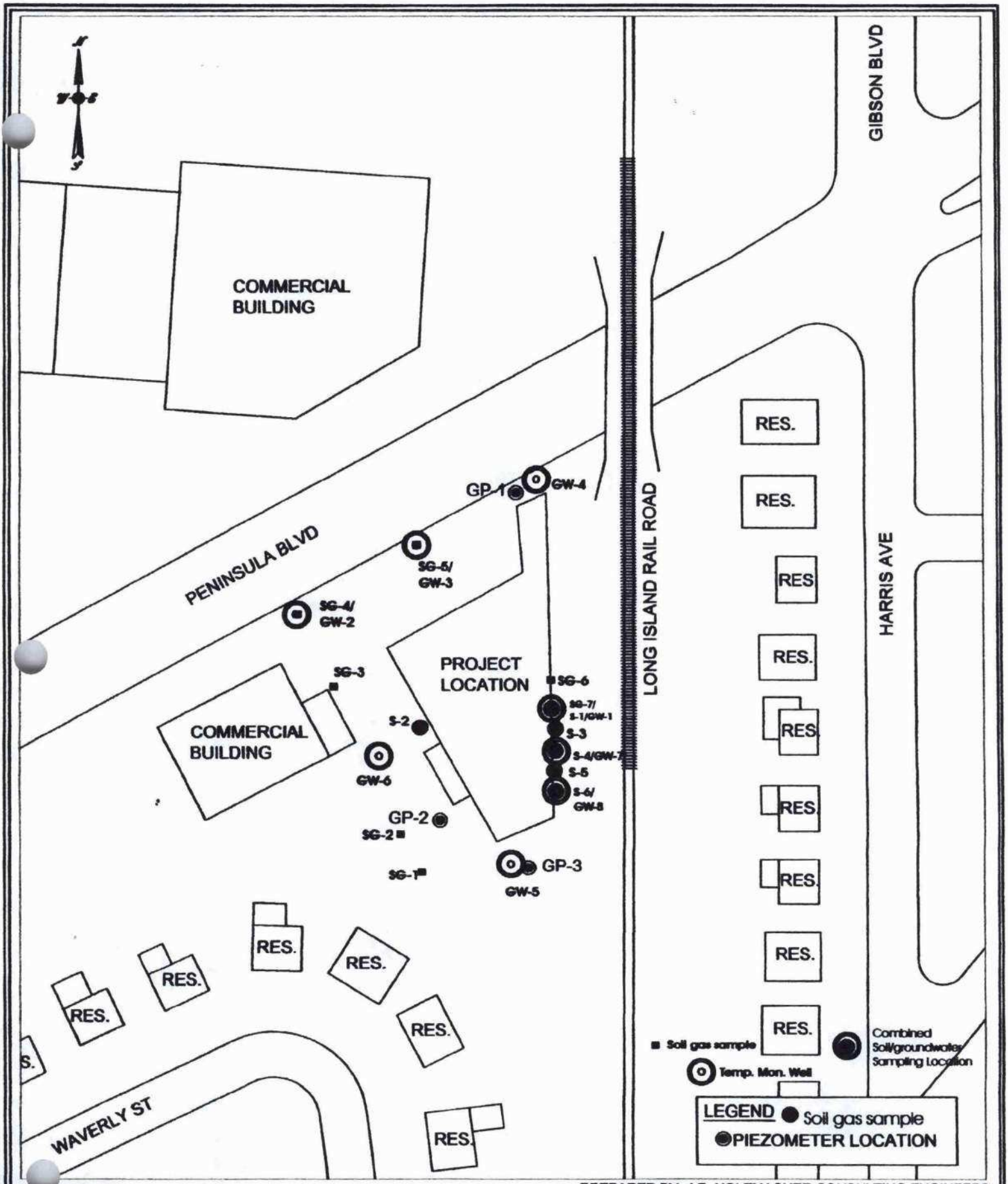


PREPARED FOR: BERNINGER ENVIRONMENTAL, INC.
GROUNDWATER CONSULTANTS, ENGINEERS, GEOLOGISTS
90-B Knickerbocker Ave. Phone: 631-589-6521
Bohemia, NY 11716 Fax: 631-589-6528

TITLE:
AMERICAN DRIVE IN CLEANERS OF HEWLITT, INC.
1345 PENINSULA BLVD.
HEWLITT, NEW YORK
Groundwater Elevation Data, January 11, 2005

DWN:	VER.:	DATE:	PROJECT NO.:
SRW	–	04/19/04	BRNEN 04-03
CHKD:	APP'D:	REV.:	NOTES:
JRH	JRH	–	–

FIGURE NO.: Figure 4



SCALE: 1" = 80'

PREPARED BY: J.R. HOLZMACHER CONSULTING ENGINEERS

PREPARED FOR:
BEI BERNINGER ENVIRONMENTAL, INC.
GROUNDWATER CONSULTANTS, ENGINEERS, GEOLOGISTS
90-B Knickerbocker Ave. Phone: 631-589-6521
Bohemia, NY 11716 Fax: 631-589-6528

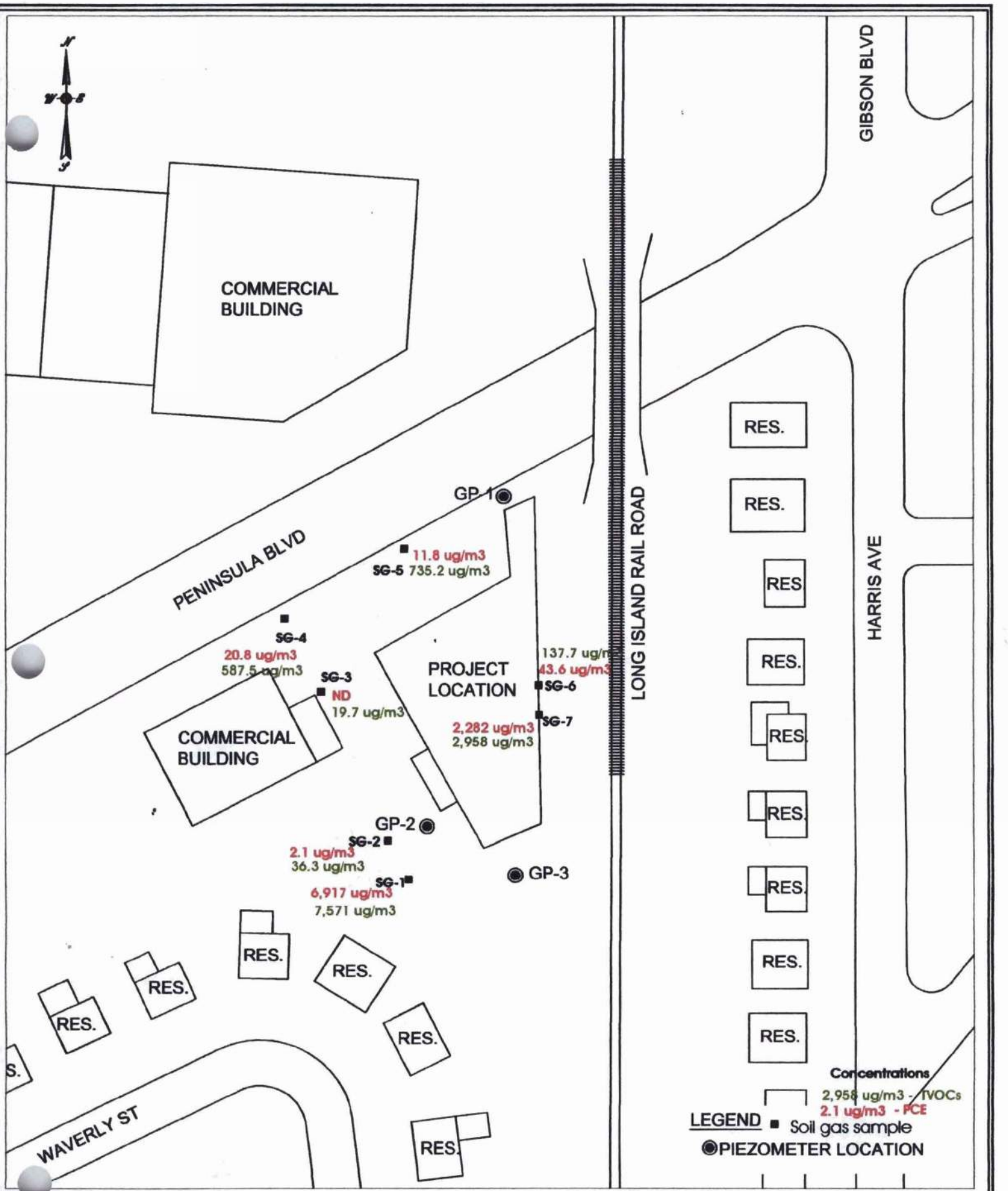
TITLE:

AMERICAN DRIVE IN CLEANERS OF HEWLITT, INC.
1345 PENINSULA BLVD.
HEWLITT, NEW YORK

SITE PLAN WITH SAMPLING LOCATIONS

DWN:	VSJHS.:	DATE:	PROJECT NO.:
SRW	–	04/19/04	BRNEN 04-03
CHKD:	APPD:	REV.:	NOTES:
JRH	JRH	–	–

FIGURE NO.: Figure 5



SCALE: 1" = 80'

PREPARED BY: J.R. HOLZMACHER CONSULTING ENGINEERS

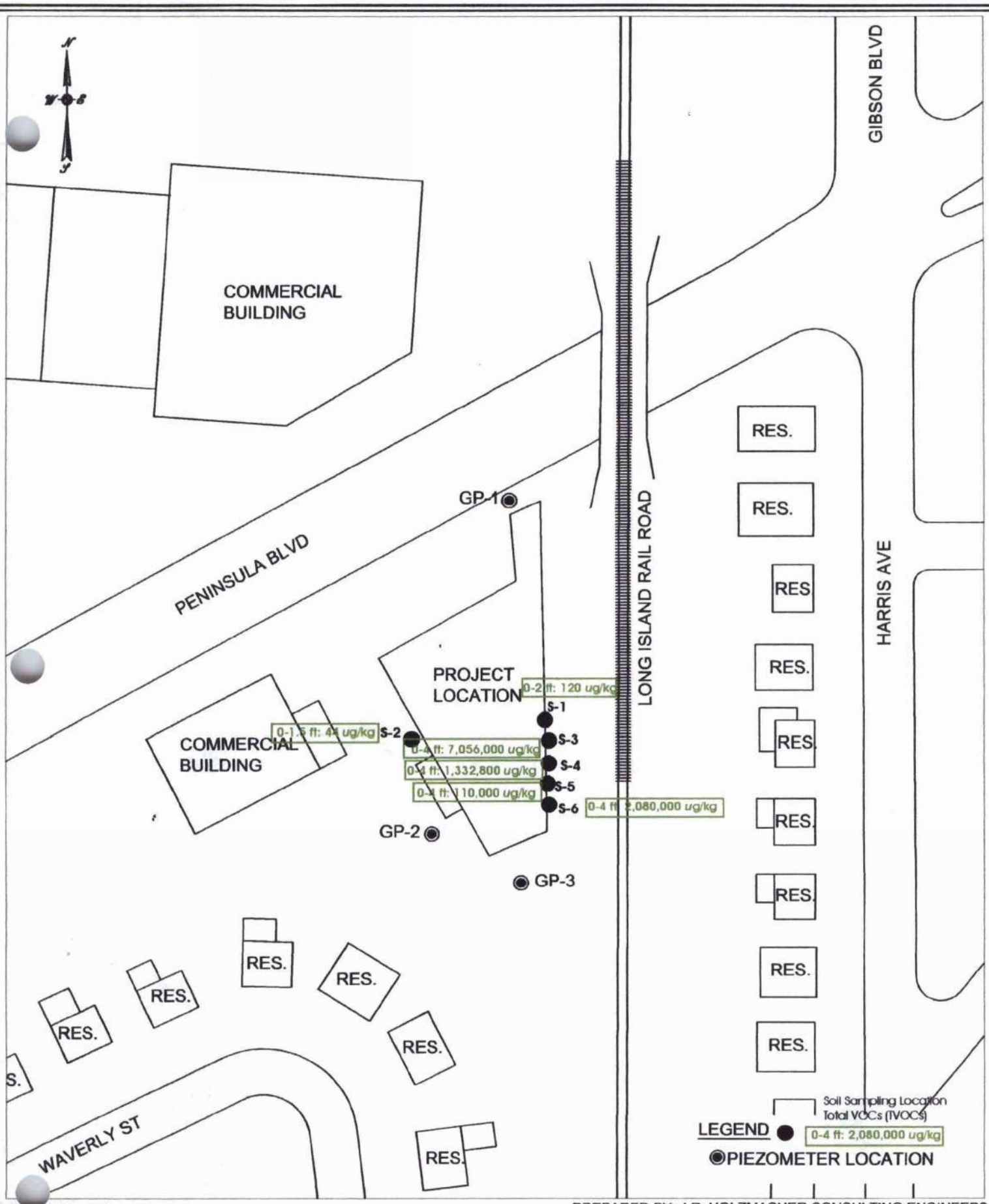
PREPARED FOR:
BEI BERNINGER ENVIRONMENTAL, INC.
GROUNDWATER CONSULTANTS, ENGINEERS, GEOLOGISTS
90-B Knickerbocker Ave. Phone: 631-589-6521
Bohemia, NY 11716 Fax: 631-589-6528

TITLE:

AMERICAN DRIVE IN CLEANERS OF HEWLITT, INC.
1345 PENINSULA BLVD.
HEWLITT, NEW YORK
Location Map of Soil Gas Samples, Tetrachloroethylene (PCE) & Total VOC Concentations (ug/m3) Jan. 2005

DWN:	VS:HS.:	DATE:	PROJECT NO.:
SRW	–	04/19/04	BRNEN 04-03
CHKD:	APPD:	REV.:	NOTES:
JRH	JRH	–	–

FIGURE NO.:
Figure 6



SCALE: 1" = 80'

PREPARED BY: J.R. HOLZMACHER CONSULTING ENGINEERS

PREPARED FOR:

BEI BERNINGER ENVIRONMENTAL, INC.
GROUNDWATER CONSULTANTS, ENGINEERS, GEOLOGISTS

90-B Knickerbocker Ave.
Bohemia, NY 11716

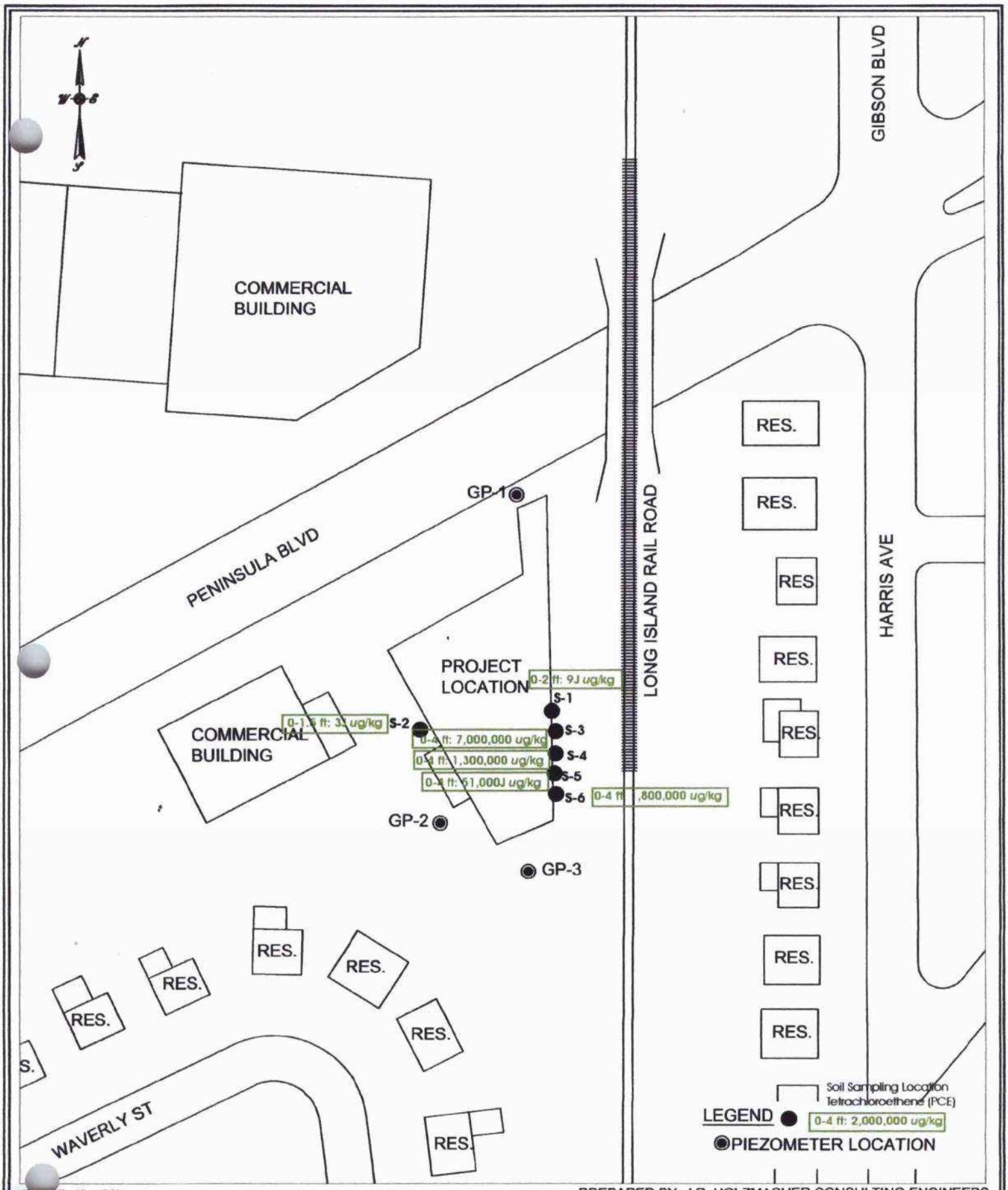
Phone: 631-589-6521
Fax: 631-589-6528

TITLE:

AMERICAN DRIVE IN CLEANERS OF HEWLITT, INC.
1345 PENINSULA BLVD.
HEWLITT, NEW YORK
LOCATION MAP OF SOIL SAMPLING & TESTING RESULTS FOR TVOCS
January 2005

DWN:	VS:HS.:	DATE:	PROJECT NO.:
SRW	–	04/19/04	BRNEN 04-03
CHKD:	APPD:	REV.:	NOTES:
JRH	JRH	–	–

FIGURE NO.: Figure 7a



SCALE: 1" = 80'

PREPARED BY: J.R. HOLZMACHER CONSULTING ENGINEERS

PREPARED FOR:

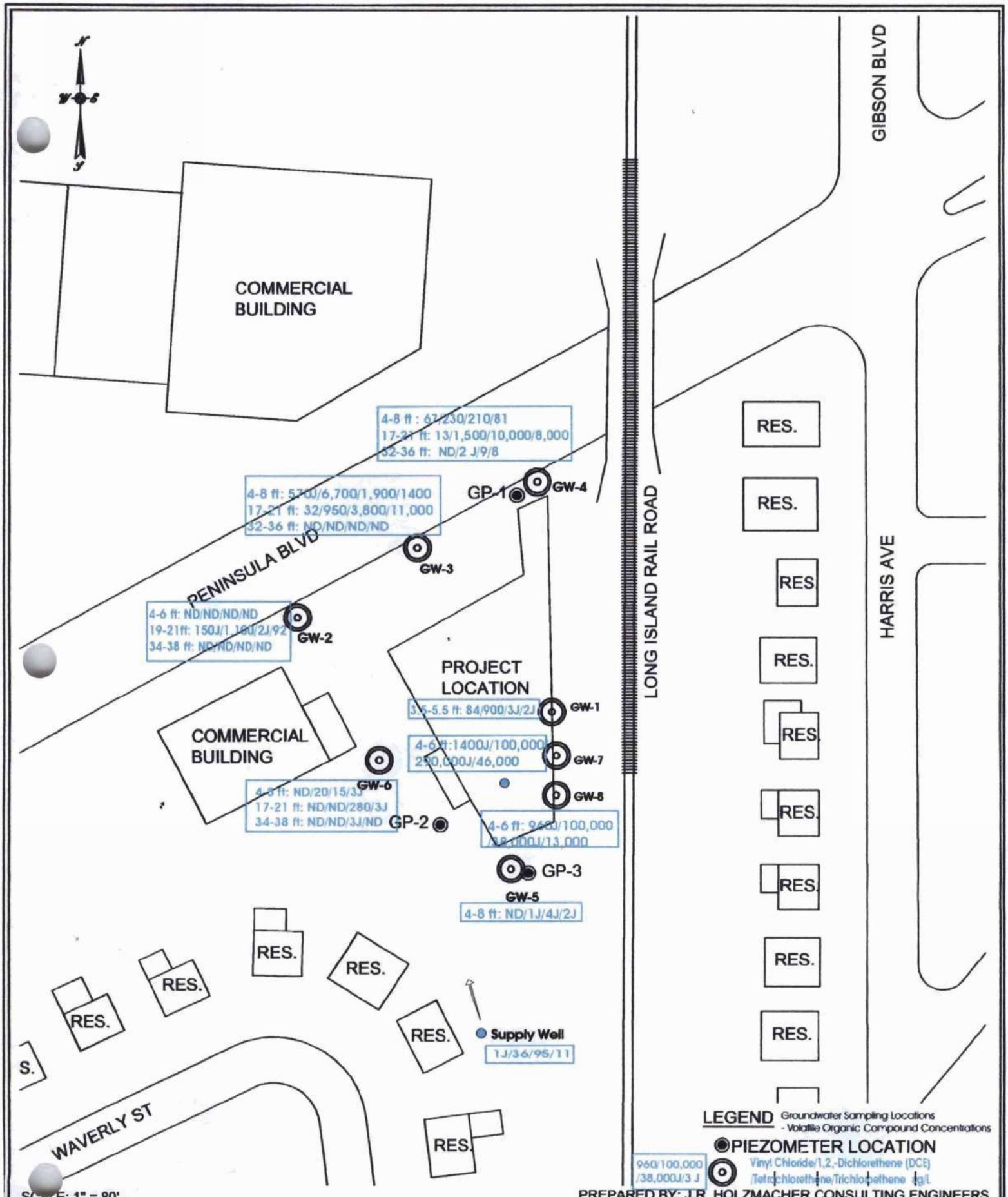
BEI BERNINGER ENVIRONMENTAL, INC.
GROUNDWATER CONSULTANTS, ENGINEERS, GEOLOGISTS
90-B Knickerbocker Ave. Phone: 631-589-6521
Bohemia, NY 11716 Fax: 631-589-6528

TITLE:

AMERICAN DRIVE IN CLEANERS OF HEWLITT, INC.
1345 PENINSULA BLVD.
HEWLITT, NEW YORK
LOCATION MAP OF SOIL SAMPLING & TESTING RESULTS FOR PCE
January 2005

DWN:	VS:HS.:	DATE:	PROJECT NO.:
SRW	–	04/19/04	BRNEN 04-03
CHKD:	APPD:	REV.:	NOTES:
JRH	JRH	–	–

FIGURE NO.: Figure 7b



PREPARED FOR:

BEI BERNINGER ENVIRONMENTAL, INC.
GROUNDWATER CONSULTANTS, ENGINEERS, GEOLOGISTS

90-B Knickerbocker Ave. Phone: 631-589-6521
Bohemia, NY 11716 Fax: 631-589-6528

TITLE:

AMERICAN DRIVE IN CLEANERS OF HEWLITT, INC.
1345 PENINSULA BLVD.
HEWLITT, NEW YORK

LOCATION MAP OF GROUNDWATER SAMPLING DATA - Jan. 2005

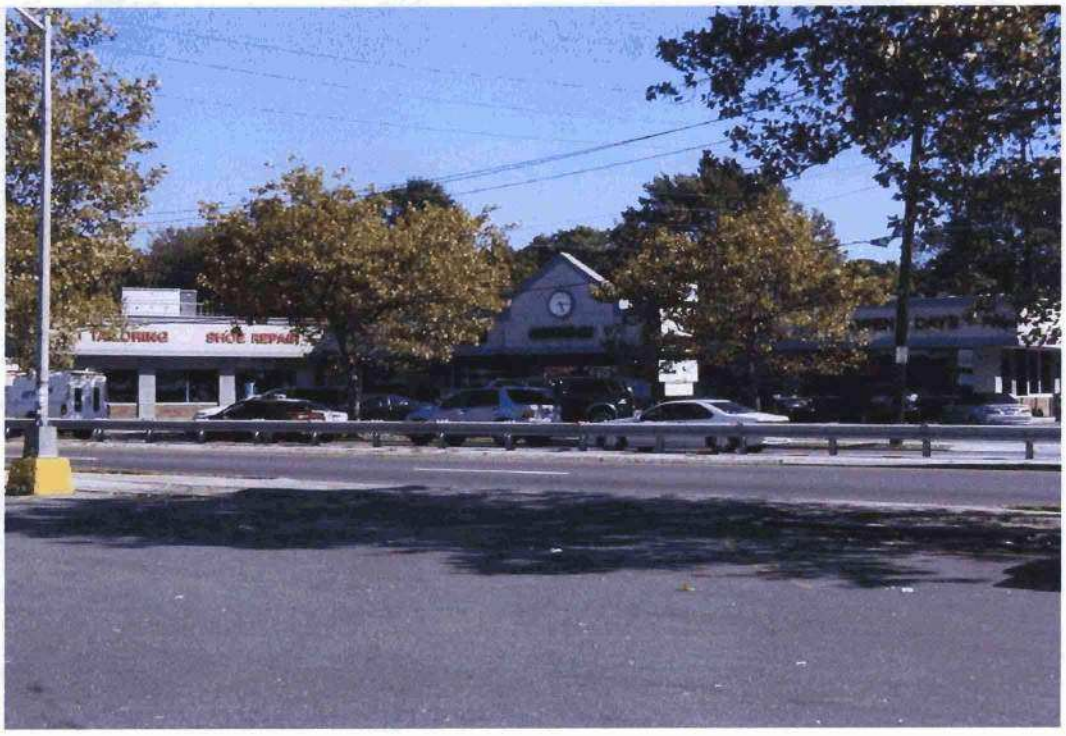
DWN:	VS:HS.:	DATE:	PROJECT NO.:
SRW	–	04/19/04	BRNEN 04-03
CHKD:	APPD:	REV.:	NOTES:
JRH	JRH	–	–

FIGURE NO.: Figure 8

LIST OF APPENDICES

APPENDIX A

Photographic Log



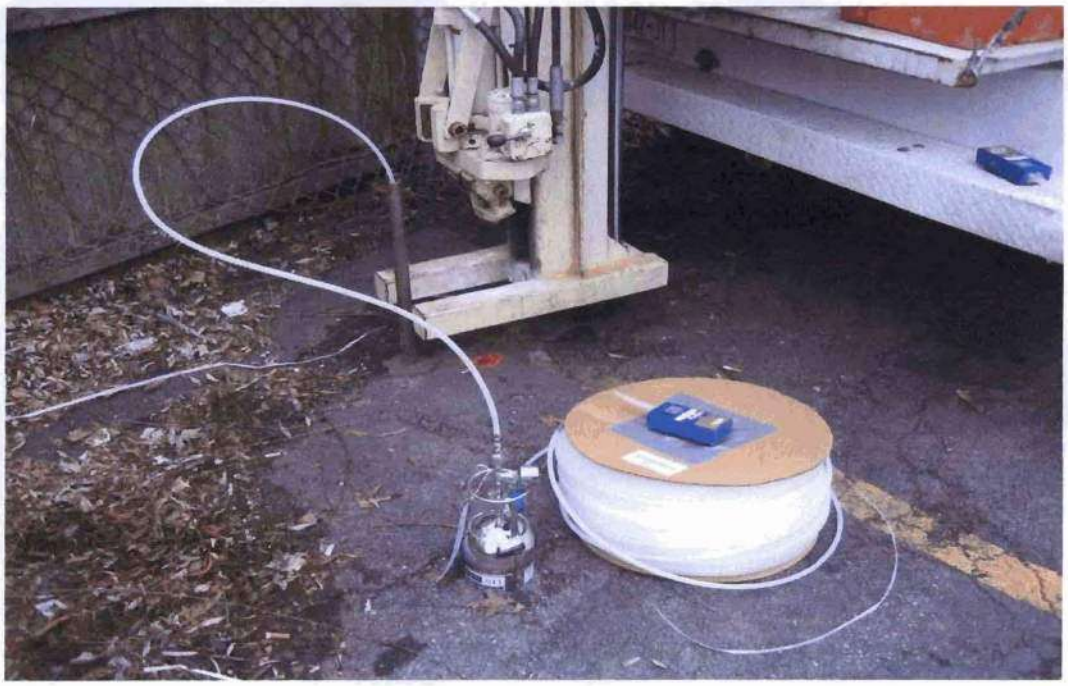
Photograph No. 1 - Front of American Drive-In Cleaners of Hewlett, Inc. located at the south side of Peninsula Boulevard, Hewlett, New York.



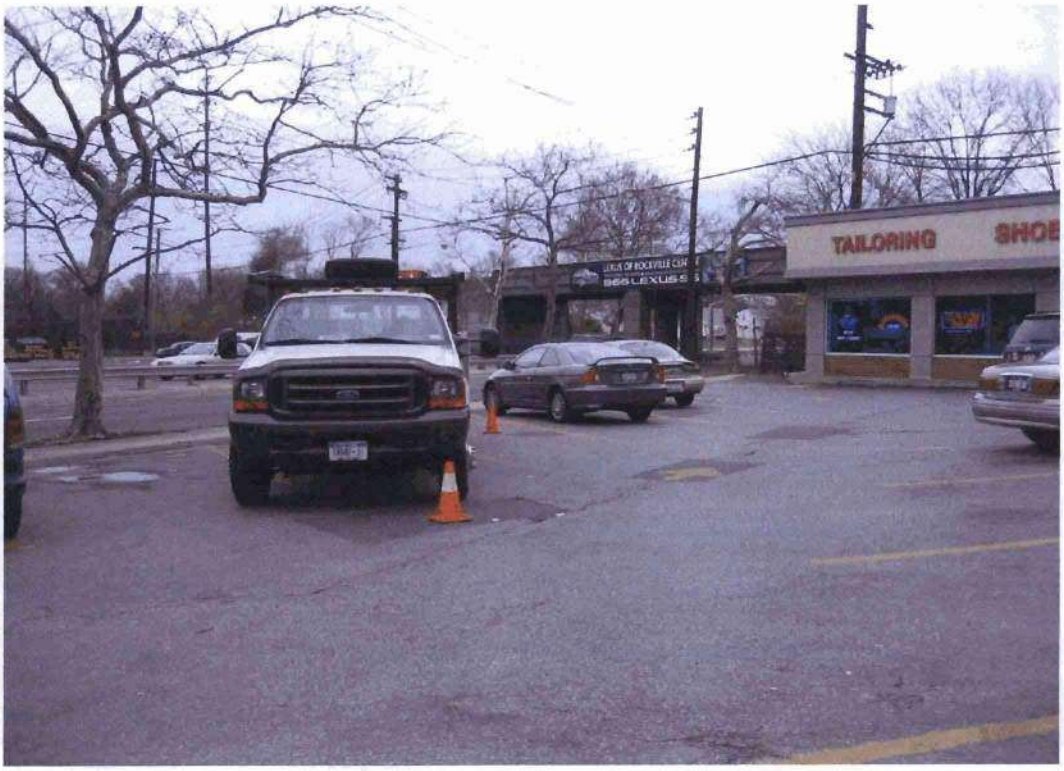
Photograph No. 2 - Close-up of the front of American Drive-In Cleaners of Hewlett, Inc.



Photograph No. 3 - Installation of soil gas sampling points with PRT tubing at property perimeters.



Photograph No. 4 - Close-up of soil gas sampling point with PRT tubing at property perimeters.



Photograph No. 5 - Installation of temporary monitoring wells via Geoprobe at northern property boundary.



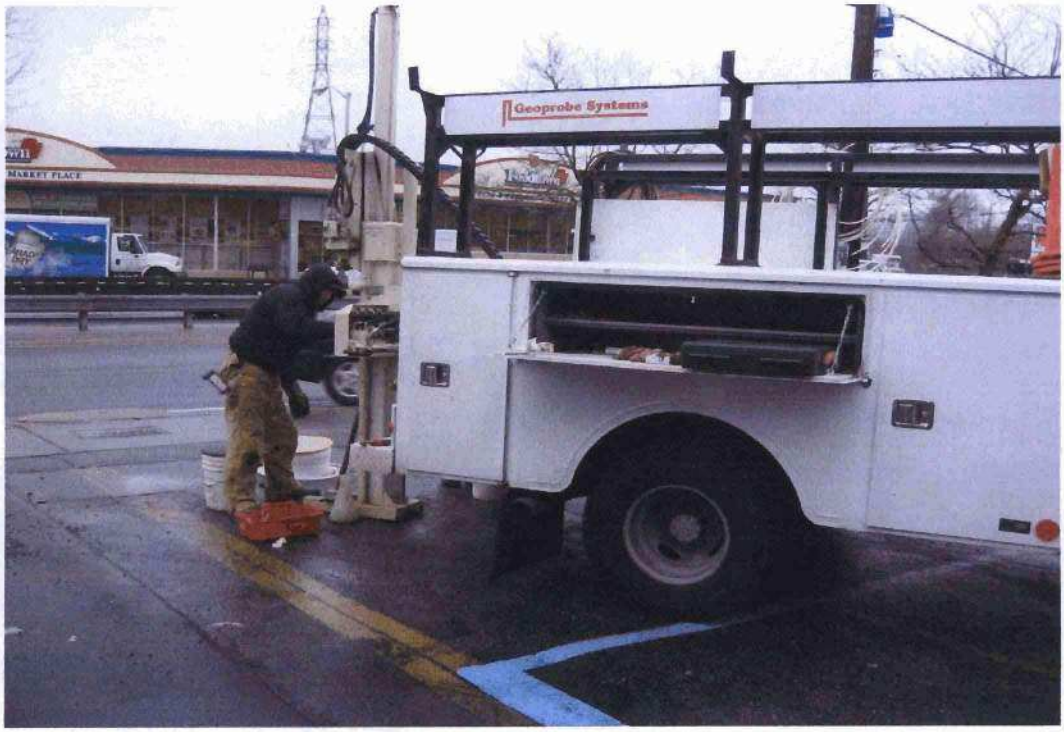
Photograph No. 6 - Installation of soil gas sampling points with PRT tubing at eastern property perimeter.



Photograph No. 7 - Installation of soil borings via manual Geoprobe slam bar along narrow eastern property perimeter, parallel to LIRR tracks.



Photograph No. 8 - Measurement and flagging of sampling locations at the eastern property perimeter.



Photograph No. 9 - Installation of temporary monitoring wells via Geoprobe at northern property boundary.



Photograph No. 10 - Installation of temporary monitoring wells via Geoprobe at southeastern property boundary.

APPENDIX B

Data Validation Reports and Sample Data Summary Package

L.A.B. Validation Corp. 14 West Point Drive, East Northport, N.Y. 11731

DATA VALIDATION REPORT

ORGANIC ANALYSES

NYSDEC ASP 10/95 SW846 METHOD 8260B
VOLATILES BY GC/MS

For Groundwater and Soil Samples Collected
January 12, 2005 and January 31, 2005
From 1345 Peninsula Boulevard, Hewlett, New York
American Drive-In Cleaners
Berninger Environmental

SAMPLE DELIVERY GROUP NUMBER: BER011, BER012, BER013, BER014
H2M LABS, INC.

SUBMITTED TO:

Mr. Walter Berninger/President
Berninger Environmental
1615 Ninth Avenue
Bohemia, New York 11716

March 13, 2005

PREPARED BY:

Lori A. Beyer/President
L.A.B. Validation Corp.
14 West Point Drive
East Northport, NY 11731

American Drive-In Cleaners –1345 Peninsula Boulevard, Hewlett, New York.
Data Validation Report: Volatile Organics

Table of Contents:

Introduction
Data Qualifier Definitions
Sample Receipt

1.0 Volatile Organics by GC/MS SW846 Method 8260B
- 1.1 Holding Time
- 1.2 System Monitoring Compound (Surrogate) Recovery
- 1.3 Matrix Spikes (MS), Matrix Spike Duplicates (MSD), Matrix Spike Blank (MSB)
- 1.4 Laboratory Control Sample
- 1.5 Blank Contamination
- 1.6 GC/MS Instrument Performance Check
- 1.7 Initial and Continuing Calibrations
- 1.8 Internal Standards
- 1.9 Target Compound List Identification
- 1.10 Tentatively Identified Compounds (TICs)
- 1.11 Compound Quantification and Reported Detection Limits
- 1.12 Overall System Performance

APPENDICES:

A. Data Summary Tables with Qualifications
B. Tentatively Identified Components (VOA GC/MS)
C. Chain of Custody Documents
D. SDG Narrative

Introduction:

A validation was performed on six (6) soil and seventeen (17) groundwater samples and the associated quality control samples (Field Blanks, Trip Blanks and MS/MSDs) for Volatile Organic analysis collected by Berninger Environmental and submitted to H2M LABS, Inc. for subsequent analysis under chain of custody documentation. This report contains the laboratory and validation results for the twenty-three (23) samples itemized below. The samples were collected on January 12, 2005 and January 31, 2005.

The samples were analyzed by H2M LABS, Inc., utilizing SW846 Method 8260B and in accordance with NYSDEC Analytical Services Protocol (10/95) and submitted under NYSDEC ASP Category B equivalent deliverable requirements for the associated analytical methodology employed. The analytical testing consisted of the Target Compound List (TCL) of analytes for Volatile Organics.

The data was evaluated in accordance with the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (Publication 9240.1-05) and in conjunction with the analytical methodology for which the samples were analyzed, where applicable and relevant.

The data validation report pertains to the following field soil/groundwater and quality control samples:

Sample Identification	Laboratory Identification	Sample Matrix	Collection Date
S-1 0-2 ft.	0501305-001	Soil	01/12/05
S-2 0-1.5 ft. (plus MS/MSD)	0501305-002	Soil	01/12/05
S-3 0-4 ft.	0501688-001	Soil	01/31/05
S-4 0-4 ft. (plus MS/MSD)	0501688-002	Soil	01/31/05
S-5 0-4 ft.	0501688-003	Soil	01/31/05
S-6 0-4 ft.	0501688-004	Soil	01/31/05
GW-1 3.5-5.5 ft.	0501306-001	Aqueous	01/12/05
GW-2 4-6 ft.	0501306-002	Aqueous	01/12/05
GW-3 19-21 ft.	0501306-003	Aqueous	01/12/05
GW-2 34-38 ft.	0501306-004	Aqueous	01/12/05
GW-3 4-8 ft. (plus MS/MSD)	0501306-005	Aqueous	01/12/05
GW-3 17-21 ft.	0501306-006	Aqueous	01/12/05
GW-3 32-36 ft.	0501306-007	Aqueous	01/12/05
GW-4 4-7 ft.	0501306-008	Aqueous	01/12/05
GW-4 17-21 ft.	0501306-009	Aqueous	01/12/05
GW-4 34-38 ft.	0501306-010	Aqueous	01/12/05
GW-5 4-8 ft.	0501306-011	Aqueous	01/12/05
GW-6 4-8 ft.	0501306-012	Aqueous	01/12/05
GW-6 17-21 ft.	0501306-013	Aqueous	01/12/05
GW-6 34-38 ft.	0501306-014	Aqueous	01/12/05
Supply Well	0501306-015	Aqueous	01/12/05
Field Blank 1/12	0501306-016	Aqueous	01/12/05
Trip Blank 1/12	0501306-017	Aqueous	01/12/05
GW-7 4-6 ft.	0501686-001	Aqueous	01/31/05
GW-8 4-6 ft. (plus MS/MSD)	0501686-002	Aqueous	01/31/05
Field Blank 1/31	0501686-003	Aqueous	01/31/05
Trip Blank 1/31	0501686-004	Aqueous	01/31/05

Data Qualifier Definitions:

The following definitions provide brief explanations of the qualifiers assigned to results in the data review process.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

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

UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R - The sample results are rejected due to deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."

NJ - The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate quantity.

Sample Receipt:

The Chain of Custody documents from 01/12/05 and 01/31/05 indicates that the soil and groundwater samples and associated Field blanks, Trip blanks and MS/MSDs were received at H2M LABS, Inc. upon completion of the sampling event. Samples were received at chilled temperatures. Sample login notes and the chain of custody indicate that at the Validated Time of Sample Receipt (VTSR) at the laboratory, no problems and/or discrepancies were noted. The samples were preserved with HCL at a pH <2, therefore, the integrity of the samples has been assumed to be good.

The data summary tables included in Appendix A includes all usable (qualified) and unusable (rejected) results for the samples identified above. These tables summarize the detailed narrative section of the report. All data validation qualifications have been reported in the excel spreadsheet in bold for ease of review and verification. In cases where the VOC concentration exceeds the NYSDEC Glass GA Ambient Water Quality Standards or the NYSDEC TAGM Soil Cleanup Objectives, the value has been presented in bold.

NOTE:
L.A.B. Validation Corp. believes it is appropriate to note that the data validation criteria utilized for data evaluation is different than the method requirements utilized by the laboratory. Qualified data does not necessarily mean that the laboratory was non-compliant in the analysis that was performed.

1.0 Volatile Organics by GC/MS SW846 Method 8260B

The following method criteria were reviewed: holding times, SMCs, MS, MSD, LCS Blanks, Tunes, Calibrations, Internal Standards, Target and Non Target Component Identification, Quantitation, Reported Quantitation Limits and Overall System Performance. The volatile results were considered to be valid and useable as noted on the data summary tables in Appendix A and within the following text:

1.1 Holding Time

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the technical holding time is exceeded, the data may not be considered valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimates, "J". The non-detects (sample quantitation limits) are required to be flagged as estimated, "J", or unusable, "R", if the holding times are grossly exceeded.

All aqueous and soil samples pertaining to these SDGs were performed within the method and technical holding times for analysis (14 days). No qualifications were required based upon holding time criteria.

1.2 System Monitoring Compound (Surrogate) Recovery

All samples are spiked with surrogate compounds prior to sample analysis to evaluate overall laboratory performance and efficiency of the analytical technique. If the measure of surrogate concentrations is outside contact specification, qualifications are required to be applied to associated samples and analytes.

Surrogate recoveries (%R) were found to be within acceptable limits for SMC compounds for all samples pertaining to these SDGs with the exception of Toluene-d8 which recovered high (131%) in sample GW-7 4-6 ft. This high recovery is a result of sample matrix interference and the presence of high target concentrations. Upon required dilution, acceptable recoveries were obtained. Qualifications were not required based upon surrogate recovery data.

1.3 Matrix Spikes (MS)/ Matrix Spike Duplicates (MSD)/Matrix Spike Blank (MSB)

The MS/MSD data are generated to determine the long-term precision and accuracy of the analytical method in various matrices.

Soil:
Matrix Spike/Matrix Spike Duplicate analysis was performed on samples S-2 0-1.5 ft. and S-4 0-4 ft. associated with these SDGs. Acceptable RPD values were obtained for all spiked components for the MS/MSD and MSB. Chlorobenzene recovered low in both the MS/MSD for S-2 0-1.5 ft. (58%, 59%). Since the MSB yielded acceptable values the method is in control and the lower recoveries can be attributed to an isolated incident. Based on professional judgment, no qualifications were made to the data.

Groundwater:
Matrix Spike/Matrix Spike Duplicate analysis was performed on samples GW-3 4-8 ft. and GW-8 4-6 ft. associated with these SDGs. Trichloroethene recoveries fell outside acceptance limits in GW-3 4-8 ft. MS/MSD as a result of high target concentrations in the original unspiked sample. Additionally, 1,1-Dichloroethene RPD (14%) fell slightly outside advisory limits. In accordance with the National Functional Guidelines, MS/MSD data should not be used solely to qualify sample results. No qualifications were applied based on these outliers.

Trichloroethene recoveries fell outside acceptance limits in GW-8 4-6 ft. MS/MSD as a result of high target concentrations in the original unspiked sample. No qualifications were applied.

1.4 Laboratory Control Sample

The LCS data for laboratory control samples (LCS) are generated to provide information on the accuracy of the analytical method and on the laboratory performance.

Acceptable LCS/LFB/MSB was analyzed and spiked with all target components as required. All recoveries fell within established QC ranges. No data validation qualifiers were required based upon LCS data.

1.5 Blank Contamination

Quality assurance (QA) blanks; i.e. method, trip and field blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field blanks measure cross-contamination of samples during field operations. Storage blanks measure cross-contamination during sample storage of the field samples.

The following table was utilized to qualify target analyte results due to contamination. The largest value from all the associated blanks is required to be utilized:

For:	Flag Sample Result with a "U" when:	Report CRQL & Qualify "U" when:	No Qualification is Needed when:
Methylene Chloride, Acetone, Toluene & 2-Butanone	Sample Conc. Is >CRQL, but </=10x blank value	Sample Conc. is <CRQL and </=10x blank value	Sample Conc. is >CRQL and >10x blank value
Other Contaminants	Sample Conc. Is >CRQL, but </=5x blank value	Sample Conc. Is <CRQL and </=5x blank value	Sample Conc. is >CRQL and >5x blank value

Below is a summary of the compounds in the sample and the associated qualifications that have been applied:

A) **Method Blank Contamination:**

Soils:

Acceptable levels of Methylene Chloride were detected in the low level soil method blank analyzed on 01/14/05. Methylene Chloride was negated in associated field samples S-1 0-2 ft. and S-2 0-1.5 ft. utilizing the above criteria.

Acceptable levels of Tetrachloroethene were detected in the high level soil method blank analyzed on 02/02/05. Tetrachloroethene concentrations reported in the associated field samples must be considered real since the sample concentrations exceed 5x the blank value.

Waters:
Acceptable levels of Tetrachloroethene were detected in the water method blank analyzed on 02/02/05. No qualifications were required to associated samples Field Blank 01/31, Trip Blank 01/31 and GW-7 4-6DL.

Target analytes were not detected in any of the associated method blanks applicable to aqueous analysis.

Non-target analytes were not detected in any of the soil/water method blanks.

B) **Field Blank Contamination:**

No target/non-target analytes were detected in the Field Blank applicable to the 01/12/05 sampling event.

Tetrachloroethene was detected at 1 ug/L in Field Blank 1/31, however, was not reported by the laboratory. Soil samples were evaluated based on the above criteria and no qualifications were required. Groundwater samples collected on 01/31/05 (GW-7 4-6 ft. and GW-8 4-6 ft.) were determined to contain this target analytes above 5x the blank value and therefore must be considered "real" at the levels presented in Appendix A.

C) **Trip Blank Contamination:**

No target/non-target analytes were detected in the Trip Blanks associated with these SDGs.

D) **Storage Blank Contamination:**

Storage blanks were not submitted for this SDG. It should be noted that storage blanks are not mandated by SW846 Method 8260B.

1.6 GC/MS Instrument Performance Check

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The Tuning standard for volatile organics is Bromofluorobenzene (BFB).

Instrument performance was generated within acceptable limits and frequency for Bromofluorobenzene (BFB) for all analyses conducted for this SDG.

1.7 Initial and Continuing Calibrations

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration checks document that the instrument is giving satisfactory daily performance.

A) Response Factor GC/MS:
The response factor measures the instrument's response to specific chemical compounds. The response factor for all compounds must be >/= 0.05 in both initial and continuing calibrations. A value <0.05 indicates a serious detection and quantitation problem (poor sensitivity). Analytes detected in the sample will be qualified as estimated, "J". All non-detects for that compound in the corresponding samples will be rejected, "R".

All the response factors for the target analytes reported were found to be within acceptable limits (>/=0.05), for the initial and continuing calibrations.

B) Percent Relative Standard Deviation (%RSD) and Percent Difference (%D):
Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentrations. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be <30% and %D must be <25%. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J" and non-detects are flagged "UJ". If %RSD and %D grossly exceed QC criteria, non-detect data may be qualified, "R", unusable. Additionally, in cases where the %RSD is >30% and eliminating either the high or the low point of the curve does not restore the %RSD to less than or equal to 30% then positive results are qualified, "J". In cases where removal of either the low or high point restores the linearity, then only low or high level results will be qualified, "J" in the portion of the curve where non linearity exists.

Initial Calibrations: The initial calibrations provided and the %RSD was within acceptable limits (30%).

Continuing Calibrations: The continuing calibrations provided and the %D was within acceptable limits (25%) with the following exceptions:

CCAL – 01/19/05:
Vinyl Chloride – 26.5%
Applicable samples:
GW-2 19-21 ft. DL
GW-3 4-8 ft. DL

CCAL- 02/02/05
Vinyl Chloride – 25.2%
Tetrachloroethene – 27.1%
Applicable samples:
GW-7 4-6 ft. DL (Tetrachloroethene only)
GW-8 4-6 ft. DL (Tetrachloroethene only)
S-3 0-4 ft. DL (Tetrachloroethene only)
S-5 0-4 ft. (Tetrachloroethene only)

Non-detects for these compounds in associated field samples must be considered estimated, "UJ." In cases where reported values were detected, the concentrations presented in Appendix A must be considered estimated, "J."

1.8 Internal Standards

Internal Standards (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of 2 (-50% to +100%) from the associated continuing calibration standard. The retention time of the internal standard must not vary more than +/- 30 seconds from the associated continuing calibration standard. If the area count is outside the (-50% to +100%) range of the associated standard, all of the positive results for compounds quantitated using that IS are qualified as estimated, "J", and all non-detects as "UJ", or "R" if there is a severe loss of sensitivity.

If an internal standard retention time varies by more than 30 seconds, professional judgment will be used to determine either partial or total rejection of the data for that sample fraction.

Internal standard area and retention times met QC requirements for all analysis pertaining to this SDG.

1.9 Target Compound List Identification

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and by comparison to the ion spectra obtained from known standards. For the results to be a positive hit, the sample peak must be within =/- 0.06RRT units of the standard compound and have an ion spectra which has a ratio of the primary and secondary m/e intensities within 20% of that in the standard compound.

GC/MS spectra met the qualitative criteria for identification. All retention times were within required specifications.

Acceptable precision was observed in the analyzed MS/MSDs, as compared to the original unspiked sample.

Low level concentrations of Acetone were detected in S-1 0-2 ft., S-2 0-1.5 ft., GW-4 17-21 ft. and GW-6 4-8 ft. Acetone is a common laboratory contaminant, however, was not detected in any of the laboratory QC analyses. The low level "presence" of Acetone in these four field samples should be considered suspect and has been qualified, "J." The end user should use caution when making site decisions based on this compound.

Additionally, 2-Butanone was detected and reported at 4 ug/L in sample GW-4 17-21 ft. As with Acetone, this analyte could not be negated due to laboratory/field contamination.

1.10 Tentatively Identified Compounds (TICs)

TICs were reported in accordance with the project requirements. The identification must be considered tentative (both quantitative and qualitative) due to the lack of required compound specific response factors. Consequently all concentrations should be considered estimate, "J" and as a result of the qualitative uncertainty should be qualified, "N".

GC/MS "3 best match spectra" met method criteria.

Non-target compounds are presented in Appendix B of this report. The total concentrations have also been presented in Appendix A.

The majority of detected compounds can be classified as "unknown alkanes" and "substituted aromatics."

1.11 Compound Quantification and Reported Detection Limits

GC/MS quantitative analysis is considered to be acceptable. Correct internal standards per SW846, response factors and moisture content (for soils) were used to calculate final concentrations.

All aqueous samples were initially analyzed undiluted at 5mls. In cases where the target concentrations exceeded the instruments' linear calibration range of 200 ppb, a secondary diluted reanalysis within holding time was performed. Results have been hybridized in the summary tables in Appendix A to aid the end user which values should be utilized.

The appropriate dilution levels were selected by the laboratory to obtained raw target concentrations within the upper half of the instruments linear calibration range.

Soil samples collected on 01/31/05 were analyzed at high (medium) level due to high concentrations of target components. Based upon the review of the data it is agreed that analysis at a lesser dilution would not be possible due to over saturation of the MS detector.

Non-detect values **for many compounds in S-3 0-4 ft., S-4 0-4 ft., S-5 0-4 ft. and S-6 0-4 ft. exceed the NYSDEC TAGM Soil Cleanup Objectives. For these samples, the presence of 1,2-Dichloroethene (total), Trichloroethene and/or Tetrachloroethene concentrations exceed cleanup standards.**

Initial analysis of GW-7 0-4 ft. and GW-8 0-4 ft. resulted in Vinyl Chloride concentrations >200 ppb. A diluted reanalysis was performed and was determined based upon Tetrachloroethene values. Upon acceptable dilution, Vinyl Chloride was lost. The values for these compounds have been reported from the initial analysis and have been qualified, "J" estimated and should be considered biased low.

Instrument run logs and sequences were reviewed for carryover. All results have determined to be acceptable.

1.12 Overall System Performance

Good resolution and chromatographic performance were observed. The laboratory results are valid and useable at the concentrations submitted in Appendix A.

Reviewer's Signature Louis A. Bey **Date** 03/13/05

L.A.B. Validation Corp. 14 West Point Drive, East Northport, N.Y. 11731

Appendix A
Data Summary Tables
With Qualifications

Phone/Fax (631) 757-0467 email LABValidation@aol.com

TABLE 1 - SUMMARY OF VOLATILE ORGANIC COMPOUNDS DETECTED AND/OR ELEVATED ABOVE NYSDEC SOIL CLEANUP OBJECTIVES

American Drive-In Cleaners, 1345 Peninsula Blvd, Hewlett, New York							
SDG BER011, BER014							
Berninger Sample ID:	**S-1 0-2 ft.**	**S-2 0-1.5 ft.**	**S-3 0-4 ft.**	**S-4 0-4 ft.**	**S-5 0-4 ft.**	**S-6 0-4 ft.**	**NYSDEC TAGM**
Laboratory ID:	**0501305-001A**	**0501305-002A**	**0501688-001A**	**0501688-002A**	**0501688-003A**	**0501688-004A**	**RECOMMENDED**
Sampling Date:	**1/12/2005**	**1/12/2005**	**1/31/2005**	**1/31/2005**	**1/31/2005**	**1/31/2005**	**SOIL CLEANUP**
% Moisture	**15.5**	**5.1**	**19.8**	**29.9**	**22.2**	**36.9**	**OBJECTIVES**
units: ug/kg (dry wt)							
Analyte							
Chloromethane	12 U	11 U	7800 U	8900 U	4000 U	9900 U	NA
Bromomethane	12 U	11 U	7800 U	8900 U	4000 U	9900 U	NA
Vinyl Chloride	3 J	7 J	7800 U	8900 U	4000 U	9900 U	200
Chloroethane	12 U	11 U	7800 U	8900 U	4000 U	9900 U	1,900
Methylene Chloride	**12 U**	**11 U**	7800 U	8900 U	4000 U	9900 U	100
Acetone	**8 J**	**6 J**	7800 U	8900 U	4000 U	9900 U	200
Carbon Disulfide	12 U	11 U	7800 U	8900 U	4000 U	9900 U	2,700
1,1-Dichloroethene	12 U	11 U	7800 U	8900 U	4000 U	9900 U	400
1,1-Dichloroethane	12 U	11 U	7800 U	8900 U	4000 U	9900 U	200
1,2-Dichloroethene (total)	97	28	7800 U	**8800 J**	**42000**	**110000**	**300**
2-Butanone	12 U	11 U	7800 U	8900 U	4000 U	9900 U	300
Chloroform	12 U	11 U	7800 U	8900 U	4000 U	9900 U	300
1,2-Dichloroethane	12 U	11 U	7800 U	8900 U	4000 U	9900 U	100
1,1,1-Trichloroethane	12 U	11 U	7800 U	8900 U	4000 U	9900 U	800
Carbon Tetrachloride	12 U	11 U	7800 U	8900 U	4000 U	9900 U	600
Bromodichloromethane	12 U	11 U	7800 U	8900 U	4000 U	9900 U	NA
1,2-Dichloropropane	12 U	11 U	7800 U	8900 U	4000 U	9900 U	NA
cis-1,3-Dichloropropene	12 U	11 U	7800 U	8900 U	4000 U	9900 U	NA
Trichloroethene	3 J	11 U	**58000**	**24000**	**17000**	**170000**	**700**
Benzene	12 U	11 U	7800 U	8900 U	4000 U	9900 U	60
Dibromochloromethane	12 U	11 U	7800 U	8900 U	4000 U	9900 U	300
trans-1,3-Dichloropropene	12 U	11 U	7800 U	8900 U	4000 U	9900 U	NA
1,1,2-Trichloroethane	12 U	11 U	7800 U	8900 U	4000 U	9900 U	NA
Bromoform	12 U	11 U	7800 U	8900 U	4000 U	9900 U	NA
4-Methyl-2-Pentanone	12 U	11 U	7800 U	8900 U	4000 U	9900 U	1,000
2-Hexanone	12 U	11 U	7800 U	8900 U	4000 U	9900 U	NA
Tetrachloroethene	9 J	3 J	**7000000 J**	**1300000**	**51000 J**	**1800000**	**1,400**
1,1,2,2-Tetrachloroethane	12 U	11 U	7800 U	8900 U	4000 U	9900 U	600
Toluene	12 U	11 U	7800 U	8900 U	4000 U	9900 U	1,500
Chlorobenzene	12 U	11 U	7800 U	8900 U	4000 U	9900 U	1,700
Ethylbenzene	12 U	11 U	7800 U	8900 U	4000 U	9900 U	5,500
Styrene	12 U	11 U	7800 U	8900 U	4000 U	9900 U	1,200
Xylene (total)	12 U	11 U	7800 U	8900 U	4000 U	9900 U	NA
TOTAL VOCS	**120**	**44**	**7056000**	**1332800**	**110000**	**2080000**	**10,000**
TOTAL TENTATIVELY IDENTIFIED CMPDS	**15 J**	**ND**	**ND**	**ND**	**10300**	**160600**	

NA=Not Applicable
ND=None Detected

TABLE 1 - SUMMARY OF VOLATILE ORGANIC COMPOUNDS DETECTED AND/OR ELEVATED ABOVE NYSDEC CLASS GA AMBIENT WATER QUALITY STANDARDS

American Drive-In Cleaners, 1345 Peninsula Blvd, Hewlett, New York							
SDG BER012, BER013							
Berninger Sample ID:	GW-1 3.5-5.5 ft.	GW-2 4-6 ft.	GW-2 19-21 ft.	GW-2 34-38 ft.	GW-3 4-8 ft.	GW-3 17-21 ft.	NYSDEC CLASS GA
Laboratory ID:	0501306-001A	0501306-002A	0501306-003A	0501306-004A	0501306-005A	0501306-006A	AMBIENT WATER
Sampling Date:	1/12/2005	1/12/2005	1/12/2005	1/12/2005	1/12/2005	1/12/2005	QUALITY STANDARDS
% Moisture	NA	NA	NA	NA	NA	NA	GUIDANCE VALUES
units: ug/L							units: ug/L
Analyte							
Chloromethane	5 U	5 U	5 U	5 U	5 U	5 U	NA
Bromomethane	5 U	5 U	5 U	5 U	5 U	5 U	5
Vinyl Chloride	84	5 U	150 J	5 U	570 J	32	2
Chloroethane	5 U	5 U	5 U	5 U	5 U	5 U	50
Methylene Chloride	5 U	5 U	5 U	5 U	5 U	5 U	5
Acetone	5 U	5 U	5 U	5 U	5 U	5 U	50
Carbon Disulfide	5 U	5 U	5 U	5 U	5 U	5 U	50
1,1-Dichloroethene	3 J	5 U	3 J	5 U	16	85	5
1,1-Dichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5
1,2-Dichloroethene (total)	900	5 U	1100	5 U	6700	950	5
2-Butanone	5 U	5 U	5 U	5 U	5 U	5 U	50
Chloroform	5 U	5 U	5 U	5 U	5 U	5 U	7
1,2-Dichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5
1,1,1-Trichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5
Carbon Tetrachloride	5 U	5 U	5 U	5 U	5 U	5 U	5
Bromodichloromethane	5 U	5 U	5 U	5 U	5 U	5 U	50
1,2-Dichloropropane	5 U	5 U	5 U	5 U	5 U	5 U	1
cis-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	5 U	5
Trichloroethene	2 J	5 U	92	5 U	1400	11000	5
Benzene	5 U	5 U	8	5 U	5 U	5 U	0.7
Dibromochloromethane	5 U	5 U	5 U	5 U	5 U	5 U	NA
trans-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	5 U	NA
1,1,2-Trichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5
Bromoform	5 U	5 U	5 U	5 U	5 U	5 U	50
4-Methyl-2-Pentanone	5 U	5 U	5 U	5 U	5 U	5 U	50
2-Hexanone	5 U	5 U	5 U	5 U	5 U	5 U	50
Tetrachloroethene	3 J	5 U	2 J	5 U	1900	3800	5
1,1,2,2-Tetrachloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5
Toluene	5 U	5 U	7	5 U	2 J	5 U	5
Chlorobenzene	5 U	5 U	5 U	5 U	5 U	5 U	5
Ethylbenzene	5 U	5 U	4 J	5 U	5 U	5 U	5
Styrene	5 U	5 U	1 J	5 U	5 U	5 U	5
Xylene (total)	5 U	5 U	8	5 U	5 U	5 U	5
TOTAL VOCS	1748	0	1367	0	10588	15867	
TOTAL TENTATIVELY IDENTIFIED CMPDS	ND	7 J	711 J	ND	ND	ND	NA = Not Applicable ND=None Detected

TABLE 1 - SUMMARY OF VOLATILE ORGANIC COMPOUNDS DETECTED AND/OR ELEVATED ABOVE NYSDEC CLASS GA AMBIENT WATER QUALITY STANDARDS

American Drive-In Cleaners, 1345 Peninsula Blvd, Hewlett, New York
SDG BER012, BER013

Berninger Sample ID:	GW-3 32-36 ft.	GW-4 4-8 ft.	GW-4 17-21 ft.	GW-4 34-38 ft.	GW-5 4-8 ft.	GW-6 4-8 ft.	NYSDEC CLASS GA
Laboratory ID:	0501306-007A	0501306-008A	0501306-009A	0501306-010A	0501306-011A	0501306-012A	AMBIENT WATER
Sampling Date:	1/12/2005	1/12/2005	1/12/2005	1/12/2005	1/12/2005	1/12/2005	QUALITY STANDARDS
% Moisture	NA	NA	NA	NA	NA	NA	GUIDANCE VALUES
units: ug/L							units: ug/L
Analyte							
Chloromethane	5 U	5 U	5 U	5 U	5 U	5 U	NA
Bromomethane	5 U	5 U	5 U	5 U	5 U	5 U	5
Vinyl Chloride	5 U	67	13	5 U	5 U	5 U	2
Chloroethane	5 U	5 U	5 U	5 U	5 U	5 U	50
Methylene Chloride	5 U	5 U	5 U	5 U	5 U	5 U	5
Acetone	5 U	5 U	8 J	5 U	5 U	7 J	50
Carbon Disulfide	5 U	5 U	5 U	5 U	5 U	5 U	50
1,1-Dichloroethene	5 U	5 U	21	5 U	5 U	5 U	5
1,1-Dichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5
1,2-Dichloroethene (total)	5 U	230	1500	2 J	1 J	20	5
2-Butanone	5 U	5 U	4 J	5 U	5 U	5 U	50
Chloroform	5 U	5 U	5 U	5 U	5 U	5 U	7
1,2-Dichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5
1,1,1-Trichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5
Carbon Tetrachloride	5 U	5 U	5 U	5 U	5 U	5 U	5
Bromodichloromethane	5 U	5 U	5 U	5 U	5 U	5 U	50
1,2-Dichloropropane	5 U	5 U	5 U	5 U	5 U	5 U	1
cis-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	5 U	5
Trichloroethene	5 U	81	8000	8	2 J	3 J	5
Benzene	5 U	5 U	5 U	5 U	5 U	5 U	0.7
Dibromochloromethane	5 U	5 U	5 U	5 U	5 U	5 U	NA
trans-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	5 U	NA
1,1,2-Trichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5
Bromoform	5 U	5 U	5 U	5 U	5 U	5 U	50
4-Methyl-2-Pentanone	5 U	5 U	5 U	5 U	5 U	5 U	50
2-Hexanone	5 U	5 U	5 U	5 U	5 U	5 U	50
Tetrachloroethene	5 U	210	10000	9	4 J	15	5
1,1,2,2-Tetrachloroethane	5 U	5 U	5 U	5 U	5 U	5 U	5
Toluene	5 U	5 U	5 U	5 U	5 U	5 U	5
Chlorobenzene	5 U	5 U	5 U	5 U	5 U	5 U	5
Ethylbenzene	5 U	5 U	5 U	5 U	5 U	5 U	5
Styrene	5 U	5 U	5 U	5 U	5 U	5 U	5
Xylene (total)	5 U	5 U	5 U	5 U	5 U	5 U	5
TOTAL VOCS	0	588	19546	19	7	45	
TOTAL TENTATIVELY IDENTIFIED CMPDS	ND	ND	ND	ND	ND	ND	

NA = Not Applicable
ND=None Detected

TABLE 1 - SUMMARY OF VOLATILE ORGANIC COMPOUNDS DETECTED AND/OR ELEVATED ABOVE NYSDEC CLASS GA AMBIENT WATER QUALITY STANDARDS

American Drive-In Cleaners, 1345 Peninsula Blvd, Hewlett, New York						
SDG BER012, BER013						
Berninger Sample ID:	GW-6 17-21 ft.	GW-6 34-38 ft.	Supply Well	GW-7 4-6 ft.	GW-8 4-6 ft.	NYSDEC CLASS GA
Laboratory ID:	0501306-013A	0501306-014A	0501306-015A	0501686-001A	0501686-002A	AMBIENT WATER
Sampling Date:	1/12/2005	1/12/2005	1/12/2005	1/31/2005	1/31/2005	QUALITY STANDARDS
% Moisture	NA	NA	NA	NA	NA	GUIDANCE VALUES
units: ug/L						units: ug/L
Analyte						
Chloromethane	5 U	5 U	5 U	5 U	5 U	NA
Bromomethane	5 U	5 U	5 U	5 U	5 U	5
Vinyl Chloride	5 U	5 U	1 J	**1400 J**	**960 J**	2
Chloroethane	5 U	5 U	5 U	5 U	5 U	50
Methylene Chloride	5 U	5 U	5 U	5 U	5 U	5
Acetone	5 U	5 U	5 U	5 U	5 U	50
Carbon Disulfide	5 U	5 U	5 U	5 U	5 U	50
1,1-Dichloroethene	5 U	5 U	5 U	**68**	**46**	5
1,1-Dichloroethane	5 U	5 U	5 U	5 U	5 U	5
1,2-Dichloroethene (total)	5 U	5 U	**36**	**100000**	**100000**	5
2-Butanone	5 U	5 U	5 U	5 U	5 U	50
Chloroform	5 U	5 U	5 U	5 U	5 U	7
1,2-Dichloroethane	5 U	5 U	5 U	5 U	5 U	5
1,1,1-Trichloroethane	5 U	5 U	5 U	5 U	5 U	5
Carbon Tetrachloride	5 U	5 U	5 U	5 U	5 U	5
Bromodichloromethane	5 U	5 U	5 U	5 U	5 U	50
1,2-Dichloropropane	5 U	5 U	5 U	5 U	5 U	1
cis-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	5
Trichloroethene	3 J	5 U	**11**	**46000**	**13000**	5
Benzene	5 U	5 U	5 U	5 U	5 U	0.7
Dibromochloromethane	5 U	5 U	5 U	5 U	5 U	NA
trans-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	NA
1,1,2-Trichloroethane	5 U	5 U	5 U	5 U	5 U	5
Bromoform	5 U	5 U	5 U	5 U	5 U	50
4-Methyl-2-Pentanone	5 U	5 U	5 U	5 U	5 U	50
2-Hexanone	5 U	5 U	5 U	5 U	5 U	50
Tetrachloroethene	**280**	3 J	**95**	**290000 J**	**38000 J**	5
1,1,2,2-Tetrachloroethane	5 U	5 U	5 U	5 U	5 U	5
Toluene	5 U	5 U	5 U	**7**	2 J	5
Chlorobenzene	5 U	5 U	5 U	5 U	5 U	5
Ethylbenzene	5 U	5 U	5 U	**9**	2 J	5
Styrene	5 U	5 U	5 U	5 U	5 U	5
Xylene (total)	5 U	5 U	5 U	**10**	**8**	5
TOTAL VOCS	**283**	**3**	**143**	**437494**	**152018**	
TOTAL TENTATIVELY IDENTIFIED CMPDS	ND	ND	ND	**101** J	**252** J	

NA = Not Applicable
ND=None Detected

L.A.B. Validation Corp. 14 West Point Drive, East Northport, N.Y. 11731

Appendix B
Tentatively Identified Components (VOA GC/MS)

Phone/Fax (631) 757-0467 email LABValidation@aol.com

1F

EPA SAMPLE NO.

S-1 0-2 FT

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

b Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER011

Matrix: (soil/water) SOIL Lab Sample ID: 0501305-001A

Sample wt/vol: 5 (g/mL) G Lab File ID: 5\P28193.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. 15.5 Date Analyzed: 01/14/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 3 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q
~~1. 000556-67-2~~	~~Cyclotetrasiloxane, octamethyl-~~	~~14.64~~	~~14~~	~~NJ~~ X
2.	(DEL) Alkane: Straight-Chain	14.87	9	J
3.	unknown	17.71	6	J

BJB 1/26/05

fap 3/13/05

1F

EPA SAMPLE NO.

S-2 0-1.5 FT

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER011

Matrix: (soil/water) SOIL Lab Sample ID: 0501305-002A

Sample wt/vol: 5 (g/mL) G Lab File ID: 5\P28194.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. 5.1 Date Analyzed: 01/14/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

CONCENTRATION UNITS:

Number TICs found: 2 (µg/L or µg/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q
1. ~~000541-05-9~~	~~Cyclotrisiloxane, hexamethyl~~	~~11.63~~	~~9~~	~~NJ~~ X R
2. 000556-67-2	~~Cyclotetrasiloxane, octamethyl-~~	~~14.67~~	~~17~~	~~NJ~~ X R

JBP 1/26/05

JBP 3/13/05

1F

EPA SAMPLE NO.

S-3 0-4 FT

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No.: _____ SDG No.: BER014

Matrix: (soil/water) SOIL Lab Sample ID: 0501688-001A

Sample wt/vol: 4 (g/mL) G Lab File ID: A\A40707.D

Level: (low/med) MED Date Received: 01/31/05

% Moisture: not dec. 19.8 Date Analyzed: 02/02/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 5.00

Soil Extract Volume: 10000 (µl) Soil Aliquot Volume: 100 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

1F

EPA SAMPLE NO.

S-4 0-4 FT

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No.: _____ SDG No.: BER014

Matrix: (soil/water) SOIL Lab Sample ID: 0501688-002A

Sample wt/vol: 4 (g/mL) G Lab File ID: A\A40708.D

Level: (low/med) MED Date Received: 01/31/05

% Moisture: not dec. 29.9 Date Analyzed: 02/02/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 5.00

Soil Extract Volume: 10000 (µl) Soil Aliquot Volume: 100 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

1F

EPA SAMPLE NO.

S-5 0-4 FT

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

b Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No.: _____ SDG No.: BER014

Matrix: (soil/water) SOIL Lab Sample ID: 0501688-003A

Sample wt/vol: 4 (g/mL) G Lab File ID: A\A40718.D

Level: (low/med) MED Date Received: 01/31/05

% Moisture: not dec. 22.2 Date Analyzed: 02/02/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 2.50

Soil Extract Volume: 10000 (µl) Soil Aliquot Volume: 100 (µL)

Number TICs found: 4 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q
1.		straight-chain alkane (17.23)	17.23	2000	J
2.		branched alkane	18.12	2300	J
3.		straight-chain alkane (18.36)	18.36	3700	J
4.		straight-chain alkane (18.9)	18.90	2300	J

BER014 V50

1F

EPA SAMPLE NO.

S-6 0-4 FT

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No.: _____ SDG No.: BER014

Matrix: (soil/water) SOIL Lab Sample ID: 0501688-004A

Sample wt/vol: 4 (g/mL) G Lab File ID: A\A40710.D

Level: (low/med) MED Date Received: 01/31/05

% Moisture: not dec. 36.9 Date Analyzed: 02/02/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 5.00

Soil Extract Volume: 10000 (µl) Soil Aliquot Volume: 100 (µL)

CONCENTRATION UNITS:

Number TICs found: 10 (µg/L or µg/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q
1		branched alkane (18.12)	18.12	7800	J
2		branched alkane (18.36)	18.36	32000	J
3		branched alkane (18.51)	18.51	10000	J
4		straight-chain alkane (18.9)	18.90	26000	J
5		branched alkane (19.16)	19.16	11000	J
6		c3-subs_benzene	19.72	22000	J
7		unknown cyclic	19.82	14000	J
8		straight-chain alkane (20.2)	20.20	19000	J
9		unknown hydrocarbon	20.40	7800	J
10		unknown	20.64	11000	J

1F

EPA SAMPLE NO.

GW-1 3.5-5.5 FT

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-001A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40600.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1F

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GW-2 4-6 FT

Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-002A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40602.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 2 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		~~unknown hydrocarbon~~ C3 subst. benzene	20.42	80	J
2.	004265-25-2	Benzofuran, 2-methyl-	21.38	7	NJ

MR 1/26/05

BER012 V43

1F

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GW-2 19-21 FT

ɔ Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-003A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40603.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 9 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q
1.		c3-subs_benzene (19.51)	19.51	54	J
2.	000271-89-6	Benzofuran	19.96	42	NJ
3.		c3-subs_benzene (20.04)	20.04	29	J
4.		~~unknown aromatic~~ c3-subst. benzene	20.42	380	J
5.		c3-subs_benzene (20.66)	20.66	63	J
6.	004265-25-2	Benzofuran, 2-methyl-	21.38	50	NJ
7.		c4-subs_benzene (21.77)	21.77	20	J
8.		c4-subs_benzene (22.01)	22.01	41	J
9.		Benzothiophene(isomer)	23.30	32	J

1/26/05

BER012 V52

1F

EPA SAMPLE NO.

GW-2 34-38 FT

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-004A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40604.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

1F

EPA SAMPLE NO.

GW-3 4-8 FT

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

b Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-005A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40605.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

1F

EPA SAMPLE NO.

GW-3 17-21 FT

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-006A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40608.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

BER012 V116

1F

EPA SAMPLE NO.

GW-3 32-36 FT

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-007A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40632.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/19/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

BER012 V136

1F

EPA SAMPLE NO.

GW-4 4-8 FT

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

b Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-008A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40610.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

BER012 V143

1F

EPA SAMPLE NO.

GW-4 17-21 FT

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-009A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40611.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

BER012 V164

1F

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
GW-4 34-38 FT

Lab Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-010A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40634.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/19/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

BER012 V185

1F

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
GW-5 4-8 FT

Lab Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-011A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40639.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/19/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

BER012 V194

1F

EPA SAMPLE NO.

GW-6 4-8 FT

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-012A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40614.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

BER012 V203

1F

EPA SAMPLE NO.

GW-6 17-21 FT

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-013A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40615.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

BER012 V213

1F

EPA SAMPLE NO.

GW-6 34-38 FT

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-014A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40616.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

BER012 V229

1F

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
GW-7 4-6

Lab Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER013

Matrix: (soil/water) WATER Lab Sample ID: 0501686-001A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40690.D

Level: (low/med) LOW Date Received: 01/31/05

% Moisture: not dec. Date Analyzed: 01/31/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

CONCENTRATION UNITS:

Number TICs found: 2 (µg/L or µg/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q
1.		c3 sub benzene	18.69	94	J
2.		~~c4~~ C3 sub benzene	19.61	7	J

MR 2/9/05

BER013 V22

1F

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
GW-8 4-6

b Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER013

Matrix: (soil/water) WATER Lab Sample ID: 0501686-002A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40691.D

Level: (low/med) LOW Date Received: 01/31/05

% Moisture: not dec. Date Analyzed: 01/31/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

CONCENTRATION UNITS:

Number TICs found: 6 (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q
1.	c3 sub benzene (18.67)	18.67	14	J
2.	c3 sub benzene (19.2)	19.20	77	J
3.	c3 sub benzene (19.56)	19.56	19	J
4.	c3 sub benzene (19.69)	19.69	94	J
5.	c3 sub benzene (20.24)	20.24	32	J
6.	c4 sub benzene	20.45	16	J

BER013 V54

1F

EPA SAMPLE NO.

SUPPLY WELL

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

) Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-015A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40617.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

BER012 V237

1F

EPA SAMPLE NO.

FIELDBLANK1/12

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

b Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-016A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40618.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

BER012 V247

1F

EPA SAMPLE NO.

TRIPBLANK1/12

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

.b Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-017A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40635.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/19/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

BER012 V254

1F

EPA SAMPLE NO.

FIELD BLANK

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER013

Matrix: (soil/water) WATER Lab Sample ID: 0501686-003A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40704.D

Level: (low/med) LOW Date Received: 01/31/05

% Moisture: not dec. Date Analyzed: 02/02/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

CONCENTRATION UNITS:

Number TICs found: 0 (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

BER013 V87

1F

EPA SAMPLE NO.

TRIP BLANK

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

b Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER013

Matrix: (soil/water) WATER Lab Sample ID: 0501686-004A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40705.D

Level: (low/med) LOW Date Received: 01/31/05

% Moisture: not dec. Date Analyzed: 02/02/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

CONCENTRATION UNITS:

Number TICs found: 0 (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

BER013 V95

Appendix C
Chain of Custody

H2M LABS, INC.

575 Broad Hollow Rd, Melville, NY 11747-5076
Tel: (516) 694-3040 Fax: (516) 420-8436

15625

EXTERNAL CHAIN OF CUSTODY

SOIL/GW

CLIENT: BER

H2M SDG NO: 011/012

PROJECT NAME/NUMBER: American Drive-Dr Cleaners, 1345 Peninsula Blvd, Hewlett, New York

SAMPLERS: (signature)/Client: Bernings Environmental

DELIVERABLES: RTO NYSDEC ASP B

TURNAROUND TIME:

NOTES: 8260 TCL VOAs plus TICs NYSDEC ASP B Del.

Project Contact: Jill Haimson

Phone Number: 516 697-4211

DATE	TIME	MATRIX	FIELD I.D.	Total No. of Containers	ANALYSIS REQUESTED: ORGANIC VOA	ORGANIC BNA	ORGANIC Pest/PCB			INORG. Metal	INORG. CN	LAB I.D. NO.	REMARKS:
1/12/05	8:00	L	GW-1 3.5-5.5 Ft	2	2							0501306-001	
1/12/05	8:15	S	S-1 0-2 Ft	2				1	1			0501305-001	
	9:00	L	GW-2 4-6 Ft	2	2							0501306-002	
	9:30	L	GW-2 14-21 ft	2	2							003	
	9:55	L	GW-2 34-38 ft	2	2							004	
	9:30		Field Blank	2	2							006	
	10:00		GW-3 4-8 ms/msd	6	6							005	
	10:30		GW-3 11-21 Ft	2	2							006	
	11:15		GW-3 32-36 Ft	2	2							007	
	12:00		GW-4 4-8 Ft	2	2							008	
			GW-4 14-21 Ft	2	2							009	

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Joel Meyers	1/13/05	9:00		1.13.05	9:00
	1/13/05	930		1/13/05	930

LABORATORY USE ONLY

Discrepancies Between Sample Labels and COC Record? Y or N

Explain: _____

Samples were:
1. Shipped ___ or Hand Delivered ✓ Airbill# _____
2. Ambient or chilled 4.2
3. Received in good condition: Y or N
4. Properly preserved: Y or N
5. Samples returned to lab ___ Hrs from collection.

COC Tape was:
1. Present on outer package: Y or N
2. Unbroken on outer package: Y or N
3. COC record present & complete upon sample receipt: Y or N

BER011 A8

WHITE COPY - ORIGINAL YELLOW COPY - CLIENT

H2M LABS, INC.

15622

EXTERNAL CHAIN OF CUSTODY

575 Broad Hollow Rd, Melville, NY 11747-5076
Tel: (516) 694-3040 Fax: (516) 420-8436

SOIL/GW

CLIENT: BER

H2M SDG NO: 011/012

PROJECT NAME/NUMBER: American Drive Cleaners, 1345 Peninsula Blvd, Hewlett, New York

SAMPLERS: (signature) Client

Bioringer Environmental, 1615 Ninth Ave, Bohemia, Ny

DELIVERABLES: NYSDEC ASP B

TURNAROUND TIME: RTD

NOTES: TCL plus TICs NYSDEC ASP B Deliv

Project Contact: Jill Hamm

Phone Number: 516 467-9211

DATE	TIME	MATRIX	FIELD I.D.	Total No. of Containers	ANALYSIS REQUESTED: ORGANIC VOA	ORGANIC BNA	ORGANIC Pest/PCB		624	8270		INORG. Metal	INORG. CN	LAB I.D. NO.	REMARKS:
1/14/05	1320	GW	GW-4 34-38 ft	2	2									0501306-010	
	1405	SO	SS-2 0-1.5 ft MS/MSD	3	2				2	1				0501305-002	
	1430	GW	GW-5 4-8 ft	2	2									011	
	1432		Supply well	2	2									015	
	—		TRIP BLANK	2	2									017	
	1500		GW-6 34-38 ft	2	2									014	
	1520		GW-6 17-21 ft	2	2									013	
↓	1530	↓	GW-6 4-8 ft	2	2									↓ 012	

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
	1/13/5	5:00		1.13.05	09:00
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
	1.13.05	930		1/13/05	930
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time

BER011 A9

LABORATORY USE ONLY

Discrepancies Between Sample Labels and COC Record? Y or N

Explain:

Samples were:
1. Shipped ___ or Hand Delivered ✓ Airbill# ___
2. Ambient or chilled 4.2
3. Received in good condition: Y or N
4. Properly preserved: Y or N
5. Samples returned to lab ___ Hrs from collection.

COC Tape was:
1. Present on outer package: Y or (N)
2. Unbroken on outer package: Y or N
3. COC record present & complete upon sample receipt: Y or N

WHITE COPY - ORIGINAL - YELLOW COPY

H2M LABS, INC.

1574

EXTERNAL CHAIN OF CUSTODY

BER013
K014

575 Broad Hollow Rd, Melville, NY 11747-5076
Tel: (516) 694-3040 Fax: (516) 420-8436

CLIENT: BERNINER ENVIRONMENTAL | **H2M SDG NO:**

PROJECT NAME/NUMBER: American Drive Dr Cleaners 1375 Peninsula Blvd Hewlett, NY

SAMPLERS: (signature)/Client

DELIVERABLES: NYSDEC ASP B Deliv

TURNAROUND TIME: RTO

NOTES: TCL VOCs 8260 plus TICs NYSDEC ASP B

Project Contact: Jill H.

Phone Number: 516 647-4211

Sample Container Description: 40 ml VOA | 2oz

Total No. of Containers

ANALYSIS REQUESTED

DATE	TIME	MATRIX	FIELD I.D.	Total No. of Containers	ORGANIC: VOA	ORGANIC: BNA	ORGANIC: Pest/PCB	ORGANIC: 8260	INORG.: Metal	INORG.: CN	LAB I.D. NO.	REMARKS:
1/31/05	9:30	S	S-3 0-4 ft ms/msd	4				4			0501688-001A	30' N of SE
	9:50	S	S-4 0-4 ft	2				2			0501688-001B	40' W of E
	10:20	L	GW-7 4-6 ft	2	2						0501686-001A	40' W of SE
	—	L	Trip blank	2	2						0501686-003A	—
	11:30	L	Field blank	2	2						0501686-004A	—
	11:40	S	S-5 0-4 ft	2				2			0501683-002A	30' N of SE
		S	S-6 0-4 ft	2				2			0501681-002B	30' W of E
✓	↓	L	GW-8 4-6 ft ms/msd	6				6			0501686-002A	30' W of SE

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Pete Daniels	1/31/05	13:00		1/31/05	13:00
	1-31-05	15:00			

LABORATORY USE ONLY

Discrepancies Between Sample Labels and COC Record? Y or N
Explain:

Samples were:
1. Shipped___ or Hand Delivered___ Airbill# _____
2. Ambient or chilled
3. Received in good condition: Y or N
4. Properly preserved: Y or N
5. Samples returned to lab ___ Hrs from collection.

COC Tape was:
1. Present on outer package: Y or N
2. Unbroken on outer package: Y or N
3. COC record present & complete upon sample receipt: Y or N

BER013 A8

WHITE COPY - ORIGINAL | YELLOW COPY - CLIENT | PINK COPY - LABORATORY

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
VOLATILE (VOA)
ANALYSES

SDG: BER011

Laboratory Samp ID	Client Sample ID	Matrix	Analytical Protocol	Date Collected	DateRecd at Lab	Date Extracted	Date Analyzed	Extraction Method	DF	Level	Aux Cleanup
0501305-001A	S-1 0-2 FT	Soil	SW8260B	12-Jan-05	13-Jan-05		14-Jan-05		1	LOW	
0501305-002A	S-2 0-1.5 FT	Soil	SW8260B	12-Jan-05	13-Jan-05		14-Jan-05		1	LOW	
0501305-002AMS	S-2 0-1.5 FTMS	Soil	SW8260B	12-Jan-05	13-Jan-05		14-Jan-05		1	LOW	
0501305-002AMSD	S-2 0-1.5 FTMSD	Soil	SW8260B	12-Jan-05	13-Jan-05		14-Jan-05		1	LOW	

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
VOLATILE (VOA)
ANALYSES

SDG: BER012

Laboratory Samp ID	Client Sample ID	Matrix	Analytical Protocol	Date Collected	DateRecd at Lab	Date Extracted	Date Analyzed	Extraction Method	DF	Level	Aux Cleanup
0501306-001A	GW-1 3.5-5.5 FTDL	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		19-Jan-05		10	LOW	
0501306-001A	GW-1 3.5-5.5 FT	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		18-Jan-05		1	LOW	
0501306-002A	GW-2 4-6 FT	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		18-Jan-05		1	LOW	
0501306-003A	GW-2 19-21 FTDL	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		19-Jan-05		10	LOW	
0501306-003A	GW-2 19-21 FT	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		18-Jan-05		1	LOW	
0501306-004A	GW-2 34-38 FT	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		18-Jan-05		1	LOW	
0501306-005A	GW-3 4-8 FTDL	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		19-Jan-05		100	LOW	
0501306-005A	GW-3 4-8 FT	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		18-Jan-05		1	LOW	
0501306-005AMS	GW-3 4-8 FTMS	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		18-Jan-05		1	LOW	
0501306-005AMSD	GW-3 4-8 FTMSD	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		18-Jan-05		1	LOW	
0501306-006A	GW-3 17-21 FT	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		18-Jan-05		1	LOW	
0501306-006A	GW-3 17-21 FTDL	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		19-Jan-05		100	LOW	
0501306-007A	GW-3 32-36 FT	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		19-Jan-05		1	LOW	
0501306-008A	GW-4 4-8 FTDL	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		19-Jan-05		2.5	LOW	
0501306-008A	GW-4 4-8 FT	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		18-Jan-05		1	LOW	
0501306-009A	GW-4 17-21 FTDL	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		19-Jan-05		100	LOW	
0501306-009A	GW-4 17-21 FT	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		18-Jan-05		1	LOW	
0501306-010A	GW-4 34-38 FT	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		19-Jan-05		1	LOW	
0501306-011A	GW-5 4-8 FT	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		19-Jan-05		1	LOW	
0501306-012A	GW-6 4-8 FT	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		18-Jan-05		1	LOW	
0501306-013A	GW-6 17-21 FT	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		18-Jan-05		1	LOW	
0501306-013A	GW-6 17-21 FTDL	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		19-Jan-05		2.5	LOW	
0501306-014A	GW-6 34-38 FT	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		18-Jan-05		1	LOW	
0501306-015A	SUPPLY WELL	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		18-Jan-05		1	LOW	
0501306-016A	FIELDBLANK1/12	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		18-Jan-05		1	LOW	
0501306-017A	TRIPBLANK1/12	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		19-Jan-05		1	LOW	

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
VOLATILE (VOA)
ANALYSES

SDG: BER013

Laboratory Samp ID	Client Sample ID	Matrix	Analytical Protocol	Date Collected	DateRecd at Lab	Date Extracted	Date Analyzed	Extraction Method	DF	Level	Aux Cleanup
0501686-001A	GW-7 4-6	Aqueous	SW8260B	31-Jan-05	31-Jan-05		31-Jan-05		1	LOW	
0501686-001ADL	GW-7 4-6DL	Aqueous	SW8260B	31-Jan-05	31-Jan-05		02-Feb-05		2500	LOW	
0501686-002A	GW-8 4-6	Aqueous	SW8260B	31-Jan-05	31-Jan-05		31-Jan-05		1	LOW	
0501686-002ADL	GW-8 4-6DL	Aqueous	SW8260B	31-Jan-05	31-Jan-05		02-Feb-05		1000	LOW	
0501686-002AMS	GW-8 4-6MS	Aqueous	SW8260B	31-Jan-05	31-Jan-05		31-Jan-05		1	LOW	
0501686-002AMSD	GW-8 4-6MSD	Aqueous	SW8260B	31-Jan-05	31-Jan-05		31-Jan-05		1	LOW	
0501686-003A	FIELD BLANK	Aqueous	SW8260B	31-Jan-05	31-Jan-05		02-Feb-05		1	LOW	
0501686-004A	TRIP BLANK	Aqueous	SW8260B	31-Jan-05	31-Jan-05		02-Feb-05		1	LOW	

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
VOLATILE (VOA)
ANALYSES

SDG: BER014

Laboratory Samp ID	Client Sample ID	Matrix	Analytical Protocol	Date Collected	DateRecd at Lab	Date Extracted	Date Analyzed	Extraction Method	DF	Level	Aux Cleanup
0501688-001A	S-3 0-4 FT	Soil	ASP95-1	31-Jan-05	31-Jan-05		02-Feb-05		5	MED	
0501688-001ADL	S-3 0-4 FTDL	Soil	ASP95-1	31-Jan-05	31-Jan-05		02-Feb-05		500	MED	
0501688-002A	S-4 0-4 FT	Soil	ASP95-1	31-Jan-05	31-Jan-05		02-Feb-05		5	MED	
0501688-002ADL	S-4 0-4 FTDL	Soil	ASP95-1	31-Jan-05	31-Jan-05		03-Feb-05		100	MED	
0501688-002ADLM	S-4 0-4 FTDLMS	Soil	ASP95-1	31-Jan-05	31-Jan-05		02-Feb-05		100	MED	
0501688-002ADLM	S-4 0-4 FTDLMSD	Soil	ASP95-1	31-Jan-05	31-Jan-05		02-Feb-05		100	MED	
0501688-003A	S-5 0-4 FT	Soil	ASP95-1	31-Jan-05	31-Jan-05		02-Feb-05		2.5	MED	
0501688-004A	S-6 0-4 FT	Soil	ASP95-1	31-Jan-05	31-Jan-05		02-Feb-05		5	MED	
0501688-004ADL	S-6 0-4 FTDL	Soil	ASP95-1	31-Jan-05	31-Jan-05		03-Feb-05		100	MED	

L.A.B. Validation Corp. 14 West Point Drive, East Northport, N.Y. 11731

Appendix D
SDG Narrative

Phone/Fax (631) 757-0467 email LABValidation@aol.com

H2M LABS, INC.

SDG NARRATIVE FOR VOLATILE ORGANICS
SAMPLES RECEIVED: 1/13/05
SDG #: BER011

For Samples:

S-1 0-2 FT
S-2 0-1.5 FT MS/MSD

The above samples were analyzed for volatile organics by EPA method 8260B in accordance with the NYSDEC ASP, Rev. 10/95.

All QC data and calibrations met the requirements of the method, and no problems were encountered with sample analysis. The following should be noted:

- Sample S-2 0-1.5 FT was analyzed as the matrix spike/matrix spike duplicate. Chlorobenzene recoveries were slightly under the QC limits in both spike analyses.
- A lab fortified blank was analyzed. All percent recoveries were within QC limits.
- Compounds are reported as estimated values with the qualifier "J", if the concentration is between the MDL and the reporting limit. Values under the MDL are not reported.
- 4-bromofluorobenzene had a 32.2%D in the continuing calibration, which exceeds 25% but is under the limit of 40%. It also exceeded 20.5% RSD in the initial calibration but met the RSD limit of 40%.
- TIC compounds that are suspected to be column bleed introduced by the analytical system, were flagged with the qualifier "X".

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Date Reported: January 26, 2005

****
* *
* *
****
Ursula Middel
Technical Manager

BER011 AG KJS 2/4/05

H2M LABS, INC.

SDG NARRATIVE FOR VOLATILE ORGANICS
SAMPLES RECEIVED: 1/13/05
SDG #: BER012

For Samples:

GW-1 3.5-5.5 FT	GW-4 34-38 FT
GW-2 4-6 FT	GW-5 4-8 FT
GW-2 19-21 FT	GW-6 4-8 FT
GW-2 34-38 FT	GW-6 17-21 FT
GW-3 4-8 FT MS/MSD	GW-6 34-38 FT
GW-3 17-21 FT	SUPPLY WELL
GW-3 32-36 FT	FIELD BLANK 1/12
GW-4 4-8 FT	TRIP BLANK 1/12
GW-4 17-21 FT	

The above water samples were analyzed for volatile organics by EPA method 8260B in accordance with the NYSDEC ASP, Rev. 10/95.

All QC data and calibrations met the requirements of the method, and no problems were encountered with sample analysis. The following should be noted:

- Sample GW-3 4-8 FT was analyzed as the matrix spike/matrix spike duplicate. QC limits do not apply for trichloroethene, because the compound is present in the sample, and the spike level is not a multiple of the sample concentration.
- A lab fortified blank was analyzed. All percent recoveries were within QC limits.
- The samples were diluted as required to keep concentrations within the calibration ranges. Both sets of data, undiluted and diluted, are submitted for the seven diluted samples.
- Compounds are reported as estimated values with the qualifier "J", if the concentration is between the MDL and the reporting limit. Values under the MDL are not reported.
- TIC compounds that are suspected to be column bleed introduced by the analytical system, were flagged with the qualifier "X".

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Date Reported: January 26, 2005

****
* *
* *
****

Ursula Middel
Technical Manager

BER012A6 KTS 2/4/05

H2M LABS, INC.

SDG NARRATIVE FOR VOLATILE ORGANICS
SAMPLES RECEIVED: 1/31/05
SDG #: BER013

For Samples:

GW-7 4-6
GW-8 4-6
FIELD BLANK
TRIP BLANK

The above water samples were analyzed for volatile organics by EPA method 8260B in accordance with the NYSDEC ASP, Rev. 10/95.

All QC data and calibrations met the requirements of the method, and no problems were encountered with sample analysis. The following should be noted:

- Sample GW-3 4-8 FT was analyzed as the matrix spike/matrix spike duplicate. QC limits do not apply for trichloroethene, because the compound is present in the sample at a high concentration, and the spike level is not a multiple of the sample concentration.
- A lab fortified blank and a matrix spike blank was analyzed. All percent recoveries were within QC limits.
- The samples were diluted as required to keep concentrations within the calibration ranges. Both sets of data, undiluted and diluted, are submitted.
- The surrogate recovery for toluene-d8 in sample GW-7 4-6 was above the QC limit in the undiluted analysis but met the limit in the re-analysis at the dilution.
- The concentrations are reported to the requested reporting limits, which are under the lowest calibration level. The calibrations are extrapolated to the reporting limits (PQL).
- Compounds are reported as estimated values with the qualifier "J", if the concentration is between the MDL and the reporting limit. Values under the MDL are not reported.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Date Reported: February 9, 2005

****
* *
* *
****

Ursula Middel
Technical Manager

BER013 A6 KJS 2/10/05

H2M LABS, INC.

SDG NARRATIVE FOR VOLATILE ORGANICS
SAMPLES RECEIVED: 1/31/05
SDG #: BER014

For Samples:

S-3 0-4 FT
S-4 0-4 FT
S-5 0-4 FT
S-6 0-4 FT

The above water samples were analyzed for volatile organics by EPA method 8260B in accordance with the NYSDEC ASP, Rev. 10/95.

All QC data and calibrations met the requirements of the method, and no problems were encountered with sample analysis. The following should be noted:

- Sample S-4 0-4 FT was analyzed as the matrix spike/matrix spike duplicate. All percent recoveries and RPD's are within QC limits.
- A lab fortified blank and a matrix spike blank was analyzed. All percent recoveries were within QC limits.
- All samples were analyzed at a medium level due to concentration levels of targeted analytes. All samples except for S-5 0-4 FT were reanalyzed at a greater dilution due to concentration levels of targeted analytes above the calibration range in initial medium level analysis.
- Low levels (less than PQL) of tetrachloroethene were detected in the method blank of 2/2/05. This analyte is flagged with a "B" qualifier if present in the associated samples.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Date Reported: February 16, 2005

****
* *
* *
****
Joann M. Slavin
Senior Vice President

BER014 A6 KJS 2/17/05

L.A.B. Validation Corp. 14 West Point Drive, East Northport, N.Y. 11731

DATA VALIDATION REPORT

ORGANIC ANALYSIS

EPA Compendium Method TO-15
VOLATILES BY GC/MS

For Soil Gas Samples Collected
January 11, 2005
Peninsula Blvd., Hewlett, New York
American Drive In Cleaners
Berninger Environmental

SAMPLE DELIVERY GROUP NUMBER: 104803
STL Burlington

SUBMITTED TO:

Mr. Walter Berninger/President
Berninger Environmental
1615 Ninth Avenue
Bohemia, New York 11716

March 13, 2005

PREPARED BY:

Lori A. Beyer/President
L.A.B. Validation Corp.
14 West Point Drive
East Northport, NY 11731

American Drive In Cleaners –Hewlett, New York.
Data Validation Report: Volatile Organics

Table of Contents:

Introduction
Data Qualifier Definitions
Sample Receipt

1.0 Volatile Organics by GC/MS EPA Compendium Method TO-15
- 1.1 Holding Time
- 1.2 Matrix Spikes (MS), Matrix Spike Duplicates (MSD)
- 1.3 Laboratory Control Sample
- 1.4 Blank Contamination
- 1.5 GC/MS Instrument Performance Check
- 1.6 Initial and Continuing Calibrations
- 1.7 Internal Standards
- 1.8 Target Compound List Identification
- 1.9 Compound Quantification and Reported Detection Limits
- 1.10 Overall System Performance

APPENDICES:

A. Data Summary Tables with Qualifications
B. Chain of Custody Documents
C. SDG Narrative

Introduction:

A validation was performed on seven (7) soil gas [air] samples for Volatile Organic analysis collected by Berninger Environmental and submitted to STL Burlington for subsequent analysis under chain of custody documentation. This report contains the laboratory and validation results for the seven (7) field samples itemized below. The samples were collected on January 11, 2005.

The samples were analyzed by STL Burlington utilizing EPA Method TO-15 and in accordance with NYSDEC Analytical Services Protocol (10/95) and submitted under NYSDEC ASP Category B equivalent deliverable requirements for the associated analytical methodology employed. The analytical testing consisted of the selected TO-15 Target Compound List (TCL) of analytes for Volatile Organics listed in Appendix A.

The data was evaluated in accordance with the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (Publication 9240.1-05) and in conjunction with the analytical methodology for which the samples were analyzed, where applicable and relevant.

The data validation report pertains to the following field soil gas/air samples:

Sample Identification	Laboratory Identification	Sample Matrix	Collection Date
SG-1	604508	Air	01/11/05
SG-2	604509	Air	01/11/05
SG-3	604510	Air	01/11/05
SG-4	604511	Air	01/11/05
SG-5	604512	Air	01/11/05
SG-6	604513	Air	01/11/05
SG-7	604514	Air	01/11/05

Data Qualifier Definitions:

The following definitions provide brief explanations of the qualifiers assigned to results in the data review process.

U - **The analyte was analyzed for, but was not detected above the reported sample quantitation limit.**

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

UJ - **The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.**

R - **The sample results are rejected due to deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.**

N - **The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."**

NJ - **The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate quantity.**

Sample Receipt:

The Chain of Custody document from 01/11/05 indicates that 7 air samples were received at STL Burlington via Federal Express on 01/13/05. Sample login notes and the chain of custody indicate that at the Validated Time of Sample Receipt (VTSR) at the laboratory no discrepancies were notated and therefore the integrity of the samples is assumed to be good.

The data summary tables included in Appendix A includes all usable (qualified) and unusable (rejected) results for the samples identified above. These tables summarize the detailed narrative section of the report. All data validation qualifications have been reported in the excel spreadsheet in bold for ease of review and verification.

NOTE:
L.A.B. Validation Corp. believes it is appropriate to note that the data validation criteria utilized for data evaluation is different than the method requirements utilized by the laboratory. Qualified data does not necessarily mean that the laboratory was non-compliant in the analysis that was performed.

Volatile Organics by EPA Compendium Method TO-15

The following method criteria were reviewed: holding times, LCS, Blanks, Tunes, Calibrations, Internal Standards, Target Component Identification and Quantitation, Reported Quantitation Limits and Overall System Performance. The volatile results were considered to be valid and useable as noted on the data summary tables in Appendix A and within the following text:

1.1 Holding Time

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the technical holding time is exceeded, the data may not be considered valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimates, "J". The non-detects (sample quantitation limits) are required to be flagged as estimated, "J", or unusable, "R", if the holding times are grossly exceeded.

Air samples (summa canisters) pertaining to this SDG were performed within the method required thirty (30) days from sample collection for initial and diluted reanalysis. No qualifications were required based upon holding time criteria.

1.2 Matrix Spikes (MS)/ Matrix Spike Duplicates (MSD

The MS/MSD data are generated to determine the long-term precision and accuracy of the analytical method in various matrices.

Matrix Spike/Matrix Spike Duplicate analysis was not performed on samples pertaining to this SDG, however, LCS and LCS Duplicates were analyzed and acceptable recoveries for spiked components were observed which documents method efficiency.

1.3 Laboratory Control Sample

The LCS data for laboratory control samples (LCS) are generated to provide information on the accuracy of the analytical method and on the laboratory performance.

All compounds recovered well in the LCS's. No qualifiers were applied.

1.4 Blank Contamination

Quality assurance (QA) blanks; i.e. method, trip and field blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field blanks measure cross-contamination of samples during field operations. Storage blanks measure cross-contamination during sample storage of the field samples.

The following table was utilized to qualify target analyte results due to contamination. The largest value from all the associated blanks is required to be utilized:

For:	Flag Sample Result with a "U" when:	Report CRQL & Qualify "U" when:	No Qualification is Needed when:
Methylene Chloride, Acetone, Toluene & 2-Butanone	Sample Conc. Is >CRQL, but </=10x blank value	Sample Conc. is <CRQL and </=10x blank value	Sample Conc. is >CRQL and >10x blank value
Other Contaminants	Sample Conc. Is >CRQL, but </=5x blank value	Sample Conc. Is <CRQL and </=5x blank value	Sample Conc. is >CRQL and >5x blank value

Below is a summary of the compounds in the sample and the associated qualifications that have been applied:

A) **Method Blank Contamination:**

Target analytes were not detected in any of the associated method blanks pertaining to this SDG.

B) **Field Blank Contamination:**

Field Blank analysis was not conducted for this SDG.

C) **Trip Blank Contamination:**

Trip Blank analysis was not submitted with this SDG.

D) **Storage Blank Contamination:**

Storage blanks were not submitted for this SDG. It should be noted that storage blanks are not mandated by EPA Method TO-15.

1.5 GC/MS Instrument Performance Check

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The Tuning standard for volatile organics is Bromofluorobenzene (BFB).

Instrument performance was generated within acceptable limits and frequency for Bromofluorobenzene (BFB) for all analyses conducted for this SDG.

1.6 Initial and Continuing Calibrations

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration checks document that the instrument is giving satisfactory daily performance.

A) Response Factor GC/MS:
The response factor measures the instrument's response to specific chemical compounds. The response factor for all compounds must be >/= 0.01 in both initial and continuing calibrations. A value <0.01 indicates a serious detection and quantitation problem (poor sensitivity). Analytes detected in the sample will be qualified as estimated, "J". All non-detects for that compound in the corresponding samples will be rejected, "R".

All the response factors for the target analytes reported were found to be within acceptable limits (>/=0.01), for the initial and continuing calibrations.

B) Percent Relative Standard Deviation (%RSD) and Percent Difference (%D):
Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentrations. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be <30% and %D must be <25%. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J" and non-detects are flagged "UJ". If %RSD and %D grossly exceed QC criteria, non-detect data may be qualified, "R", unusable. Additionally, in cases where the %RSD is >30% and eliminating either the high or the low point of the curve does not restore the %RSD to less than or equal to 30% then positive results are qualified, "J". In cases where removal of either the low or high point restores the linearity, then only low or high level results will be qualified, "J" in the portion of the curve where non linearity exists.

Initial Calibrations: The initial calibrations provided and the %RSD were within acceptable limits (30%) for all target compounds.

Continuing Calibrations: The continuing calibrations provided and the %D were within acceptable limits (25%) for all target compounds

1.7 Internal Standards

Internal Standards (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of 2 (-40% to +80%) from the associated continuing calibration standard. The retention time of the internal standard must not vary more than +/- 30 seconds from the associated continuing calibration standard. If the area count is outside the (-40% to +80%) range of the associated standard, all of the positive results for compounds quantitated using that IS are qualified as estimated, "J", and all non-detects as "UJ", or "R" if there is a severe loss of sensitivity.

If an internal standard retention time varies by more than 30 seconds, professional judgment will be used to determine either partial or total rejection of the data for that sample fraction.

Internal Standard area responses met QC requirements for both initial and diluted reanalyses of field samples.

1.8 Target Compound List Identification

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and by comparison to the ion spectra obtained from known standards. For the results to be a positive hit, the sample peak must be within =/- 0.06RRT units of the standard compound and have an ion spectra which has a ratio of the primary and secondary m/e intensities within 20% of that in the standard compound.

GC/MS spectra met the qualitative criteria for identification. All retention times were within required specifications.

1.9 Compound Quantification and Reported Detection Limits

GC/MS quantitative analysis is considered to be acceptable. Correct internal standards and response factors and air volumes were used to calculate final concentrations.

Samples SG-1, SG-5 and SG-7 yielded target analyte concentrations above the instruments linear calibration range. A secondary diluted reanalysis was performed as required. Sample results have been hybridized on the summary sheets in Appendix A to notate which concentration should be utilized.

Toluene exceeded the instrument's linear range in SG-4. A diluted reanalysis was not performed as required. Results must be considered estimated, "J" biased low for this compound.

1.10 Overall System Performance

GC/MS analytical methodology was acceptable for this analysis.

Reviewer's Signature Lori A. Beyer **Date** 03/13/05

L.A.B. Validation Corp. 14 West Point Drive, East Northport, N.Y. 11731

Appendix A
Data Summary Tables
With Qualifications

Phone/Fax (631) 757-0467 email LABValidation@aol.com

VOLATILE ORGANICS EPA Compendium METHOD TO-15

American Drive In Cleaners Peninsula Blvd, Hewlett NY
SDG 104803

	Berninger Sample ID:		SG-1	SG-2	SG-3	SG-4	SG-5	SG-6	SG-7	
	Laboratory ID:		604508	604509	604510	604511	604512	604513	604514	
	Sampling Date:		1/11/2005	1/11/2005	1/11/2005	1/11/2005	1/11/2005	1/11/2005	1/11/2005	
	Volume Air Analyzed		200ml	200ml	200ml	200ml	200ml	200ml	100ml	
Cas #	Analyte	Units:								
75-71-8	Dichlorodifluoromethane	ppbv	0.60	0.60	0.76	0.50 U	0.50 U	0.64	1.3	
76-14-2	1,2-Dichlorotetrafluoroethane	ppbv	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.40	U
74-87-3	Chloromethane	ppbv	0.50 U	0.50 U	0.57	0.50 U	0.20 U	0.64	1.2	
75-01-4	Vinyl Chloride	ppbv	0.20 U	0.58	0.20 U	0.20 U	89	0.20 U	56	
106-99-0	1,3-Butadiene	ppbv	1.0	0.20 U	0.20 U	0.89	4.6	0.20 U	0.40	U
74-83-9	Bromomethane	ppbv	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.40	U
75-00-3	Chloroethane	ppbv	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.40	U
593-60-2	Bromoethene	ppbv	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.40	U
75-69-4	Trichlorofluoromethane	ppbv	0.32	0.27	0.28	0.20 U	0.20 U	0.28	0.53	
76-13-1	Freon TF	ppbv	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.40	U
75-35-4	1,1-Dichloroethene	ppbv	0.20 U	0.20 U	0.20 U	0.20 U	0.62	0.20 U	1.1	
75-15-0	Carbon Disulfide	ppbv	0.50	0.50 U	0.50 U	0.96	3.6	0.50 U	1.0	U
107-05-1	3-Chloropropene	ppbv	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.40	U
75-09-2	Methylene Chloride	ppbv	0.50 U	0.50 U	0.50 U	0.50 U	0.56	0.50 U	1.0	U
156-60-5	trans-1,2-Dichloroethene	ppbv	1.6	0.20 U	0.20 U	0.20 U	18	0.20 U	2.2	
110-54-3	n-Hexane	ppbv	0.69	0.64	0.30	4.2	1.2	0.35	0.50	
75-34-3	1,1-Dichloroethane	ppbv	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.40	U
156-59-2	cis-1,2-Dichloroethene	ppbv	33	0.20 U	0.20 U	0.20 U	140	1.1	91	
67-66-3	Chloroform	ppbv	1.9	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.40	U
71-55-6	1,1,1-Trichloroethane	ppbv	0.31	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.40	U
110-82-7	Cyclohexane	ppbv	0.20 U	0.20 U	0.20 U	22	0.71	0.42	0.40	U
56-23-5	Carbon Tetrachloride	ppbv	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.40	U
540-84-1	2,2,4-Trimethylpentane	ppbv	0.33	0.34	0.20	0.20 U	0.70	0.20 U	0.40	U
71-43-2	Benzene	ppbv	0.99	0.69	0.51	1.4	1.4	0.38	0.58	
107-06-2	1,2-Dichloroethane	ppbv	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.40	U
142-82-5	n-Heptane	ppbv	0.50	0.77	0.20 U	39	1.2	1.3	0.40	U
79-01-6	Trichloroethene	ppbv	110	0.20 U	0.20 U	0.20 U	0.61	0.25	65	
78-87-5	1,2-Dichloropropane	ppbv	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.40	U
75-27-4	Bromodichloromethane	ppbv	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.40	U
10061-01-5	cis-1,3-Dichloropropene	ppbv	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.40	U
108-88-3	Toluene	ppbv	8.0	4.3	1.2	100 J	0.95	18	1.5	
10061-02-6	trans-1,3-Dichloropropene	ppbv	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.40	U
79-00-5	1,1,2-Trichloroethane	ppbv	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.40	U
127-18-4	Tetrachloroethene	ppbv	1000	0.31	0.20 U	3.0	1.7	6.3	330	
124-48-1	Dibromochloromethane	ppbv	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.40	U
106-93-4	1,2-Dibromoethane	ppbv	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.40	U
108-90-7	Chlorobenzene	ppbv	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.40	U
100-41-4	Ethylbenzene	ppbv	1.9	0.26	0.25	0.54	1.4	0.34	0.40	
1330-20-7	Xylene (m,p)	ppbv	7.6	0.64	0.65	1.6	4.8	1.1	1.3	
95-47-6	Xylene (o)	ppbv	2.3	0.28	0.25	0.48	1.5	0.37	0.43	
100-42-5	Styrene	ppbv	0.20 U	0.20 U	0.20 U	0.20 U	0.22	0.20 U	0.40	U
75-25-2	Bromoform	ppbv	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.40	U
79-34-5	1,1,2,2-Tetrachloroethane	ppbv	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.40	U
622-96-8	4-Ethyltoluene	ppbv	2.6	0.25	0.26	0.32	1.1	0.33	0.50	
108-67-8	1,3,5-Trimethylbenzene	ppbv	0.45	0.20 U	0.20 U	0.20 U	0.23	0.20 U	0.40	U
95-49-8	2-Chlorotoluene	ppbv	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.40	U
95-63-6	1,2,4-Trimethylbenzene	ppbv	2.4	0.23	0.26	0.32	1.0	0.35	0.54	
541-73-1	1,3-Dichlorobenzene	ppbv	0.20 U	0.20 U	0.20 U	0.45	0.36	0.20 U	0.40	U
106-46-7	1,4-Dichlorobenzene	ppbv	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.40	U
95-50-1	1,2-Dichlorobenzene	ppbv	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.40	U
120-82-1	1,2,4-Trichlorobenzene	ppbv	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	1.0	U
87-68-3	Hexachlorobutadiene	ppbv	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.40	U
	Total VOC Concentration (ppbv)		1177	10.2	5.5	175	275	32.1	554	

VOLATILE ORGANICS EPA Compendium METHOD TO-15

American Drive In Cleaners Peninsula Blvd, Hewlett NY
SDG 104803

	Berninger Sample ID:		SG-1	SG-2	SG-3	SG-4	SG-5	SG-6	SG-7
	Laboratory ID:		604508	604509	604510	604511	604512	604513	604514
	Sampling Date:		1/11/2005	1/11/2005	1/11/2005	1/11/2005	1/11/2005	1/11/2005	1/11/2005
	Volume Air Analyzed		200ml	200ml	200ml	200ml	200ml	200ml	100ml
Cas #	Analyte	Units:							
75-71-8	Dichlorodifluoromethane	ug/m3	2.1	2.1	2.7	1.0 U	1.0 U	2.3	4.6
76-14-2	1,2-Dichlorotetrafluoroethane	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
74-87-3	Chloromethane	ug/m3	2.5 U	2.5 U	**1.2 J**	2.5 U	2.5 U	1.3	2.5
75-01-4	Vinyl Chloride	ug/m3	1.0 U	1.5	1.0 U	1.0 U	230	1.0 U	145
106-99-0	1,3-Butadiene	ug/m3	2.3	1.0 U	1.0 U	2.0	10.4	1.0 U	2.0 U
74-83-9	Bromomethane	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
75-00-3	Chloroethane	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
593-60-2	Bromoethene	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
75-69-4	Trichlorofluoromethane	ug/m3	1.3	1.1	1.2	1.0 U	1.0 U	1.2	2.2
76-13-1	Freon TF	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
75-35-4	1,1-Dichloroethene	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	2.5	1.0 U	4.4
75-15-0	Carbon Disulfide	ug/m3	1.6	2.5 U	2.5 U	3.0	11.4	2.5 U	5.0 U
107-05-1	3-Chloropropene	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
75-09-2	Methylene Chloride	ug/m3	2.5 U	2.5 U	2.5 U	2.5 U	1.1	2.5 U	5.0 U
156-60-5	trans-1,2-Dichloroethene	ug/m3	4.1	1.0 U	1.0 U	1.0 U	45.8	1.0 U	5.6
110-54-3	n-Hexane	ug/m3	1.6	1.5	**0.7 J**	10.2	2.9	**0.8 J**	**1.2 J**
75-34-3	1,1-Dichloroethane	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
156-59-2	cis-1,2-Dichloroethene	ug/m3	83.9	1.0 U	1.0 U	1.0 U	355.8	2.8	231.3
67-66-3	Chloroform	ug/m3	6.6	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
71-55-6	1,1,1-Trichloroethane	ug/m3	4.4	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
110-82-7	Cyclohexane	ug/m3	1.0 U	1.0 U	1.0 U	77.0	2.5	1.5	2.0 U
56-23-5	Carbon Tetrachloride	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
540-84-1	2,2,4-Trimethylpentane	ug/m3	**0.8 J**	**0.8 J**	**0.5 J**	1.0 U	1.7	1.0 U	2.0 U
71-43-2	Benzene	ug/m3	3.2	2.2	1.7	4.6	4.6	1.2	**1.9 J**
107-06-2	1,2-Dichloroethane	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
142-82-5	n-Heptane	ug/m3	**0.9 J**	1.4	1.0 U	69.9	2.2	2.3	2.0 U
79-01-6	Trichloroethene	ug/m3	435.4	1.0 U	1.0 U	1.0 U	2.4	1.0	257.3
78-87-5	1,2-Dichloropropane	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
75-27-4	Bromodichloromethane	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
10061-01-5	cis-1,3-Dichloropropene	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
108-88-3	Toluene	ug/m3	30.7	16.5	4.6	383.3	3.6	69.0	5.8
10061-02-6	trans-1,3-Dichloropropene	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
79-00-5	1,1,2-Trichloroethane	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
127-18-4	Tetrachloroethene	ug/m3	6917	2.1	1.0 U	20.8	11.8	43.6	2282.0
124-48-1	Dibromochloromethane	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
106-93-4	1,2-Dibromoethane	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
108-90-7	Chlorobenzene	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
100-41-4	Ethylbenzene	ug/m3	7.2	1.0	**0.9 J**	2.0	5.3	1.3	**1.5 J**
1330-20-7	Xylene (m,p)	ug/m3	33.6	2.8	2.9	7.1	21.2	4.9	5.7
95-47-6	Xylene (o)	ug/m3	10.2	1.2	1.1	2.1	6.6	1.6	**1.9 J**
100-42-5	Styrene	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0	1.0 U	2.0 U
75-25-2	Bromoform	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
79-34-5	1,1,2,2-Tetrachloroethane	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
622-96-8	4-Ethyltoluene	ug/m3	11.4	1.1	1.1	1.4	4.8	1.4	2.2
108-67-8	1,3,5-Trimethylbenzene	ug/m3	2.0	1.0 U	1.0 U	1.0 U	1.0	1.0 U	2.0 U
95-49-8	2-Chlorotoluene	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
95-63-6	1,2,4-Trimethylbenzene	ug/m3	10.5	1.0	1.1	1.4	4.4	1.5	2.4
541-73-1	1,3-Dichlorobenzene	ug/m3	1.0 U	1.0 U	1.0 U	2.7	2.2	1.0 U	2.0 U
106-46-7	1,4-Dichlorobenzene	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
95-50-1	1,2-Dichlorobenzene	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
120-82-1	1,2,4-Trichlorobenzene	ug/m3	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	5.0 U
87-68-3	Hexachlorobutadiene	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
	Total VOC Concentration (ug/m3)		7571	36.3	19.7	587.5	735.2	137.7	2958

Appendix B
Chain of Custody

SEVERN TRENT **STL**

SEVERN TRENT LABORATORIES, INC.

STL Burlington
208 South Park Drive, Suite 1
Colchester, VT 05446 Tel 802 655 1203

CHAIN OF CUSTODY RECORD

Report to:
Company: Berninger Env'R. Inc
Address: 1615 Ninth Avenue
Bohemia, New York
Contact: Walter Berninger
Phone: 631-588-2251
Fax: 631-588-2926
Contract/ Quote:

Invoice to:
Company: SAME
Address:
Contact: Walter Berninger
Phone: 631-588-2251
Fax: 631-588-2926

Sampler's Name: Jill S. Hamson
Sampler's Signature: [signature] 516 647-4211

Proj. No.
Project Name: American Drive Inc Cleaners (ADI)
No/Type of Containers²: 1/1 Liter Summa

ANALYSIS REQUESTED: TO14 w/TO15 methodology

Lab Use Only
Due Date:
Temp. of coolers when received (C°): AIR
1 | 2 | 3 | 4 | 5
Custody Seal Intact: Y / N
Screened For Radioactivity: ✓

TO14 w/TO15 methodology

Matrix¹	Date	Time	Comp	Grab	Identifying Marks of Sample(s)	VOA	A/G 1 Lt.	250 ml	P/O	Lab/Sample ID (Lab Use Only)
A	1/4/05	933			SG-1					
		830			SG-2					
		1100			SG-3					
		1130			SG-4					
		1200			SG-5					
		1300			SG-6					
↓		1330		↓	SG-7				↓	

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	1/12/05	9:00	[signature]	1/12/05	10:15
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
			[signature]	1-13-05	0930
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time

Remarks: 1 Liter Summa Canister

Client's delivery of samples constitutes acceptance of Severn Trent Laboratories terms and conditions contained in the Price Schedule.

¹Matrix WW - Wastewater W - Water S - Soil L - Liquid A - Air bag C - Charcoal Tube SL - Sludge O - Oil
²Container VOA - 40 ml vial A/G - Amber / Or Glass 1 Liter 250 ml - Glass wide mouth P/O - Plastic or other _____

STL cannot accept verbal changes. Please Fax written changes to (802) 655-1248

STL8234-200 (12/02)

Appendix C
SDG Narrative

Phone/Fax (631) 757-0467 email LABValidation@aol.com

SEVERN TRENT STL

STL Burlington
208 South Park Drive, Suite 1
Colchester, VT 05446

Tel: 802 655 1203 Fax: 802 655 1248
www.stl-inc.com

February 3, 2005

Mr. Walter Berninger
Berninger Environmental
1615 9th Avenue
Bohemia, NY 11716

Re: Laboratory Project No. 25000
Case: 25000; SDG: 104803

Dear Mr. Berninger:

Enclosed are the analytical results for samples received by STL Burlington on January 13, 2005. This report is sequentially numbered starting with page 0001 and ending with page 0366. Laboratory numbers have been assigned and designated as follows:

Lab ID	Client Sample ID	Sample Date	Sample Matrix
	Received: 01/13/05 ETR No: 104803		
604508	SG-1	01/11/05	Air
604509	SG-2	01/11/05	Air
604510	SG-3	01/11/05	Air
604511	SG-4	01/11/05	Air
604512	SG-5	01/11/05	Air
604513	SG-6	01/11/05	Air
604514	SG-7	01/11/05	Air

Documentation of the condition of the samples at the time their receipt and any exceptions to the laboratory's Sample Acceptance Policy is included in the Sample Handling section of this submittal.

There were no exceptions to method quality control criteria noted for the analysis of the above sample.

The analytical results presented in this data report were generated under a quality system that adheres to the requirements specified in the NELAC standard. This report shall not be reproduced, except in full, without the written approval of the laboratory. The release of the data in this report is authorized by the Laboratory Director or his designee, as verified by the following signature.

If there are any questions regarding this submittal, please contact Lori Arnold at (802) 655-1203.

Sincerely,

Michael F. Wheeler, Ph.D.
Laboratory Director

STL Burlington
Colchester, Vermont

Sample Data Summary Package

SDG: 104803

SEVERN TRENT STL

STL Burlington
208 South Park Drive, Suite 1
Colchester, VT 05446

Tel: 802 655 1203 Fax: 802 655 1248
www.stl-inc.com

February 3, 2005

Mr. Walter Berninger
Berninger Environmental
1615 9th Avenue
Bohemia, NY 11716

Re: Laboratory Project No. 25000
Case: 25000; SDG: 104803

Dear Mr. Berninger:

Enclosed are the analytical results for samples received by STL Burlington on January 13, 2005. This report is sequentially numbered starting with page 0001 and ending with page 0366. Laboratory numbers have been assigned and designated as follows:

Lab ID	Client Sample ID	Sample Date	Sample Matrix
	Received: 01/13/05 ETR No: 104803		
604508	SG-1	01/11/05	Air
604509	SG-2	01/11/05	Air
604510	SG-3	01/11/05	Air
604511	SG-4	01/11/05	Air
604512	SG-5	01/11/05	Air
604513	SG-6	01/11/05	Air
604514	SG-7	01/11/05	Air

Documentation of the condition of the samples at the time their receipt and any exceptions to the laboratory's Sample Acceptance Policy is included in the Sample Handling section of this submittal.

There were no exceptions to method quality control criteria noted for the analysis of the above sample.

The analytical results presented in this data report were generated under a quality system that adheres to the requirements specified in the NELAC standard. This report shall not be reproduced, except in full, without the written approval of the laboratory. The release of the data in this report is authorized by the Laboratory Director or his designee, as verified by the following signature.

If there are any questions regarding this submittal, please contact Lori Arnold at (802) 655-1203.

Sincerely,

Michael F. Wheeler, Ph.D.
Laboratory Director

SEVERN TRENT **STL**

SEVERN TRENT LABORATORIES, INC.

STL Burlington
208 South Park Drive, Suite 1
Colchester, VT 05446 Tel 802 655 1203

CHAIN OF CUSTODY RECORD

Report to:
Company: Berninger Env. R. Inc
Address: 1615 Ninth Avenue
Bohemia, New York
Contact: Walter Berninger
Phone: 631-588-2251
Fax: 631-588-2926
Contract/ Quote:

Invoice to:
Company: SAME
Address:
Contact: Walter Berninger
Phone: 631-588-2251
Fax: 631-588-2926

Sampler's Name: Jill S. Hamilton
Sampler's Signature: [signature] 516 647-4211

Proj. No.
Project Name: American Drive Inc Cleaners (ADI)
No/Type of Containers²: 1/2 Liter Summa

ANALYSIS REQUESTED: TO14 w/TO15 methodology

Lab Use Only
Due Date:
Temp. of coolers when received (C°): AIR
1 | 2 | 3 | 4 | 5
Custody Seal Intact: Y / N / Y
Screened For Radioactivity: ✓

TO14 w/TO15 methodology

Matrix¹	Date	Time	Comp	Grab	Identifying Marks of Sample(s)	VOA	A/G 1 Lt.	250 ml	P/O	Lab/Sample ID (Lab Use Only)
A	1/11/05	933			SG-1					
		0930			SG-2					
		1100			SG-3					
		1130			SG-4					
		1200			SG-5					
		1300			SG-6					
↓		1330		↓	SG-7				↓	

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	1/12/05	9:30	[signature]	1/12/05	10:15
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
			[signature]	1-13-05	0930
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time

Remarks: 1 Liter Summa Canister

Client's delivery of samples constitutes acceptance of Severn Trent Laboratories terms and conditions contained in the Price Schedule.

¹Matrix WW - Wastewater W - Water S - Soil L - Liquid A - Air bag C - Charcoal Tube SL - Sludge O - Oil
²Container VOA - 40 ml vial A/G - Amber / Or Glass 1 Liter 250 ml - Glass wide mouth P/O - Plastic or other _____

STL cannot accept verbal changes. Please Fax written changes to (802) 655-1248

STLB234-200 (12/02)

SEVERN TRENT STL

METHOD TO-15

SAMPLE DATA SUMMARY PACKAGE

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

BERENV SAMPLE NO.

SG-1

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Matrix: (soil/water) AIR Lab Sample ID: 604508

Sample wt/vol: 200.0 (g/mL) ML Lab File ID: 604508

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. _____ Date Analyzed: 02/01/05

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
75-71-8	Dichlorodifluoromethane	0.60	
76-14-2	1,2-Dichlorotetrafluoroethan	0.20	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl Chloride	0.20	U
106-99-0	1,3-Butadiene	1.0	
74-83-9	Bromomethane	0.20	U
75-00-3	Chloroethane	0.20	U
593-60-2	Bromoethene	0.20	U
75-69-4	Trichlorofluoromethane	0.32	
76-13-1	Freon TF	0.20	U
75-35-4	1,1-Dichloroethene	0.20	U
75-15-0	Carbon Disulfide	0.50	
107-05-1	3-Chloropropene	0.20	U
75-09-2	Methylene Chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	1.6	
110-54-3	n-Hexane	0.69	
75-34-3	1,1-Dichloroethane	0.20	U
156-59-2	cis-1,2-Dichloroethene	33	
67-66-3	Chloroform	1.9	
71-55-6	1,1,1-Trichloroethane	0.31	
110-82-7	Cyclohexane	0.20	U
56-23-5	Carbon Tetrachloride	0.20	U
540-84-1	2,2,4-Trimethylpentane	0.33	
71-43-2	Benzene	0.99	
107-06-2	1,2-Dichloroethane	0.20	U
142-82-5	n-Heptane	0.50	
79-01-6	Trichloroethene	130	E
78-87-5	1,2-Dichloropropane	0.20	U
75-27-4	Bromodichloromethane	0.20	U
10061-01-5	cis-1,3-Dichloropropene	0.20	U
108-88-3	Toluene	8.0	
10061-02-6	trans-1,3-Dichloropropene	0.20	U
79-00-5	1,1,2-Trichloroethane	0.20	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

BERENV SAMPLE NO.

SG-1

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Matrix: (soil/water) AIR Lab Sample ID: 604508

Sample wt/vol: 200.0 (g/mL) ML Lab File ID: 604508

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. _____ Date Analyzed: 02/01/05

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
127-18-4	Tetrachloroethene	260	E
124-48-1	Dibromochloromethane	0.20	U
106-93-4	1,2-Dibromoethane	0.20	U
108-90-7	Chlorobenzene	0.20	U
100-41-4	Ethylbenzene	1.9	
1330-20-7	Xylene (m,p)	7.6	
95-47-6	Xylene (o)	2.3	
100-42-5	Styrene	0.20	U
75-25-2	Bromoform	0.20	U
79-34-5	1,1,2,2-Tetrachloroethane	0.20	U
622-96-8	4-Ethyltoluene	2.6	
108-67-8	1,3,5-Trimethylbenzene	0.45	
95-49-8	2-Chlorotoluene	0.20	U
95-63-6	1,2,4-Trimethylbenzene	2.4	
541-73-1	1,3-Dichlorobenzene	0.20	U
106-46-7	1,4-Dichlorobenzene	0.20	U
95-50-1	1,2-Dichlorobenzene	0.20	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.20	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

BERENV SAMPLE NO.

SG-1DL

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Matrix: (soil/water) AIR Lab Sample ID: 604508D1

Sample wt/vol: 100.0 (g/mL) ML Lab File ID: 604508D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. _____ Date Analyzed: 02/01/05

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 40.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
75-71-8	Dichlorodifluoromethane	20	U
76-14-2	1,2-Dichlorotetrafluoroethan	8.0	U
74-87-3	Chloromethane	20	U
75-01-4	Vinyl Chloride	8.0	U
106-99-0	1,3-Butadiene	8.0	U
74-83-9	Bromomethane	8.0	U
75-00-3	Chloroethane	8.0	U
593-60-2	Bromoethene	8.0	U
75-69-4	Trichlorofluoromethane	8.0	U
76-13-1	Freon TF	8.0	U
75-35-4	1,1-Dichloroethene	8.0	U
75-15-0	Carbon Disulfide	20	U
107-05-1	3-Chloropropene	8.0	U
75-09-2	Methylene Chloride	20	U
156-60-5	trans-1,2-Dichloroethene	8.0	U
110-54-3	n-Hexane	8.0	U
75-34-3	1,1-Dichloroethane	8.0	U
156-59-2	cis-1,2-Dichloroethene	31	D
67-66-3	Chloroform	8.0	U
71-55-6	1,1,1-Trichloroethane	8.0	U
110-82-7	Cyclohexane	8.0	U
56-23-5	Carbon Tetrachloride	8.0	U
540-84-1	2,2,4-Trimethylpentane	8.0	U
71-43-2	Benzene	8.0	U
107-06-2	1,2-Dichloroethane	8.0	U
142-82-5	n-Heptane	8.0	U
79-01-6	Trichloroethene	110	D
78-87-5	1,2-Dichloropropane	8.0	U
75-27-4	Bromodichloromethane	8.0	U
10061-01-5	cis-1,3-Dichloropropene	8.0	U
108-88-3	Toluene	9.9	D
10061-02-6	trans-1,3-Dichloropropene	8.0	U
79-00-5	1,1,2-Trichloroethane	8.0	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

BERENV SAMPLE NO.

SG-1DL

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Matrix: (soil/water) AIR Lab Sample ID: 604508D1

Sample wt/vol: 100.0 (g/mL) ML Lab File ID: 604508D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. _____ Date Analyzed: 02/01/05

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 40.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
127-18-4	Tetrachloroethene	1000	D
124-48-1	Dibromochloromethane	8.0	U
106-93-4	1,2-Dibromoethane	8.0	U
108-90-7	Chlorobenzene	8.0	U
100-41-4	Ethylbenzene	8.0	U
1330-20-7	Xylene (m,p)	8.0	U
95-47-6	Xylene (o)	8.0	U
100-42-5	Styrene	8.0	U
75-25-2	Bromoform	8.0	U
79-34-5	1,1,2,2-Tetrachloroethane	8.0	U
622-96-8	4-Ethyltoluene	8.0	U
108-67-8	1,3,5-Trimethylbenzene	8.0	U
95-49-8	2-Chlorotoluene	8.0	U
95-63-6	1,2,4-Trimethylbenzene	8.0	U
541-73-1	1,3-Dichlorobenzene	8.0	U
106-46-7	1,4-Dichlorobenzene	8.0	U
95-50-1	1,2-Dichlorobenzene	8.0	U
120-82-1	1,2,4-Trichlorobenzene	20	U
87-68-3	Hexachlorobutadiene	8.0	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

BERENV SAMPLE NO.

SG-2

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Matrix: (soil/water) AIR Lab Sample ID: 604509

Sample wt/vol: 200.0 (g/mL) ML Lab File ID: 604509I2

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. _____ Date Analyzed: 02/01/05

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
75-71-8	Dichlorodifluoromethane	0.60	
76-14-2	1,2-Dichlorotetrafluoroethan	0.20	U
74-87-3	Chloromethane	0.58	
75-01-4	Vinyl Chloride	0.20	U
106-99-0	1,3-Butadiene	0.20	U
74-83-9	Bromomethane	0.20	U
75-00-3	Chloroethane	0.20	U
593-60-2	Bromoethene	0.20	U
75-69-4	Trichlorofluoromethane	0.27	
76-13-1	Freon TF	0.20	U
75-35-4	1,1-Dichloroethene	0.20	U
75-15-0	Carbon Disulfide	0.50	U
107-05-1	3-Chloropropene	0.20	U
75-09-2	Methylene Chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.20	U
110-54-3	n-Hexane	0.64	
75-34-3	1,1-Dichloroethane	0.20	U
156-59-2	cis-1,2-Dichloroethene	0.20	U
67-66-3	Chloroform	0.20	U
71-55-6	1,1,1-Trichloroethane	0.20	U
110-82-7	Cyclohexane	0.20	U
56-23-5	Carbon Tetrachloride	0.20	U
540-84-1	2,2,4-Trimethylpentane	0.34	
71-43-2	Benzene	0.69	
107-06-2	1,2-Dichloroethane	0.20	U
142-82-5	n-Heptane	0.77	
79-01-6	Trichloroethene	0.20	U
78-87-5	1,2-Dichloropropane	0.20	U
75-27-4	Bromodichloromethane	0.20	U
10061-01-5	cis-1,3-Dichloropropene	0.20	U
108-88-3	Toluene	4.3	
10061-02-6	trans-1,3-Dichloropropene	0.20	U
79-00-5	1,1,2-Trichloroethane	0.20	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

BERENV SAMPLE NO.

SG-2

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Matrix: (soil/water) AIR Lab Sample ID: 604509

Sample wt/vol: 200.0 (g/mL) ML Lab File ID: 604509I2

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. _____ Date Analyzed: 02/01/05

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
127-18-4	Tetrachloroethene	0.31	
124-48-1	Dibromochloromethane	0.20	U
106-93-4	1,2-Dibromoethane	0.20	U
108-90-7	Chlorobenzene	0.20	U
100-41-4	Ethylbenzene	0.26	
1330-20-7	Xylene (m,p)	0.64	
95-47-6	Xylene (o)	0.28	
100-42-5	Styrene	0.20	U
75-25-2	Bromoform	0.20	U
79-34-5	1,1,2,2-Tetrachloroethane	0.20	U
622-96-8	4-Ethyltoluene	0.25	
108-67-8	1,3,5-Trimethylbenzene	0.20	U
95-49-8	2-Chlorotoluene	0.20	U
95-63-6	1,2,4-Trimethylbenzene	0.23	
541-73-1	1,3-Dichlorobenzene	0.20	U
106-46-7	1,4-Dichlorobenzene	0.20	U
95-50-1	1,2-Dichlorobenzene	0.20	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.20	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

BERENV SAMPLE NO.

SG-3

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Matrix: (soil/water) AIR Lab Sample ID: 604510

Sample wt/vol: 200.0 (g/mL) ML Lab File ID: 604510I2

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. _____ Date Analyzed: 02/01/05

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
75-71-8	Dichlorodifluoromethane	0.76	
76-14-2	1,2-Dichlorotetrafluoroethan	0.20	U
74-87-3	Chloromethane	0.57	
75-01-4	Vinyl Chloride	0.20	U
106-99-0	1,3-Butadiene	0.20	U
74-83-9	Bromomethane	0.20	U
75-00-3	Chloroethane	0.20	U
593-60-2	Bromoethene	0.20	U
75-69-4	Trichlorofluoromethane	0.28	
76-13-1	Freon TF	0.20	U
75-35-4	1,1-Dichloroethene	0.20	U
75-15-0	Carbon Disulfide	0.50	U
107-05-1	3-Chloropropene	0.20	U
75-09-2	Methylene Chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.20	U
110-54-3	n-Hexane	0.30	
75-34-3	1,1-Dichloroethane	0.20	U
156-59-2	cis-1,2-Dichloroethene	0.20	U
67-66-3	Chloroform	0.20	U
71-55-6	1,1,1-Trichloroethane	0.20	U
110-82-7	Cyclohexane	0.20	U
56-23-5	Carbon Tetrachloride	0.20	U
540-84-1	2,2,4-Trimethylpentane	0.20	
71-43-2	Benzene	0.51	
107-06-2	1,2-Dichloroethane	0.20	U
142-82-5	n-Heptane	0.20	U
79-01-6	Trichloroethene	0.20	U
78-87-5	1,2-Dichloropropane	0.20	U
75-27-4	Bromodichloromethane	0.20	U
10061-01-5	cis-1,3-Dichloropropene	0.20	U
108-88-3	Toluene	1.2	
10061-02-6	trans-1,3-Dichloropropene	0.20	U
79-00-5	1,1,2-Trichloroethane	0.20	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

BERENV SAMPLE NO.

SG-3

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Matrix: (soil/water) AIR Lab Sample ID: 604510

Sample wt/vol: 200.0 (g/mL) ML Lab File ID: 604510I2

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. _____ Date Analyzed: 02/01/05

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
127-18-4	Tetrachloroethene	0.20	U
124-48-1	Dibromochloromethane	0.20	U
106-93-4	1,2-Dibromoethane	0.20	U
108-90-7	Chlorobenzene	0.20	U
100-41-4	Ethylbenzene	0.25	
1330-20-7	Xylene (m,p)	0.65	
95-47-6	Xylene (o)	0.25	
100-42-5	Styrene	0.20	U
75-25-2	Bromoform	0.20	U
79-34-5	1,1,2,2-Tetrachloroethane	0.20	U
622-96-8	4-Ethyltoluene	0.26	
108-67-8	1,3,5-Trimethylbenzene	0.20	U
95-49-8	2-Chlorotoluene	0.20	U
95-63-6	1,2,4-Trimethylbenzene	0.26	
541-73-1	1,3-Dichlorobenzene	0.20	U
106-46-7	1,4-Dichlorobenzene	0.20	U
95-50-1	1,2-Dichlorobenzene	0.20	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.20	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

BERENV SAMPLE NO.

SG-4

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Matrix: (soil/water) AIR Lab Sample ID: 604511

Sample wt/vol: 200.0 (g/mL) ML Lab File ID: 604511

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. _____ Date Analyzed: 02/01/05

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
75-71-8	Dichlorodifluoromethane	0.50	U
76-14-2	1,2-Dichlorotetrafluoroethan	0.20	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl Chloride	0.20	U
106-99-0	1,3-Butadiene	0.89	
74-83-9	Bromomethane	0.20	U
75-00-3	Chloroethane	0.20	U
593-60-2	Bromoethene	0.20	U
75-69-4	Trichlorofluoromethane	0.20	U
76-13-1	Freon TF	0.20	U
75-35-4	1,1-Dichloroethene	0.20	U
75-15-0	Carbon Disulfide	0.96	
107-05-1	3-Chloropropene	0.20	U
75-09-2	Methylene Chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.20	U
110-54-3	n-Hexane	4.2	
75-34-3	1,1-Dichloroethane	0.20	U
156-59-2	cis-1,2-Dichloroethene	0.20	U
67-66-3	Chloroform	0.20	U
71-55-6	1,1,1-Trichloroethane	0.20	U
110-82-7	Cyclohexane	22	
56-23-5	Carbon Tetrachloride	0.20	U
540-84-1	2,2,4-Trimethylpentane	0.20	U
71-43-2	Benzene	1.4	
107-06-2	1,2-Dichloroethane	0.20	U
142-82-5	n-Heptane	39	
79-01-6	Trichloroethene	0.20	U
78-87-5	1,2-Dichloropropane	0.20	U
75-27-4	Bromodichloromethane	0.20	U
10061-01-5	cis-1,3-Dichloropropene	0.20	U
108-88-3	Toluene	100	E
10061-02-6	trans-1,3-Dichloropropene	0.20	U
79-00-5	1,1,2-Trichloroethane	0.20	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

BERENV SAMPLE NO.

SG-4

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Matrix: (soil/water) AIR Lab Sample ID: 604511

Sample wt/vol: 200.0 (g/mL) ML Lab File ID: 604511

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. _____ Date Analyzed: 02/01/05

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
127-18-4	Tetrachloroethene	3.0	
124-48-1	Dibromochloromethane	0.20	U
106-93-4	1,2-Dibromoethane	0.20	U
108-90-7	Chlorobenzene	0.20	U
100-41-4	Ethylbenzene	0.54	
1330-20-7	Xylene (m,p)	1.6	
95-47-6	Xylene (o)	0.48	
100-42-5	Styrene	0.20	U
75-25-2	Bromoform	0.20	U
79-34-5	1,1,2,2-Tetrachloroethane	0.20	U
622-96-8	4-Ethyltoluene	0.32	
108-67-8	1,3,5-Trimethylbenzene	0.20	U
95-49-8	2-Chlorotoluene	0.20	U
95-63-6	1,2,4-Trimethylbenzene	0.32	
541-73-1	1,3-Dichlorobenzene	0.45	
106-46-7	1,4-Dichlorobenzene	0.20	U
95-50-1	1,2-Dichlorobenzene	0.20	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.20	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

BERENV SAMPLE NO.

SG-5

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Matrix: (soil/water) AIR Lab Sample ID: 604512

Sample wt/vol: 200.0 (g/mL) ML Lab File ID: 604512

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. _____ Date Analyzed: 02/01/05

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
75-71-8	Dichlorodifluoromethane	0.50	U
76-14-2	1,2-Dichlorotetrafluoroethan	0.20	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl Chloride	81	E
106-99-0	1,3-Butadiene	4.6	
74-83-9	Bromomethane	0.20	U
75-00-3	Chloroethane	0.20	U
593-60-2	Bromoethene	0.20	U
75-69-4	Trichlorofluoromethane	0.20	U
76-13-1	Freon TF	0.20	U
75-35-4	1,1-Dichloroethene	0.62	
75-15-0	Carbon Disulfide	3.6	
107-05-1	3-Chloropropene	0.20	U
75-09-2	Methylene Chloride	0.56	
156-60-5	trans-1,2-Dichloroethene	18	
110-54-3	n-Hexane	1.2	
75-34-3	1,1-Dichloroethane	0.20	U
156-59-2	cis-1,2-Dichloroethene	140	E
67-66-3	Chloroform	0.20	U
71-55-6	1,1,1-Trichloroethane	0.20	U
110-82-7	Cyclohexane	0.71	
56-23-5	Carbon Tetrachloride	0.20	U
540-84-1	2,2,4-Trimethylpentane	0.70	
71-43-2	Benzene	1.4	
107-06-2	1,2-Dichloroethane	0.20	U
142-82-5	n-Heptane	1.2	
79-01-6	Trichloroethene	0.61	
78-87-5	1,2-Dichloropropane	0.20	U
75-27-4	Bromodichloromethane	0.20	U
10061-01-5	cis-1,3-Dichloropropene	0.20	U
108-88-3	Toluene	9.5	
10061-02-6	trans-1,3-Dichloropropene	0.20	U
79-00-5	1,1,2-Trichloroethane	0.20	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

BERENV SAMPLE NO.

SG-5

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Matrix: (soil/water) AIR Lab Sample ID: 604512

Sample wt/vol: 200.0 (g/mL) ML Lab File ID: 604512

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. _____ Date Analyzed: 02/01/05

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
127-18-4	Tetrachloroethene	1.7	
124-48-1	Dibromochloromethane	0.20	U
106-93-4	1,2-Dibromoethane	0.20	U
108-90-7	Chlorobenzene	0.20	U
100-41-4	Ethylbenzene	1.4	
1330-20-7	Xylene (m,p)	4.8	
95-47-6	Xylene (o)	1.5	
100-42-5	Styrene	0.22	
75-25-2	Bromoform	0.20	U
79-34-5	1,1,2,2-Tetrachloroethane	0.20	U
622-96-8	4-Ethyltoluene	1.1	
108-67-8	1,3,5-Trimethylbenzene	0.23	
95-49-8	2-Chlorotoluene	0.20	U
95-63-6	1,2,4-Trimethylbenzene	1.0	
541-73-1	1,3-Dichlorobenzene	0.36	
106-46-7	1,4-Dichlorobenzene	0.20	U
95-50-1	1,2-Dichlorobenzene	0.20	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.20	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

BERENV SAMPLE NO.

SG-5DL

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Matrix: (soil/water) AIR Lab Sample ID: 604512D1

Sample wt/vol: 40.00 (g/mL) ML Lab File ID: 604512D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. _____ Date Analyzed: 02/01/05

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 5.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
75-71-8	Dichlorodifluoromethane	2.5	U
76-14-2	1,2-Dichlorotetrafluoroethan	1.0	U
74-87-3	Chloromethane	2.5	U
75-01-4	Vinyl Chloride	89	D
106-99-0	1,3-Butadiene	5.3	D
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
593-60-2	Bromoethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
76-13-1	Freon TF	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
75-15-0	Carbon Disulfide	3.9	D
107-05-1	3-Chloropropene	1.0	U
75-09-2	Methylene Chloride	2.5	U
156-60-5	trans-1,2-Dichloroethene	19	D
110-54-3	n-Hexane	1.3	D
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	140	D
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
110-82-7	Cyclohexane	1.0	U
56-23-5	Carbon Tetrachloride	1.0	U
540-84-1	2,2,4-Trimethylpentane	1.0	U
71-43-2	Benzene	1.5	D
107-06-2	1,2-Dichloroethane	1.0	U
142-82-5	n-Heptane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
108-88-3	Toluene	7.9	D
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

BERENV SAMPLE NO.

SG-5DL

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Matrix: (soil/water) AIR Lab Sample ID: 604512D1

Sample wt/vol: 40.00 (g/mL) ML Lab File ID: 604512D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. _____ Date Analyzed: 02/01/05

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 5.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
127-18-4	Tetrachloroethene	1.6	D
124-48-1	Dibromochloromethane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
108-90-7	Chlorobenzene	1.0	U
100-41-4	Ethylbenzene	1.5	D
1330-20-7	Xylene (m,p)	4.4	D
95-47-6	Xylene (o)	1.4	D
100-42-5	Styrene	1.0	U
75-25-2	Bromoform	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
622-96-8	4-Ethyltoluene	1.0	U
108-67-8	1,3,5-Trimethylbenzene	1.0	U
95-49-8	2-Chlorotoluene	1.0	U
95-63-6	1,2,4-Trimethylbenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
120-82-1	1,2,4-Trichlorobenzene	2.5	U
87-68-3	Hexachlorobutadiene	1.0	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

BERENV SAMPLE NO.

SG-6

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Matrix: (soil/water) AIR Lab Sample ID: 604513

Sample wt/vol: 200.0 (g/mL) ML Lab File ID: 604513

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. _____ Date Analyzed: 02/01/05

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
75-71-8	Dichlorodifluoromethane	0.64	
76-14-2	1,2-Dichlorotetrafluoroethan	0.20	U
74-87-3	Chloromethane	0.64	
75-01-4	Vinyl Chloride	0.20	U
106-99-0	1,3-Butadiene	0.20	U
74-83-9	Bromomethane	0.20	U
75-00-3	Chloroethane	0.20	U
593-60-2	Bromoethene	0.20	U
75-69-4	Trichlorofluoromethane	0.28	
76-13-1	Freon TF	0.20	U
75-35-4	1,1-Dichloroethene	0.20	U
75-15-0	Carbon Disulfide	0.50	U
107-05-1	3-Chloropropene	0.20	U
75-09-2	Methylene Chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.20	U
110-54-3	n-Hexane	0.35	
75-34-3	1,1-Dichloroethane	0.20	U
156-59-2	cis-1,2-Dichloroethene	1.1	
67-66-3	Chloroform	0.20	U
71-55-6	1,1,1-Trichloroethane	0.20	U
110-82-7	Cyclohexane	0.42	
56-23-5	Carbon Tetrachloride	0.20	U
540-84-1	2,2,4-Trimethylpentane	0.20	U
71-43-2	Benzene	0.36	
107-06-2	1,2-Dichloroethane	0.20	U
142-82-5	n-Heptane	1.3	
79-01-6	Trichloroethene	0.25	
78-87-5	1,2-Dichloropropane	0.20	U
75-27-4	Bromodichloromethane	0.20	U
10061-01-5	cis-1,3-Dichloropropene	0.20	U
108-88-3	Toluene	18	
10061-02-6	trans-1,3-Dichloropropene	0.20	U
79-00-5	1,1,2-Trichloroethane	0.20	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

BERENV SAMPLE NO.

SG-6

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Matrix: (soil/water) AIR Lab Sample ID: 604513

Sample wt/vol: 200.0 (g/mL) ML Lab File ID: 604513

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. _____ Date Analyzed: 02/01/05

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
127-18-4	Tetrachloroethene	6.3	
124-48-1	Dibromochloromethane	0.20	U
106-93-4	1,2-Dibromoethane	0.20	U
108-90-7	Chlorobenzene	0.20	U
100-41-4	Ethylbenzene	0.34	
1330-20-7	Xylene (m,p)	1.1	
95-47-6	Xylene (o)	0.37	
100-42-5	Styrene	0.20	U
75-25-2	Bromoform	0.20	U
79-34-5	1,1,2,2-Tetrachloroethane	0.20	U
622-96-8	4-Ethyltoluene	0.33	
108-67-8	1,3,5-Trimethylbenzene	0.20	U
95-49-8	2-Chlorotoluene	0.20	U
95-63-6	1,2,4-Trimethylbenzene	0.35	
541-73-1	1,3-Dichlorobenzene	0.20	U
106-46-7	1,4-Dichlorobenzene	0.20	U
95-50-1	1,2-Dichlorobenzene	0.20	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.20	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

BERENV SAMPLE NO.

SG-7

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Matrix: (soil/water) AIR Lab Sample ID: 604514

Sample wt/vol: 100.0 (g/mL) ML Lab File ID: 604514D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. _____ Date Analyzed: 02/01/05

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 2.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
75-71-8	Dichlorodifluoromethane	1.3	
76-14-2	1,2-Dichlorotetrafluoroethan	0.40	U
74-87-3	Chloromethane	1.2	
75-01-4	Vinyl Chloride	85	E
106-99-0	1,3-Butadiene	0.40	U
74-83-9	Bromomethane	0.40	U
75-00-3	Chloroethane	0.40	U
593-60-2	Bromoethene	0.40	U
75-69-4	Trichlorofluoromethane	0.53	
76-13-1	Freon TF	0.40	U
75-35-4	1,1-Dichloroethene	1.1	
75-15-0	Carbon Disulfide	1.0	U
107-05-1	3-Chloropropene	0.40	U
75-09-2	Methylene Chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	2.2	
110-54-3	n-Hexane	0.50	
75-34-3	1,1-Dichloroethane	0.40	U
156-59-2	cis-1,2-Dichloroethene	140	E
67-66-3	Chloroform	0.40	U
71-55-6	1,1,1-Trichloroethane	0.40	U
110-82-7	Cyclohexane	0.40	U
56-23-5	Carbon Tetrachloride	0.40	U
540-84-1	2,2,4-Trimethylpentane	0.40	U
71-43-2	Benzene	0.58	
107-06-2	1,2-Dichloroethane	0.40	U
142-82-5	n-Heptane	0.40	U
79-01-6	Trichloroethene	65	
78-87-5	1,2-Dichloropropane	0.40	U
75-27-4	Bromodichloromethane	0.40	U
10061-01-5	cis-1,3-Dichloropropene	0.40	U
108-88-3	Toluene	1.5	
10061-02-6	trans-1,3-Dichloropropene	0.40	U
79-00-5	1,1,2-Trichloroethane	0.40	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

BERENV SAMPLE NO.

SG-7

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Matrix: (soil/water) AIR Lab Sample ID: 604514

Sample wt/vol: 100.0 (g/mL) ML Lab File ID: 604514D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. _____ Date Analyzed: 02/01/05

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 2.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
127-18-4	Tetrachloroethene	340	E
124-48-1	Dibromochloromethane	0.40	U
106-93-4	1,2-Dibromoethane	0.40	U
108-90-7	Chlorobenzene	0.40	U
100-41-4	Ethylbenzene	0.40	
1330-20-7	Xylene (m,p)	1.3	
95-47-6	Xylene (o)	0.43	
100-42-5	Styrene	0.40	U
75-25-2	Bromoform	0.40	U
79-34-5	1,1,2,2-Tetrachloroethane	0.40	U
622-96-8	4-Ethyltoluene	0.50	
108-67-8	1,3,5-Trimethylbenzene	0.40	U
95-49-8	2-Chlorotoluene	0.40	U
95-63-6	1,2,4-Trimethylbenzene	0.54	
541-73-1	1,3-Dichlorobenzene	0.40	U
106-46-7	1,4-Dichlorobenzene	0.40	U
95-50-1	1,2-Dichlorobenzene	0.40	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U
87-68-3	Hexachlorobutadiene	0.40	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

BERENV SAMPLE NO.

SG-7DL

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Matrix: (soil/water) AIR Lab Sample ID: 604514D1

Sample wt/vol: 10.00 (g/mL) ML Lab File ID: 604514D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. _____ Date Analyzed: 02/01/05

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 20.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
75-71-8	Dichlorodifluoromethane	10	U
76-14-2	1,2-Dichlorotetrafluoroethan	4.0	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	56	D
106-99-0	1,3-Butadiene	4.0	U
74-83-9	Bromomethane	4.0	U
75-00-3	Chloroethane	4.0	U
593-60-2	Bromoethene	4.0	U
75-69-4	Trichlorofluoromethane	4.0	U
76-13-1	Freon TF	4.0	U
75-35-4	1,1-Dichloroethene	4.0	U
75-15-0	Carbon Disulfide	10	U
107-05-1	3-Chloropropene	4.0	U
75-09-2	Methylene Chloride	10	U
156-60-5	trans-1,2-Dichloroethene	4.0	U
110-54-3	n-Hexane	4.0	U
75-34-3	1,1-Dichloroethane	4.0	U
156-59-2	cis-1,2-Dichloroethene	91	D
67-66-3	Chloroform	4.0	U
71-55-6	1,1,1-Trichloroethane	4.0	U
110-82-7	Cyclohexane	4.0	U
56-23-5	Carbon Tetrachloride	4.0	U
540-84-1	2,2,4-Trimethylpentane	4.0	U
71-43-2	Benzene	4.0	U
107-06-2	1,2-Dichloroethane	4.0	U
142-82-5	n-Heptane	4.0	U
79-01-6	Trichloroethene	41	D
78-87-5	1,2-Dichloropropane	4.0	U
75-27-4	Bromodichloromethane	4.0	U
10061-01-5	cis-1,3-Dichloropropene	4.0	U
108-88-3	Toluene	4.0	U
10061-02-6	trans-1,3-Dichloropropene	4.0	U
79-00-5	1,1,2-Trichloroethane	4.0	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

BERENV SAMPLE NO.

SG-7DL

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Matrix: (soil/water) AIR Lab Sample ID: 604514D1

Sample wt/vol: 10.00 (g/mL) ML Lab File ID: 604514D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. _____ Date Analyzed: 02/01/05

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 20.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
127-18-4	Tetrachloroethene	330	D
124-48-1	Dibromochloromethane	4.0	U
106-93-4	1,2-Dibromoethane	4.0	U
108-90-7	Chlorobenzene	4.0	U
100-41-4	Ethylbenzene	4.0	U
1330-20-7	Xylene (m,p)	4.0	U
95-47-6	Xylene (o)	4.0	U
100-42-5	Styrene	4.0	U
75-25-2	Bromoform	4.0	U
79-34-5	1,1,2,2-Tetrachloroethane	4.0	U
622-96-8	4-Ethyltoluene	4.0	U
108-67-8	1,3,5-Trimethylbenzene	4.0	U
95-49-8	2-Chlorotoluene	4.0	U
95-63-6	1,2,4-Trimethylbenzene	4.0	U
541-73-1	1,3-Dichlorobenzene	4.0	U
106-46-7	1,4-Dichlorobenzene	4.0	U
95-50-1	1,2-Dichlorobenzene	4.0	U
120-82-1	1,2,4-Trichlorobenzene	10	U
87-68-3	Hexachlorobutadiene	4.0	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ABLKJ7

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Matrix: (soil/water) AIR Lab Sample ID: ABLKJ7

Sample wt/vol: 200.0 (g/mL) ML Lab File ID: CSB002D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 01/31/05

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
75-71-8	Dichlorodifluoromethane	0.50	U
76-14-2	1,2-Dichlorotetrafluoroethan	0.20	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl Chloride	0.20	U
106-99-0	1,3-Butadiene	0.20	U
74-83-9	Bromomethane	0.20	U
75-00-3	Chloroethane	0.20	U
593-60-2	Bromoethene	0.20	U
75-69-4	Trichlorofluoromethane	0.20	U
76-13-1	Freon TF	0.20	U
75-35-4	1,1-Dichloroethene	0.20	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon Disulfide	0.50	U
107-05-1	3-Chloropropene	0.20	U
75-09-2	Methylene Chloride	0.50	U
75-65-0	tert-Butyl Alcohol	5.0	U
1634-04-4	Methyl tert-Butyl Ether	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.20	U
110-54-3	n-Hexane	0.20	U
75-34-3	1,1-Dichloroethane	0.20	U
78-93-3	Methyl Ethyl Ketone	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.20	U
67-66-3	Chloroform	0.20	U
71-55-6	1,1,1-Trichloroethane	0.20	U
110-82-7	Cyclohexane	0.20	U
56-23-5	Carbon Tetrachloride	0.20	U
540-84-1	2,2,4-Trimethylpentane	0.20	U
71-43-2	Benzene	0.20	U
107-06-2	1,2-Dichloroethane	0.20	U
142-82-5	n-Heptane	0.20	U
79-01-6	Trichloroethene	0.20	U
78-87-5	1,2-Dichloropropane	0.20	U
75-27-4	Bromodichloromethane	0.20	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ABLKJ7

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Matrix: (soil/water) AIR Lab Sample ID: ABLKJ7

Sample wt/vol: 200.0 (g/mL) ML Lab File ID: CSB002D

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 01/31/05

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
10061-01-5	cis-1,3-Dichloropropene	0.20	U
108-10-1	Methyl Isobutyl Ketone	0.50	U
108-88-3	Toluene	0.20	U
10061-02-6	trans-1,3-Dichloropropene	0.20	U
79-00-5	1,1,2-Trichloroethane	0.20	U
127-18-4	Tetrachloroethene	0.20	U
124-48-1	Dibromochloromethane	0.20	U
106-93-4	1,2-Dibromoethane	0.20	U
108-90-7	Chlorobenzene	0.20	U
100-41-4	Ethylbenzene	0.20	U
1330-20-7	Xylene (m,p)	0.20	U
95-47-6	Xylene (o)	0.20	U
100-42-5	Styrene	0.20	U
75-25-2	Bromoform	0.20	U
79-34-5	1,1,2,2-Tetrachloroethane	0.20	U
622-96-8	4-Ethyltoluene	0.20	U
108-67-8	1,3,5-Trimethylbenzene	0.20	U
95-49-8	2-Chlorotoluene	0.20	U
95-63-6	1,2,4-Trimethylbenzene	0.20	U
541-73-1	1,3-Dichlorobenzene	0.20	U
106-46-7	1,4-Dichlorobenzene	0.20	U
95-50-1	1,2-Dichlorobenzene	0.20	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.20	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ABLKJ9

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Matrix: (soil/water) AIR Lab Sample ID: ABLKJ9

Sample wt/vol: 500.0 (g/mL) ML Lab File ID: CSB002E

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/01/05

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 0.4

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
75-71-8	Dichlorodifluoromethane	0.20	U
76-14-2	1,2-Dichlorotetrafluoroethan	0.080	U
74-87-3	Chloromethane	0.20	U
75-01-4	Vinyl Chloride	0.080	U
106-99-0	1,3-Butadiene	0.080	U
74-83-9	Bromomethane	0.080	U
75-00-3	Chloroethane	0.080	U
593-60-2	Bromoethene	0.080	U
75-69-4	Trichlorofluoromethane	0.080	U
76-13-1	Freon TF	0.080	U
75-35-4	1,1-Dichloroethene	0.080	U
67-64-1	Acetone	0.17	J
75-15-0	Carbon Disulfide	0.20	U
107-05-1	3-Chloropropene	0.080	U
75-09-2	Methylene Chloride	0.20	U
75-65-0	tert-Butyl Alcohol	2.0	U
1634-04-4	Methyl tert-Butyl Ether	0.20	U
156-60-5	trans-1,2-Dichloroethene	0.080	U
110-54-3	n-Hexane	0.080	U
75-34-3	1,1-Dichloroethane	0.080	U
78-93-3	Methyl Ethyl Ketone	0.20	U
156-59-2	cis-1,2-Dichloroethene	0.080	U
67-66-3	Chloroform	0.080	U
71-55-6	1,1,1-Trichloroethane	0.080	U
110-82-7	Cyclohexane	0.080	U
56-23-5	Carbon Tetrachloride	0.080	U
540-84-1	2,2,4-Trimethylpentane	0.080	U
71-43-2	Benzene	0.080	U
107-06-2	1,2-Dichloroethane	0.080	U
142-82-5	n-Heptane	0.080	U
79-01-6	Trichloroethene	0.080	U
78-87-5	1,2-Dichloropropane	0.080	U
75-27-4	Bromodichloromethane	0.080	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ABLKJ9

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Matrix: (soil/water) AIR Lab Sample ID: ABLKJ9

Sample wt/vol: 500.0 (g/mL) ML Lab File ID: CSB002E

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/01/05

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 0.4

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
10061-01-5	cis-1,3-Dichloropropene	0.080	U
108-10-1	Methyl Isobutyl Ketone	0.20	U
108-88-3	Toluene	0.080	U
10061-02-6	trans-1,3-Dichloropropene	0.080	U
79-00-5	1,1,2-Trichloroethane	0.080	U
127-18-4	Tetrachloroethene	0.080	U
124-48-1	Dibromochloromethane	0.080	U
106-93-4	1,2-Dibromoethane	0.080	U
108-90-7	Chlorobenzene	0.080	U
100-41-4	Ethylbenzene	0.080	U
1330-20-7	Xylene (m,p)	0.080	U
95-47-6	Xylene (o)	0.080	U
100-42-5	Styrene	0.080	U
75-25-2	Bromoform	0.080	U
79-34-5	1,1,2,2-Tetrachloroethane	0.080	U
622-96-8	4-Ethyltoluene	0.080	U
108-67-8	1,3,5-Trimethylbenzene	0.080	U
95-49-8	2-Chlorotoluene	0.080	U
95-63-6	1,2,4-Trimethylbenzene	0.080	U
541-73-1	1,3-Dichlorobenzene	0.080	U
106-46-7	1,4-Dichlorobenzene	0.080	U
95-50-1	1,2-Dichlorobenzene	0.080	U
120-82-1	1,2,4-Trichlorobenzene	0.20	U
87-68-3	Hexachlorobutadiene	0.080	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

J7LCS

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Matrix: (soil/water) AIR Lab Sample ID: J7LCS

Sample wt/vol: 200.0 (g/mL) ML Lab File ID: CS010DQ

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 01/31/05

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
75-71-8	Dichlorodifluoromethane	11	
76-14-2	1,2-Dichlorotetrafluoroethan	11	
74-87-3	Chloromethane	9.6	
75-01-4	Vinyl Chloride	10	
106-99-0	1,3-Butadiene	10	
74-83-9	Bromomethane	10	
75-00-3	Chloroethane	9.1	
593-60-2	Bromoethene	10	
75-69-4	Trichlorofluoromethane	11	
76-13-1	Freon TF	10	
75-35-4	1,1-Dichloroethene	9.5	
75-15-0	Carbon Disulfide	9.1	
107-05-1	3-Chloropropene	8.6	
75-09-2	Methylene Chloride	8.8	
156-60-5	trans-1,2-Dichloroethene	9.0	
110-54-3	n-Hexane	8.3	
75-34-3	1,1-Dichloroethane	8.9	
156-59-2	cis-1,2-Dichloroethene	9.1	
67-66-3	Chloroform	9.7	
71-55-6	1,1,1-Trichloroethane	10	
110-82-7	Cyclohexane	8.8	
56-23-5	Carbon Tetrachloride	11	
540-84-1	2,2,4-Trimethylpentane	8.3	
71-43-2	Benzene	8.7	
107-06-2	1,2-Dichloroethane	9.9	
142-82-5	n-Heptane	8.3	
79-01-6	Trichloroethene	9.4	
78-87-5	1,2-Dichloropropane	8.9	
75-27-4	Bromodichloromethane	10	
10061-01-5	cis-1,3-Dichloropropene	9.5	
108-88-3	Toluene	8.7	
10061-02-6	trans-1,3-Dichloropropene	10	
79-00-5	1,1,2-Trichloroethane	8.7	

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

J7LCS

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Matrix: (soil/water) AIR Lab Sample ID: J7LCS

Sample wt/vol: 200.0 (g/mL) ML Lab File ID: CS010DQ

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 01/31/05

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
127-18-4	Tetrachloroethene	8.6	
124-48-1	Dibromochloromethane	10	
106-93-4	1,2-Dibromoethane	9.5	
108-90-7	Chlorobenzene	9.3	
100-41-4	Ethylbenzene	9.3	
1330-20-7	Xylene (m,p)	19	
95-47-6	Xylene (o)	9.3	
100-42-5	Styrene	9.7	
75-25-2	Bromoform	10	
79-34-5	1,1,2,2-Tetrachloroethane	9.6	
622-96-8	4-Ethyltoluene	9.4	
108-67-8	1,3,5-Trimethylbenzene	10	
95-49-8	2-Chlorotoluene	9.8	
95-63-6	1,2,4-Trimethylbenzene	9.7	
541-73-1	1,3-Dichlorobenzene	9.5	
106-46-7	1,4-Dichlorobenzene	9.3	
95-50-1	1,2-Dichlorobenzene	9.5	
120-82-1	1,2,4-Trichlorobenzene	8.8	
87-68-3	Hexachlorobutadiene	9.0	

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

J7LCSD

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Matrix: (soil/water) AIR Lab Sample ID: J7LCSD

Sample wt/vol: 200.0 (g/mL) ML Lab File ID: CS010DQD

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 01/31/05

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
75-71-8	Dichlorodifluoromethane	11	
76-14-2	1,2-Dichlorotetrafluoroethan	10	
74-87-3	Chloromethane	9.5	
75-01-4	Vinyl Chloride	9.9	
106-99-0	1,3-Butadiene	10	
74-83-9	Bromomethane	10	
75-00-3	Chloroethane	8.7	
593-60-2	Bromoethene	9.9	
75-69-4	Trichlorofluoromethane	11	
76-13-1	Freon TF	9.8	
75-35-4	1,1-Dichloroethene	9.1	
75-15-0	Carbon Disulfide	8.9	
107-05-1	3-Chloropropene	8.1	
75-09-2	Methylene Chloride	8.3	
156-60-5	trans-1,2-Dichloroethene	8.6	
110-54-3	n-Hexane	8.0	
75-34-3	1,1-Dichloroethane	8.5	
156-59-2	cis-1,2-Dichloroethene	9.0	
67-66-3	Chloroform	9.4	
71-55-6	1,1,1-Trichloroethane	9.9	
110-82-7	Cyclohexane	8.4	
56-23-5	Carbon Tetrachloride	10	
540-84-1	2,2,4-Trimethylpentane	7.8	
71-43-2	Benzene	8.3	
107-06-2	1,2-Dichloroethane	9.2	
142-82-5	n-Heptane	7.8	
79-01-6	Trichloroethene	9.1	
78-87-5	1,2-Dichloropropane	8.4	
75-27-4	Bromodichloromethane	9.6	
10061-01-5	cis-1,3-Dichloropropene	9.2	
108-88-3	Toluene	8.9	
10061-02-6	trans-1,3-Dichloropropene	9.7	
79-00-5	1,1,2-Trichloroethane	9.0	

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

J7LCSD

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Matrix: (soil/water) AIR Lab Sample ID: J7LCSD

Sample wt/vol: 200.0 (g/mL) ML Lab File ID: CS010DQD

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 01/31/05

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
127-18-4	Tetrachloroethene	9.1	
124-48-1	Dibromochloromethane	10	
106-93-4	1,2-Dibromoethane	9.8	
108-90-7	Chlorobenzene	9.6	
100-41-4	Ethylbenzene	9.5	
1330-20-7	Xylene (m,p)	19	
95-47-6	Xylene (o)	9.7	
100-42-5	Styrene	10	
75-25-2	Bromoform	11	
79-34-5	1,1,2,2-Tetrachloroethane	9.8	
622-96-8	4-Ethyltoluene	10	
108-67-8	1,3,5-Trimethylbenzene	10	
95-49-8	2-Chlorotoluene	10	
95-63-6	1,2,4-Trimethylbenzene	10	
541-73-1	1,3-Dichlorobenzene	10	
106-46-7	1,4-Dichlorobenzene	10	
95-50-1	1,2-Dichlorobenzene	10	
120-82-1	1,2,4-Trichlorobenzene	10	
87-68-3	Hexachlorobutadiene	9.9	

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

J9LCS

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Matrix: (soil/water) AIR Lab Sample ID: J9LCS

Sample wt/vol: 200.0 (g/mL) ML Lab File ID: CS010EQ

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/01/05

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
75-71-8	Dichlorodifluoromethane	12	
76-14-2	1,2-Dichlorotetrafluoroethan	12	
74-87-3	Chloromethane	10	
75-01-4	Vinyl Chloride	10	
106-99-0	1,3-Butadiene	11	
74-83-9	Bromomethane	11	
75-00-3	Chloroethane	9.2	
593-60-2	Bromoethene	10	
75-69-4	Trichlorofluoromethane	12	
76-13-1	Freon TF	11	
75-35-4	1,1-Dichloroethene	9.7	
75-15-0	Carbon Disulfide	9.2	
107-05-1	3-Chloropropene	8.6	
75-09-2	Methylene Chloride	8.9	
156-60-5	trans-1,2-Dichloroethene	9.2	
110-54-3	n-Hexane	8.4	
75-34-3	1,1-Dichloroethane	9.0	
156-59-2	cis-1,2-Dichloroethene	9.3	
67-66-3	Chloroform	10	
71-55-6	1,1,1-Trichloroethane	11	
110-82-7	Cyclohexane	8.6	
56-23-5	Carbon Tetrachloride	11	
540-84-1	2,2,4-Trimethylpentane	8.1	
71-43-2	Benzene	8.4	
107-06-2	1,2-Dichloroethane	9.9	
142-82-5	n-Heptane	8.2	
79-01-6	Trichloroethene	9.3	
78-87-5	1,2-Dichloropropane	8.5	
75-27-4	Bromodichloromethane	10	
10061-01-5	cis-1,3-Dichloropropene	9.3	
108-88-3	Toluene	9.2	
10061-02-6	trans-1,3-Dichloropropene	10	
79-00-5	1,1,2-Trichloroethane	9.3	

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

J9LCS

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Matrix: (soil/water) AIR Lab Sample ID: J9LCS

Sample wt/vol: 200.0 (g/mL) ML Lab File ID: CS010EQ

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/01/05

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
127-18-4	Tetrachloroethene	9.5	
124-48-1	Dibromochloromethane	11	
106-93-4	1,2-Dibromoethane	10	
108-90-7	Chlorobenzene	10	
100-41-4	Ethylbenzene	10	
1330-20-7	Xylene (m,p)	20	
95-47-6	Xylene (o)	10	
100-42-5	Styrene	11	
75-25-2	Bromoform	12	
79-34-5	1,1,2,2-Tetrachloroethane	10	
622-96-8	4-Ethyltoluene	11	
108-67-8	1,3,5-Trimethylbenzene	11	
95-49-8	2-Chlorotoluene	11	
95-63-6	1,2,4-Trimethylbenzene	11	
541-73-1	1,3-Dichlorobenzene	11	
106-46-7	1,4-Dichlorobenzene	11	
95-50-1	1,2-Dichlorobenzene	11	
120-82-1	1,2,4-Trichlorobenzene	11	
87-68-3	Hexachlorobutadiene	10	

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

J9LCSD

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Matrix: (soil/water) AIR Lab Sample ID: J9LCSD

Sample wt/vol: 200.0 (g/mL) ML Lab File ID: CS010EQD

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/01/05

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
75-71-8	Dichlorodifluoromethane	12	
76-14-2	1,2-Dichlorotetrafluoroethan	11	
74-87-3	Chloromethane	10	
75-01-4	Vinyl Chloride	10	
106-99-0	1,3-Butadiene	11	
74-83-9	Bromomethane	11	
75-00-3	Chloroethane	9.3	
593-60-2	Bromoethene	10	
75-69-4	Trichlorofluoromethane	12	
76-13-1	Freon TF	10	
75-35-4	1,1-Dichloroethene	9.3	
75-15-0	Carbon Disulfide	9.1	
107-05-1	3-Chloropropene	8.7	
75-09-2	Methylene Chloride	9.0	
156-60-5	trans-1,2-Dichloroethene	9.1	
110-54-3	n-Hexane	8.2	
75-34-3	1,1-Dichloroethane	9.1	
156-59-2	cis-1,2-Dichloroethene	9.2	
67-66-3	Chloroform	10	
71-55-6	1,1,1-Trichloroethane	10	
110-82-7	Cyclohexane	8.5	
56-23-5	Carbon Tetrachloride	11	
540-84-1	2,2,4-Trimethylpentane	8.0	
71-43-2	Benzene	8.4	
107-06-2	1,2-Dichloroethane	9.8	
142-82-5	n-Heptane	8.1	
79-01-6	Trichloroethene	9.2	
78-87-5	1,2-Dichloropropane	8.6	
75-27-4	Bromodichloromethane	10	
10061-01-5	cis-1,3-Dichloropropene	9.3	
108-88-3	Toluene	9.0	
10061-02-6	trans-1,3-Dichloropropene	10	
79-00-5	1,1,2-Trichloroethane	9.2	

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

J9LCSD

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Matrix: (soil/water) AIR Lab Sample ID: J9LCSD

Sample wt/vol: 200.0 (g/mL) ML Lab File ID: CS010EQD

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 02/01/05

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
127-18-4	Tetrachloroethene	8.9	
124-48-1	Dibromochloromethane	11	
106-93-4	1,2-Dibromoethane	10	
108-90-7	Chlorobenzene	9.7	
100-41-4	Ethylbenzene	9.7	
1330-20-7	Xylene (m,p)	19	
95-47-6	Xylene (o)	9.7	
100-42-5	Styrene	10	
75-25-2	Bromoform	11	
79-34-5	1,1,2,2-Tetrachloroethane	10	
622-96-8	4-Ethyltoluene	10	
108-67-8	1,3,5-Trimethylbenzene	10	
95-49-8	2-Chlorotoluene	10	
95-63-6	1,2,4-Trimethylbenzene	10	
541-73-1	1,3-Dichlorobenzene	10	
106-46-7	1,4-Dichlorobenzene	10	
95-50-1	1,2-Dichlorobenzene	10	
120-82-1	1,2,4-Trichlorobenzene	10	
87-68-3	Hexachlorobutadiene	9.7	

FORM 3
AIR VOLATILE LAB CONTROL SAMPLE

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Matrix Spike - Sample No.: J7LCS

COMPOUND	SPIKE ADDED (ppbv)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ppbv)	LCS % REC #	QC. LIMITS REC.
Dichlorodifluoromethane	10		11	110	70-130
1,2-Dichlorotetrafluoro	10		11	110	70-130
Chloromethane	10		9.6	96	70-130
Vinyl Chloride	10		10	100	70-130
1,3-Butadiene	10		10	100	70-130
Bromomethane	10		10	100	70-130
Chloroethane	10		9.1	91	70-130
Bromoethene	10		10	100	70-130
Trichlorofluoromethane	10		11	110	70-130
Freon TF	10		10	100	70-130
1,1-Dichloroethene	10		9.5	95	70-130
Carbon Disulfide	10		9.1	91	70-130
3-Chloropropene	10		8.6	86	70-130
Methylene Chloride	10		8.8	88	70-130
trans-1,2-Dichloroethen	10		9.0	90	70-130
n-Hexane	10		8.3	83	70-130
1,1-Dichloroethane	10		8.9	89	70-130
cis-1,2-Dichloroethene	10		9.1	91	70-130
Chloroform	10		9.7	97	70-130
1,1,1-Trichloroethane	10		10	100	70-130
Cyclohexane	10		8.8	88	70-130
Carbon Tetrachloride	10		11	110	70-130
2,2,4-Trimethylpentane	10		8.3	83	70-130
Benzene	10		8.7	87	70-130
1,2-Dichloroethane	10		9.9	99	70-130
n-Heptane	10		8.3	83	70-130
Trichloroethene	10		9.4	94	70-130
1,2-Dichloropropane	10		8.9	89	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

FORM 3
AIR VOLATILE LAB CONTROL SAMPLE

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Matrix Spike - Sample No.: J7LCS

COMPOUND	SPIKE ADDED (ppbv)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ppbv)	LCS % REC #	QC. LIMITS REC.
Bromodichloromethane	10		10	100	70-130
cis-1,3-Dichloropropene	10		9.5	95	70-130
Toluene	10		8.7	87	70-130
trans-1,3-Dichloroprope	10		10	100	70-130
1,1,2-Trichloroethane	10		8.7	87	70-130
Tetrachloroethene	10		8.6	86	70-130
Dibromochloromethane	10		10	100	70-130
1,2-Dibromoethane	10		9.5	95	70-130
Chlorobenzene	10		9.3	93	70-130
Ethylbenzene	10		9.3	93	70-130
Xylene (m,p)	20		19	95	70-130
Xylene (o)	10		9.3	93	70-130
Styrene	10		9.7	97	70-130
Bromoform	10		10	100	70-130
1,1,2,2-Tetrachloroetha	10		9.6	96	70-130
4-Ethyltoluene	10		9.4	94	70-130
1,3,5-Trimethylbenzene	10		10	100	70-130
2-Chlorotoluene	10		9.8	98	70-130
1,2,4-Trimethylbenzene	10		9.7	97	70-130
1,3-Dichlorobenzene	10		9.5	95	70-130
1,4-Dichlorobenzene	10		9.3	93	70-130
1,2-Dichlorobenzene	10		9.5	95	70-130
1,2,4-Trichlorobenzene	10		8.8	88	70-130
Hexachlorobutadiene	10		9.0	90	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

FORM 3
AIR VOLATILE LAB CONTROL SAMPLE

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Matrix Spike - Sample No.: J7LCS

COMPOUND	SPIKE ADDED (ppbv)	LCSD CONCENTRATION (ppbv)	LCSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Dichlorodifluoromethane	10	11	110	0	40	70-130
1,2-Dichlorotetrafluoro	10	10	100	10	40	70-130
Chloromethane	10	9.5	95	1	40	70-130
Vinyl Chloride	10	9.9	99	1	40	70-130
1,3-Butadiene	10	10	100	0	40	70-130
Bromomethane	10	10	100	0	40	70-130
Chloroethane	10	8.7	87	4	40	70-130
Bromoethene	10	9.9	99	1	40	70-130
Trichlorofluoromethane	10	11	110	0	40	70-130
Freon TF	10	9.8	98	2	40	70-130
1,1-Dichloroethene	10	9.1	91	4	40	70-130
Carbon Disulfide	10	8.9	89	2	40	70-130
3-Chloropropene	10	8.1	81	6	40	70-130
Methylene Chloride	10	8.3	83	6	40	70-130
trans-1,2-Dichloroethen	10	8.6	86	4	40	70-130
n-Hexane	10	8.0	80	4	40	70-130
1,1-Dichloroethane	10	8.5	85	4	40	70-130
cis-1,2-Dichloroethene	10	9.0	90	1	40	70-130
Chloroform	10	9.4	94	3	40	70-130
1,1,1-Trichloroethane	10	9.9	99	1	40	70-130
Cyclohexane	10	8.4	84	5	40	70-130
Carbon Tetrachloride	10	10	100	10	40	70-130
2,2,4-Trimethylpentane	10	7.8	78	6	40	70-130
Benzene	10	8.3	83	5	40	70-130
1,2-Dichloroethane	10	9.2	92	7	40	70-130
n-Heptane	10	7.8	78	6	40	70-130
Trichloroethene	10	9.1	91	3	40	70-130
1,2-Dichloropropane	10	8.4	84	6	40	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

FORM 3
AIR VOLATILE LAB CONTROL SAMPLE

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Matrix Spike - Sample No.: J7LCS

COMPOUND	SPIKE ADDED (ppbv)	LCSD CONCENTRATION (ppbv)	LCSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Bromodichloromethane	10	9.6	96	4	40	70-130
cis-1,3-Dichloropropene	10	9.2	92	3	40	70-130
Toluene	10	8.9	89	2	40	70-130
trans-1,3-Dichloroprope	10	9.7	97	3	40	70-130
1,1,2-Trichloroethane	10	9.0	90	3	40	70-130
Tetrachloroethene	10	9.1	91	6	40	70-130
Dibromochloromethane	10	10	100	0	40	70-130
1,2-Dibromoethane	10	9.8	98	3	40	70-130
Chlorobenzene	10	9.6	96	3	40	70-130
Ethylbenzene	10	9.5	95	2	40	70-130
Xylene (m,p)	20	19	95	0	40	70-130
Xylene (o)	10	9.7	97	4	40	70-130
Styrene	10	10	100	3	40	70-130
Bromoform	10	11	110	10	40	70-130
1,1,2,2-Tetrachloroetha	10	9.8	98	2	40	70-130
4-Ethyltoluene	10	10	100	6	40	70-130
1,3,5-Trimethylbenzene	10	10	100	0	40	70-130
2-Chlorotoluene	10	10	100	2	40	70-130
1,2,4-Trimethylbenzene	10	10	100	3	40	70-130
1,3-Dichlorobenzene	10	10	100	5	40	70-130
1,4-Dichlorobenzene	10	10	100	7	40	70-130
1,2-Dichlorobenzene	10	10	100	5	40	70-130
1,2,4-Trichlorobenzene	10	10	100	13	40	70-130
Hexachlorobutadiene	10	9.9	99	10	40	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 52 outside limits
Spike Recovery: 0 out of 104 outside limits

COMMENTS: _____

FORM 3
AIR VOLATILE LAB CONTROL SAMPLE

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Matrix Spike - Sample No.: J9LCS

COMPOUND	SPIKE ADDED (ppbv)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ppbv)	LCS % REC #	QC. LIMITS REC.
Dichlorodifluoromethane	10		12	120	70-130
1,2-Dichlorotetrafluoro	10		12	120	70-130
Chloromethane	10		10	100	70-130
Vinyl Chloride	10		10	100	70-130
1,3-Butadiene	10		11	110	70-130
Bromomethane	10		11	110	70-130
Chloroethane	10		9.2	92	70-130
Bromoethene	10		10	100	70-130
Trichlorofluoromethane	10		12	120	70-130
Freon TF	10		11	110	70-130
1,1-Dichloroethene	10		9.7	97	70-130
Carbon Disulfide	10		9.2	92	70-130
3-Chloropropene	10		8.6	86	70-130
Methylene Chloride	10		8.9	89	70-130
trans-1,2-Dichloroethen	10		9.2	92	70-130
n-Hexane	10		8.4	84	70-130
1,1-Dichloroethane	10		9.0	90	70-130
cis-1,2-Dichloroethene	10		9.3	93	70-130
Chloroform	10		10	100	70-130
1,1,1-Trichloroethane	10		11	110	70-130
Cyclohexane	10		8.6	86	70-130
Carbon Tetrachloride	10		11	110	70-130
2,2,4-Trimethylpentane	10		8.1	81	70-130
Benzene	10		8.4	84	70-130
1,2-Dichloroethane	10		9.9	99	70-130
n-Heptane	10		8.2	82	70-130
Trichloroethene	10		9.3	93	70-130
1,2-Dichloropropane	10		8.5	85	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

FORM 3
AIR VOLATILE LAB CONTROL SAMPLE

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Matrix Spike - Sample No.: J9LCS

COMPOUND	SPIKE ADDED (ppbv)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ppbv)	LCS % REC #	QC. LIMITS REC.
Bromodichloromethane	10		10	100	70-130
cis-1,3-Dichloropropene	10		9.3	93	70-130
Toluene	10		9.2	92	70-130
trans-1,3-Dichloroprope	10		10	100	70-130
1,1,2-Trichloroethane	10		9.3	93	70-130
Tetrachloroethene	10		9.5	95	70-130
Dibromochloromethane	10		11	110	70-130
1,2-Dibromoethane	10		10	100	70-130
Chlorobenzene	10		10	100	70-130
Ethylbenzene	10		10	100	70-130
Xylene (m,p)	20		20	100	70-130
Xylene (o)	10		10	100	70-130
Styrene	10		11	110	70-130
Bromoform	10		12	120	70-130
1,1,2,2-Tetrachloroetha	10		10	100	70-130
4-Ethyltoluene	10		11	110	70-130
1,3,5-Trimethylbenzene	10		11	110	70-130
2-Chlorotoluene	10		11	110	70-130
1,2,4-Trimethylbenzene	10		11	110	70-130
1,3-Dichlorobenzene	10		11	110	70-130
1,4-Dichlorobenzene	10		11	110	70-130
1,2-Dichlorobenzene	10		11	110	70-130
1,2,4-Trichlorobenzene	10		11	110	70-130
Hexachlorobutadiene	10		10	100	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

FORM 3
AIR VOLATILE LAB CONTROL SAMPLE

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Matrix Spike - Sample No.: J9LCS

COMPOUND	SPIKE ADDED (ppbv)	LCSD CONCENTRATION (ppbv)	LCSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Dichlorodifluoromethane	10	12	120	0	40	70-130
1,2-Dichlorotetrafluoro	10	11	110	9	40	70-130
Chloromethane	10	10	100	0	40	70-130
Vinyl Chloride	10	10	100	0	40	70-130
1,3-Butadiene	10	11	110	0	40	70-130
Bromomethane	10	11	110	0	40	70-130
Chloroethane	10	9.3	93	1	40	70-130
Bromoethene	10	10	100	0	40	70-130
Trichlorofluoromethane	10	12	120	0	40	70-130
Freon TF	10	10	100	10	40	70-130
1,1-Dichloroethene	10	9.3	93	4	40	70-130
Carbon Disulfide	10	9.1	91	1	40	70-130
3-Chloropropene	10	8.7	87	1	40	70-130
Methylene Chloride	10	9.0	90	1	40	70-130
trans-1,2-Dichloroethen	10	9.1	91	1	40	70-130
n-Hexane	10	8.2	82	2	40	70-130
1,1-Dichloroethane	10	9.1	91	1	40	70-130
cis-1,2-Dichloroethene	10	9.2	92	1	40	70-130
Chloroform	10	10	100	0	40	70-130
1,1,1-Trichloroethane	10	10	100	10	40	70-130
Cyclohexane	10	8.5	85	1	40	70-130
Carbon Tetrachloride	10	11	110	0	40	70-130
2,2,4-Trimethylpentane	10	8.0	80	1	40	70-130
Benzene	10	8.4	84	0	40	70-130
1,2-Dichloroethane	10	9.8	98	1	40	70-130
n-Heptane	10	8.1	81	1	40	70-130
Trichloroethene	10	9.2	92	1	40	70-130
1,2-Dichloropropane	10	8.6	86	1	40	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

FORM 3
AIR VOLATILE LAB CONTROL SAMPLE

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Matrix Spike - Sample No.: J9LCS

COMPOUND	SPIKE ADDED (ppbv)	LCSD CONCENTRATION (ppbv)	LCSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Bromodichloromethane	10	10	100	0	40	70-130
cis-1,3-Dichloropropene	10	9.3	93	0	40	70-130
Toluene	10	9.0	90	2	40	70-130
trans-1,3-Dichloroprope	10	10	100	0	40	70-130
1,1,2-Trichloroethane	10	9.2	92	1	40	70-130
Tetrachloroethene	10	8.9	89	6	40	70-130
Dibromochloromethane	10	11	110	0	40	70-130
1,2-Dibromoethane	10	10	100	0	40	70-130
Chlorobenzene	10	9.7	97	3	40	70-130
Ethylbenzene	10	9.7	97	3	40	70-130
Xylene (m,p)	20	19	95	5	40	70-130
Xylene (o)	10	9.7	97	3	40	70-130
Styrene	10	10	100	10	40	70-130
Bromoform	10	11	110	9	40	70-130
1,1,2,2-Tetrachloroetha	10	10	100	0	40	70-130
4-Ethyltoluene	10	10	100	10	40	70-130
1,3,5-Trimethylbenzene	10	10	100	10	40	70-130
2-Chlorotoluene	10	10	100	10	40	70-130
1,2,4-Trimethylbenzene	10	10	100	10	40	70-130
1,3-Dichlorobenzene	10	10	100	10	40	70-130
1,4-Dichlorobenzene	10	10	100	10	40	70-130
1,2-Dichlorobenzene	10	10	100	10	40	70-130
1,2,4-Trichlorobenzene	10	10	100	10	40	70-130
Hexachlorobutadiene	10	9.7	97	3	40	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 52 outside limits
Spike Recovery: 0 out of 104 outside limits

COMMENTS: _____

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

ABLKJ7

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Lab File ID: CSB002D Lab Sample ID: ABLKJ7

Date Analyzed: 01/31/05 Time Analyzed: 1250

GC Column: RTX-624 ID: 0.32 (mm) Heated Purge: (Y/N) N

Instrument ID: B

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	J7LCS	J7LCS	CS010DQ	1105
02	J7LCSD	J7LCSD	CS010DQD	1152
03	SG-1	604508	604508	0059
04	SG-4	604511	604511	0320
05	SG-5	604512	604512	0407
06	SG-6	604513	604513	0454
07	SG-7	604514	604514D	0541
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS:

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

ABLKJ9

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Lab File ID: CSB002E Lab Sample ID: ABLKJ9

Date Analyzed: 02/01/05 Time Analyzed: 1312

GC Column: RTX-624 ID: 0.32 (mm) Heated Purge: (Y/N) N

Instrument ID: B

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	J9LCS	J9LCS	CS010EQ	1127
02	J9LCSD	J9LCSD	CS010EQD	1214
03	SG-2	604509	604509I2	1853
04	SG-3	604510	604510I2	1940
05	SG-5DL	604512D1	604512D	2027
06	SG-7DL	604514D1	604514D	2114
07	SG-1DL	604508D1	604508D	2201
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS:

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Lab File ID: CS001P BFB Injection Date: 01/26/05

Instrument ID: B BFB Injection Time: 0856

GC Column: RTX-624 ID: 0.32 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	18.0
75	30.0 - 66.0% of mass 95	52.0
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.5
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	65.0
175	4.0 - 9.0% of mass 174	5.0 (7.7)1
176	93.0 - 101.0% of mass 174	63.3 (97.3)1
177	5.0 - 9.0% of mass 176	3.9 (6.2)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	ASTD0002	ASTD0002	CS0002I2	01/26/05	1031
02	ASTD0002	ASTD0002	CS0005	01/26/05	1118
03	ASTD005	ASTD005	CS005	01/26/05	1205
04	ASTD010	ASTD010	CS010I2	01/26/05	1340
05	ASTD015	ASTD015	CS015	01/26/05	1445
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Lab File ID: CS005P BFB Injection Date: 01/31/05

Instrument ID: B BFB Injection Time: 0837

GC Column: RTX-624 ID: 0.32 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	16.1
75	30.0 - 66.0% of mass 95	50.8
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.9
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	66.8
175	4.0 - 9.0% of mass 174	4.9 (7.3)1
176	93.0 - 101.0% of mass 174	64.7 (96.9)1
177	5.0 - 9.0% of mass 176	4.1 (6.4)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	ASTD010	ASTD010	CS010D	01/31/05	1011
02	J7LCS	J7LCS	CS010DQ	01/31/05	1105
03	J7LCSD	J7LCSD	CS010DQD	01/31/05	1152
04	ABLKJ7	ABLKJ7	CSB002D	01/31/05	1250
05	SG-1	604508	604508	02/01/05	0059
06	SG-4	604511	604511	02/01/05	0320
07	SG-5	604512	604512	02/01/05	0407
08	SG-6	604513	604513	02/01/05	0454
09	SG-7	604514	604514D	02/01/05	0541
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Lab File ID: CS006P BFB Injection Date: 02/01/05

Instrument ID: B BFB Injection Time: 0900

GC Column: RTX-624 ID: 0.32 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	16.4
75	30.0 - 66.0% of mass 95	52.8
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.8
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	70.4
175	4.0 - 9.0% of mass 174	5.0 (7.1)1
176	93.0 - 101.0% of mass 174	67.6 (95.9)1
177	5.0 - 9.0% of mass 176	4.4 (6.4)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	ASTD010	ASTD010	CS010E	02/01/05	1037
02	J9LCS	J9LCS	CS010EQ	02/01/05	1127
03	J9LCSD	J9LCSD	CS010EQD	02/01/05	1214
04	ABLKJ9	ABLKJ9	CSB002E	02/01/05	1312
05	SG-2	604509	604509I2	02/01/05	1853
06	SG-3	604510	604510I2	02/01/05	1940
07	SG-5DL	604512D1	604512D	02/01/05	2027
08	SG-7DL	604514D1	604514D	02/01/05	2114
09	SG-1DL	604508D1	604508D	02/01/05	2201
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Instrument ID: B Calibration Date(s): 01/26/05 01/26/05

Heated Purge: (Y/N) N Calibration Time(s): 1031 1619

GC Column: RTX-624 ID: 0.32 (mm)

LAB FILE ID: RRF0.2=CS0002I2 RRF0.5=CS0005
RRF2 = RRF5 =CS005 RRF10 =CS010I2

COMPOUND	RRF0.2	RRF0.5	RRF2	RRF5	RRF10	$\overline{RRF}$	%RSD
Dichlorodifluoromethane		1.078		0.975	1.067		
1,2-Dichlorotetrafluoroethan	4.702	4.357		4.326	4.205		
Chloromethane		0.922		0.872	0.817		
Vinyl Chloride	1.316	1.256		1.263	1.203		
1,3-Butadiene	0.851	0.847		0.913	0.856		
Bromomethane	1.453	1.308		1.292	1.242		
Chloroethane	0.918	0.745		0.705	0.665		
Bromoethene	1.502	1.337		1.358	1.323		
Trichlorofluoromethane	5.103	4.663		4.785	4.697		
Freon TF	3.425	3.236		3.136	3.088		
1,1-Dichloroethene	1.658	1.374		1.387	1.338		
Acetone				1.898	1.756		
Carbon Disulfide		3.906		3.752	3.617		
3-Chloropropene	1.257	1.303		1.273	1.188		
Methylene Chloride		1.549		1.265	1.180		
tert-Butyl Alcohol				3.004	2.750		
Methyl tert-Butyl Ether		4.100		4.354	4.236		
trans-1,2-Dichloroethene	2.038	1.933		1.929	1.831		
n-Hexane	2.145	1.922		1.814	1.732		
1,1-Dichloroethane *	2.664	2.373		2.423	2.304		*
Methyl Ethyl Ketone		0.712		0.662	0.633		
cis-1,2-Dichloroethene	1.496	1.434		1.406	1.340		
Chloroform	3.406	3.175		3.220	3.124		
1,1,1-Trichloroethane	0.670	0.646		0.624	0.666		
Cyclohexane	0.388	0.354		0.332	0.350		
Carbon Tetrachloride	0.647	0.630		0.635	0.687		
2,2,4-Trimethylpentane	1.105	1.045		0.962	0.985		
Benzene	0.796	0.756		0.698	0.726		
1,2-Dichloroethane	0.435	0.430		0.402	0.424		
n-Heptane	0.350	0.330		0.305	0.310		
Trichloroethene	0.384	0.346		0.330	0.352		
1,2-Dichloropropane	0.221	0.234		0.222	0.228		
Bromodichloromethane	0.600	0.588		0.586	0.616		
cis-1,3-Dichloropropene	0.408	0.420		0.438	0.458		
Methyl Isobutyl Ketone		0.437		0.436	0.459		
Toluene	0.684	0.692		0.648	0.693		
trans-1,3-Dichloropropene	0.365	0.363		0.392	0.418		

* Compounds with required minimum RRF and maximim %RSD values.
All other compounds must meet a minimim RRF of 0.010.

6A
VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Instrument ID: B Calibration Date(s): 01/26/05 01/26/05

Heated Purge: (Y/N) N Calibration Time(s): 1031 1619

GC Column: RTX-624 ID: 0.32 (mm)

LAB FILE ID: RRF0.2=CS0002I2 RRF0.5=CS0005
RRF2 = RRF5 =CS005 RRF10 =CS010I2

COMPOUND	RRF0.2	RRF0.5	RRF2	RRF5	RRF10	$\overline{RRF}$	% RSD	
1,1,2-Trichloroethane	0.318	0.309		0.286	0.302			
Tetrachloroethene	0.522	0.526		0.485	0.520			
Dibromochloromethane	0.585	0.609		0.648	0.707			
1,2-Dibromoethane	0.580	0.562		0.541	0.579			
Chlorobenzene	0.916	0.882		0.860	0.919			*
Ethylbenzene	1.485	1.636		1.475	1.614			
Xylene (m,p)	0.570	0.558		0.554	0.605			
Xylene (o)	0.573	0.546		0.517	0.570			
Styrene	0.775	0.730		0.802	0.887			
Bromoform	0.414	0.426		0.500	0.567			
1,1,2,2-Tetrachloroethane	0.681	0.690		0.710	0.760			
4-Ethyltoluene	2.001	1.715		1.738	1.894			
1,3,5-Trimethylbenzene	1.216	1.422		1.601	1.712			
2-Chlorotoluene	1.378	1.414		1.386	1.519			
1,2,4-Trimethylbenzene	1.504	1.392		1.463	1.574			
1,3-Dichlorobenzene	0.898	0.840		0.793	0.854			
1,4-Dichlorobenzene	0.910	0.856		0.776	0.817			
1,2-Dichlorobenzene	0.826	0.752		0.734	0.794			
1,2,4-Trichlorobenzene		0.467		0.397	0.445			
Hexachlorobutadiene	0.528	0.421		0.411	0.455			

* Compounds with required minimum RRF and maximim %RSD values.
All other compounds must meet a minimim RRF of 0.010.

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Instrument ID: B Calibration Date(s): 01/26/05 01/26/05

Heated Purge: (Y/N) N Calibration Time(s): 1031 1619

GC Column: RTX-624 ID: 0.32 (mm)

LAB FILE ID: RRF15 =CS015 RRF20 =CS020
RRF40 =CS040

COMPOUND	RRF15	RRF20	RRF40			$\overline{RRF}$	% RSD
Dichlorodifluoromethane		1.024	1.048			1.038	3.9
1,2-Dichlorotetrafluoroethan		4.202	4.133			4.321	4.7
Chloromethane		0.787	0.755			0.831	8.1
Vinyl Chloride		1.148	1.083			1.212	7.0
1,3-Butadiene		0.816	0.771			0.842	5.6
Bromomethane		1.222	1.192			1.285	7.2
Chloroethane		0.643	0.620			0.716	15.2
Bromoethene		1.308	1.276			1.351	5.9
Trichlorofluoromethane		4.729	4.636			4.769	3.6
Freon TF		3.059	3.007			3.158	4.8
1,1-Dichloroethene		1.346	1.301			1.401	9.2
Acetone	1.693	1.660	1.587			1.719	6.8
Carbon Disulfide		3.531	3.466			3.654	4.8
3-Chloropropene		1.137	1.100			1.210	6.7
Methylene Chloride		1.136	1.091			1.244	14.6
tert-Butyl Alcohol	2.789	2.823	2.657			2.805	4.5
Methyl tert-Butyl Ether		4.136	4.080			4.181	2.7
trans-1,2-Dichloroethene		1.815	1.744			1.882	5.6
n-Hexane		1.667	1.649			1.822	10.3
1,1-Dichloroethane *		2.266	2.168			2.366	7.2*
Methyl Ethyl Ketone		0.616	0.600			0.645	6.9
cis-1,2-Dichloroethene		1.339	1.299			1.386	5.3
Chloroform		3.096	2.974			3.166	4.6
1,1,1-Trichloroethane		0.636	0.664			0.651	2.9
Cyclohexane		0.331	0.343			0.350	6.0
Carbon Tetrachloride		0.668	0.703			0.662	4.5
2,2,4-Trimethylpentane		0.920	0.949			0.994	6.9
Benzene		0.687	0.708			0.728	5.6
1,2-Dichloroethane		0.402	0.409			0.417	3.4
n-Heptane		0.285	0.288			0.311	7.9
Trichloroethene		0.333	0.342			0.348	5.6
1,2-Dichloropropane		0.211	0.216			0.222	3.7
Bromodichloromethane		0.590	0.613			0.599	2.2
cis-1,3-Dichloropropene		0.432	0.452			0.435	4.4
Methyl Isobutyl Ketone		0.428	0.433			0.439	2.7
Toluene		0.651	0.669			0.673	3.0
trans-1,3-Dichloropropene		0.397	0.419			0.392	6.3

* Compounds with required minimum RRF and maximim %RSD values.
All other compounds must meet a minimim RRF of 0.010.

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Instrument ID: B Calibration Date(s): 01/26/05 01/26/05

Heated Purge: (Y/N) N Calibration Time(s): 1031 1619

GC Column: RTX-624 ID: 0.32 (mm)

LAB FILE ID: RRF15 =CS015 RRF20 =CS020
RRF40 =CS040

COMPOUND		RRF15	RRF20	RRF40			$\overline{RRF}$	% RSD
1,1,2-Trichloroethane			0.280	0.287			0.297	5.0
Tetrachloroethene			0.499	0.519			0.512	3.1
Dibromochloromethane			0.679	0.714			0.657	8.0
1,2-Dibromoethane			0.549	0.575			0.564	2.9
Chlorobenzene	*		0.868	0.900			0.891	2.8*
Ethylbenzene			1.533	1.536			1.546	4.3
Xylene (m,p)			0.581	0.601			0.578	3.7
Xylene (o)			0.548	0.558			0.552	3.7
Styrene			0.875	0.937			0.834	9.4
Bromoform			0.550	0.600			0.510	15.0
1,1,2,2-Tetrachloroethane			0.678	0.695			0.702	4.4
4-Ethyltoluene			1.816	1.722			1.814	6.3
1,3,5-Trimethylbenzene			1.669	1.544			1.527	12.0
2-Chlorotoluene			1.451	1.504			1.442	4.1
1,2,4-Trimethylbenzene			1.500	1.503			1.489	4.0
1,3-Dichlorobenzene			0.787	0.827			0.833	4.9
1,4-Dichlorobenzene			0.754	0.796			0.818	7.0
1,2-Dichlorobenzene			0.717	0.726			0.758	5.6
1,2,4-Trichlorobenzene			0.418	0.419			0.429	6.4
Hexachlorobutadiene			0.401	0.397			0.436	11.4

* Compounds with required minimum RRF and maximim %RSD values.
All other compounds must meet a minimim RRF of 0.010.

FORM 7
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Instrument ID: B Calibration Date: 01/31/05 Time: 1011

Lab File ID: CS010D Init. Calib. Date(s): 01/26/05 01/26/05

Heated Purge: (Y/N) N Init. Calib. Times: 1031 1619

GC Column: RTX-624 ID: 0.32 (mm)

COMPOUND	$\overline{RRF}$	RRF10	MIN RRF	%D	MAX %D
Dichlorodifluoromethane	1.038	1.112	0.01	7.1	30.0
1,2-Dichlorotetrafluoroethan	4.321	4.604	0.01	6.5	30.0
Chloromethane	0.831	0.820	0.01	1.3	30.0
Vinyl Chloride	1.212	1.200	0.01	1.0	30.0
1,3-Butadiene	0.842	0.841	0.01	0.1	30.0
Bromomethane	1.285	1.268	0.01	1.3	30.0
Chloroethane	0.716	0.618	0.01	13.7	30.0
Bromoethene	1.351	1.317	0.01	2.5	30.0
Trichlorofluoromethane	4.769	5.192	0.01	8.9	30.0
Freon TF	3.158	3.111	0.01	1.5	30.0
1,1-Dichloroethene	1.401	1.281	0.01	8.6	30.0
Acetone	1.719	1.623	0.01	5.6	30.0
Carbon Disulfide	3.654	3.289	0.01	10.0	30.0
3-Chloropropene	1.210	1.022	0.01	15.5	30.0
Methylene Chloride	1.244	1.064	0.01	14.5	30.0
tert-Butyl Alcohol	2.805	2.485	0.01	11.4	30.0
Methyl tert-Butyl Ether	4.181	3.914	0.01	6.4	30.0
trans-1,2-Dichloroethene	1.882	1.664	0.01	11.6	30.0
n-Hexane	1.822	1.445	0.01	20.7	30.0
1,1-Dichloroethane	2.366	2.080	0.1	12.1	30.0
Methyl Ethyl Ketone	0.645	0.564	0.01	12.6	30.0
cis-1,2-Dichloroethene	1.386	1.259	0.01	9.2	30.0
Chloroform	3.166	3.063	0.01	3.2	30.0
1,1,1-Trichloroethane	0.651	0.665	0.01	2.2	30.0
Cyclohexane	0.350	0.300	0.01	14.3	30.0
Carbon Tetrachloride	0.662	0.710	0.01	7.2	30.0
2,2,4-Trimethylpentane	0.994	0.803	0.01	19.2	30.0
Benzene	0.728	0.627	0.01	13.9	30.0
1,2-Dichloroethane	0.417	0.402	0.01	3.6	30.0
n-Heptane	0.311	0.250	0.01	19.6	30.0
Trichloroethene	0.348	0.323	0.01	7.2	30.0
1,2-Dichloropropane	0.222	0.196	0.01	11.7	30.0
Bromodichloromethane	0.599	0.601	0.01	0.3	30.0
cis-1,3-Dichloropropene	0.435	0.412	0.01	5.3	30.0
Methyl Isobutyl Ketone	0.439	0.378	0.01	13.9	30.0
Toluene	0.673	0.585	0.01	13.1	30.0
trans-1,3-Dichloropropene	0.392	0.394	0.01	0.5	30.0

FORM 7
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Instrument ID: B Calibration Date: 01/31/05 Time: 1011

Lab File ID: CS010D Init. Calib. Date(s): 01/26/05 01/26/05

Heated Purge: (Y/N) N Init. Calib. Times: 1031 1619

GC Column: RTX-624 ID: 0.32 (mm)

COMPOUND	$\overline{RRF}$	RRF10	MIN RRF	%D	MAX %D
1,1,2-Trichloroethane	0.297	0.257	0.01	13.5	30.0
Tetrachloroethene	0.512	0.446	0.01	12.9	30.0
Dibromochloromethane	0.657	0.669	0.01	1.8	30.0
1,2-Dibromoethane	0.564	0.531	0.01	5.8	30.0
Chlorobenzene	0.891	0.832	0.3	6.6	30.0
Ethylbenzene	1.546	1.423	0.01	8.0	30.0
Xylene (m,p)	0.578	0.540	0.01	6.6	30.0
Xylene (o)	0.552	0.510	0.01	7.6	30.0
Styrene	0.834	0.795	0.01	4.7	30.0
Bromoform	0.510	0.534	0.01	4.7	30.0
1,1,2,2-Tetrachloroethane	0.702	0.671	0.01	4.4	30.0
4-Ethyltoluene	1.814	1.764	0.01	2.8	30.0
1,3,5-Trimethylbenzene	1.527	1.537	0.01	0.6	30.0
2-Chlorotoluene	1.442	1.403	0.01	2.7	30.0
1,2,4-Trimethylbenzene	1.489	1.447	0.01	2.8	30.0
1,3-Dichlorobenzene	0.833	0.793	0.01	4.8	30.0
1,4-Dichlorobenzene	0.818	0.770	0.01	5.9	30.0
1,2-Dichlorobenzene	0.758	0.741	0.01	2.2	30.0
1,2,4-Trichlorobenzene	0.429	0.385	0.01	10.2	30.0
Hexachlorobutadiene	0.436	0.399	0.01	8.5	30.0

FORM 7
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Instrument ID: B Calibration Date: 02/01/05 Time: 1037

Lab File ID: CS010E Init. Calib. Date(s): 01/26/05 01/26/05

Heated Purge: (Y/N) N Init. Calib. Times: 1031 1619

GC Column: RTX-624 ID: 0.32 (mm)

COMPOUND	$\overline{RRF}$	RRF10	MIN RRF	%D	MAX %D
Dichlorodifluoromethane	1.038	1.187	0.01	14.4	30.0
1,2-Dichlorotetrafluoroethan	4.321	4.641	0.01	7.4	30.0
Chloromethane	0.831	0.784	0.01	5.6	30.0
Vinyl Chloride	1.212	1.119	0.01	7.7	30.0
1,3-Butadiene	0.842	0.784	0.01	6.9	30.0
Bromomethane	1.285	1.216	0.01	5.4	30.0
Chloroethane	0.716	0.586	0.01	18.2	30.0
Bromoethene	1.351	1.281	0.01	5.2	30.0
Trichlorofluoromethane	4.769	5.403	0.01	13.3	30.0
Freon TF	3.158	3.141	0.01	0.5	30.0
1,1-Dichloroethene	1.401	1.232	0.01	12.1	30.0
Acetone	1.719	1.589	0.01	7.6	30.0
Carbon Disulfide	3.654	3.115	0.01	14.8	30.0
3-Chloropropene	1.210	0.956	0.01	21.0	30.0
Methylene Chloride	1.244	1.044	0.01	16.1	30.0
tert-Butyl Alcohol	2.805	2.324	0.01	17.1	30.0
Methyl tert-Butyl Ether	4.181	3.834	0.01	8.3	30.0
trans-1,2-Dichloroethene	1.882	1.602	0.01	14.9	30.0
n-Hexane	1.822	1.374	0.01	24.6	30.0
1,1-Dichloroethane	2.366	1.996	0.1	15.6	30.0
Methyl Ethyl Ketone	0.645	0.535	0.01	17.0	30.0
cis-1,2-Dichloroethene	1.386	1.198	0.01	13.6	30.0
Chloroform	3.166	3.050	0.01	3.7	30.0
1,1,1-Trichloroethane	0.651	0.682	0.01	4.8	30.0
Cyclohexane	0.350	0.288	0.01	17.7	30.0
Carbon Tetrachloride	0.662	0.741	0.01	11.9	30.0
2,2,4-Trimethylpentane	0.994	0.756	0.01	23.9	30.0
Benzene	0.728	0.596	0.01	18.1	30.0
1,2-Dichloroethane	0.417	0.407	0.01	2.4	30.0
n-Heptane	0.311	0.239	0.01	23.2	30.0
Trichloroethene	0.348	0.317	0.01	8.9	30.0
1,2-Dichloropropane	0.222	0.185	0.01	16.7	30.0
Bromodichloromethane	0.599	0.598	0.01	0.2	30.0
cis-1,3-Dichloropropene	0.435	0.395	0.01	9.2	30.0
Methyl Isobutyl Ketone	0.439	0.369	0.01	15.9	30.0
Toluene	0.673	0.561	0.01	16.6	30.0
trans-1,3-Dichloropropene	0.392	0.386	0.01	1.5	30.0

FORM 7
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Instrument ID: B Calibration Date: 02/01/05 Time: 1037

Lab File ID: CS010E Init. Calib. Date(s): 01/26/05 01/26/05

Heated Purge: (Y/N) N Init. Calib. Times: 1031 1619

GC Column: RTX-624 ID: 0.32 (mm)

COMPOUND	$\overline{RRF}$	RRF10	MIN RRF	%D	MAX %D
1,1,2-Trichloroethane	0.297	0.251	0.01	15.5	30.0
Tetrachloroethene	0.512	0.443	0.01	13.5	30.0
Dibromochloromethane	0.657	0.684	0.01	4.1	30.0
1,2-Dibromoethane	0.564	0.535	0.01	5.1	30.0
Chlorobenzene	0.891	0.825	0.3	7.4	30.0
Ethylbenzene	1.546	1.412	0.01	8.7	30.0
Xylene (m,p)	0.578	0.534	0.01	7.6	30.0
Xylene (o)	0.552	0.512	0.01	7.2	30.0
Styrene	0.834	0.805	0.01	3.5	30.0
Bromoform	0.510	0.551	0.01	8.0	30.0
1,1,2,2-Tetrachloroethane	0.702	0.667	0.01	5.0	30.0
4-Ethyltoluene	1.814	1.816	0.01	0.1	30.0
1,3,5-Trimethylbenzene	1.527	1.526	0.01	0.1	30.0
2-Chlorotoluene	1.442	1.414	0.01	1.9	30.0
1,2,4-Trimethylbenzene	1.489	1.467	0.01	1.5	30.0
1,3-Dichlorobenzene	0.833	0.826	0.01	0.8	30.0
1,4-Dichlorobenzene	0.818	0.794	0.01	2.9	30.0
1,2-Dichlorobenzene	0.758	0.750	0.01	1.0	30.0
1,2,4-Trichlorobenzene	0.429	0.432	0.01	0.7	30.0
Hexachlorobutadiene	0.436	0.426	0.01	2.3	30.0

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Lab File ID (Standard): CS010D Date Analyzed: 01/31/05

Instrument ID: B Time Analyzed: 1011

GC Column: RTX-624 ID: 0.32 (mm) Heated Purge: (Y/N) N

		IS1(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
	12 HOUR STD	718819	9.79	4098974	10.62	3474682	13.05
	UPPER LIMIT	1006347	10.12	5738564	10.95	4864555	13.38
	LOWER LIMIT	431291	9.46	2459384	10.29	2084809	12.72
	CLIENT SAMPLE NO.						
01	J7LCS	679021	9.79	3843543	10.62	3256053	13.05
02	J7LCSD	767736	9.79	4431252	10.62	3539500	13.05
03	ABLKJ7	594169	9.79	3361338	10.61	2650890	13.05
04	SG-1	664946	9.79	3673228	10.62	2903762	13.05
05	SG-4	726648	9.79	4089065	10.62	3322596	13.05
06	SG-5	741731	9.79	4180894	10.62	3146492	13.05
07	SG-6	796757	9.79	4483958	10.61	3335972	13.05
08	SG-7	731603	9.79	4095107	10.61	3240164	13.05
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = + 40% of internal standard area
AREA LOWER LIMIT = - 40% of internal standard area
RT UPPER LIMIT = + 0.33 minutes of internal standard RT
RT LOWER LIMIT = - 0.33 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: STL BURLINGTON Contract: 25000

Lab Code: STLVT Case No.: 25000 SAS No.: SDG No.: 104803

Lab File ID (Standard): CS010E Date Analyzed: 02/01/05

Instrument ID: B Time Analyzed: 1037

GC Column: RTX-624 ID: 0.32 (mm) Heated Purge: (Y/N) N

		IS1 (BCM) AREA #	RT #	IS2 (DFB) AREA #	RT #	IS3 (CBZ) AREA #	RT #
	12 HOUR STD	627425	9.79	3565446	10.62	2994122	13.05
	UPPER LIMIT	878395	10.12	4991624	10.95	4191771	13.38
	LOWER LIMIT	376455	9.46	2139268	10.29	1796473	12.72
	CLIENT SAMPLE NO.						
01	J9LCS	615797	9.79	3643511	10.62	2864263	13.05
02	J9LCSD	624458	9.79	3669269	10.62	2939534	13.05
03	ABLKJ9	519018	9.78	2832587	10.61	2225215	13.05
04	SG-2	703096	9.78	3914136	10.61	3289510	13.05
05	SG-3	693035	9.79	3836104	10.62	2600568	13.05
06	SG-5DL	621489	9.79	3565272	10.61	2935186	13.05
07	SG-7DL	620745	9.79	3538515	10.61	2534995	13.05
08	SG-1DL	652422	9.79	3737941	10.61	3125945	13.05
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = + 40% of internal standard area
AREA LOWER LIMIT = - 40% of internal standard area
RT UPPER LIMIT = + 0.33 minutes of internal standard RT
RT LOWER LIMIT = - 0.33 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

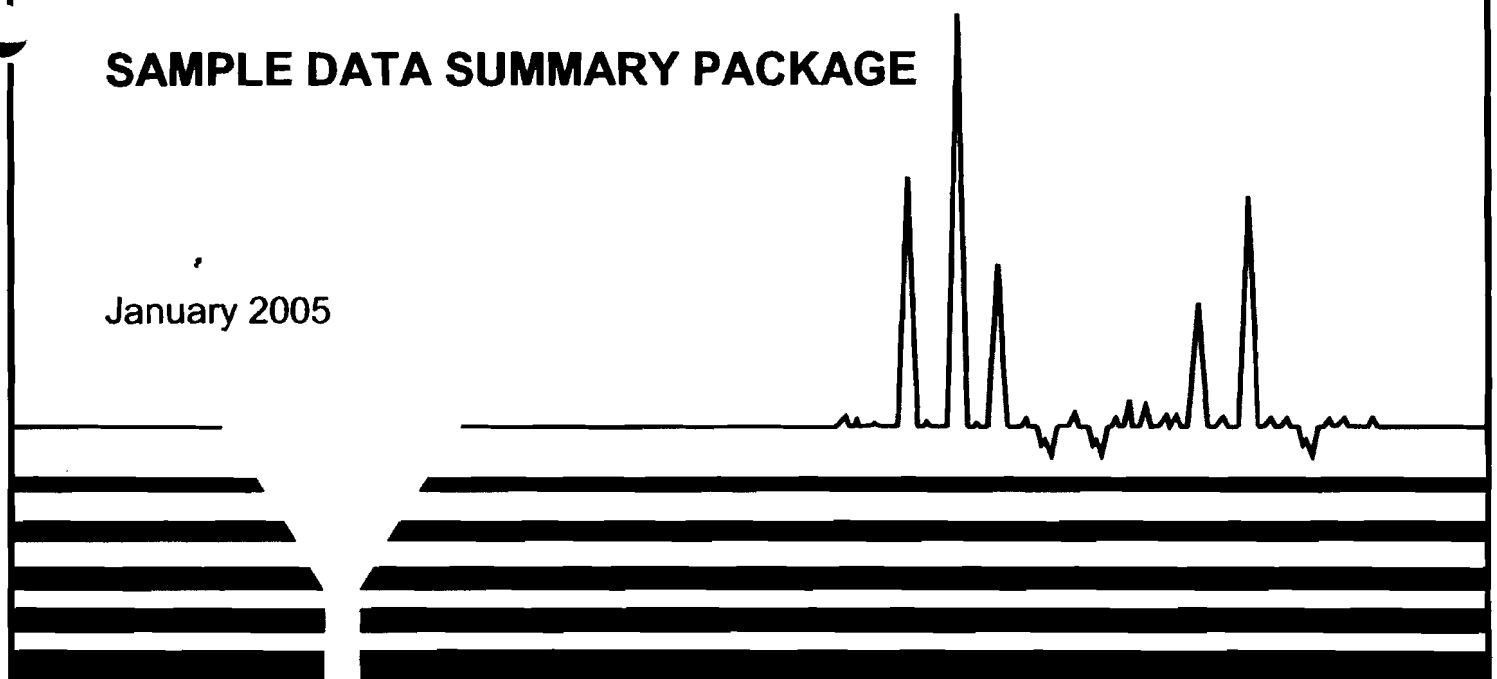
Analytical Data Package For

BERNINGER ENVIRONMENTAL
PROJECT: 1345 Peninsula Blvd. Hewlett, NY
SDG NO: BER011

Soil Samples
Received: 1/13/05

SAMPLE DATA SUMMARY PACKAGE

January 2005



H2M LABS, INC.
Environmental Testing Laboratories
575 Broad Hollow Road, Melville, N.Y. 11747

H2M LABS, INC.

SAMPLE DATA SUMMARY PACKAGE

TABLE OF CONTENTS

BERNINGER ENVIRONMENTAL
PROJECT: 1345 Peninsula Blvd. Hewlett, New York

SAMPLES RECEIVED: 1/13/05
SDG NO.: BER011

1. **NYS DEC SUMMARY FORMS**

2. **CHAIN OF CUSTODY DOCUMENTATION**

3. **SDG NARRATIVES**

4. **SAMPLE REPORTS**
   4.1 VOLATILES

5. **SURROGATE SPIKE ANALYSIS RESULTS**
   5.1 VOLATILES

6. **MATRIX SPIKE / MATRIX SPIKE DUPLICATE SUMMARY**
   6.1 VOLATILES

7. **BLANK SUMMARY DATA AND RESULTS**
   7.1 VOLATILES

8. **INTERNAL STANDARD AREA DATA**
   8.1 VOLATILES

H2M LABS, INC.

1. NYS DEC SUMMARY FORMS

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

SDG: ber011

Analytical Requirements

Customer Sample Code	Laboratory Sample Code	MSVOA
S-1 0-2 FT	0501305-001	X
S-2 0-1.5 FT	0501305-002	X

CLP, Non-CLP (Please indicate year of protocol)
TCL/TAL, HSL, Priority Pollutant,

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
VOLATILE (VOA)
ANALYSES

SDG: BER011

Laboratory Samp ID	Client Sample ID	Matrix	Analytical Protocol	Date Collected	DateRecd at Lab	Date Extracted	Date Analyzed	Extraction Method	DF	Level	Aux Cleanup
0501305-001A	S-1 0-2 FT	Soil	SW8260B	12-Jan-05	13-Jan-05		14-Jan-05		1	LOW	
0501305-002A	S-2 0-1.5 FT	Soil	SW8260B	12-Jan-05	13-Jan-05		14-Jan-05		1	LOW	
0501305-002AMS	S-2 0-1.5 FTMS	Soil	SW8260B	12-Jan-05	13-Jan-05		14-Jan-05		1	LOW	
0501305-002AMSD	S-2 0-1.5 FTMSD	Soil	SW8260B	12-Jan-05	13-Jan-05		14-Jan-05		1	LOW	

H2M LABS, INC.

2. CHAIN OF CUSTODY DOCUMENTATION

H2M LABS, INC.

575 Broad Hollow Rd, Melville, NY 11747-5076
Tel: (516) 694-3040 Fax: (516) 420-8436

15625

EXTERNAL CHAIN OF CUSTODY

SOIL/GW

CLIENT: BER

H2M SDG NO: 011/012

PROJECT NAME/NUMBER
American Drive - Dr Cleaners
1345 Peninsula Blvd
Hewlett, New York

SAMPLERS: (signature)/Client
Berninger Environmental

DELIVERABLES: RTD NYSDEC ASP B

TURNAROUND TIME:

NOTES:
SRP
TCL VOAs
plus TICs
NYSDEC ASP B Del.

Project Contact: Jill Hainsworth

Phone Number: 516 647-4211

Sample Container Description: 8 40ml | 2oz | 2oz

ANALYSIS REQUESTED

DATE	TIME	MATRIX	FIELD I.D.	Total No. of Containers	ORGANIC: VOA	ORGANIC: BNA	ORGANIC: Pest/PCB	ORGANIC:	ORGANIC:	INORG.: Metal	INORG.: CN	LAB I.D. NO.	REMARKS:
1/12/05	8:00	L	GW-1 3.5-5.5 Ft	2	2							0501306-001	
1/12/05	8:15	S	S-1 0-2 Ft	2				1	1			0501305-001	
	9:00	L	GW-2 4-6 Ft	2	2							0501306-002	
	9:30	L	GW-2 19-21 Ft	2	2							003	
	9:50	L	GW-2 34-38 Ft	2	2							004	
	9:30		Field Blank	2	2							016	
	10:00		GW-3 4-8 ms/msd	6	6							005	
	10:30		GW-3 17-21 Ft	2	2							006	
	11:15		GW-3 32-36 Ft	2	2							007	
	12:00		GW-4 4-8 Ft	2	2							008	
			GW-4 17-21 Ft	2	2							009	

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Joel Meyer	1/13/05	9:00		1.13.05	9:00
	1/13/05	930		1/13/05	930
	Date	Time		Date	Time
	Date	Time		Date	Time

LABORATORY USE ONLY

Discrepancies Between Sample Labels and COC Record? Y or N
Explain:

Samples were:
1. Shipped ___ or Hand Delivered ✓ Airbill# ___
2. Ambient or chilled 4.2
3. Received in good condition: Y or N
4. Properly preserved: Y or N
5. Samples returned to lab ___ Hrs from collection.

COC Tape was:
1. Present on outer package: Y or N
2. Unbroken on outer package: Y or N
3. COC record present & complete upon sample receipt: Y or N

BER011 S6

WHITE COPY - ORIGINAL YELLOW COPY - CLIENT

H2M LABS, INC.

15622

EXTERNAL CHAIN OF CUSTODY

SOIL/GW

575 Broad Hollow Rd, Melville, NY 11747-5076
Tel: (516) 694-3040 Fax: (516) 420-8436

CLIENT: BER

H2M SDG NO: 011012

PROJECT NAME/NUMBER
American Drive Clemens
1345 Peninsula Blvd
Hewlett, New York

SAMPLERS: (signature) Client
Bernger Environmental Dr
1615 Ninth Ave, Bohemia, Ny

DELIVERABLES: NYSDEC ASP B

TURNAROUND TIME: RTD

NOTES:
TCL VOAs
plus TIC
NYSDEC ASP B Deliv

Project Contact: Jill Hamm
Phone Number: 516 467-9211

DATE	TIME	MATRIX	FIELD I.D.	Total No. of Containers	ORGANIC VOA	ORGANIC BNA	ORGANIC Pest/PCB		8.4	13	INORG. Metal	INORG. CN	LAB I.D. NO.	REMARKS:
1/12/05	1320	GW	GW-4 34-38 Ft	2	2								0501306-010	
	1405	SO	S-2 0-1.5 Ft MS/MSD	3	2				2	1			0501305-002	
	1430	GW	GW-5 4-8 Ft	2	2								011	
	1432		Supply well	2	2								015	
	—		TRIP BLANK	2	2								017	
	1500		GW-6 34-38 Ft	2	2								014	
	1520		GW-6 17-21 Ft	2	2								013	
↓	1530	↓	GW-6 4-8 Ft	2	2								↓ 012	

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Joel Meyers	1/13/5	9:00		1.13.05	09:00
	1.13.05	930		1/13/05	930

LABORATORY USE ONLY

Discrepancies Between Sample Labels and COC Record? Y or N
Explain:

Samples were:
1. Shipped ___ or Hand Delivered ✓ Airbill# _____
2. Ambient or chilled 4.2
3. Received in good condition (Y) or N
4. Properly preserved: Y or N
5. Samples returned to lab ___ Hrs from collection.

COC Tape was:
1. Present on outer package Y or (N)
2. Unbroken on outer package: Y or N
3. COC record present & complete upon sample receipt: Y or N

BER011 S7

WHITE COPY - ORIGINAL YELLOW COPY - CLIENT PINK COPY - LABORATORY

H2M LABS, INC.

BER011

Sample Receipt Checklist

Client Name BER | Date and Time Receive

Work Order Numbe 0501305 | Received by LSD

Checklist completed b (Signature) 1/13/05 (Date) | Reviewed by JSA (Initials) 1/14/05 (Date)

Matrix | Carrier name | Hand Delivered

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Applicable ☐
Custody seals intact on shippping container/cooler?	Yes ☐	No ☐	Not Applicable ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Applicable ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Water - VOA vials have zero headspace?	No VOA vials submitted ☑	Yes ☐	No ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	

Adjusted? _____ Checked b _____

Any No and/or NA (not applicable) response must be detailed in the comments section b

Client contacted | Date contacted: | Person contacted

Contacted by: | Regarding

Comments:

Corrective Action

BER011 S8

H2M LABS, INC.

INTERNAL CHAIN OF CUSTODY

CLIENT: BER DELIVERABLES: B5-70-D TURN AROUND TIME: 21 Days

SDG #: BER-011 CASE #: _____ MATRIX: Soil pH CHECK Y or (N)

REMARKS: 001 BER05

RECEIVED BY: LSD SIGNATURE: [signature] DATE: 1/13/05 TIME: 930

CLIENT ID	H2M LAB #	DATE COLLECTED	BOTTLE TYPE	# OF BOTTLES	TESTS REQUESTED
S-1 0-2 FT	050130S-001A	1-12	A	1	ASBS-8260-S
S-2 0-1.5 FT MS/MSD	↓ 002A	↓	↓	2	↓

LSD 1/13/05

VOLATILE

P 0253

BER011 S9

CH2M LABS, INC.

CLIENT: BER

SDG #: BER011

INTERNAL CHAIN OF CUSTODY

DATE	TIME	SAMPLE RELINQUISHED BY	SAMPLE RECEIVED BY	BOTTLE TYPE	PURPOSE OF CHANGE OF CUSTODY	INIT
11/3/95	1230	SIGN	SIGN	A	analysis	
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			

VOLATILE

BER011 S10

H2M LABS, INC.

INTERNAL CHAIN OF CUSTODY

CLIENT: BER DELIVERABLES: B5-10-D TURN AROUND TIME: 21 Days

SDG #: BER011 CASE #: _____ MATRIX: SOIL pH CHECK Y (or) N

REMARKS: 011BER05

RECEIVED BY: LSO SIGNATURE: _____ DATE: 11/13/05 TIME: 930

CLIENT ID FT	H2M LAB #	DATE COLLECTED	BOTTLE TYPE	# OF BOTTLES	TESTS REQUESTED
S-1 0-2 FT	0501305-001B	11.12	A	1	PMOIST
S-2 0-1.5 FT	↓ 002B	↓	↓	1	↓
mamsp					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

LSO 1/13/05

WET CHEMISTRY

BER011 S11

H2M LABS, INC.

CLIENT: BER

SDG #: BER011

INTERNAL CHAIN OF CUSTODY

DATE	TIME	SAMPLE RELINQUISHED BY	SAMPLE RECEIVED BY	BOTTLE TYPE	PURPOSE OF CHANGE OF CUSTODY	INIT
1/13/05	1230	SIGN	SIGN	A	analysis	
1/17/05	10:00	SIGN	SIGN Suzanne Rachel	A	Request	
1/17/05	10:30	SIGN Suzanne Rachel	SIGN	A	storage	
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			

WET CHEMISTRY

H2M LABS, INC.

3. SDG NARRATIVES

H2M LABS, INC.

SDG NARRATIVE FOR VOLATILE ORGANICS
SAMPLES RECEIVED: 1/13/05
SDG #: BER011

For Samples:

S-1 0-2 FT
S-2 0-1.5 FT MS/MSD

The above samples were analyzed for volatile organics by EPA method 8260B in accordance with the NYSDEC ASP, Rev. 10/95.

All QC data and calibrations met the requirements of the method, and no problems were encountered with sample analysis. The following should be noted:

- Sample S-2 0-1.5 FT was analyzed as the matrix spike/matrix spike duplicate. Chlorobenzene recoveries were slightly under the QC limits in both spike analyses.
- A lab fortified blank was analyzed. All percent recoveries were within QC limits.
- Compounds are reported as estimated values with the qualifier "J", if the concentration is between the MDL and the reporting limit. Values under the MDL are not reported.
- 4-bromofluorobenzene had a 32.2%D in the continuing calibration, which exceeds 25% but is under the limit of 40%. It also exceeded 20.5% RSD in the initial calibration but met the RSD limit of 40%.
- TIC compounds that are suspected to be column bleed introduced by the analytical system, were flagged with the qualifier "X".

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Date Reported: January 26, 2005

****
* *
* *
****

Ursula Middel
Technical Manager

BER011 SI4 CJS 2/4/05

H2M LABS, INC.

4. SAMPLE REPORTS
4.1 VOLATILES

H2M LABS, INC.

QUALIFIERS FOR REPORTING ORGANICS DATA

Value - If the result is a value greater than or equal to the quantification limit, report the value.

U - Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture. For example, 10U for phenol in water if the sample final volume is the protocol-specified final volume. If a 1 to 10 dilution of extract is necessary, the reported limit is 100 U. For a soil sample, the value must also be adjusted for percent moisture. For example, if the sample had 24% moisture and a 1 to 10 dilution factor, the sample quantitation limit for phenol (330 U) would be corrected to:

$$\frac{(300\ U)}{D} \times df \text{ where } D = \frac{100\% moisture}{100}$$

and df - dilution factor

For example, at 24% moisture, $D = \frac{100 - 24}{100} = 0.76$

$$\frac{(300\ U)}{.76} \times 10 - 4300\ U$$ rounded to the appropriate number of significant figures

For semivolatile soil samples, the extract must be concentrated to 0.5 mL, and the sensitivity of the analysis is not compromised by the cleanup procedures. Similarly, pesticide samples subjected to GPC are concentrated to 5.0 mL. Therefore, the CRQL values in Exhibit C will apply to all samples, regardless of cleanup. However, if a sample extract cannot be concentrated to the protocol-specified volume (see Exhibit C), this fact must be accounted for in reporting the sample quantitation limit.

J - Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified quantification limit but greater than zero. (e.g.: If limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, report as 3J.) The sample quantitation limit must be adjusted for dilution as discussed for the U flag.

N - Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.

P - This flag is used for a pesticide/Aroclor target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported of Form I with a "P".

C - This flag applies to pesticide results when the identification has been confirmed by GC/MS.. If GC/MS confirmation was attempted but was unsuccessful, do not apply this flag, instead use a Laboratory defined flag, discussed below.

B - This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible probable blank contamination and warns the data user to take appropriate action. This flag must be used for a TIC as well as for a positively identified target compound.

E - This flag identified compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. If one or more compounds have a response greater than full scale, except as noted in Exhibit D, the sample or extract must be diluted and re-analyzed according to the specifications in Exhibit D. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form I for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration ranges in the second analysis, then the results of both analyses shall be reported on separate copies of Form I. The Form I for the diluted sample shall have the "DL" suffix appended to the sample number. NOTE: For total xylenes, where three isomers are quantified as two peaks, the calibration range of each peak should be considered separately, e.g. a diluted analysis is not required for total xylenes unless the concentration of the peak representing the single isomer exceed 200 ug/L or the peak representing the two coeluting isomers on that GC column exceed 400 ug/L. Similarly, if the two 1,2-Dichloroethene isomers coelute, a diluted analysis is not required unless the concentration exceed 400 ug/L.

D - This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number on the Form I for the diluted sample, and all concentration values reported on that Form I are flagged with the "D" flag. This flag alerts data users that any discrepancies between the concentrations reported may be due to dilution of the sample or extract.

A - This flag indicates that a TIC is a suspected aldol-condensation product.

X - Other specific flags may be required to properly define the results. If used, they must be fully described and such description attached to the Sample Data Summary Package and the SDG narrative. Begin by using "X". If more than one flag is required use "Y" and "Z" as needed. If more than five qualifiers are required for a sample result, used the "X" flag to combine several flags as needed. For instance, the "X" flag might combine "A", "B", and "D" flags for some samples. The laboratory defined flags limited to the letters "X", "Y" and "Z".

The combination of flags "BU" or "UB" is expressly prohibited. Blank contaminants are flagged "B" only when they are detected in the sample.

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S-1 0-2 FT

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER011

Matrix: (soil/water) SOIL Lab Sample ID: 0501305-001A

Sample wt/vol: 5 (g/mL) G Lab File ID: 5\P28193.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. 15.5 Date Analyzed: 01/14/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(µg/L or µg/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl chloride	3	J
75-00-3	Chloroethane	12	U
75-09-2	Methylene chloride	10	BJ
67-64-1	Acetone	8	J
75-35-4	1,1-Dichloroethene	12	U
75-15-0	Carbon disulfide	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	97	
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	3	J
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	9	J
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	12	U
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U

BER011 S18

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S-1 0-2 FT

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER011

Matrix: (soil/water) SOIL Lab Sample ID: 0501305-001A

Sample wt/vol: 5 (g/mL) G Lab File ID: 5\P28193.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. 15.5 Date Analyzed: 01/14/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/KG	Q
1330-20-7	Xylene (total)	12	U

BER011 S19

1F

EPA SAMPLE NO.

S-1 0-2 FT

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER011

Matrix: (soil/water) SOIL Lab Sample ID: 0501305-001A

Sample wt/vol: 5 (g/mL) G Lab File ID: 5\P28193.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. 15.5 Date Analyzed: 01/14/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 3 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q
1. 000556-67-2	Cyclotetrasiloxane, octamethyl-	14.64	14	NJX
2.	(DEL) Alkane: Straight-Chain	14.87	9	J
3.	unknown	17.71	6	J

BP 1/24/05

BER011 S20

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S-2 0-1.5 FT

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER011

Matrix: (soil/water) SOIL Lab Sample ID: 0501305-002A

Sample wt/vol: 5 (g/mL) G Lab File ID: 5\P28194.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. 5.1 Date Analyzed: 01/14/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl chloride	7	J
75-00-3	Chloroethane	11	U
75-09-2	Methylene chloride	9	BJ
67-64-1	Acetone	6	J
75-35-4	1,1-Dichloroethene	11	U
75-15-0	Carbon disulfide	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	28	
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon tetrachloride	11	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	11	U
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	3	J
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	11	U
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U

BER011 S21

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S-2 0-1.5 FT

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER011

Matrix: (soil/water) SOIL Lab Sample ID: 0501305-002A

Sample wt/vol: 5 (g/mL) G Lab File ID: 5\P28194.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. 5.1 Date Analyzed: 01/14/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/KG	Q
1330-20-7	Xylene (total)	11	U

BER011 S22

1F

EPA SAMPLE NO.

S-2 0-1.5 FT

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER011

Matrix: (soil/water) SOIL Lab Sample ID: 0501305-002A

Sample wt/vol: 5 (g/mL) G Lab File ID: 5\P28194.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. 5.1 Date Analyzed: 01/14/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 2 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q
1. 000541-05-9	Cyclotrisiloxane, hexamethyl-	11.63	9	NJ X
2. 000556-67-2	Cyclotetrasiloxane, octamethyl-	14.67	17	NJ X

BM 1/26/05

BER011 S23

5. SURROGATE SPIKE ANALYSIS RESULTS

5.1 VOLATILES

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No.: _____ SDG No.: BER011

Level: (low/med) LOW

	EPA SAMPLE NO.	SMC1 DCE #	SMC2 TOL #	SMC3 BFB #	Other	TOT OUT
01	VBLK011405	102	98	99		0
02	LFB011405	104	107	107		0
03	MSB011405	96	106	102		0
04	S-1 0-2 FT	101	120	88		0
05	S-2 0-1.5 FT	98	123	85		0
06	S-2 0-1.5 FTMS	103	103	102		0
07	S-2 0-1.5 FTMSD	99	98	101		0

			QC Limits
SMC1	DCE	= 1,2-Dichloroethane-d4	(70-121)
SMC2	TOL	= Toluene-d8	(84-138)
SMC3	BFB	= 4-Bromofluorobenzene	(59-113)

Column to be used to flag recovery values

* Values outside of contract required QC limits

6. MATRIX SPIKE / MATRIX SPIKE DUPLICATE SUMMARY

6.1 VOLATILES

3B

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: H2M LABS, INC. Contract:

Lab Code: 10478 Case No.: BER SAS No.: SDG No.: BER011

Matrix Spike - EPA Sample No.: S-2 0-1.5 FT Level: (low/med) LOW

COMPOUND	SPIKE ADDED (µg/Kg)	SAMPLE CONCENTRATION (µg/Kg)	MS CONCENTRATION (µg/Kg)	MS % REC #	QC. LIMITS REC.
1,1-Dichloroethene	53	0	43	82	59-172
Trichloroethene	53	0	36	68	62-137
Benzene	53	0	48	91	66-142
Toluene	53	0	35	67	59-139
Chlorobenzene	53	0	31	58*	60-133

COMPOUND	SPIKE ADDED (µg/Kg)	MSD CONCENTRATION (µg/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	53	40	76	8	22	59-172
Trichloroethene	53	35	67	1	24	62-137
Benzene	53	47	89	2	21	66-142
Toluene	53	33	63	6	21	59-139
Chlorobenzene	53	31	59*	2	21	60-133

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits

Spike Recovery: 2 out of 10 outside limits

COMMENTS:

3A

SYSTEM MONITORING SPIKE RECOVERY

Lab Name: H2M LABS, INC. Contract:

Lab Code: 10478 Case No.: BER SAS No.: SDG No.: BER011

Sample ID MSB011405 Level: (low/med) LOW

COMPOUND	SPIKE ADDED (µg/Kg)	SAMPLE CONCENTRATION (µg/Kg)	SPIKE CONCENTRATION (µg/Kg)	SPIKE % REC #	QC. LIMITS REC.
1,1-Dichloroethene	50	0	39	78	59-172
Trichloroethene	50	0	45	90	62-137
Benzene	50	0	49	97	66-142
Toluene	50	0	52	104	59-139
Chlorobenzene	50	0	55	109	60-133

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Spike Recovery: 0 out of 5 outside limits

COMMENTS:

3A

SYSTEM MONITORING SPIKE RECOVERY

Lab Name: H2M LABS, INC. Contract:

Lab Code: 10478 Case No.: BER SAS No.: SDG No.: BER011

Sample ID LFB011405 Level: (low/med) LOW

COMPOUND	SPIKE ADDED (µg/Kg)	SAMPLE CONCENTRATION (µg/Kg)	SPIKE CONCENTRATION (µg/Kg)	SPIKE % REC #	QC. LIMITS REC.
Chloromethane	50	0	45	90	33-149
Bromomethane	50	0	52	103	58-144
Vinyl chloride	50	0	48	96	20-164
Chloroethane	50	0	49	98	33-153
Methylene chloride	50	4	48	96	46-157
Acetone	50	0	41	82	50-187
1,1-Dichloroethene	50	0	48	96	65-142
Carbon disulfide	50	0	49	98	52-143
1,1-Dichloroethane	50	0	50	100	67-141
1,2-Dichloroethene (total)	100	0	97	97	57-150
Chloroform	50	0	48	96	68-140
1,2-Dichloroethane	50	0	48	97	65-147
2-Butanone	50	0	37	73	30-226
1,1,1-Trichloroethane	50	0	48	95	78-127
Carbon tetrachloride	50	0	47	93	70-136
Bromodichloromethane	50	0	48	97	78-137
1,2-Dichloropropane	50	0	47	95	81-132
cis-1,3-Dichloropropene	50	0	46	93	78-131
Trichloroethene	50	0	47	94	72-145
Dibromochloromethane	50	0	46	93	82-136
1,1,2-Trichloroethane	50	0	45	90	80-139
Benzene	50	0	48	95	71-142
trans-1,3-Dichloropropene	50	0	45	91	59-147
Bromoform	50	0	46	92	81-142
4-Methyl-2-pentanone	50	0	46	92	64-170
2-Hexanone	50	0	35	71	59-163
Tetrachloroethene	50	0	49	97	67-144
1,1,2,2-Tetrachloroethane	50	0	51	101	72-152
Toluene	50	0	49	98	83-129
Chlorobenzene	50	0	50	99	85-128

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Spike Recovery: 0 out of 33 outside limits

COMMENTS:

3A

SYSTEM MONITORING SPIKE RECOVERY

Lab Name: H2M LABS, INC. Contract:

Lab Code: 10478 Case No.: BER SAS No.: SDG No.: BER011

Sample ID LFB011405 Level: (low/med) LOW

Ethylbenzene	50	0	50	99	80-129
Styrene	50	0	49	98	85-126
Xylene (total)	150	0	150	103	79-133

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Spike Recovery: 0 out of 33 outside limits

COMMENTS:

H2M LABS, INC.

7. BLANK SUMMARY DATA AND RESULTS

7.1 VOLATILES

4A

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK011405

Lab Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No. _____ SDG No.: BER011

Lab File ID: 5\P28185.D Lab Sample ID: VBLK011405

Date Analyzed: 01/14/05 Time Analyzed: 16:57

GC Column: R-502. ID: .53 (mm) Heated Purge: (Y/N) Y

Instrument ID: HP5970-3

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LFB011405	LFB011405	5\P28186.D	17:34
02	MSB011405	MSB011405	5\P28187.D	18:47
03	S-1 0-2 FT	0501305-001A	5\P28193.D	22:11
04	S-2 0-1.5 FT	0501305-002A	5\P28194.D	22:44
05	S-2 0-1.5 FTMS	0501305-002AMS	5\P28195.D	23:16
06	S-2 0-1.5 FTMSD	0501305-002AMSD	5\P28196.D	23:49

COMMENTS:

BER011 S32

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

VBLK011405

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER011

Matrix: (soil/water) SOIL Lab Sample ID: VBLK011405

Sample wt/vol: 5 (g/mL) G Lab File ID: 5\P28185.D

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 01/14/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene chloride	4	J
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	10	U
75-15-0	Carbon disulfide	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U

BER011 S33

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK011405

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER011

Matrix: (soil/water) SOIL Lab Sample ID: VBLK011405

Sample wt/vol: 5 (g/mL) G Lab File ID: 5\P28185.D

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 01/14/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg)	UG/KG	Q
1330-20-7	Xylene (total)		10	U

BER011 S34

1F

EPA SAMPLE NO.

VBLK011405

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER011

Matrix: (soil/water) SOIL Lab Sample ID: VBLK011405

Sample wt/vol: 5 (g/mL) G Lab File ID: 5\P28185.D

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 01/14/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

BER011 S35

H2M LABS, INC.

8. INTERNAL STANDARD AREA DATA
8.1 VOLATILES

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No. _____ SDG No.: BER011

Lab File ID (Standard): 5\P28184.D Date Analyzed: 01/14/05

EPA Sample No.(VSTD050##): VSTD050 Time Analyzed: 16:16

Instrument ID: HP5970-3 Heated Purge: (Y/N) Y

GC Column: R-502. ID: .53 (mm)

		IS1 AREA #	RT #	IS2 DFB AREA #	RT #	IS3 CBZ AREA #	RT #
	12 HOUR STD	140984	8.78	757970	9.84	554133	14.14
	UPPER LIMIT	281968	9.28	1515940	10.34	1108266	14.64
	LOWER LIMIT	70492	8.28	378985	9.34	277067	13.64
	EPA SAMPLE						
01	VBLK011405	166504	8.78	772651	9.85	581002	14.13
02	LFB011405	138988	8.78	743049	9.83	513492	14.12
03	MSB011405	154766	8.77	784991	9.83	536085	14.12
04	S-10-2 FT	121716	8.79	671760	9.86	365328	14.13
05	S-20-1.5 FT	135443	8.79	731182	9.85	379603	14.13
06	S-20-1.5 FTMS	142376	8.80	831972	9.86	591978	14.13
07	S-20-1.5 FTMSD	145310	8.79	845235	9.86	627125	14.13

IS1 = Bromochloromethane
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

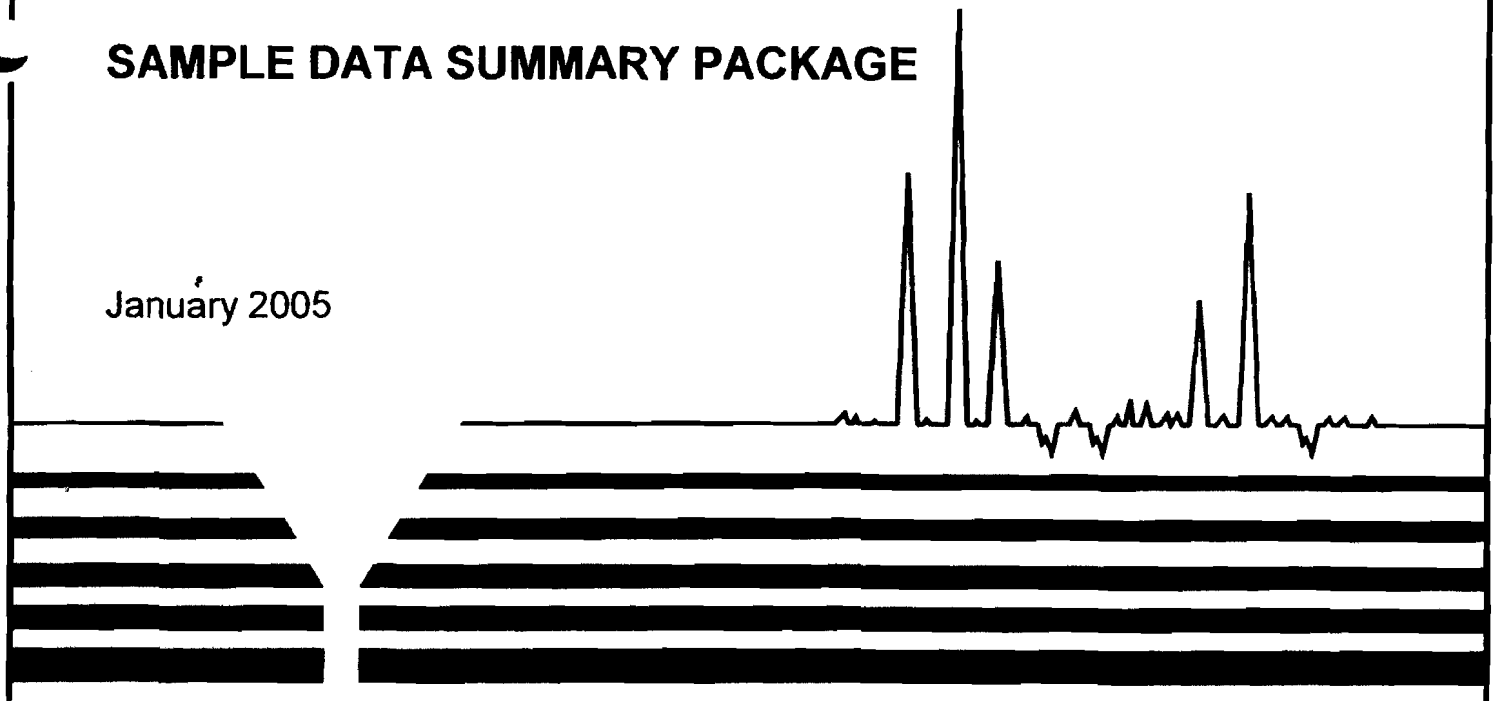
Analytical Data Package For

BERNINGER ENVIRONMENTAL
PROJECT: 1345 Peninsula Blvd. Hewlett, NY
SDG NO: BER012

Water Samples
Received: 1/13/05

SAMPLE DATA SUMMARY PACKAGE

January 2005



H2M LABS, INC.
Environmental Testing Laboratories
575 Broad Hollow Road, Melville, N.Y. 11747

H2M LABS, INC.

SAMPLE DATA SUMMARY PACKAGE

TABLE OF CONTENTS

BERNINGER ENVIRONMENTAL
PROJECT: 1345 Peninsula Blvd. Hewlett, New York

SAMPLES RECEIVED: 1/13/05
SDG NO.: BER012

1. **NYS DEC SUMMARY FORMS**

2. **CHAIN OF CUSTODY DOCUMENTATION**

3. **SDG NARRATIVES**

4. **SAMPLE REPORTS**
   4.1 VOLATILES

5. **SURROGATE SPIKE ANALYSIS RESULTS**
   5.1 VOLATILES

6. **MATRIX SPIKE / MATRIX SPIKE DUPLICATE SUMMARY**
   6.1 VOLATILES

7. **BLANK SUMMARY DATA AND RESULTS**
   7.1 VOLATILES

8. **INTERNAL STANDARD AREA DATA**
   8.1 VOLATILES

H2M LABS, INC.

1. NYS DEC SUMMARY FORMS

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

SDG: BER012

Analytical Requirements

Customer Sample Code	Laboratory Sample Code	MSVOA
GW-1 3.5-5.5 FT	0501306-001	X
GW-2 4-6 FT	0501306-002	X
GW-2 19-21 FT	0501306-003	X
GW-2 34-38 FT	0501306-004	X
GW-3 4-8 FT	0501306-005	X
GW-3 17-21 FT	0501306-006	X
GW-3 32-36 FT	0501306-007	X
GW-4 4-8 FT	0501306-008	X
GW-4 17-21 FT	0501306-009	X
GW-4 34-38 FT	0501306-010	X
GW-5 4-8 FT	0501306-011	X
GW-6 4-8 FT	0501306-012	X
GW-6 17-21 FT	0501306-013	X
GW-6 34-38 FT	0501306-014	X
SUPPLY WELL	0501306-015	X
FIELD BLANK 1/12	0501306-016	X
TRIP BLANK 1/12	0501306-017	X

CLP (Non-CLP) (Please indicate year of protocol) ASP B 10/95 MTS 1/31/05
TCL/TAL, HSL, Priority Pollutant,

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
VOLATILE (VOA)
ANALYSES

SDG: BER012

Laboratory Samp ID	Client Sample ID	Matrix	Analytical Protocol	Date Collected	DateRecd at Lab	Date Extracted	Date Analyzed	Extraction Method	DF	Level	Aux Cleanup
0501306-001A	GW-1 33-35 FTDL	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		19-Jan-05		10	LOW	
0501306-001A	GW-1 33-35 FT	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		18-Jan-05		1	LOW	
0501306-002A	GW-2 4-6 FT	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		18-Jan-05		1	LOW	
0501306-003A	GW-2 19-21 FTDL	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		19-Jan-05		10	LOW	
0501306-003A	GW-2 19-21 FT	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		18-Jan-05		1	LOW	
0501306-004A	GW-2 34-38 FT	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		18-Jan-05		1	LOW	
0501306-005A	GW-3 4-8 FTDL	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		19-Jan-05		100	LOW	
0501306-005A	GW-3 4-8 FT	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		18-Jan-05		1	LOW	
0501306-005AMS	GW-3 4-8 FTMS	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		18-Jan-05		1	LOW	
0501306-005AMSD	GW-3 4-8 FTMSD	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		18-Jan-05		1	LOW	
0501306-006A	GW-3 17-21 FT	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		18-Jan-05		1	LOW	
0501306-006A	GW-3 17-21 FTDL	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		19-Jan-05		100	LOW	
0501306-007A	GW-3 32-36 FT	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		19-Jan-05		1	LOW	
0501306-008A	GW-4 4-8 FTDL	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		19-Jan-05		2.5	LOW	
0501306-008A	GW-4 4-8 FT	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		18-Jan-05		1	LOW	
0501306-009A	GW-4 17-21 FTDL	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		19-Jan-05		100	LOW	
0501306-009A	GW-4 17-21 FT	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		18-Jan-05		1	LOW	
0501306-010A	GW-4 34-38 FT	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		19-Jan-05		1	LOW	
0501306-011A	GW-5 4-8 FT	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		19-Jan-05		1	LOW	
0501306-012A	GW-6 4-8 FT	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		18-Jan-05		1	LOW	
0501306-013A	GW-6 17-21 FT	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		18-Jan-05		1	LOW	
0501306-013A	GW-6 17-21 FTDL	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		19-Jan-05		2.5	LOW	
0501306-014A	GW-6 34-38 FT	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		18-Jan-05		1	LOW	
0501306-015A	SUPPLY WELL	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		18-Jan-05		1	LOW	
0501306-016A	FIELDBLANK12	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		18-Jan-05		1	LOW	
0501306-017A	TRIPBLANK12	Aqueous	ASP95-1	12-Jan-05	13-Jan-05		19-Jan-05		1	LOW	

2. CHAIN OF CUSTODY DOCUMENTATION

H2M LABS, INC.

1562

EXTERNAL CHAIN OF CUSTODY

575 Broad Hollow Rd, Melville, NY 11747-5076
Tel: (516) 694-3040 Fax: (516) 420-8436

SOIL/GW

CLIENT: BER | **H2M SDG NO:** 011012

PROJECT NAME/NUMBER: American Drive Cleaners, 1345 Peninsula Blvd, Hewlett, New York

SAMPLERS: (signature)/Client: Bernger Environmental, 1615 North Ave, Bohemia, NY

DELIVERABLES: NYSDEC ASP B

TURNAROUND TIME: RTD

NOTES: TCL VOAs plus TICs; NYSDEC ASP B Deliv

Project Contact: Jill Adams

Phone Number: 516 277 4211

DATE	TIME	MATRIX	FIELD I.D.	Total No. of Containers	ANALYSIS REQUESTED: ORGANIC VOA	ORGANIC BNA	ORGANIC Pest/PCB		ORGANIC VOA TICs	ORGANIC BNA TICs		INORG. Metal	INORG. CN	LAB I.D. NO.	REMARKS:
1/12/05	1300	GW	GW-4 34-38 ft	2	2									0501306-010	
	1400	SO	SB-2 0-1.5 ft MS/MSD	3	2				2	1				0501305-009	
	1430		GW-5 4-8 ft	2	2									011	
	1432		Supply Well	2	2									015	
	-		Trip Blank	2	2									017	
	1500		GW-6 34-38 ft	2	2									014	
	1520		GW-6 17-21 ft	2	2									013	
↓	1530	↓	GW-6 4-8 ft	2	2									012	

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Joel Meyers	1/13/05	9:00		1.13.05	09:00
	Date	Time		Date	Time
	1305	930		1/13/05	930
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time

LABORATORY USE ONLY

Discrepancies Between Sample Labels and COC Record? Y or N
Explain:

Samples were:
1. Shipped ___ or Hand Delivered ✓ Airbill# ___
2. Ambient or chilled 4.2
3. Received in good condition Y or N
4. Properly preserved Y or N
5. Samples returned to lab ___ Hrs from collection

COC Tape was:
1. Present on outer package Y or (N)
2. Unbroken on outer package Y or N
3. COC record present & complete upon sample receipt Y or N

BER012 S 6

WHITE COPY - ORIGINAL | YELLOW COPY - CLIENT | PINK COPY - LABORATORY

H2 LABS, INC.

1562

EXTERNAL CHAIN OF CUSTODY

SOIL/GW

575 Broad Hollow Rd, Melville, NY 11747-5076
Tel: (516) 694-3040 Fax: (516) 420-8436

CLIENT: BER

H2M SDG NO: 011/012

PROJECT NAME/NUMBER: American Drive-In Cleaners 1345 Peninsula Blvd Hewlett, New York

SAMPLERS: (signature)/Client: J Ham Berninger Environmental

DELIVERABLES: RTD NYSDEC ASP B

TURNAROUND TIME:

NOTES: $40 TCL VOAs plus TICs NYSDEC ASP B Del.

Project Contact: Jill Haims

Phone Number: 516 647-4211

DATE	TIME	MATRIX	FIELD I.D.	Total No. of Containers	Sample Container Description	ORGANIC VOA	ORGANIC BNA	ORGANIC Pest/PCB	1,4-D		INORG. Metal	INORG. CN	LAB I.D. NO.	REMARKS
					2 VOAs				207	202				
1/12/05	8:10	L	GW-1 3.5-5.5 Ft	2	2								0501306-001	
1/12/05	8:15	S	S-1 0-2 Ft	2					1	1			0501305-001	
	9:00	L	GW-2 4-6 Ft	2	2								0501306-002	
	9:30	L	GW-2 19-21 Ft	2	2								003	
	9:55	L	GW-2 34-38 Ft	2	2								004	
	9:30		Field Blank	2	2								006	
	10:00		GW-3 4-8 MS/MSD	6	6								005	
	10:30		GW-3 17-21 Ft	2	2								006	
	11:15		GW-3 32-36 Ft	2	2								007	
	12:00		GW-4 4-8 Ft	2	2								008	
			GW-4 17-21 Ft	2	2								009	

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
	1/13/05	9:00		1/13/05	9:00
	1/13/05	930		1/13/05	930

LABORATORY USE ONLY

Discrepancies Between Sample Labels and COC Record? Y or N

Explain:

Samples were
1. Shipped ___ or Hand Delivered ✓ Airbill# _____
2. Ambient or chilled 4.2
3. Received in good condition (Y) or N
4. Properly preserved Y or N
5. Samples returned to lab ___ Hrs from collection

COC Tape was:
1. Present on outer package Y or (N)
2. Unbroken on outer package Y or N
3. COC record present & complete upon sample receipt Y or N

BER012 S7

WHITE COPY - ORIGINAL YELLOW COPY - CLIENT PINK COPY - LABORATORY

0

42M LABS, INC.

BER012

Sample Receipt Checklist

Client Name BER

Date and Time Receive

Work Order Numbe 0501306

Received by LSD

Checklist completed b _____ 1/13/05
Signature Date

Reviewed by JSA 1/14/05
Initials Date

Matrix

Carrier name Hand Delivered

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Applicable ☐
Custody seals intact on shippping container/cooler?	Yes ☐	No ☐	Not Applicable ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Applicable ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
ufficient sample volume for indicated test?	Yes ☑	No ☐	
samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	

Adjusted? Checked b

Any No and/or NA (not applicable) response must be detailed in the comments section b

Client contacted YES Date contacted 1/14/05 Person contacted JILL HAIMSON

Contacted by KEN ARACRI Regarding

Comments No time of collection noted for sample GW-4 17-21 FT

Corrective Action

BER012 S 8

H2M LABS, INC.

INTERNAL CHAIN OF CUSTODY

CLIENT: BER DELIVERABLES: B5-2-0 TURN AROUND TIME: 21 Days

SDG #: BER012 CASE #: _____ MATRIX: GW pH CHECK Y (N)

REMARKS: 001BER05

RECEIVED BY: LSO SIGNATURE: [signature] DATE: 1/13/05 TIME: 930

CLIENT ID	H2M LAB #	DATE COLLECTED	BOTTLE TYPE	# OF BOTTLES	TESTS REQUESTED
GW-1 3.5-5.5 FD	05013[illegible] 001A	1-12	DH	2	ASB58260-W
" 2 4-6	002A				
" 2 19-21	003A				
" 2 34-38	004A				
" 3 4-8 MS MSD	005A			6	
" 3 17-21	006A			2	
" 3 32-36	007A				
" 4 4-8	008A				
" 4 17-21	009A				
" 4 34-38	010A				
" 5 4-8	011A				
" 6 4-8	012A				
" 6 17-21	013A				
" 6 34-38	014A				
Supply Well	015A				
Field Blank 1/12	016A				
Trip Blank 1/12	017A				
"					
"		LSO 1/13/05			
"					

VOLATILE

BER012 S 9

CH2M LABS, INC.

CLIENT: BER

SDG #: BER012

INTERNAL CHAIN OF CUSTODY

DATE	TIME	SAMPLE RELINQUISHED BY	SAMPLE RECEIVED BY	BOTTLE TYPE	PURPOSE OF CHANGE OF CUSTODY	INIT
1/13/95	1230	SIGN	SIGN	DH	analysis	
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			

BER012 S 10

3. SDG NARRATIVES

H2M LABS, INC.

SDG NARRATIVE FOR VOLATILE ORGANICS
SAMPLES RECEIVED: 1/13/05
SDG #: BER012

For Samples:

GW-1 3.5-5.5 FT	GW-4 34-38 FT
GW-2 4-6 FT	GW-5 4-8 FT
GW-2 19-21 FT	GW-6 4-8 FT
GW-2 34-38 FT	GW-6 17-21 FT
GW-3 4-8 FT MS/MSD	GW-6 34-38 FT
GW-3 17-21 FT	SUPPLY WELL
GW-3 32-36 FT	FIELD BLANK 1/12
GW-4 4-8 FT	TRIP BLANK 1/12
GW-4 17-21 FT	

The above water samples were analyzed for volatile organics by EPA method 8260B in accordance with the NYSDEC ASP, Rev. 10/95.

All QC data and calibrations met the requirements of the method, and no problems were encountered with sample analysis. The following should be noted:

- Sample GW-3 4-8 FT was analyzed as the matrix spike/matrix spike duplicate. QC limits do not apply for trichloroethene, because the compound is present in the sample, and the spike level is not a multiple of the sample concentration.
- A lab fortified blank was analyzed. All percent recoveries were within QC limits.
- The samples were diluted as required to keep concentrations within the calibration ranges. Both sets of data, undiluted and diluted, are submitted for the seven diluted samples.
- Compounds are reported as estimated values with the qualifier "J", if the concentration is between the MDL and the reporting limit. Values under the MDL are not reported.
- TIC compounds that are suspected to be column bleed introduced by the analytical system, were flagged with the qualifier "X".

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Date Reported: January 26, 2005

****
* *
* *
****

Ursula Middel
Technical Manager

BER012S12 KS 2/4/05

4. SAMPLE REPORTS

4.1 VOLATILES

H2M LABS, INC.

QUALIFIERS FOR REPORTING ORGANICS DATA

Value - If the result is a value greater than or equal to the quantification limit, report the value.

U - Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture. For example, 10U for phenol in water if the sample final volume is the protocol-specified final volume. If a 1 to 10 dilution of extract is necessary, the reported limit is 100 U. For a soil sample, the value must also be adjusted for percent moisture. For example, if the sample had 24% moisture and a 1 to 10 dilution factor, the sample quantitation limit for phenol (330 U) would be corrected to:

$$\frac{(300\ U)}{D} \times df \text{ where } D = \frac{100\% moisture}{100}$$

and df - dilution factor

For example, at 24% moisture, $D = \frac{100 - 24}{100} = 0.76$

$$\frac{(300\ U)}{.76} \times 10 = 4300\ U$$ rounded to the appropriate number of significant figures

For semivolatile soil samples, the extract must be concentrated to 0.5 mL, and the sensitivity of the analysis is not compromised by the cleanup procedures. Similarly, pesticide samples subjected to GPC are concentrated to 5.0 mL. Therefore, the CRQL values in Exhibit C will apply to all samples, regardless of cleanup. However, if a sample extract cannot be concentrated to the protocol-specified volume (see Exhibit C), this fact must be accounted for in reporting the sample quantitation limit.

J - Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified quantification limit but greater than zero. (e.g.: If limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, report as 3J.) The sample quantitation limit must be adjusted for dilution as discussed for the U flag.

N - Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.

P - This flag is used for a pesticide/Aroclor target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported of Form I with a "P"

C - This flag applies to pesticide results when the identification has been confirmed by GC/MS.. If GC/MS confirmation was attempted but was unsuccessful, do not apply this flag, instead use a Laboratory defined flag, discussed below.

B - This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action. This flag must be used for a TIC as well as for a positively identified target compound.

E - This flag identified compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. If one or more compounds have a response greater than full scale, except as noted in Exhibit D, the sample or extract must be diluted and re-analyzed according to the specifications in Exhibit D. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form I for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration ranges in the second analysis, then the results of both analyses shall be reported on separate copies of Form I. The Form I for the diluted sample shall have the "DL" suffix appended to the sample number. NOTE: For total xylenes, where three isomers are quantified as two peaks, the calibration range of each peak should be considered separately, e.g. a diluted analysis is not required for total xylenes unless the concentration of the peak representing the single isomer exceed 200 ug/L or the peak representing the two coeluting isomers on that GC column exceed 400 ug/L. Similarly, if the two 1,2-Dichloroethene isomers coelute, a diluted analysis is not required unless the concentration exceed 400 ug/L.

D - This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number on the Form I for the diluted sample, and all concentration values reported on that Form I are flagged with the "D" flag. This flag alerts data users that any discrepancies between the concentrations reported may be due to dilution of the sample or extract.

A - This flag indicates that a TIC is a suspected aldol-condensation product.

X - This flag indicates that a TIC is suspected column bleed.

The combination of flags "BU" or "UB" is expressly prohibited. Blank contaminants are flagged "B" only when they are detected in the sample.

1B

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

GW-1 3.5-5.5 FT

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-001A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40600.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µL) Soil Aliquot Volume (µL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (µg/L or µg/Kg)	UG/L	Q
74-87-3	Chloromethane	5	U
74-83-9	Bromomethane	5	U
75-01-4	Vinyl chloride	84	
75-00-3	Chloroethane	5	U
75-09-2	Methylene chloride	5	U
67-64-1	Acetone	5	U
75-35-4	1,1-Dichloroethene	3	J
75-15-0	Carbon disulfide	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	900	E
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	5	U
71-55-6	1,1,1-Trichloroethane	5	
56-23-5	Carbon tetrachloride	5	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	2	J
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	3	J
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U

BER012 S 16

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-1 3.5-5.5 FT

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-001A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40600.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µL) Soil Aliquot Volume (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg)	UG/L	Q
1330-20-7	Xylene (total)		5	U

BER012 S 17

1F

EPA SAMPLE NO.

GW-1 3.5-5.5 FT

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-001A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40600.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-1 3.5-5.5 FTDL

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-001A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40628.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/19/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 10.00

Soil Extract Volume: (µL) Soil Aliquot Volume (µL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(µg/L or µg/Kg) UG/L	Q
74-87-3	Chloromethane	50	U
74-83-9	Bromomethane	50	U
75-01-4	Vinyl chloride	69	D
75-00-3	Chloroethane	50	U
75-09-2	Methylene chloride	50	U
67-64-1	Acetone	50	U
75-35-4	1,1-Dichloroethene	50	U
75-15-0	Carbon disulfide	50	U
75-34-3	1,1-Dichloroethane	50	U
540-59-0	1,2-Dichloroethene (total)	900	D
67-66-3	Chloroform	50	U
107-06-2	1,2-Dichloroethane	50	U
78-93-3	2-Butanone	50	U
71-55-6	1,1,1-Trichloroethane	50	U
56-23-5	Carbon tetrachloride	50	U
75-27-4	Bromodichloromethane	50	U
78-87-5	1,2-Dichloropropane	50	U
10061-01-5	cis-1,3-Dichloropropene	50	U
79-01-6	Trichloroethene	50	U
124-48-1	Dibromochloromethane	50	U
79-00-5	1,1,2-Trichloroethane	50	U
71-43-2	Benzene	50	U
10061-02-6	trans-1,3-Dichloropropene	50	U
75-25-2	Bromoform	50	U
108-10-1	4-Methyl-2-pentanone	50	U
591-78-6	2-Hexanone	50	U
127-18-4	Tetrachloroethene	50	U
79-34-5	1,1,2,2-Tetrachloroethane	50	U
108-88-3	Toluene	50	U
108-90-7	Chlorobenzene	50	U
100-41-4	Ethylbenzene	50	U
100-42-5	Styrene	50	U

BER012 S 19

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-1 3.5-5.5 FTDL

Lab Name: H2M LABS, INC. Contract: ___

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-001A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40628.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/19/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 10.00

Soil Extract Volume: (µL) Soil Aliquot Volume (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg)	UG/L	Q
1330 20-7	Xylene (total)		50	U

BER012 S 20

1F

EPA SAMPLE NO.

GW-1 3.5-5.5 FTDL

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-001A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40628.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/19/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 10.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-2 4-6 FT

Lab Name: H2M LABS, INC. Contract: ___

Lab Code: 10478 Case No.: BER SAS No.: ___ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-002A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40602.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µL) Soil Aliquot Volume (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
74-87-3	Chloromethane	5	U
74-83-9	Bromomethane	5	U
75-01-4	Vinyl chloride	5	U
75-00-3	Chloroethane	5	U
75-09-2	Methylene chloride	5	U
67-64-1	Acetone	5	U
75-35-4	1,1-Dichloroethene	5	U
75-15-0	Carbon disulfide	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon tetrachloride	5	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U

BER012 S 22

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-2 4-6 FT

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-002A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40602.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µL) Soil Aliquot Volume (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg)	UG/L	Q
1330-20-7	Xylene (total)		5	U

BER012 S 23

1F

EPA SAMPLE NO.

GW-2 4-6 FT

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-002A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40602.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

CONCENTRATION UNITS:

Number TICs found: 2 (µg/L or µg/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q
1		~~unknown hydrocarbon~~ C3 subst. benzene	20.42	80	J
2	004265-25-2	Benzofuran, 2-methyl-	21.38	7	NJ

1/26/05

BER012 S 24

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-2 19-21 FT

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-003A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40603.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µL) Soil Aliquot Volume (µL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(µg/L or µg/Kg) UG/L	Q
74-87-3	Chloromethane	5	U
74-83-9	Bromomethane	5	U
75-01-4	Vinyl chloride	220	E
75-00-3	Chloroethane	5	U
75-09-2	Methylene chloride	5	U
67-64-1	Acetone	5	U
75-35-4	1,1-Dichloroethene	3	J
75-15-0	Carbon disulfide	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	1200	E
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon tetrachloride	5	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	92	
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	8	
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	2	J
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	7	
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	4	J
100-42-5	Styrene	1	J

BER012 S 25

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-2 19-21 FT

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-003A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40603.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column: R-5C2.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µL) Soil Aliquot Volume (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
1330-20-7	Xylene (total)	8	

BER012 S 26

1F

EPA SAMPLE NO.

GW-2 19-21 FT

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-003A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40603.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

CONCENTRATION UNITS:

Number TICs found: 9 (µg/L or µg/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q
1		c3-subs_benzene (19.51)	19.51	54	J
2	000271-89-6	Benzofuran	19.96	42	NJ
3		c3-subs_benzene (20.04)	20.04	29	J
4		~~unknown aromatic~~ c3 subst. benzene	20.42	380	J
5		c3-subs_benzene (20.66)	20.66	63	J
6	004265-25-2	Benzofuran, 2-methyl-	21.38	50	NJ
7		c4-subs_benzene (21.77)	21.77	20	J
8		c4-subs_benzene (22.01)	22.01	41	J
9		Benzothiophene(isomer)	23.30	32	J

MS 1/26/05

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-2 19-21 FTDL

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-003A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40629.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/19/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 10.00

Soil Extract Volume: (µL) Soil Aliquot Volume ____ (µL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (µg/L or µg/Kg)	UG/L	Q
74-87-3	Chloromethane	50	U
74-83-9	Bromomethane	50	U
75-01-4	Vinyl chloride	150	D
75-00-3	Chloroethane	50	U
75-09-2	Methylene chloride	50	U
67-64-1	Acetone	50	U
75-35-4	1,1-Dichloroethene	50	U
75-15-0	Carbon disulfide	50	U
75-34-3	1,1-Dichloroethane	50	U
540-59-0	1,2-Dichloroethene (total)	1100	D
67-66-3	Chloroform	50	U
107-06-2	1,2-Dichloroethane	50	U
78-93-3	2-Butanone	50	U
71-55-6	1,1,1-Trichloroethane	50	U
56-23-5	Carbon tetrachloride	50	U
75-27-4	Bromodichloromethane	50	U
78-87-5	1,2-Dichloropropane	50	U
10061-01-5	cis-1,3-Dichloropropene	50	U
79-01-6	Trichloroethene	85	D
124-48-1	Dibromochloromethane	50	U
79-00-5	1,1,2-Trichloroethane	50	U
71-43-2	Benzene	50	U
10061-02-6	trans-1,3-Dichloropropene	50	U
75-25-2	Bromoform	50	U
108-10-1	4-Methyl-2-pentanone	50	U
591-78-6	2-Hexanone	50	U
127-18-4	Tetrachloroethene	50	U
79-34-5	1,1,2,2-Tetrachloroethane	50	U
108-88-3	Toluene	50	U
108-90-7	Chlorobenzene	50	U
100-41-4	Ethylbenzene	50	U
100-42-5	Styrene	50	U

BER012 S 28

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-2 19-21 FTDL

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-003A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40629.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/19/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 10.00

Soil Extract Volume: (µL) Soil Aliquot Volume (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg)	UG/L	Q
1330-20-7	Xylene (total)		50	U

1F

EPA SAMPLE NO.

GW-2 19-21 FTDL

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name H2M LABS, INC. Contract _____

Lab Code 10473 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-003A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40629.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/19/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 10.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 3 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1		c3-subs_benzene (19.58)	19.58	59	J
2		c3-subs_benzene (20.51)	20.51	450	J
3		c3-subs_benzene (20.75)	20.75	67	J

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-2 34-38 FT

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-004A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40604.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µL) Soil Aliquot Volume ____ (µL)

CONCENTRATION UNITS:

CAS No.	COMPOUND (µg/L or µg/Kg)	UG/L	Q
74-87-3	Chloromethane	5	U
74-83-9	Bromomethane	5	U
75-01-4	Vinyl chloride	5	U
75-00-3	Chloroethane	5	U
75-09-2	Methylene chloride	5	U
67-64-1	Acetone	5	U
75-35-4	1,1-Dichloroethene	5	U
75-15-0	Carbon disulfide	5	U
75-34-3	1,1 Dichloroethane	5	U
540-59-0	1,2 Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2 Dichloroethane	5	U
78-93-3	2-Butanone	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon tetrachloride	5	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl 2 pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2 Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U

BER012 S 31

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-2 34-38 FT

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-004A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40604.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µL) Soil Aliquot Volume (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg)	UG/L	Q
1330-20-7	Xylene (total)		5	U

1F

EPA SAMPLE NO.

GW-2 34-38 FT

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-004A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40604.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

BER012 S 33

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-3 4-8 FT

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-005A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40605.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µL) Soil Aliquot Volume (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
74-87-3	Chloromethane	5	U
74-83-9	Bromomethane	5	U
75-01-4	Vinyl chloride	860	E
75-00-3	Chloroethane	5	U
75-09-2	Methylene chloride	5	U
67-64-1	Acetone	5	U
75-35-4	1,1-Dichloroethene	16	
75-15-0	Carbon disulfide	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5700	E
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon tetrachloride	5	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	1600	E
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	2200	E
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	2	J
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U

BER012 S 34

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-3 4-8 FT

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-005A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40605.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µL) Soil Aliquot Volume (µL)

CAS No.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
1330-20-7	Xylene (total)	5	U

1F

EPA SAMPLE NO.

GW-3 4-8 FT

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-005A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40605.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-3 4-8 FTDL

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-005A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40630.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/19/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 100.00

Soil Extract Volume: (µL) Soil Aliquot Volume (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
74-87-3	Chloromethane	500	U
74-83-9	Bromomethane	500	U
75-01-4	Vinyl chloride	570	D
75-00-3	Chloroethane	500	U
75-09-2	Methylene chloride	500	U
67-64-1	Acetone	500	U
75-35-4	1,1-Dichloroethene	500	U
75-15-0	Carbon disulfide	500	U
75-34-3	1,1-Dichloroethane	500	U
540-59-0	1,2-Dichloroethene (total)	6700	D
67-66-3	Chloroform	500	U
107-06-2	1,2-Dichloroethane	500	U
78-93-3	2-Butanone	500	U
71-55-6	1,1,1-Trichloroethane	500	U
56-23-5	Carbon tetrachloride	500	U
75-27-4	Bromodichloromethane	500	U
78-87-5	1,2-Dichloropropane	500	U
10061-01-5	cis-1,3-Dichloropropene	500	U
79-01-6	Trichloroethene	1400	D
124-48-1	Dibromochloromethane	500	U
79-00-5	1,1,2-Trichloroethane	500	U
71-43-2	Benzene	500	U
10061-02-6	trans-1,3-Dichloropropene	500	U
75-25-2	Bromoform	500	U
108-10-1	4-Methyl-2-pentanone	500	U
591-78-6	2-Hexanone	500	U
127-18-4	Tetrachloroethene	1900	D
79-34-5	1,1,2,2-Tetrachloroethane	500	U
108-88-3	Toluene	500	U
108-90-7	Chlorobenzene	500	U
100-41-4	Ethylbenzene	500	U
100-42-5	Styrene	500	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-3 4-8 FTDL

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-005A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40630.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/19/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 100.00

Soil Extract Volume: ____ (µL) Soil Aliquot Volume ____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg)	UG/L	Q
1330-20-7	Xylene (total)		500	U

1F

EPA SAMPLE NO.

GW-3 4-8 FTDL

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-005A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40630.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/19/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 100.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-3 17-21 FT

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-006A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40608.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µL) Soil Aliquot Volume ____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
74-87-3	Chloromethane	5	U
74-83-9	Bromomethane	5	U
75-01-4	Vinyl chloride	32	
75-00-3	Chloroethane	5	U
75-09-2	Methylene chloride	5	U
67-64-1	Acetone	5	U
75-35-4	1,1-Dichloroethene	85	
75-15-0	Carbon disulfide	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	960	E
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon tetrachloride	5	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	6400	E
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	3600	E
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U

BER012 S 40

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-3 17-21 FT

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-006A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40608.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µL) Soil Aliquot Volume (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
1330-20-7	Xylene (total)	5	U

BER012 S 41

1F

EPA SAMPLE NO.

GW-3 17-21 FT

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-006A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40608.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-3 17-21 FTDL

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-006A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40631.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/19/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 100.00

Soil Extract Volume: (µL) Soil Aliquot Volume _____ (µL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(µg/L or µg/Kg) UG/L	Q
74-87-3	Chloromethane	500	U
74-83-9	Bromomethane	500	U
75-01-4	Vinyl chloride	500	U
75-00-3	Chloroethane	500	U
75-09-2	Methylene chloride	500	U
67-64-1	Acetone	500	U
75-35-4	1,1-Dichloroethene	500	U
75-15-0	Carbon disulfide	500	U
75-34-3	1,1-Dichloroethane	500	U
540-59-0	1,2-Dichloroethene (total)	950	D
67-66-3	Chloroform	500	U
107-06-2	1,2-Dichloroethane	500	U
78-93-3	2-Butanone	500	U
71-55-6	1,1,1-Trichloroethane	500	U
56-23-5	Carbon tetrachloride	500	U
75-27-4	Bromodichloromethane	500	U
78-87-5	1,2-Dichloropropane	500	U
10061-01-5	cis-1,3-Dichloropropene	500	U
79-01-6	Trichloroethene	11000	D
124-48-1	Dibromochloromethane	500	U
79-00-5	1,1,2-Trichloroethane	500	U
71-43-2	Benzene	500	U
10061-02-6	trans-1,3-Dichloropropene	500	U
75-25-2	Bromoform	500	U
108-10-1	4-Methyl-2-pentanone	500	U
591-78-6	2-Hexanone	500	U
127-18-4	Tetrachloroethene	3800	D
79-34-5	1,1,2,2-Tetrachloroethane	500	U
108-88-3	Toluene	500	U
108-90-7	Chlorobenzene	500	U
100-41-4	Ethylbenzene	500	U
100-42-5	Styrene	500	U

BER012 S 43

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-3 17-21 FTDL

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-006A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40631.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/19/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 100.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
1330-20-7	Xylene (total)	500	U

1F

EPA SAMPLE NO.

GW-3 17-21 FTDL

VOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-006A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40631.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/19/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 100.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-3 32-36 FT

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-007A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40632.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/19/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µL) Soil Aliquot Volume (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
74-87-3	Chloromethane	5	U
74-83-9	Bromomethane	5	U
75-01-4	Vinyl chloride	5	U
75-00-3	Chloroethane	5	U
75-09-2	Methylene chloride	5	U
67-64-1	Acetone	5	U
75-35-4	1,1-Dichloroethene	5	U
75-15-0	Carbon disulfide	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon tetrachloride	5	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U

BER012 S 46

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-3 32-36 FT

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-007A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40632.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/19/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µL) Soil Aliquot Volume (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg)	UG/L	Q
1330-20-7	Xylene (total)		5	U

BER012 S 47

1F

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
GW-3 32-36 FT

o Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-007A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40632.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/19/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-4 4-8 FT

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-008A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40610.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (uL) Soil Aliquot Volume (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg)	UG/L	Q
74-87-3	Chloromethane		5	U
74-83-9	Bromomethane		5	U
75-01-4	Vinyl chloride		67	
75-00-3	Chloroethane		5	U
75-09-2	Methylene chloride		5	U
67-64-1	Acetone		5	U
75-35-4	1,1-Dichloroethene		5	U
75-15-0	Carbon disulfide		5	U
75-34-3	1,1-Dichloroethane		5	U
540-59-0	1,2-Dichloroethene (total)		230	
67-66-3	Chloroform		5	U
107-06-2	1,2-Dichloroethane		5	U
78-93-3	2-Butanone		5	U
71-55-6	1,1,1-Trichloroethane		5	U
56-23-5	Carbon tetrachloride		5	U
75-27-4	Bromodichloromethane		5	U
78-87-5	1,2-Dichloropropane		5	U
10061-01-5	cis-1,3-Dichloropropene		5	U
79-01-6	Trichloroethene		81	
124-48-1	Dibromochloromethane		5	U
79-00-5	1,1,2-Trichloroethane		5	U
71-43-2	Benzene		5	U
10061-02-6	trans-1,3-Dichloropropene		5	U
75-25-2	Bromoform		5	U
108-10-1	4-Methyl-2-pentanone		5	U
591-78-6	2-Hexanone		5	U
127-18-4	Tetrachloroethene		210	E
79-34-5	1,1,2,2-Tetrachloroethane		5	U
108-88-3	Toluene		5	U
108-90-7	Chlorobenzene		5	U
100-41-4	Ethylbenzene		5	U
100-42-5	Styrene		5	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-4 4-8 FT

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-008A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40610.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µL) Soil Aliquot Volume (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
1330-20-7	Xylene (total)	5	U

BER012 S 50

1F

EPA SAMPLE NO.

GW-4 4-8 FT

VOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-008A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40610.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

BER012 S 51

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-4 4-8 FTDL

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-008A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40626.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/19/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 2.50

Soil Extract Volume: (µL) Soil Aliquot Volume (µL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (µg/L or µg/Kg)	UG/L	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl chloride	62	D
75-00-3	Chloroethane	13	U
75-09-2	Methylene chloride	13	U
67-64-1	Acetone	13	U
75-35-4	1,1 Dichloroethene	13	U
75-15-0	Carbon disulfide	13	U
75-34-3	1,1-Dichloroethane	13	U
540-59-0	1,2-Dichloroethene (total)	260	D
67-66-3	Chloroform	13	U
107-06-2	1,2-Dichloroethane	13	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	13	U
56-23-5	Carbon tetrachloride	13	U
75-27-4	Bromodichloromethane	13	U
78-87-5	1,2-Dichloropropane	13	U
10061-01-5	cis-1,3-Dichloropropene	13	U
79-01-6	Trichloroethene	78	D
124-48-1	Dibromochloromethane	13	U
79-00-5	1,1,2-Trichloroethane	13	U
71-43-2	Benzene	13	U
10061-02-6	trans-1,3-Dichloropropene	13	U
75-25-2	Bromoform	13	U
108-10-1	4-Methyl-2-pentanone	13	U
591-78-6	2-Hexanone	13	U
127-18-4	Tetrachloroethene	210	D
79-34-5	1,1,2,2-Tetrachloroethane	13	U
108-88-3	Toluene	13	U
108-90-7	Chlorobenzene	13	U
100-41-4	Ethylbenzene	13	U
100-42-5	Styrene	13	U

BER012 S 52

1B

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

GW-4 4-8 FTDL

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-008A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40626.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/19/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 2.50

Soil Extract Volume: (µL) Soil Aliquot Volume (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg)	UG/L	Q
1330-20-7	Xylene (total)		13	U

BER012 S 53

1F

EPA SAMPLE NO.

GW-4 4-8 FTDL

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

ab Name H2M LABS, INC Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-008A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40626.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/19/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 2.50

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-4 17-21 FT

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-009A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40611.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(µg/L or µg/Kg) UG/L	Q
74-87-3	Chloromethane	5	U
74-83-9	Bromomethane	5	U
75-01-4	Vinyl chloride	13	
75-00-3	Chloroethane	5	U
75-09-2	Methylene chloride	5	U
67-64-1	Acetone	8	
75-35-4	1,1-Dichloroethene	21	
75-15-0	Carbon disulfide	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	1400	E
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	4	J
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon tetrachloride	5	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	6100	E
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl 2-pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	7900	E
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U

BER012 S 55

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-4 17-21 FT

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-009A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40611.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
1330-20-7	Xylene (total)	5	U

BER012 S 56

1F

EPA SAMPLE NO.

GW-4 17-21 FT

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-009A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40611.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

BER012 S 57

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-4 17-21 FTDL

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-009A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40636.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/19/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 100.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
74-87-3	Chloromethane	500	U
74-83-9	Bromomethane	500	U
75-01-4	Vinyl chloride	500	U
75-00-3	Chloroethane	500	U
75-09-2	Methylene chloride	500	U
67-64-1	Acetone	500	U
75-35-4	1,1-Dichloroethene	500	U
75-15-0	Carbon disulfide	500	U
75-34-3	1,1-Dichloroethane	500	U
540-59-0	1,2-Dichloroethene (total)	1500	D
67-66-3	Chloroform	500	U
107-06-2	1,2-Dichloroethane	500	U
78-93-3	2-Butanone	500	U
71-55-6	1,1,1-Trichloroethane	500	U
56-23-5	Carbon tetrachloride	500	U
75-27-4	Bromodichloromethane	500	U
78-87-5	1,2-Dichloropropane	500	U
10061-01-5	cis-1,3-Dichloropropene	500	U
79-01-6	Trichloroethene	8000	D
124-48-1	Dibromochloromethane	500	U
79-00-5	1,1,2-Trichloroethane	500	U
71-43-2	Benzene	500	U
10061-02-6	trans-1,3-Dichloropropene	500	U
75-25-2	Bromoform	500	U
108-10-1	4-Methyl-2-pentanone	500	U
591-78-6	2-Hexanone	500	U
127-18-4	Tetrachloroethene	10000	D
79-34-5	1,1,2,2-Tetrachloroethane	500	U
108-88-3	Toluene	500	U
108-90-7	Chlorobenzene	500	U
100-41-4	Ethylbenzene	500	U
100-42-5	Styrene	500	U

BER012 S 58

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-4 17-21 FTDL

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-009A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40636.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/19/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 100.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(µg/L or µg/Kg)	UG/L	Q
1330-20-7	Xylene (total)		500	U

1F

EPA SAMPLE NO.

GW-4 17-21 FTDL

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-009A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40636.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/19/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 100.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

CONCENTRATION UNITS:

Number TICs found: 0 (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

BER012 S 60

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-4 34-38 FT

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-010A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40634.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/19/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
74-87-3	Chloromethane	5	U
74-83-9	Bromomethane	5	U
75-01-4	Vinyl chloride	5	U
75-00-3	Chloroethane	5	U
75-09-2	Methylene chloride	5	U
67-64-1	Acetone	5	U
75-35-4	1,1-Dichloroethene	5	U
75-15-0	Carbon disulfide	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	2	J
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon tetrachloride	5	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	8	
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	9	
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U

BER012 S 61

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-4 34-38 FT

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-010A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40634.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/19/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
1330-20-7	Xylene (total)	5	U

BER012 S 62

1F

EPA SAMPLE NO.

GW-4 34-38 FT

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

ab Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-010A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40634.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/19/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-5 4-8 FT

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-011A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40639.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/19/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
74-87-3	Chloromethane	5	U
74-83-9	Bromomethane	5	U
75-01-4	Vinyl chloride	5	U
75-00-3	Chloroethane	5	U
75-09-2	Methylene chloride	5	U
67-64-1	Acetone	5	U
75-35-4	1,1-Dichloroethene	5	U
75-15-0	Carbon disulfide	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	1	J
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon tetrachloride	5	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	2	J
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	4	J
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U

BER012 S 64

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-5 4-8 FT

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-011A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40639.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/19/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
1330-20-7	Xylene (total)	5	U

BER012 S 65

1F

EPA SAMPLE NO.

GW-5 4-8 FT

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-011A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40639.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/19/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

CONCENTRATION UNITS:

Number TICs found: 0 (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-6 4-8 FT

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-012A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40614.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
74-87-3	Chloromethane	5	U
74-83-9	Bromomethane	5	U
75-01-4	Vinyl chloride	5	U
75-00-3	Chloroethane	5	U
75-09-2	Methylene chloride	5	U
67-64-1	Acetone	7	
75-35-4	1,1-Dichloroethene	5	U
75-15-0	Carbon disulfide	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	20	
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon tetrachloride	5	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	3	J
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	15	
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U

BER012 S 67

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-6 4-8 FT

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-012A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40614.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
1330-20-7	Xylene (total)	5	U

BER012 S 68

1F

EPA SAMPLE NO.

GW-6 4-8 FT

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-012A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40614.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-6 17-21 FT

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-013A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40615.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
74-87-3	Chloromethane	5	U
74-83-9	Bromomethane	5	U
75-01-4	Vinyl chloride	5	U
75-00-3	Chloroethane	5	U
75-09-2	Methylene chloride	5	U
67-64-1	Acetone	5	U
75-35-4	1,1-Dichloroethene	5	U
75-15-0	Carbon disulfide	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon tetrachloride	5	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	3	J
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	290	E
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U

1B

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

GW-6 17-21 FT

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-013A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40615.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: ____ (µL) Soil Aliquot Volume ____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
1330-20-7	Xylene (total)	5	U

1F

EPA SAMPLE NO.

GW-6 17-21 FT

VOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-013A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40615.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

CONCENTRATION UNITS:

Number TICs found: 0 (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-6 17-21 FTDL

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-013A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40627.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/19/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 2.50

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene chloride	13	U
67-64-1	Acetone	13	U
75-35-4	1,1-Dichloroethene	13	U
75-15-0	Carbon disulfide	13	U
75-34-3	1,1-Dichloroethane	13	U
540-59-0	1,2-Dichloroethene (total)	13	U
67-66-3	Chloroform	13	U
107-06-2	1,2-Dichloroethane	13	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	13	U
56-23-5	Carbon tetrachloride	13	U
75-27-4	Bromodichloromethane	13	U
78-87-5	1,2-Dichloropropane	13	U
10061-01-5	cis-1,3-Dichloropropene	13	U
79-01-6	Trichloroethene	13	U
124-48-1	Dibromochloromethane	13	U
79-00-5	1,1,2-Trichloroethane	13	U
71-43-2	Benzene	13	U
10061-02-6	trans-1,3-Dichloropropene	13	U
75-25-2	Bromoform	13	U
108-10-1	4-Methyl-2-pentanone	13	U
591-78-6	2-Hexanone	13	U
127-18-4	Tetrachloroethene	280	D
79-34-5	1,1,2,2-Tetrachloroethane	13	U
108-88-3	Toluene	13	U
108-90-7	Chlorobenzene	13	U
100-41-4	Ethylbenzene	13	U
100-42-5	Styrene	13	U

BER012 S 73

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-6 17-21 FTDL

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-013A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40627.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/19/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 2.50

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
1330-20-7	Xylene (total)	13	U

BER012 S 74

1F

EPA SAMPLE NO.

GW-6 17-21 FTDL

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-013A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40627.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/19/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 2.50

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-6 34-38 FT

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-014A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40616.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume ____ (µL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(µg/L or µg/Kg)	UG/L	Q
74-87-3	Chloromethane		5	U
74-83-9	Bromomethane		5	U
75-01-4	Vinyl chloride		5	U
75-00-3	Chloroethane		5	U
75-09-2	Methylene chloride		5	U
67-64-1	Acetone		5	U
75-35-4	1,1-Dichloroethene		5	U
75-15-0	Carbon disulfide		5	U
75-34-3	1,1-Dichloroethane		5	U
540-59-0	1,2-Dichloroethene (total)		5	U
67-66-3	Chloroform		5	U
107-06-2	1,2-Dichloroethane		5	U
78-93-3	2-Butanone		5	U
71-55-6	1,1,1-Trichloroethane		5	U
56-23-5	Carbon tetrachloride		5	U
75-27-4	Bromodichloromethane		5	U
78-87-5	1,2-Dichloropropane		5	U
10061-01-5	cis-1,3-Dichloropropene		5	U
79-01-6	Trichloroethene		5	U
124-48-1	Dibromochloromethane		5	U
79-00-5	1,1,2-Trichloroethane		5	U
71-43-2	Benzene		5	U
10061-02-6	trans-1,3-Dichloropropene		5	U
75-25-2	Bromoform		5	U
108-10-1	4-Methyl-2-pentanone		5	U
591-78-6	2-Hexanone		5	U
127-18-4	Tetrachloroethene		3	J
79-34-5	1,1,2,2-Tetrachloroethane		5	U
108-88-3	Toluene		5	U
108-90-7	Chlorobenzene		5	U
100-41-4	Ethylbenzene		5	U
100-42-5	Styrene		5	U

BER012 S 76

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-6 34-38 FT

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-014A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40616.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg)	UG/L	Q
1330-20-7	Xylene (total)		5	U

BER012 S 77

1F

EPA SAMPLE NO.

GW-6 34-38 FT

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-014A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40616.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

BER012 S 78

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SUPPLY WELL

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-015A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40617.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (µg/L or µg/Kg)	UG/L	Q
74-87-3	Chloromethane	5	U
74-83-9	Bromomethane	5	U
75-01-4	Vinyl chloride	1	J
75-00-3	Chloroethane	5	U
75-09-2	Methylene chloride	5	U
67-64-1	Acetone	5	U
75-35-4	1,1-Dichloroethene	5	U
75-15-0	Carbon disulfide	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	36	
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon tetrachloride	5	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	11	
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	95	
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U

BER012 S 79

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SUPPLY WELL

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-015A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40617.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
1330-20-7	Xylene (total)	5	U

BER012 S 80

1F

EPA SAMPLE NO.

SUPPLY WELL

VOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-015A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40617.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

BER012 S 81

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FIELDBLANK1/12

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-016A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40618.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
74-87-3	Chloromethane	5	U
74-83-9	Bromomethane	5	U
75-01-4	Vinyl chloride	5	U
75-00-3	Chloroethane	5	U
75-09-2	Methylene chloride	5	U
67-64-1	Acetone	5	U
75-35-4	1,1-Dichloroethene	5	U
75-15-0	Carbon disulfide	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon tetrachloride	5	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U

BER012 S 82

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FIELDBLANK1/12

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-016A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40618.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
1330-20-7	Xylene (total)	5	U

BER012 S 83

1F

EPA SAMPLE NO.

FIELDBLANK1/12

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

ab Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-016A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40618.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

CONCENTRATION UNITS:

Number TICs found: 0 (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TRIPBLANK1/12

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-017A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40635.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/19/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (µg/L or µg/Kg)	UG/L	Q
74-87-3	Chloromethane	5	U
74-83-9	Bromomethane	5	U
75-01-4	Vinyl chloride	5	U
75-00-3	Chloroethane	5	U
75-09-2	Methylene chloride	5	U
67-64-1	Acetone	5	U
75-35-4	1,1-Dichloroethene	5	U
75-15-0	Carbon disulfide	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon tetrachloride	5	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U

BER012 S 85

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TRIPBLANK1/12

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-017A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40635.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/19/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
1330-20-7	Xylene (total)	5	U

BER012 S 86

1F

EPA SAMPLE NO.

TRIPBLANK1/12

VOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: 0501306-017A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40635.D

Level: (low/med) LOW Date Received: 01/13/05

% Moisture: not dec. Date Analyzed: 01/19/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

BER012 S 87

5. SURROGATE SPIKE ANALYSIS RESULTS

5.1 VOLATILES

2A

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No.: _____ SDG No.: BER012

	EPA SAMPLE NO.	SMC1 DCE #	SMC2 TOL #	SMC3 BFB #	Other	TOT OUT
01	VBLK011805	95	100	98		0
02	LFB011805	100	101	100		0
03	GW-1 3.5-5.5 FT	98	101	99		0
04	MSB011805	96	102	99		0
05	GW-2 4-6 FT	95	102	100		0
06	GW-2 19-21 FT	94	101	101		0
07	GW-2 34-38 FT	93	101	98		0
08	GW-3 4-8 FT	95	102	100		0
09	GW-3 4-8 FTMS	96	103	101		0
10	GW-3 4-8 FTMSD	95	102	101		0
11	GW-3 17-21 FT	97	104	103		0
12	GW-4 4-8 FT	95	103	100		0
13	GW-4 17-21 FT	97	105	102		0
14	GW-6 4-8 FT	95	103	100		0
15	GW-6 17-21 FT	95	104	101		0
16	GW-6 34-38 FT	94	103	99		0
17	SUPPLY WELL	95	102	100		0
18	FIELDBLANK1/12	95	103	99		0
19	VBLK011905	98	101	99		0
20	GW-4 4-8 FTDL	96	102	99		0
21	GW-6 17-21 FTDL	94	101	99		0
22	GW-1 3.5-5.5 FTDL	94	101	98		0
23	GW-2 19-21 FTDL	96	100	99		0
24	GW-3 4-8 FTDL	96	101	98		0
25	GW-3 17-21 FTDL	95	102	100		0
26	GW-3 32-36 FT	97	101	99		0

			QC Limits
SMC 1	DCE	= 1,2-Dichloroethane-d4	(76-114)
SMC 2	TOL	= Toluene-d8	(88-110)
SMC 3	BFB	= 4-Bromofluorobenzene	(86-115)

Column to be used to flag recovery values

* Values outside of contract required QC limits

2A

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No.: _____ SDG No.: BER012

EPA SAMPLE NO.	SMC1 DCE #	SMC2 TOL #	SMC3 BFB #	Other	TOT OUT
27 GW-4 34-38 FT	96	101	99		0
28 TRIPBLANK1/12	95	101	99		0
29 GW-4 17-21 FTDL	95	102	99		0
30 GW-5 4-8 FT	95	101	99		0

QC Limits

SMC 1	DCE	= 1,2-Dichloroethane-d4	(76-114)
SMC 2	TOL	= Toluene-d8	(88-110)
SMC 3	BFB	= 4-Bromofluorobenzene	(86-115)

Column to be used to flag recovery values

* Values outside of contract required QC limits

H2M LABS, INC.

6. MATRIX SPIKE / MATRIX SPIKE DUPLICATE SUMMARY

6.1 VOLATILES

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: H2M LABS, INC. Contract:

Lab Code: 10478 Case No.: BER SAS No.: SDG No.: BER012

Matrix Spike - EPA Sample No.: GW-3 4-8 FT

COMPOUND	SPIKE ADDED (µg/L)	SAMPLE CONCENTRATION (µg/L)	MS CONCENTRATION (µg/L)	MS % REC #	QC. LIMITS REC.
1,1-Dichloroethene	50	16	70	109	61-145
Trichloroethene	50	1600	1600	147*	71-120 1.
Benzene	50	0	52	103	76-127
Toluene	50	2	55	106	76-125
Chlorobenzene	50	0	51	102	75-130

COMPOUND	SPIKE ADDED (µg/L)	MSD CONCENTRATION (µg/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	50	62.3	93	16*	14	61-145
Trichloroethene	50	1490	315*	73*	14	71-120 1.
Benzene	50	46.5	93	10	11	76-127
Toluene	50	49.2	94	12	13	76-125
Chlorobenzene	50	44.9	90	13	13	75-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 2 out of 5 outside limits

Spike Recovery: 2 out of 10 outside limits

COMMENTS: 1.) QC limits do not apply due to high sample conc.

/s/ 1/26/05

3A

SYSTEM MONITORING SPIKE RECOVERY

Lab Name: H2M LABS, INC. Contract:

Lab Code: 10478 Case No.: BER SAS No.: SDG No.: BER012

Sample ID LFB011805 Level: (low/med) LOW

COMPOUND	SPIKE ADDED (µg/L)	SAMPLE CONCENTRATION (µg/L)	SPIKE CONCENTRATION (µg/L)	SPIKE % REC #	QC. LIMITS REC.
Chloromethane	50	0	45.7	91	70-114
Bromomethane	50	0	46.5	93	50-136
Vinyl chloride	50	0	44.5	89	66-117
Chloroethane	50	0	44.9	90	71-116
Methylene chloride	50	0	46.3	93	80-112
Acetone	50	0	44.4	89	71-125
1,1-Dichloroethene	50	0	44.9	90	67-120
Carbon disulfide	50	0	43.2	86	61-126
1,1-Dichloroethane	50	0	45.4	91	77-114
1,2-Dichloroethene (total)	100	0	90.3	90	78-128
Chloroform	50	0	45.7	91	75-119
1,2-Dichloroethane	50	0	47.5	95	76-120
2-Butanone	50	0	50.4	101	74-121
1,1,1-Trichloroethane	50	0	45.7	91	66-126
Carbon tetrachloride	50	0	46	92	64-126
Bromodichloromethane	50	0	47.2	94	78-118
1,2-Dichloropropane	50	0	47.7	95	81-115
cis-1,3-Dichloropropene	50	0	47.6	95	79-116
Trichloroethene	50	0	45.3	91	72-121
Dibromochloromethane	50	0	47.8	96	75-125
1,1,2-Trichloroethane	50	0	49.3	99	82-116
Benzene	50	0	46.1	92	77-116
trans-1,3-Dichloropropene	50	0	49	98	77-120
Bromoform	50	0	49	98	75-121
4-Methyl-2-pentanone	50	0	52	104	79-121
2-Hexanone	50	0	53	106	76-119
Tetrachloroethene	50	0	45.3	91	59-133
1,1,2,2-Tetrachloroethane	50	0	50.3	101	77-120
Toluene	50	0	46.5	93	70-125
Chlorobenzene	50	0	46.6	93	72-124

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Spike Recovery: 0 out of 33 outside limits

COMMENTS:

BER012 S 93

3A

SYSTEM MONITORING SPIKE RECOVERY

Lab Name: H2M LABS, INC. Contract:

Lab Code: 10478 Case No.: BER SAS No.: SDG No.: BER012

Sample ID LFB011805 Level: (low/med) LOW

Ethylbenzene	50	0	47.9	96	68-128
Styrene	50	0	46.7	93	72-124
Xylene (total)	150	0	141	94	78-133

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Spike Recovery: 0 out of 33 outside limits

COMMENTS:

BER012 S 94

3A

SYSTEM MONITORING SPIKE RECOVERY

Lab Name: H2M LABS, INC. Contract:

Lab Code: 10478 Case No.: BER SAS No.: SDG No.: BER012

Sample ID MSB011805 Level: (low/med) LOW

COMPOUND	SPIKE ADDED (µg/L)	SAMPLE CONCENTRATION (µg/L)	SPIKE CONCENTRATION (µg/L)	SPIKE % REC #	QC. LIMITS REC.
1,1-Dichloroethene	50	0	52.6	105	61-145
Trichloroethene	50	0	51.2	102	71-120
Benzene	50	0	47.7	95	76-127
Toluene	50	0	49.6	99	76-125
Chlorobenzene	50	0	47.6	95	75-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Spike Recovery: 0 out of 5 outside limits

COMMENTS:

BER012 S 95

H2M LABS, INC.

7. BLANK SUMMARY DATA AND RESULTS

7.1 VOLATILES

4A

EPA SAMPLE NO.

VOLATILE METHOD BLANK SUMMARY

VBLK011805

Lab Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No. _____ SDG No.: BER012

Lab File ID: A\A40597.D Lab Sample ID: VBLK011805

Date Analyzed: 01/18/05 Time Analyzed: 10:39

GC Column: R-502. ID: .53 (mm) Heated Purge: (Y/N) N

Instrument ID: HP5971

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LFB011805	LFB011805	A\A40598.D	11:10
02	GW-1 3.5-5.5 FT	0501306-001A	A\A40600.D	12:12
03	MSB011805	MSB011805	A\A40601.D	12:42
04	GW-2 4-6 FT	0501306-002A	A\A40602.D	13:13
05	GW-2 19-21 FT	0501306-003A	A\A40603.D	13:44
06	GW-2 34-38 FT	0501306-004A	A\A40604.D	14:14
07	GW-3 4-8 FT	0501306-005A	A\A40605.D	14:45
08	GW-3 4-8 FTMS	0501306-005AMS	A\A40606.D	15:15
09	GW-3 4-8 FTMSD	0501306-005AMSD	A\A40607.D	15:45
10	GW-3 17-21 FT	0501306-006A	A\A40608.D	16:16
11	GW-4 4-8 FT	0501306-008A	A\A40610.D	17:17
12	GW-4 17-21 FT	0501306-009A	A\A40611.D	17:47
13	GW-6 4-8 FT	0501306-012A	A\A40614.D	19:19
14	GW-6 17-21 FT	0501306-013A	A\A40615.D	19:50
15	GW-6 34-38 FT	0501306-014A	A\A40616.D	20:20
16	SUPPLY WELL	0501306-015A	A\A40617.D	20:51
17	FIELDBLANK1/12	0501306-016A	A\A40618.D	21:22

COMMENTS:

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

VBLK011805

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: VBLK011805

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40597.D

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µL) Soil Aliquot Volume (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
74-87-3	Chloromethane	5	U
74-83-9	Bromomethane	5	U
75-01-4	Vinyl chloride	5	U
75-00-3	Chloroethane	5	U
75-09-2	Methylene chloride	5	U
67-64-1	Acetone	5	U
75-35-4	1,1-Dichloroethene	5	U
75-15-0	Carbon disulfide	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon tetrachloride	5	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U

BER012 S 98

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK011805

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: VBLK011805

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40597.D

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µL) Soil Aliquot Volume (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg)	UG/L	Q
1330-20-7	Xylene (total)		5	U

BER012 S 99

1F

EPA SAMPLE NO.

VBLK011805

VOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

b Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: VBLK011805

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40597.D

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 01/18/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 1 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q
1		unknown(sus_column bleed)	24.61	10	JX

BER012 S 100

4A

EPA SAMPLE NO.

VOLATILE METHOD BLANK SUMMARY

VBLK011905

Lab Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No. _____ SDG No.: BER012

Lab File ID: A\A40622.D Lab Sample ID: VBLK011905

Date Analyzed: 01/19/05 Time Analyzed: 10:46

GC Column: R-502. ID: .53 (mm) Heated Purge: (Y/N) N

Instrument ID: HP5971

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	GW-4 4-8 FTDL	0501306-008A	A\A40626.D	12:50
02	GW-6 17-21 FTDL	0501306-013A	A\A40627.D	13:21
03	GW-1 3.5-5.5 FTDL	0501306-001A	A\A40628.D	14:08
04	GW-2 19-21 FTDL	0501306-003A	A\A40629.D	14:39
05	GW-3 4-8 FTDL	0501306-005A	A\A40630.D	15:09
06	GW-3 17-21 FTDL	0501306-006A	A\A40631.D	15:40
07	GW-3 32-36 FT	0501306-007A	A\A40632.D	16:11
08	GW-4 34-38 FT	0501306-010A	A\A40634.D	17:12
09	TRIPBLANK1/12	0501306-017A	A\A40635.D	17:42
10	GW-4 17-21 FTDL	0501306-009A	A\A40636.D	18:13
11	GW-5 4-8 FT	0501306-011A	A\A40639.D	19:45

COMMENTS:

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

VBLK011905

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: VBLK011905

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40622.D

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 01/19/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µL) Soil Aliquot Volume (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg)	UG/L	Q
74-87-3	Chloromethane		5	U
74-83-9	Bromomethane		5	U
75-01-4	Vinyl chloride		5	U
75-00-3	Chloroethane		5	U
75-09-2	Methylene chloride		5	U
67-64-1	Acetone		5	U
75-35-4	1,1-Dichloroethene		5	U
75-15-0	Carbon disulfide		5	U
75-34-3	1,1-Dichloroethane		5	U
540-59-0	1,2-Dichloroethene (total)		5	U
67-66-3	Chloroform		5	U
107-06-2	1,2-Dichloroethane		5	U
78-93-3	2-Butanone		5	U
71-55-6	1,1,1-Trichloroethane		5	U
56-23-5	Carbon tetrachloride		5	U
75-27-4	Bromodichloromethane		5	U
78-87-5	1,2-Dichloropropane		5	U
10061-01-5	cis-1,3-Dichloropropene		5	U
79-01-6	Trichloroethene		5	U
124-48-1	Dibromochloromethane		5	U
79-00-5	1,1,2-Trichloroethane		5	U
71-43-2	Benzene		5	U
10061-02-6	trans-1,3-Dichloropropene		5	U
75-25-2	Bromoform		5	U
108-10-1	4-Methyl-2 pentanone		5	U
591-78-6	2-Hexanone		5	U
127-18-4	Tetrachloroethene		5	U
79-34-5	1,1,2,2-Tetrachloroethane		5	U
108-88-3	Toluene		5	U
108-90-7	Chlorobenzene		5	U
100-41-4	Ethylbenzene		5	U
100-42-5	Styrene		5	U

BER012 S 102

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK011905

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER012

Matrix: (soil/water) WATER Lab Sample ID: VBLK011905

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40622.D

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 01/19/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µL) Soil Aliquot Volume (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg)	(µg/L	Q
1330-20-7	Xylene (total)		5	U

FORM I VOA (1/87)

BER012 S 103

1F

EPA SAMPLE NO.

VBLK011905

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER012

Matrix: (soil/water) WATER Lab Sample ID: VBLK011905

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40622.D

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 01/19/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 1 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1		unknown(sus_column bleed)	24.81	16	JX

BER012 S 104

H2M LABS, INC.

8. INTERNAL STANDARD AREA DATA
8.1 VOLATILES

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No. _____ SDG No.: BER012

Lab File ID (Standard): A\A40596.D Date Analyzed: 01/18/05

EPA Sample No. (VSTD050##): VSTD050 Time Analyzed: 10:02

Instrument ID: HP5971 Heated Purge: (Y/N) N

GC Column: R-502. ID: .53 (mm)

		IS1 AREA #	RT #	IS2 DFB AREA #	RT #	IS3 CBZ AREA #	RT #
	12 HOUR STD	101776	11.04	535100	12	449687	17.25
	UPPER LIMIT	203552	11.54	1070200	12.5	899374	17.75
	LOWER LIMIT	50888	10.54	267550	11.5	224844	16.75
	EPA SAMPLE						
01	VBLK011805	104494	11.06	544491	12.02	456870	17.24
02	LFB011805	105184	11.03	541507	12.00	454082	17.26
03	GW-1 3.5-5.5 FT	105169	11.03	550848	12.00	460394	17.26
04	MSB011805	106436	11.06	552503	12.03	456109	17.27
05	GW-2 4-6 FT	111008	11.13	565610	12.09	469181	17.29
06	GW-2 19-21 FT	107521	11.05	567036	12.03	471453	17.28
07	GW-2 34-38 FT	112301	11.05	575366	12.02	480486	17.28
08	GW-3 4-8 FT	108001	11.10	554450	12.06	461947	17.29
09	GW-3 4-8 FTMS	104750	11.07	541338	12.03	453154	17.28
10	GW-3 4-8 FTMSD	107592	11.08	549290	12.05	460092	17.29
11	GW-3 17-21 FT	107318	11.12	559923	12.08	464070	17.29
12	GW-4 4-8 FT	107654	11.09	549371	12.05	455013	17.29
13	GW-4 17-21 FT	108705	11.09	567991	12.07	467740	17.29
14	GW-6 4-8 FT	112702	11.08	575430	12.04	474880	17.28
15	GW-6 17-21 FT	109696	11.09	563111	12.05	462436	17.29
16	GW-6 34-38 FT	107270	11.04	549773	12.02	453660	17.27
17	SUPPLY WELL	108931	11.06	555750	12.03	462794	17.29
18	FIELDBLANK1/12	106726	11.10	543157	12.06	446675	17.29

IS1 = Bromochloromethane
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No. _____ SDG No.: BER012

Lab File ID (Standard): A\A40621.D Date Analyzed: 01/19/05

EPA Sample No.(VSTD050##): VSTD050 Time Analyzed: 10:10

Instrument ID: HP5971 Heated Purge: (Y/N) N

GC Column: R-502. ID: .53 (mm)

		IS1 AREA #	RT #	IS2 DFB AREA #	RT #	IS3 CBZ AREA #	RT #
	12 HOUR STD	108447	11.17	561363	12.13	466864	17.34
	UPPER LIMIT	216894	11.67	1122726	12.63	933728	17.84
	LOWER LIMIT	54224	10.67	280682	11.63	233432	16.84
	EPA SAMPLE						
01	VBLK011905	106635	11.21	550265	12.16	452061	17.34
02	GW-4 4-8 FTDL	105182	11.15	548753	12.12	444756	17.33
03	GW-6 17-21 FTDL	105593	11.11	547572	12.08	448840	17.34
04	GW-1 3.5-5.5 FTD	109044	11.23	560555	12.18	455290	17.36
05	GW-2 19-21 FTDL	109261	11.21	561854	12.17	462563	17.41
06	GW-3 4-8 FTDL	103402	11.21	536876	12.19	437242	17.44
07	GW-3 17-21 FTDL	105384	11.26	545550	12.24	438199	17.45
08	GW-3 32-36 FT	104706	11.26	552732	12.23	447233	17.45
09	GW-4 34-38 FT	103971	11.25	534065	12.22	432528	17.45
10	TRIPBLANK1/12	107848	11.25	558751	12.23	454280	17.45
11	GW-4 17-21 FTDL	104139	11.27	539334	12.24	435436	17.45
12	GW-5 4-8 FT	103514	11.26	535030	12.22	432120	17.46

IS1 = Bromochloromethane
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

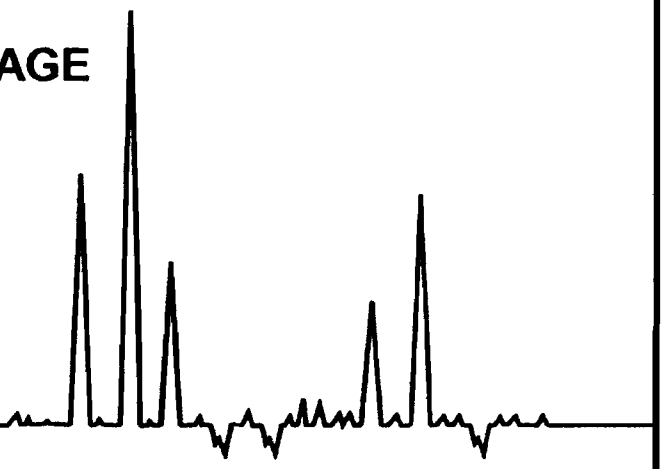
Analytical Data Package For

BERNINGER ENVIRONMENTAL
PROJECT: 1345 Peninsula Blvd. Hewlett, NY
SDG NO: BER013

Water Samples
Received: 1/31/05

SAMPLE SUMMARY DATA PACKAGE

January 2005



H2M LABS, INC.
Environmental Testing Laboratories
575 Broad Hollow Road, Melville, N.Y. 11747

H2M LABS, INC.

SAMPLE DATA SUMMARY PACKAGE

TABLE OF CONTENTS

BERNINGER ENVIRONMENTAL
PROJECT: BURTON INDUSTRIES

SAMPLES RECEIVED: 1/31/05
SDG NO.: BER013

1. **NYS DEC SUMMARY FORMS**

2. **CHAIN OF CUSTODY DOCUMENTATION**

3. **SDG NARRATIVES**

4. **SAMPLE REPORTS**
   4.1 VOLATILES

5. **SURROGATE SPIKE ANALYSIS RESULTS**
   5.1 VOLATILES

6. **MATRIX SPIKE / MATRIX SPIKE DUPLICATE SUMMARY**
   6.1 VOLATILES

7. **BLANK SUMMARY DATA AND RESULTS**
   7.1 VOLATILES

8. **INTERNAL STANDARD AREA DATA**
   8.1 VOLATILES

1. NYS DEC SUMMARY FORMS

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMAR

SDG: BER013

Analytical Requirements

Customer Sample Code	Laboratory Sample Code	MSVOA
GW-7 4-6	0501686-001	X
GW-8 4-6	0501686-002	X
FIELD BLANK	0501686-003	X
TRIP BLANK	0501686-004	X

CLP (Non-CLP) (Please indicate year of protocol) ASP B 10/95
TCL/TAL, HSL, Priority Pollutant,

MTB 2/10/05

BER013 S3

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
VOLATILE (VOA)
ANALYSES

SDG: BER013

Laboratory Samp ID	Client Sample ID	Matrix	Analytical Protocol	Date Collected	DateRecd at Lab	Date Extracted	Date Analyzed	Extraction Method	DF	Level	Aux Cleanup
0501686-001A	GW-7 4-6	Aqueous	SW8260B	31-Jan-05	31-Jan-05		31-Jan-05		1	LOW	
0501686-001ADL	GW-7 4-6DL	Aqueous	SW8260B	31-Jan-05	31-Jan-05		02-Feb-05		2500	LOW	
0501686-002A	GW-8 4-6	Aqueous	SW8260B	31-Jan-05	31-Jan-05		31-Jan-05		1	LOW	
0501686-002ADL	GW-8 4-6DL	Aqueous	SW8260B	31-Jan-05	31-Jan-05		02-Feb-05		1000	LOW	
0501686-002AMS	GW-8 4-6MS	Aqueous	SW8260B	31-Jan-05	31-Jan-05		31-Jan-05		1	LOW	
0501686-002AMSD	GW-8 4-6MSD	Aqueous	SW8260B	31-Jan-05	31-Jan-05		31-Jan-05		1	LOW	
0501686-003A	FIELD BLANK	Aqueous	SW8260B	31-Jan-05	31-Jan-05		02-Feb-05		1	LOW	
0501686-004A	TRIP BLANK	Aqueous	SW8260B	31-Jan-05	31-Jan-05		02-Feb-05		1	LOW	

2. CHAIN OF CUSTODY DOCUMENTATION

H2M LABS, INC.

1574

EXTERNAL CHAIN OF CUSTODY

BER013 2014

575 Broad Hollow Rd, Melville, NY 11747-5076
Tel: (516) 694-3040 Fax: (516) 420-8436

CLIENT: BERNINGER ENVIRONMENTAL | **H2M SDG NO:**

PROJECT NAME/NUMBER: Armenia Drive Dr Clemens 1375 Peninsula Blvd Hewlett, NY

SAMPLERS: (signature)/Client

DELIVERABLES: NYSDEC ASP B DEP

TURNAROUND TIME: RTC

NOTES: TCL VOCs $260 plus TICs NYSDEC ASP B

Project Contact: Jill H.

Phone Number: 516 647-4211

DATE	TIME	MATRIX	FIELD I.D.	Total No. of Containers	ANALYSIS REQUESTED: ORGANIC VOA	ORGANIC BNA	ORGANIC Pest/PCB	ORGANIC	INORG. Metal	INORG. CN	LAB I.D. NO.	REMARKS:
11/13/13	13:-	S	S-3 0-2 FT	2				2			050163-0017	30' N of SE
	13:20	S	S-4 0-2 FT	2				2			050163-0018	40' N of SE
	10:-	L	GW-7 4-6 FT	2	2						050686-001A	40' N of SE
	-	-	FIELD BLANK	2	2						050686-003A	-
	11:20	-	FIELD BLANK	2	2						050686-004A	-
	11:-	S	S-5 0-2 FT	2				2			050683-002A	30' N of SE
		S	S-6 0-2 FT	2				2			050681-002B	30' N of SE
↓	↓	L	GW-8 4-6 FTS/MSD	6				6			050686-002A	30' N of SE

Relinquished by (Signature)	Date	Time	Received by: (Signature)	Date	Time
Pete Diamond	11/13/13	13:30		11/13/13	13:30
	11/14/13	8:15			

LABORATORY USE ONLY

Discrepancies Between Sample Labels and COC Record? Y or N
Explain:

Samples were
1. Shipped___ or Hand Delivered___ Airbill# _____
2. Ambient or chilled
3. Received in good condition Y or N
4. Properly preserved: Y or N
5. Samples returned to lab ___ Hrs from collection

COC Tape was
1. Present on outer package Y or N
2. Unbroken on outer package Y or N
3. COC record present & complete upon sample receipt: Y or N

BER013 S6

WHITE COPY - ORIGINAL | YELLOW COPY - CLIENT | PINK COPY - LABORATORY

C

SDG BER013

H2M LABS, INC.

Sample Receipt Checklist

Client Name BER | Date and Time Receive 1/31/2005 1:00:00 PM

Work Order Numbe 0501686 | Received by BGL

Checklist completed b [signature] 1-31-05 (Signature / Date) | Reviewed by -ISA 1/31/05 (Initials / Date)

Matrix | Carrier name | Hand Delivered

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Applicable ☐
Custody seals intact on shippping container/cooler?	Yes ☐	No ☐	Not Applicable ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Applicable ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	

Adjusted? | Checked b

Any No and/or NA (not applicable) response must be detailed in the comments section b

Client contacted | Date contacted: | Person contacted

Contacted by | Regarding

Comments

Corrective Action

BER013 S7

H2M LABS, INC.

INTERNAL CHAIN OF CUSTODY

CLIENT: BER DELIVERABLES: B5-701 TURN AROUND TIME: 21 days

SDG #: BER013 CASE #: _____ MATRIX: _____ pH CHECK Y or (N)

REMARKS: 001 BER 05

RECEIVED BY: Ken Salazar F.S SIGNATURE: Ken Salazar DATE: 1-31-05 TIME: 13:00

CLIENT ID	H2M LAB #	DATE COLLECTED	BOTTLE TYPE	# OF BOTTLES	TESTS REQUESTED
• GW-7 4-6	0501686-001A	1-31-05	DI	2	ASPB5_8260-W
• GW-8 4-6	-002A			6	
• Field Blank	-003A			2	
• Trip Blank	-004A			2	

F.S 1-31-05

VOLATILE

BER013 S8

42M LABS, INC.

CLIENT: BER

SDG #: BER013

INTERNAL CHAIN OF CUSTODY

DATE	TIME	SAMPLE RELINQUISHED BY	SAMPLE RECEIVED BY	BOTTLE TYPE	PURPOSE OF CHANGE OF CUSTODY	INIT
1/31/12	14:30	SIGN	SIGN	D+	analysis	
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			

VOLATILE

BER013 S9

3. SDG NARRATIVES

H2M LABS, INC.

SDG NARRATIVE FOR VOLATILE ORGANICS
SAMPLES RECEIVED: 1/31/05
SDG #: BER013

For Samples:

GW-7 4-6
GW-8 4-6
FIELD BLANK
TRIP BLANK

The above water samples were analyzed for volatile organics by EPA method 8260B in accordance with the NYSDEC ASP, Rev. 10/95.

All QC data and calibrations met the requirements of the method, and no problems were encountered with sample analysis. The following should be noted:

- Sample GW-3 4-8 FT was analyzed as the matrix spike/matrix spike duplicate. QC limits do not apply for trichloroethene, because the compound is present in the sample at a high concentration, and the spike level is not a multiple of the sample concentration.
- A lab fortified blank and a matrix spike blank was analyzed. All percent recoveries were within QC limits.
- The samples were diluted as required to keep concentrations within the calibration ranges. Both sets of data, undiluted and diluted, are submitted.
- The surrogate recovery for toluene-d8 in sample GW-7 4-6 was above the QC limit in the undiluted analysis but met the limit in the re-analysis at the dilution.
- The concentrations are reported to the requested reporting limits, which are under the lowest calibration level. The calibrations are extrapolated to the reporting limits (PQL).
- Compounds are reported as estimated values with the qualifier "J", if the concentration is between the MDL and the reporting limit. Values under the MDL are not reported.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Date Reported: February 9, 2005

****
* *
* *
****

Ursula Middel
Technical Manager

BER013 SII KJS 2/10/05

4. SAMPLE REPORTS

4.1 VOLATILES

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-7 4-6

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER013

Matrix: (soil/water) WATER Lab Sample ID: 0501686-001A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40690.D

Level: (low/med) LOW Date Received: 01/31/05

% Moisture: not dec. Date Analyzed: 01/31/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(µg/L or µg/Kg) UG/L	Q
74-87-3	Chloromethane	5	U
74-83-9	Bromomethane	5	U
75-01-4	Vinyl chloride	1400	E
75-00-3	Chloroethane	5	U
75-09-2	Methylene chloride	5	U
67-64-1	Acetone	5	U
75-35-4	1,1-Dichloroethene	68	
75-15-0	Carbon disulfide	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	16000	E
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon tetrachloride	5	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	8100	E
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	27000	E
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	7	
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	9	
100-42-5	Styrene	5	U

BER013 S13

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-7 4-6

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER013

Matrix: (soil/water) WATER Lab Sample ID: 0501686-001A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40690.D

Level: (low/med) LOW Date Received: 01/31/05

% Moisture: not dec. Date Analyzed: 01/31/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: ____ (µL) Soil Aliquot Volume ____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
1330-20-7	Xylene (total)	10	

1F

EPA SAMPLE NO.

GW-7 4-6

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER013

Matrix: (soil/water) WATER Lab Sample ID: 0501686-001A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40690.D

Level: (low/med) LOW Date Received: 01/31/05

% Moisture: not dec. Date Analyzed: 01/31/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

CONCENTRATION UNITS:

Number TICs found: 2 (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q
1.	c3 sub benzene	18.69	94	J
2.	~~c4~~ C3 sub benzene	19.61	7	J

JMS 2/9/05

BER013 S15

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-7 4-6DL

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER013

Matrix: (soil/water) WATER Lab Sample ID: 0501686-001ADL

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40706.D

Level: (low/med) LOW Date Received: 01/31/05

% Moisture: not dec. Date Analyzed: 02/02/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 2,500.00

Soil Extract Volume: (µL) Soil Aliquot Volume (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
74-87-3	Chloromethane	13000	U
74-83-9	Bromomethane	13000	U
75-01-4	Vinyl chloride	13000	U
75-00-3	Chloroethane	13000	U
75-09-2	Methylene chloride	3300	DJ
67-64-1	Acetone	13000	U
75-35-4	1,1-Dichloroethene	13000	U
75-15-0	Carbon disulfide	13000	U
75-34-3	1,1-Dichloroethane	13000	U
540-59-0	1,2-Dichloroethene (total)	100000	D
67-66-3	Chloroform	13000	U
107-06-2	1,2-Dichloroethane	13000	U
78-93-3	2-Butanone	13000	U
71-55-6	1,1,1-Trichloroethane	13000	U
56-23-5	Carbon tetrachloride	13000	U
75-27-4	Bromodichloromethane	13000	U
78-87-5	1,2-Dichloropropane	13000	U
10061-01-5	cis-1,3-Dichloropropene	13000	U
79-01-6	Trichloroethene	46000	D
124-48-1	Dibromochloromethane	13000	U
79-00-5	1,1,2-Trichloroethane	13000	U
71-43-2	Benzene	13000	U
10061-02-6	trans-1,3-Dichloropropene	13000	U
75-25-2	Bromoform	13000	U
108-10-1	4-Methyl-2-pentanone	13000	U
591-78-6	2-Hexanone	13000	U
127-18-4	Tetrachloroethene	290000	D
79-34-5	1,1,2,2-Tetrachloroethane	13000	U
108-88-3	Toluene	13000	U
108-90-7	Chlorobenzene	13000	U
100-41-4	Ethylbenzene	13000	U
100-42-5	Styrene	13000	U

BER013 S16

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-7 4-6DL

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER013

Matrix: (soil/water) WATER Lab Sample ID: 0501686-001ADL

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40706.D

Level: (low/med) LOW Date Received: 01/31/05

% Moisture: not dec. Date Analyzed: 02/02/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 2,500.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
1330-20-7	Xylene (total)	13000	U

BER013 S17

1F

EPA SAMPLE NO.

GW-7 4-6DL

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER013

Matrix: (soil/water) WATER Lab Sample ID: 0501686-001ADL

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40706.D

Level: (low/med) LOW Date Received: 01/31/05

% Moisture: not dec. Date Analyzed: 02/02/05

GC Column R-502.2 .ID: .53 (mm) Dilution Factor: 2,500.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-8 4-6

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER013

Matrix: (soil/water) WATER Lab Sample ID: 0501686-002A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40691.D

Level: (low/med) LOW Date Received: 01/31/05

% Moisture: not dec. Date Analyzed: 01/31/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
74-87-3	Chloromethane	5	U
74-83-9	Bromomethane	5	U
75-01-4	Vinyl chloride	960	E
75-00-3	Chloroethane	5	U
75-09-2	Methylene chloride	5	U
67-64-1	Acetone	5	U
75-35-4	1,1-Dichloroethene	46	
75-15-0	Carbon disulfide	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	17000	E
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon tetrachloride	5	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5900	E
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	9500	E
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	2	J
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	2	J
100-42-5	Styrene	5	U

BER013 S19

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-8 4-6

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER013

Matrix: (soil/water) WATER Lab Sample ID: 0501686-002A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40691.D

Level: (low/med) LOW Date Received: 01/31/05

% Moisture: not dec. Date Analyzed: 01/31/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: ____ (µL) Soil Aliquot Volume ____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
1330-20-7	Xylene (total)	8	

BER013 S20

1F

EPA SAMPLE NO.

GW-8 4-6

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER013

Matrix: (soil/water) WATER Lab Sample ID: 0501686-002A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40691.D

Level: (low/med) LOW Date Received: 01/31/05

% Moisture: not dec. Date Analyzed: 01/31/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 6 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q
1.	c3 sub benzene (18.67)	18.67	14	J
2.	c3 sub benzene (19.2)	19.20	77	J
3.	c3 sub benzene (19.56)	19.56	19	J
4.	c3 sub benzene (19.69)	19.69	94	J
5.	c3 sub benzene (20.24)	20.24	32	J
6.	c4 sub benzene	20.45	16	J

BER013 S21

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-8 4-6DL

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER013

Matrix: (soil/water) WATER Lab Sample ID: 0501686-002ADL

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40703.D

Level: (low/med) LOW Date Received: 01/31/05

% Moisture: not dec. Date Analyzed: 02/02/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1,000.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(µg/L or µg/Kg) UG/L	Q
74-87-3	Chloromethane	5000	U
74-83-9	Bromomethane	5000	U
75-01-4	Vinyl chloride	5000	U
75-00-3	Chloroethane	5000	U
75-09-2	Methylene chloride	3000	DJ
67-64-1	Acetone	5000	U
75-35-4	1,1-Dichloroethene	5000	U
75-15-0	Carbon disulfide	5000	U
75-34-3	1,1-Dichloroethane	5000	U
540-59-0	1,2-Dichloroethene (total)	100000	D
67-66-3	Chloroform	5000	U
107-06-2	1,2-Dichloroethane	5000	U
78-93-3	2-Butanone	5000	U
71-55-6	1,1,1-Trichloroethane	5000	U
56-23-5	Carbon tetrachloride	5000	U
75-27-4	Bromodichloromethane	5000	U
78-87-5	1,2-Dichloropropane	5000	U
10061-01-5	cis-1,3-Dichloropropene	5000	U
79-01-6	Trichloroethene	13000	D
124-48-1	Dibromochloromethane	5000	U
79-00-5	1,1,2-Trichloroethane	5000	U
71-43-2	Benzene	5000	U
10061-02-6	trans-1,3-Dichloropropene	5000	U
75-25-2	Bromoform	5000	U
108-10-1	4-Methyl-2-pentanone	5000	U
591-78-6	2-Hexanone	5000	U
127-18-4	Tetrachloroethene	38000	D
79-34-5	1,1,2,2-Tetrachloroethane	5000	U
108-88-3	Toluene	5000	U
108-90-7	Chlorobenzene	5000	U
100-41-4	Ethylbenzene	5000	U
100-42-5	Styrene	5000	U

BER013 S22

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-8 4-6DL

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER013

Matrix: (soil/water) WATER Lab Sample ID: 0501686-002ADL

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40703.D

Level: (low/med) LOW Date Received: 01/31/05

% Moisture: not dec. Date Analyzed: 02/02/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1,000.00

Soil Extract Volume: ____ (µL) Soil Aliquot Volume ____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
1330-20-7	Xylene (total)	5000	U

BER013 S23

1F

EPA SAMPLE NO.

GW-8 4-6DL

VOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER013

Matrix: (soil/water) WATER Lab Sample ID: 0501686-002ADL

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40703.D

Level: (low/med) LOW Date Received: 01/31/05

% Moisture: not dec. Date Analyzed: 02/02/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1,000.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

CONCENTRATION UNITS:

Number TICs found: 0 (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FIELD BLANK

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER013

Matrix: (soil/water) WATER Lab Sample ID: 0501686-003A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40704.D

Level: (low/med) LOW Date Received: 01/31/05

% Moisture: not dec. Date Analyzed: 02/02/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: ____ (µL) Soil Aliquot Volume ____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
74-87-3	Chloromethane	5	U
74-83-9	Bromomethane	5	U
75-01-4	Vinyl chloride	5	U
75-00-3	Chloroethane	5	U
75-09-2	Methylene chloride	5	U
67-64-1	Acetone	5	U
75-35-4	1,1-Dichloroethene	5	U
75-15-0	Carbon disulfide	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon tetrachloride	5	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U

BER013 S25

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FIELD BLANK

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER013

Matrix: (soil/water) WATER Lab Sample ID: 0501686-003A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40704.D

Level: (low/med) LOW Date Received: 01/31/05

% Moisture: not dec. Date Analyzed: 02/02/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
1330-20-7	Xylene (total)	5	U

BER013 S26

1F

EPA SAMPLE NO.

FIELD BLANK

VOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER013

Matrix: (soil/water) WATER Lab Sample ID: 0501686-003A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40704.D

Level: (low/med) LOW Date Received: 01/31/05

% Moisture: not dec. Date Analyzed: 02/02/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TRIP BLANK

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER013

Matrix: (soil/water) WATER Lab Sample ID: 0501686-004A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40705.D

Level: (low/med) LOW Date Received: 01/31/05

% Moisture: not dec. Date Analyzed: 02/02/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µL) Soil Aliquot Volume (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
74-87-3	Chloromethane	5	U
74-83-9	Bromomethane	5	U
75-01-4	Vinyl chloride	5	U
75-00-3	Chloroethane	5	U
75-09-2	Methylene chloride	5	U
67-64-1	Acetone	5	U
75-35-4	1,1-Dichloroethene	5	U
75-15-0	Carbon disulfide	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon tetrachloride	5	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TRIP BLANK

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER013

Matrix: (soil/water) WATER Lab Sample ID: 0501686-004A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40705.D

Level: (low/med) LOW Date Received: 01/31/05

% Moisture: not dec. Date Analyzed: 02/02/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
1330-20-7	Xylene (total)	5	U

BER013 S29

1F

EPA SAMPLE NO.

TRIP BLANK

VOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER013

Matrix: (soil/water) WATER Lab Sample ID: 0501686-004A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40705.D

Level: (low/med) LOW Date Received: 01/31/05

% Moisture: not dec. Date Analyzed: 02/02/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

BER013 S30

5. SURROGATE SPIKE ANALYSIS RESULTS

5.1 VOLATILES

2A

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No.: _____ SDG No.: BER013

	EPA SAMPLE NO.	SMC1 DCE #	SMC2 TOL #	SMC3 BFB #	Other	TOT OUT
01	VBLK013105	101	101	97		0
02	LFB013105	104	100	99		0
03	MSB013105	98	100	98		0
04	GW-7 4-6	96	131 *	106		1
05	GW-8 4-6	98	106	103		0
06	GW-8 4-6MS	96	105	105		0
07	GW-8 4-6MSD	100	108	104		0
08	VBLK020205	93	101	98		0
09	GW-8 4-6DL	95	101	98		0
10	FIELD BLANK	94	101	99		0
11	TRIP BLANK	93	102	98		0
12	GW-7 4-6DL	93	101	99		0

			QC Limits
SMC1	DCE	= 1,2-Dichloroethane-d4	(76-114)
SMC2	TOL	= Toluene-d8	(88-110)
SMC3	BFB	= 4-Bromofluorobenzene	(86-115)

Column to be used to flag recovery values

* Values outside of contract required QC limits

6. MATRIX SPIKE / MATRIX SPIKE DUPLICATE SUMMARY

6.1 VOLATILES

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: H2M LABS, INC. Contract:

Lab Code: 10478 Case No.: BER SAS No.: SDG No.: BER013

Matrix Spike - EPA Sample No.: GW-8 4-6

COMPOUND	SPIKE ADDED (µg/L)	SAMPLE CONCENTRATION (µg/L)	MS CONCENTRATION (µg/L)	MS % REC #	QC. LIMITS REC.
1,1-Dichloroethene	50	46	93	94	61-145
Trichloroethene	50	5900	5600	600*	71-120
Benzene	50	0	54	107	76-127
Toluene	50	2	59	113	76-125
Chlorobenzene	50	0	51	103	75-130

COMPOUND	SPIKE ADDED (µg/L)	MSD CONCENTRATION (µg/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	50	89.2	86	9	14	61-145
Trichloroethene	50	5570	569*	5	14	71-120
Benzene	50	49.5	99	8	11	76-127
Toluene	50	53.7	103	9	13	76-125
Chlorobenzene	50	47.4	95	8	13	75-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits

Spike Recovery: 2 out of 10 outside limits

COMMENTS: 1) QC limits do not apply due to high sample conc. [illegible] 2/19/05

BER013 S34

3A

SYSTEM MONITORING SPIKE RECOVERY

Lab Name: H2M LABS, INC. Contract:

Lab Code: 10478 Case No.: BER SAS No.: SDG No.: BER013

Sample ID MSB013105 Level: (low/med) LOW

COMPOUND	SPIKE ADDED (µg/L)	SAMPLE CONCENTRATION (µg/L)	SPIKE CONCENTRATION (µg/L)	SPIKE % REC #	QC. LIMITS REC.
1,1-Dichloroethene	50	0	50.5	101	61-145
Trichloroethene	50	0	49.5	99	71-120
Benzene	50	0	50.5	101	76-127
Toluene	50	0	52	104	76-125
Chlorobenzene	50	0	51.7	103	75-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Spike Recovery: 0 out of 5 outside limits

COMMENTS:

BER013 S35

3A

SYSTEM MONITORING SPIKE RECOVERY

Lab Name: H2M LABS, INC. Contract:

Lab Code: 10478 Case No.: BER SAS No.: SDG No.: BER013

Sample ID LFB013105 Level: (low/med) LOW

COMPOUND	SPIKE ADDED (µg/L)	SAMPLE CONCENTRATION (µg/L)	SPIKE CONCENTRATION (µg/L)	SPIKE % REC #	QC. LIMITS REC.
Chloromethane	50	0	48.3	97	70-114
Bromomethane	50	0	46.1	92	50-136
Vinyl chloride	50	0	45.2	90	66-117
Chloroethane	50	0	46.3	93	71-116
Methylene chloride	50	0	47.4	95	80-112
Acetone	50	0	48.2	96	71-125
1,1-Dichloroethene	50	0	45	90	67-120
Carbon disulfide	50	0	45.1	90	61-126
1,1-Dichloroethane	50	0	47.1	94	77-114
1,2-Dichloroethene (total)	100	0	92.6	93	78-128
Chloroform	50	0	47	94	75-119
1,2-Dichloroethane	50	0	49.5	99	76-120
2-Butanone	50	0	49.3	99	74-121
1,1,1-Trichloroethane	50	0	46	92	66-126
Carbon tetrachloride	50	0	45.7	91	64-126
Bromodichloromethane	50	0	47.7	95	78-118
1,2-Dichloropropane	50	0	47.4	95	81-115
cis-1,3-Dichloropropene	50	0	47	94	79-116
Trichloroethene	50	0	45.9	92	72-121
Dibromochloromethane	50	0	47.3	95	75-125
1,1,2-Trichloroethane	50	0	47.9	96	82-116
Benzene	50	0	46.3	93	77-116
trans-1,3-Dichloropropene	50	0	47.7	95	77-120
Bromoform	50	0	45	90	75-121
4-Methyl-2-pentanone	50	0	50.6	101	79-121
2-Hexanone	50	0	48.8	98	76-119
Tetrachloroethene	50	0	44.1	88	59-133
1,1,2,2-Tetrachloroethane	50	0	46.2	92	77-120
Toluene	50	0	46	92	70-125
Chlorobenzene	50	0	47	94	72-124

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Spike Recovery: 0 out of 33 outside limits

COMMENTS:

BER013 S36

3A

SYSTEM MONITORING SPIKE RECOVERY

Lab Name: H2M LABS, INC. Contract:

Lab Code: 10478 Case No.: BER SAS No.: SDG No.: BER013

Sample ID LFB013105 Level: (low/med) LOW

Ethylbenzene	50	0	46	92	68-128
Styrene	50	0	45.3	91	72-124
Xylene (total)	150	0	144	96	78-133

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Spike Recovery: 0 out of 33 outside limits

COMMENTS:

BER013 S37

7. BLANK SUMMARY DATA AND RESULTS

7.1 VOLATILES

4A

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK013105

Lab Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No. _____ SDG No.: BER013

Lab File ID: A\A40678.D Lab Sample ID: VBLK013105

Date Analyzed: 01/31/05 Time Analyzed: 10:45

GC Column: R-502. ID: .53 (mm) Heated Purge: (Y/N) N

Instrument ID: HP5971

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LFB013105	LFB013105	A\A40679.D	11:24
02	MSB013105	MSB013105	A\A40689.D	16:34
03	GW-7 4-6	0501686-001A	A\A40690.D	17:05
04	GW-8 4-6	0501686-002A	A\A40691.D	17:35
05	GW-8 4-6MS	0501686-002AMS	A\A40692.D	18:05
06	GW-8 4-6MSD	0501686-002AMSD	A\A40693.D	18:36

COMMENTS:

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

VBLK013105

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER013

Matrix: (soil/water) WATER Lab Sample ID: VBLK013105

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40678.D

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 01/31/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µL) Soil Aliquot Volume (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
74-87-3	Chloromethane	5	U
74-83-9	Bromomethane	5	U
75-01-4	Vinyl chloride	5	U
75-00-3	Chloroethane	5	U
75-09-2	Methylene chloride	5	U
67-64-1	Acetone	5	U
75-35-4	1,1-Dichloroethene	5	U
75-15-0	Carbon disulfide	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon tetrachloride	5	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U

BER013 S40

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK013105

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER013

Matrix: (soil/water) WATER Lab Sample ID: VBLK013105

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40678.D

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 01/31/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: ____ (µL) Soil Aliquot Volume ____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg)	UG/L	Q
1330-20-7	Xylene (total)		5	U

BER013 S41

1F

EPA SAMPLE NO.

VBLK013105

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER013

Matrix: (soil/water) WATER Lab Sample ID: VBLK013105

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40678.D

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 01/31/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

BER013 S42

4A

EPA SAMPLE NO.

VOLATILE METHOD BLANK SUMMARY

VBLK020205

Lab Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No. _____ SDG No.: BER013

Lab File ID: A\A40699.D Lab Sample ID: VBLK020205

Date Analyzed: 02/02/05 Time Analyzed: 11:48

GC Column: R-502. ID: .53 (mm) Heated Purge: (Y/N) N

Instrument ID: HP5971

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	GW-8 4-6DL	0501686-002ADL	A\A40703.D	13:53
02	FIELD BLANK	0501686-003A	A\A40704.D	14:24
03	TRIP BLANK	0501686-004A	A\A40705.D	14:54
04	GW-7 4-6DL	0501686-001ADL	A\A40706.D	15:24

COMMENTS:

BER013 S43

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

VBLK020205

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER013

Matrix: (soil/water) WATER Lab Sample ID: VBLK020205

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40699.D

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 02/02/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: ____ (µL) Soil Aliquot Volume ____ (µL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(µg/L or µg/Kg) UG/L	Q
74-87-3	Chloromethane	5	U
74-83-9	Bromomethane	5	U
75-01-4	Vinyl chloride	5	U
75-00-3	Chloroethane	5	U
75-09-2	Methylene chloride	5	U
67-64-1	Acetone	5	U
75-35-4	1,1-Dichloroethene	5	U
75-15-0	Carbon disulfide	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon tetrachloride	5	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	2	J
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U

BER013 S44

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK020205

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: BER SAS No.: ____ SDG No.: BER013

Matrix: (soil/water) WATER Lab Sample ID: VBLK020205

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40699.D

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 02/02/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µL) Soil Aliquot Volume (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
1330-20-7	Xylene (total)	5	U

BER013 S45

1F

EPA SAMPLE NO.

VBLK020205

VOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name H2M LABS, INC. Contract _____

Lab Code 10478 Case No. BER SAS No. _____ SDG No. BER013

Matrix: (soil/water) WATER Lab Sample ID: VBLK020205

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A40699.D

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 02/02/05

GC Column R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

CONCENTRATION UNITS:

Number TICs found: 1 (µg/L or µg/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		unknown siloxane	21.19	8	J

8. INTERNAL STANDARD AREA DATA

8.1 VOLATILES

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No. _____ SDG No.: BER013

Lab File ID (Standard): A\A40677.D Date Analyzed: 01/31/05

EPA Sample No.(VSTD050##): VSTD050 Time Analyzed: 9:56

Instrument ID: HP5971 Heated Purge: (Y/N) N

GC Column: R-502. ID: .53 (mm)

		IS1 AREA #	RT #	IS2 DFB AREA #	RT #	IS3 CBZ AREA #	RT #
	12 HOUR STD	114677	11.43	589550	12.39	483669	17.56
	UPPER LIMIT	229354	11.93	1179100	12.89	967338	18.06
	LOWER LIMIT	57339	10.93	294775	11.89	241835	17.06
	EPA SAMPLE						
01	VBLK013105	112955	11.47	587594	12.42	472617	17.57
02	LFB013105	115958	11.42	602975	12.39	492983	17.56
03	MSB013105	119177	11.37	612221	12.35	497590	17.56
04	GW-74-6	111220	11.44	598485	12.42	384310	17.61
05	GW-84-6	94376	11.40	514111	12.38	411014	17.57
06	GW-84-6MS	95197	11.42	510221	12.39	410059	17.58
07	GW-84-6MSD	92990	11.41	517472	12.38	414410	17.56

IS1 = Bromochloromethane
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No. _____ SDG No.: BER013

Lab File ID (Standard): A\A40698.D Date Analyzed: 02/02/05

EPA Sample No.(VSTD050##): VSTD050 Time Analyzed: 11:08

Instrument ID: HP5971 Heated Purge: (Y/N) N

GC Column: R-502. ID: .53 (mm)

		IS1 AREA #	RT #	IS2 DFB AREA #	RT #	IS3 CBZ AREA #	RT #
	12 HOUR STD	112679	11.49	582017	12.45	476584	17.6
	UPPER LIMIT	225358	11.99	1164034	12.95	953168	18.1
	LOWER LIMIT	56340	10.99	291009	11.95	238292	17.1
	EPA SAMPLE						
01	VBLK020205	105214	11.48	541529	12.44	434098	17.59
02	GW-8 4-6DL	104771	11.42	543690	12.40	439476	17.58
03	FIELD BLANK	105324	11.42	545154	12.40	432478	17.58
04	TRIP BLANK	108410	11.40	564902	12.38	450818	17.58
05	GW-7 4-6DL	105600	11.44	543244	12.40	434305	17.58

IS1 = Bromochloromethane
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

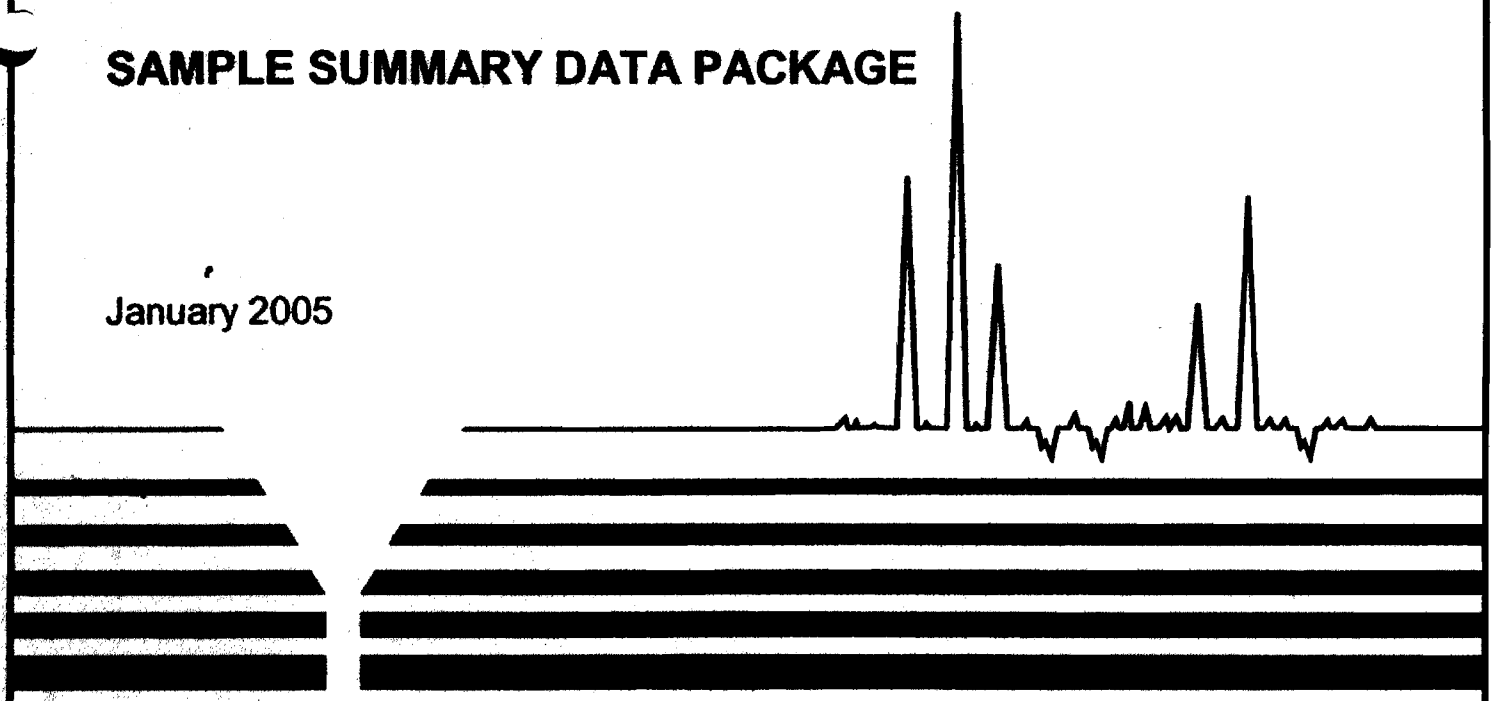
Analytical Data Package For

BERNINGER ENVIRONMENTAL
PROJECT: 1345 Peninsula Blvd. Hewlett, NY
SDG NO: BER014

Soil
~~Water~~ Samples
Received: 1/31/05

SAMPLE SUMMARY DATA PACKAGE

January 2005



H2M LABS, INC.
Environmental Testing Laboratories
575 Broad Hollow Road, Melville, N.Y. 11747

H2M LABS, INC.

SAMPLE DATA SUMMARY PACKAGE

TABLE OF CONTENTS

BERNINGER ENVIRONMENTAL
PROJECT: BURTON INDUSTRIES

SAMPLES RECEIVED: 1/31/05
SDG NO.: BER014

1. **NYS DEC SUMMARY FORMS**

2. **CHAIN OF CUSTODY DOCUMENTATION**

3. **SDG NARRATIVES**

4. **SAMPLE REPORTS**
   4.1 VOLATILES

5. **SURROGATE SPIKE ANALYSIS RESULTS**
   5.1 VOLATILES

6. **MATRIX SPIKE / MATRIX SPIKE DUPLICATE SUMMARY**
   6.1 VOLATILES

7. **BLANK SUMMARY DATA AND RESULTS**
   7.1 VOLATILES

8. **INTERNAL STANDARD AREA DATA**
   8.1 VOLATILES

1. NYS DEC SUMMARY FORMS

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMAR

SDG: BER014

Analytical Requirements

Customer Sample Code	Laboratory Sample Code	MSVOA
S-3 0-4 FT	0501688-001	X
S-4 0-4 FT	0501688-002	X
S-5 0-4 FT	0501688-003	X
S-6 0-4 FT	0501688-004	X

CLP, ~~Non-CLP~~ (Please indicate year of protocol) ASP B 10/95
TCL/TAL, ~~HSL~~, Priority Pollutant, NTB 2/10/05

BER014 S3

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
VOLATILE (VOA)
ANALYSES

SDG: BER014

Laboratory Samp ID	Client Sample ID	Matrix	Analytical Protocol	Date Collected	DateRecd at Lab	Date Extracted	Date Analyzed	Extraction Method	DF	Level	Aux Cleanup
0501688-001A	S-3 0-4 FT	Soil	ASP95-1	31-Jan-05	31-Jan-05		02-Feb-05		5	MED	
0501688-001ADL	S-3 0-4 FTDL	Soil	ASP95-1	31-Jan-05	31-Jan-05		02-Feb-05		500	MED	
0501688-002A	S-4 0-4 FT	Soil	ASP95-1	31-Jan-05	31-Jan-05		02-Feb-05		5	MED	
0501688-002ADL	S-4 0-4 FTDL	Soil	ASP95-1	31-Jan-05	31-Jan-05		03-Feb-05		100	MED	
0501688-002ADLM	S-4 0-4 FTDLMS	Soil	ASP95-1	31-Jan-05	31-Jan-05		02-Feb-05		100	MED	
0501688-002ADLM	S-4 0-4 FTDLMSD	Soil	ASP95-1	31-Jan-05	31-Jan-05		02-Feb-05		100	MED	
0501688-003A	S-5 0-4 FT	Soil	ASP95-1	31-Jan-05	31-Jan-05		02-Feb-05		2.5	MED	
0501688-004A	S-6 0-4 FT	Soil	ASP95-1	31-Jan-05	31-Jan-05		02-Feb-05		5	MED	
0501688-004ADL	S-6 0-4 FTDL	Soil	ASP95-1	31-Jan-05	31-Jan-05		03-Feb-05		100	MED	

2. CHAIN OF CUSTODY DOCUMENTATION

H2M LABS, INC.

575 Broad Hollow Rd, Melville, NY 11747-5076
Tel: (516) 694-3040 Fax: (516) 420-8436

1574 (

BER013 R014

EXTERNAL CHAIN OF CUSTODY

CLIENT: BERNINGER ENVIRONMENTAL | H2M SDG NO:

PROJECT NAME/NUMBER: AMERICAS Drive In Cleaners, 1375 Peninsula Blvd, Hewlett, NY

SAMPLERS: (signature)/Client

DELIVERABLES: NYSDEC ASP B Deliv

TURNAROUND TIME: RTO

NOTES: TCL VOCs 8260 plus TICs NYSDEC ASP B

Project Contact: Jill H.

Phone Number: 516 647-4211

DATE	TIME	MATRIX	FIELD I.D.	Total No. of Containers	ANALYSIS REQUESTED: ORGANIC VOA	ORGANIC BNA	ORGANIC Pest/PCB	VOA	INORG. Metal	INORG. CN	LAB I.D. NO.	REMARKS:
1/31/05	930	S	S-3 0-4 Ft ms/msd	4				4			0501688-001A	50' N of SE
	950	S	S-4 0-4 Ft	4				4			0501688-001B	40' N of SE
	1010	L	GW-7 4-6 Ft	2	2						0501686-001A	40' N of SE
	—	L	TRIP BLANK	2	2						0501686-002A	—
	1130	L	FIELD BLANK	2	2						0501686-004A	—
	1140	S	S-5 0-4 Ft	2				2			0501688-002A	30' N of SE
		S	S-6 0-4 Ft	2				2			0501688-002B	20' N of SE
✓	✓	L	GW-8 4-6 Ft ms/msd	6				6			0501686-002A	20' N of SE

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Pete Daniels	1/31/05	13:00		1/31/05	13:00
	1-31-05	15:00		Date	Time
	Date	Time		Date	Time
	Date	Time		Date	Time

LABORATORY USE ONLY

Discrepancies Between Sample Labels and COC Record? Y or N
Explain:

Samples were:
1. Shipped___ or Hand Delivered___ Airbill# _____
2. Ambient or chilled
3. Received in good condition: Y or N
4. Properly preserved: Y or N
5. Samples returned to lab ___ Hrs from collection.

COC Tape was:
1. Present on outer package: Y or N
2. Unbroken on outer package: Y or N
3. COC record present & complete upon sample receipt: Y or N

BER014S6

WHITE COPY - ORIGINAL YELLOW COPY - CLIENT PINK COPY - LABORATORY

C

SDG: BERO1

H2M LABS, INC.

Sample Receipt Checklist

Client Name BER | Date and Time Receive 1/31/2005 1:00:00 PM

Work Order Numbe 0501688 | Received by BGL

Checklist completed b [signature] 1-31-05 (Signature / Date) | Reviewed by SSA 1/31/05 (Initials / Date)

Matrix | Carrier name | Hand Delivered

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Applicable ☐
Custody seals intact on shippping container/cooler?	Yes ☐	No ☐	Not Applicable ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Applicable ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
Samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Water - VOA vials have zero headspace?	No VOA vials submitted ☑	Yes ☐	No ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	

Adjusted? _____ Checked b _____

Any No and/or NA (not applicable) response must be detailed in the comments section b

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

BER014 S7

H2M LABS, INC.

INTERNAL CHAIN OF CUSTODY

CLIENT: BER. DELIVERABLES: BS-701 TURN AROUND TIME: 21 days

SDG #: BER014 CASE #: _____ MATRIX: Soil pH CHECK Y or (N)

REMARKS: 001 BER 05

RECEIVED BY: F.S SIGNATURE: Flor Salas DATE: 1-31-05 TIME: 13:00

CLIENT ID	H2M LAB #	DATE COLLECTED	BOTTLE TYPE	# OF BOTTLES	TESTS REQUESTED
S-30-4FT	0501695-001A	1-31-05	A	1	ASPBS-8260-S
~~S-30-4FT~~	001B				
S-40-4FT	002A				
~~S-40-4FT~~	002B				
S-50-4FT	003A				
~~S-50-4FT~~	003B				
S-60-4FT	004A				
~~S-60-4FT~~	004B				

BG 2/3/05

F.S 1-31-05

VOLATILE

P 0289

BER014 S8

H2M LABS, INC.

CLIENT: BER

SDG #: BER014

INTERNAL CHAIN OF CUSTODY

DATE	TIME	SAMPLE RELINQUISHED BY	SAMPLE RECEIVED BY	BOTTLE TYPE	PURPOSE OF CHANGE OF CUSTODY	INIT
1/3/15	1300	SIGN Mar Salazar	SIGN	A	Analysis	
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			
		SIGN	SIGN			

VOLATILE

3. SDG NARRATIVES

H2M LABS, INC.

SDG NARRATIVE FOR VOLATILE ORGANICS
SAMPLES RECEIVED: 1/31/05
SDG #: BER014

For Samples:

S-3 0-4 FT
S-4 0-4 FT
S-5 0-4 FT
S-6 0-4 FT

The above water samples were analyzed for volatile organics by EPA method 8260B in accordance with the NYSDEC ASP, Rev. 10/95.

All QC data and calibrations met the requirements of the method, and no problems were encountered with sample analysis. The following should be noted:

- Sample S-4 0-4 FT was analyzed as the matrix spike/matrix spike duplicate. All percent recoveries and RPD's are within QC limits.
- A lab fortified blank and a matrix spike blank was analyzed. All percent recoveries were within QC limits.
- All samples were analyzed at a medium level due to concentration levels of targeted analytes. All samples except for S-5 0-4 FT were reanalyzed at a greater dilution due to concentration levels of targeted analytes above the calibration range in initial medium level analysis.
- Low levels (less than PQL) of tetrachloroethene were detected in the method blank of 2/2/05. This analyte is flagged with a "B" qualifier if present in the associated samples.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Date Reported: February 16, 2005

****
* *
* *
****
Joann M. Slavin
Senior Vice President

BER014 SDG KSS 2/7/05

4. SAMPLE REPORTS

4.1 VOLATILES

H2M LABS, INC.

QUALIFIERS FOR REPORTING ORGANICS DATA

Value - If the result is a value greater than or equal to the quantification limit, report the value.

U - Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture. For example, 10U for phenol in water if the sample final volume is the protocol-specified final volume. If a 1 to 10 dilution of extract is necessary, the reported limit is 100 U. For a soil sample, the value must also be adjusted for percent moisture. For example, if the sample had 24% moisture and a 1 to 10 dilution factor, the sample quantitation limit for phenol (330 U) would be corrected to:

$$\frac{(300\ U)}{D} \times df \text{ where } D = \frac{100\% moisture}{100}$$

and df - dilution factor

For example, at 24% moisture, $D = \frac{100 - 24}{100} = 0.76$

$$\frac{(300\ U)}{.76} \times 10 = 4300\ U$$ rounded to the appropriate number of significant figures

For semivolatile soil samples, the extract must be concentrated to 0.5 mL, and the sensitivity of the analysis is not compromised by the cleanup procedures. Similarly, pesticide samples subjected to GPC are concentrated to 5.0 mL. Therefore, the CRQL values in Exhibit C will apply to all samples, regardless of cleanup. However, if a sample extract cannot be concentrated to the protocol-specified volume (see Exhibit C), this fact must be accounted for in reporting the sample quantitation limit.

J - Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified quantification limit but greater than zero. (e.g.: If limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, report as 3J.) The sample quantitation limit must be adjusted for dilution as discussed for the U flag.

N - Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.

P - This flag is used for a pesticide/Aroclor target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported of Form I with a "P".

C - This flag applies to pesticide results when the identification has been confirmed by GC/MS.. If GC/MS confirmation was attempted but was unsuccessful, do not apply this flag, instead use a Laboratory defined flag, discussed below.

B - This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible probable blank contamination and warns the data user to take appropriate action. This flag must be used for a TIC as well as for a positively identified target compound.

E - This flag identified compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. If one or more compounds have a response greater than full scale, except as noted in Exhibit D, the sample or extract must be diluted and re-analyzed according to the specifications in Exhibit D. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form I for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration ranges in the second analysis, then the results of both analyses shall be reported on separate copies of Form I. The Form I for the diluted sample shall have the "DL" suffix appended to the sample number. NOTE: For total xylenes, where three isomers are quantified as two peaks, the calibration range of each peak should be considered separately, e.g. a diluted analysis is not required for total xylenes unless the concentration of the peak representing the single isomer exceed 200 ug/L or the peak representing the two coeluting isomers on that GC column exceed 400 ug/L. Similarly, if the two 1,2-Dichloroethene isomers coelute, a diluted analysis is not required unless the concentration exceed 400 ug/L.

D - This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number on the Form I for the diluted sample, and all concentration values reported on that Form I are flagged with the "D" flag. This flag alerts data users that any discrepancies between the concentrations reported may be due to dilution of the sample or extract.

A - This flag indicates that a TIC is a suspected aldol-condensation product.

X - This flag indicates that a TIC is suspected column bleed.

The combination of flags "BU" or "UB" is expressly prohibited. Blank contaminants are flagged "B" only when they are detected in the sample.

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S-3 0-4 FT

Lab Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No.: _____ SDG No.: BER014

Matrix: (soil/water) SOIL Lab Sample ID: 0501688-001A

Sample wt/vol: 4 (g/mL) G Lab File ID: A\A40707.D

Level: (low/med) MED Date Received: 01/31/05

% Moisture: not dec. 19.8 Date Analyzed: 02/02/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 5.00

Soil Extract Volume: 10000 (µL) Soil Aliquot Volume 100 (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg UG/KG	Q
74-87-3	Chloromethane	7800	U
74-83-9	Bromomethane	7800	U
75-01-4	Vinyl chloride	7800	U
75-00-3	Chloroethane	7800	U
75-09-2	Methylene chloride	7800	U
67-64-1	Acetone	7800	U
75-35-4	1,1-Dichloroethene	7800	U
75-15-0	Carbon disulfide	7800	U
75-34-3	1,1-Dichloroethane	7800	U
540-59-0	1,2-Dichloroethene (total)	7800	U
67-66-3	Chloroform	7800	U
107-06-2	1,2-Dichloroethane	7800	U
78-93-3	2-Butanone	7800	U
71-55-6	1,1,1-Trichloroethane	7800	U
56-23-5	Carbon tetrachloride	7800	U
75-27-4	Bromodichloromethane	7800	U
78-87-5	1,2-Dichloropropane	7800	U
10061-01-5	cis-1,3-Dichloropropene	7800	U
79-01-6	Trichloroethene	56000	
124-48-1	Dibromochloromethane	7800	U
79-00-5	1,1,2-Trichloroethane	7800	U
71-43-2	Benzene	7800	U
10061-02-6	trans-1,3-Dichloropropene	7800	U
75-25-2	Bromoform	7800	U
108-10-1	4-Methyl-2-pentanone	7800	U
591-78-6	2-Hexanone	7800	U
127-18-4	Tetrachloroethene	4900000	EB
79-34-5	1,1,2,2-Tetrachloroethane	7800	U
108-88-3	Toluene	7800	U
108-90-7	Chlorobenzene	7800	U
100-41-4	Ethylbenzene	7800	U
100-42-5	Styrene	7800	U
1330-20-7	Xylene (total)	7800	U

1F

EPA SAMPLE NO.

S-3 0-4 FT

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No.: _____ SDG No.: BER014

Matrix: (soil/water) SOIL Lab Sample ID: 0501688-001A

Sample wt/vol: 4 (g/mL) G Lab File ID: A\A40707.D

Level: (low/med) MED Date Received: 01/31/05

% Moisture: not dec. 19.8 Date Analyzed: 02/02/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 5.00

Soil Extract Volume: 10000 (µl) Soil Aliquot Volume: 100 (µL)

CONCENTRATION UNITS:

Number TICs found: 0 (µg/L or µg/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

BER014 S16

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S-3 0-4 FTDL

Lab Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No.: _____ SDG No.: BER014

Matrix: (soil/water) SOIL Lab Sample ID: 0501688-001ADL

Sample wt/vol: 4 (g/mL) G Lab File ID: A\A40717.D

Level: (low/med) MED Date Received: 01/31/05

% Moisture: not dec. 19.8 Date Analyzed: 02/02/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 500.00

Soil Extract Volume: 10000 (µL) Soil Aliquot Volume 100 (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg UG/KG	Q
74-87-3	Chloromethane	780000	U
74-83-9	Bromomethane	780000	U
75-01-4	Vinyl chloride	780000	U
75-00-3	Chloroethane	780000	U
75-09-2	Methylene chloride	780000	U
67-64-1	Acetone	780000	U
75-35-4	1,1-Dichloroethene	780000	U
75-15-0	Carbon disulfide	780000	U
75-34-3	1,1-Dichloroethane	780000	U
540-59-0	1,2-Dichloroethene (total)	780000	U
67-66-3	Chloroform	780000	U
107-06-2	1,2-Dichloroethane	780000	U
78-93-3	2-Butanone	780000	U
71-55-6	1,1,1-Trichloroethane	780000	U
56-23-5	Carbon tetrachloride	780000	U
75-27-4	Bromodichloromethane	780000	U
78-87-5	1,2-Dichloropropane	780000	U
10061-01-5	cis-1,3-Dichloropropene	780000	U
79-01-6	Trichloroethene	780000	U
124-48-1	Dibromochloromethane	780000	U
79-00-5	1,1,2-Trichloroethane	780000	U
71-43-2	Benzene	780000	U
10061-02-6	trans-1,3-Dichloropropene	780000	U
75-25-2	Bromoform	780000	U
108-10-1	4-Methyl-2-pentanone	780000	U
591-78-6	2-Hexanone	780000	U
127-18-4	Tetrachloroethene	7000000	DB
79-34-5	1,1,2,2-Tetrachloroethane	780000	U
108-88-3	Toluene	780000	U
108-90-7	Chlorobenzene	780000	U
100-41-4	Ethylbenzene	780000	U
100-42-5	Styrene	780000	U
1330-20-7	Xylene (total)	780000	U

BER014 S17

1F

EPA SAMPLE NO.

S-3 0-4 FTDL

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No.: _____ SDG No.: BER014

Matrix: (soil/water) SOIL Lab Sample ID: 0501688-001ADL

Sample wt/vol: 4 (g/mL) G Lab File ID: A\A40717.D

Level: (low/med) MED Date Received: 01/31/05

% Moisture: not dec. 19.8 Date Analyzed: 02/02/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 500.00

Soil Extract Volume: 10000 (µl) Soil Aliquot Volume: 100 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S-4 0-4 FT

Lab Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No.: _____ SDG No.: BKR014

Matrix: (soil/water) SOIL Lab Sample ID: 0501688-002A

Sample wt/vol: 4 (g/mL) G Lab File ID: A\A40708.D

Level: (low/med) MED Date Received: 01/31/05

% Moisture: not dec. 29.9 Date Analyzed: 02/02/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 5.00

Soil Extract Volume: 10000 (µL) Soil Aliquot Volume 100 (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg UG/KG	Q
74-87-3	Chloromethane	8900	U
74-83-9	Bromomethane	8900	U
75-01-4	Vinyl chloride	8900	U
75-00-3	Chloroethane	8900	U
75-09-2	Methylene chloride	8900	U
67-64-1	Acetone	8900	U
75-35-4	1,1-Dichloroethene	8900	U
75-15-0	Carbon disulfide	8900	U
75-34-3	1,1-Dichloroethane	8900	U
540-59-0	1,2-Dichloroethene (total)	8800	J
67-66-3	Chloroform	8900	U
107-06-2	1,2-Dichloroethane	8900	U
78-93-3	2-Butanone	8900	U
71-55-6	1,1,1-Trichloroethane	8900	U
56-23-5	Carbon tetrachloride	8900	U
75-27-4	Bromodichloromethane	8900	U
78-87-5	1,2-Dichloropropane	8900	U
10061-01-5	cis-1,3-Dichloropropene	8900	U
79-01-6	Trichloroethene	24000	
124-48-1	Dibromochloromethane	8900	U
79-00-5	1,1,2-Trichloroethane	8900	U
71-43-2	Benzene	8900	U
10061-02-6	trans-1,3-Dichloropropene	8900	U
75-25-2	Bromoform	8900	U
108-10-1	4-Methyl-2-pentanone	8900	U
591-78-6	2-Hexanone	8900	U
127-18-4	Tetrachloroethene	1000000	EB
79-34-5	1,1,2,2-Tetrachloroethane	8900	U
108-88-3	Toluene	8900	U
108-90-7	Chlorobenzene	8900	U
100-41-4	Ethylbenzene	8900	U
100-42-5	Styrene	8900	U
1330-20-7	Xylene (total)	8900	U

BER014 S19

1F

EPA SAMPLE NO.

S-4 0-4 FT

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No.: _____ SDG No.: BER014

Matrix: (soil/water) SOIL Lab Sample ID: 0501688-002A

Sample wt/vol: 4 (g/mL) G Lab File ID: A\A40708.D

Level: (low/med) MED Date Received: 01/31/05

% Moisture: not dec. 29.9 Date Analyzed: 02/02/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 5.00

Soil Extract Volume: 10000 (µl) Soil Aliquot Volume: 100 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

BER014 S20

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S-4 0-4 FTDL

Lab Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No.: _____ SDG No.: BER014

Matrix: (soil/water) SOIL Lab Sample ID: 0501688-002ADL

Sample wt/vol: 4 (g/mL) G Lab File ID: A\A40726.D

Level: (low/med) MED Date Received: 01/31/05

% Moisture: not dec. 29.9 Date Analyzed: 02/03/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 100.00

Soil Extract Volume: 10000 (µL) Soil Aliquot Volume 100 (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg UG/KG	Q
74-87-3	Chloromethane	180000	U
74-83-9	Bromomethane	180000	U
75-01-4	Vinyl chloride	180000	U
75-00-3	Chloroethane	180000	U
75-09-2	Methylene chloride	180000	U
67-64-1	Acetone	180000	U
75-35-4	1,1-Dichloroethene	180000	U
75-15-0	Carbon disulfide	180000	U
75-34-3	1,1-Dichloroethane	180000	U
540-59-0	1,2-Dichloroethene (total)	180000	U
67-66-3	Chloroform	180000	U
107-06-2	1,2-Dichloroethane	180000	U
78-93-3	2-Butanone	180000	U
71-55-6	1,1,1-Trichloroethane	180000	U
56-23-5	Carbon tetrachloride	180000	U
75-27-4	Bromodichloromethane	180000	U
78-87-5	1,2-Dichloropropane	180000	U
10061-01-5	cis-1,3-Dichloropropene	180000	U
79-01-6	Trichloroethene	34000	DJ
124-48-1	Dibromochloromethane	180000	U
79-00-5	1,1,2-Trichloroethane	180000	U
71-43-2	Benzene	180000	U
10061-02-6	trans-1,3-Dichloropropene	180000	U
75-25-2	Bromoform	180000	U
108-10-1	4-Methyl-2-pentanone	180000	U
591-78-6	2-Hexanone	180000	U
127-18-4	Tetrachloroethene	1300000	D
79-34-5	1,1,2,2-Tetrachloroethane	180000	U
108-88-3	Toluene	180000	U
108-90-7	Chlorobenzene	180000	U
100-41-4	Ethylbenzene	180000	U
100-42-5	Styrene	180000	U
1330-20-7	Xylene (total)	180000	U

BER014 S21

1F

EPA SAMPLE NO.

S-4 0-4 FTDL

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No.: _____ SDG No.: BER014

Matrix: (soil/water) SOIL Lab Sample ID: 0501688-002ADL

Sample wt/vol: 4 (g/mL) G Lab File ID: A\A40726.D

Level: (low/med) MED Date Received: 01/31/05

% Moisture: not dec. 29.9 Date Analyzed: 02/03/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 100.00

Soil Extract Volume: 10000 (µl) Soil Aliquot Volume: 100 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S-5 0-4 FT

Lab Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BKR SAS No.: _____ SDG No.: BER014

Matrix: (soil/water) SOIL Lab Sample ID: 0501688-003A

Sample wt/vol: 4 (g/mL) G Lab File ID: A\A40718.D

Level: (low/med) MED Date Received: 01/31/05

% Moisture: not dec. 22.2 Date Analyzed: 02/02/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 2.50

Soil Extract Volume: 10000 (µL) Soil Aliquot Volume 100 (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg UG/KG	Q
74-87-3	Chloromethane	4000	U
74-83-9	Bromomethane	4000	U
75-01-4	Vinyl chloride	4000	U
75-00-3	Chloroethane	4000	U
75-09-2	Methylene chloride	4000	U
67-64-1	Acetone	4000	U
75-35-4	1,1-Dichloroethene	4000	U
75-15-0	Carbon disulfide	4000	U
75-34-3	1,1-Dichloroethane	4000	U
540-59-0	1,2-Dichloroethene (total)	42000	
67-66-3	Chloroform	4000	U
107-06-2	1,2-Dichloroethane	4000	U
78-93-3	2-Butanone	4000	U
71-55-6	1,1,1-Trichloroethane	4000	U
56-23-5	Carbon tetrachloride	4000	U
75-27-4	Bromodichloromethane	4000	U
78-87-5	1,2-Dichloropropane	4000	U
10061-01-5	cis-1,3-Dichloropropene	4000	U
79-01-6	Trichloroethene	17000	
124-48-1	Dibromochloromethane	4000	U
79-00-5	1,1,2-Trichloroethane	4000	U
71-43-2	Benzene	4000	U
10061-02-6	trans-1,3-Dichloropropene	4000	U
75-25-2	Bromoform	4000	U
108-10-1	4-Methyl-2-pentanone	4000	U
591-78-6	2-Hexanone	4000	U
127-18-4	Tetrachloroethene	51000	B
79-34-5	1,1,2,2-Tetrachloroethane	4000	U
108-88-3	Toluene	4000	U
108-90-7	Chlorobenzene	4000	U
100-41-4	Ethylbenzene	4000	U
100-42-5	Styrene	4000	U
1330-20-7	Xylene (total)	4000	U

BER014 S23

1F

EPA SAMPLE NO.

S-5 0-4 FT

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No.: _____ SDG No.: BER014

Matrix: (soil/water) SOIL Lab Sample ID: 0501688-003A

Sample wt/vol: 4 (g/mL) G Lab File ID: A\A40718.D

Level: (low/med) MED Date Received: 01/31/05

% Moisture: not dec. 22.2 Date Analyzed: 02/02/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 2.50

Soil Extract Volume: 10000 (µl) Soil Aliquot Volume: 100 (µL)

CONCENTRATION UNITS:

Number TICs found: 4 (µg/L or µg/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q
1.	straight-chain alkane (17.23)	17.23	2000	J
2.	branched alkane	18.12	2300	J
3.	straight-chain alkane (18.36)	18.36	3700	J
4.	straight-chain alkane (18.9)	18.90	2300	J

BER014 S24

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S-6 0-4 FT

Lab Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No.: _____ SDG No.: BER014

Matrix: (soil/water) SOIL Lab Sample ID: 0501688-004A

Sample wt/vol: 4 (g/mL) G Lab File ID: A\A40710.D

Level: (low/med) MED Date Received: 01/31/05

% Moisture: not dec. 36.9 Date Analyzed: 02/02/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 5.00

Soil Extract Volume: 10000 (µL) Soil Aliquot Volume 100 (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg UG/KG	Q
74-87-3	Chloromethane	9900	U
74-83-9	Bromomethane	9900	U
75-01-4	Vinyl chloride	9900	U
75-00-3	Chloroethane	9900	U
75-09-2	Methylene chloride	9900	U
67-64-1	Acetone	9900	U
75-35-4	1,1-Dichloroethene	9900	U
75-15-0	Carbon disulfide	9900	U
75-34-3	1,1-Dichloroethane	9900	U
540-59-0	1,2-Dichloroethene (total)	110000	
67-66-3	Chloroform	9900	U
107-06-2	1,2-Dichloroethane	9900	U
78-93-3	2-Butanone	9900	U
71-55-6	1,1,1-Trichloroethane	9900	U
56-23-5	Carbon tetrachloride	9900	U
75-27-4	Bromodichloromethane	9900	U
78-87-5	1,2-Dichloropropane	9900	U
10061-01-5	cis-1,3-Dichloropropene	9900	U
79-01-6	Trichloroethene	170000	
124-48-1	Dibromochloromethane	9900	U
79-00-5	1,1,2-Trichloroethane	9900	U
71-43-2	Benzene	9900	U
10061-02-6	trans-1,3-Dichloropropene	9900	U
75-25-2	Bromoform	9900	U
108-10-1	4-Methyl-2-pentanone	9900	U
591-78-6	2-Hexanone	9900	U
127-18-4	Tetrachloroethene	1600000	EB
79-34-5	1,1,2,2-Tetrachloroethane	9900	U
108-88-3	Toluene	9900	U
108-90-7	Chlorobenzene	9900	U
100-41-4	Ethylbenzene	9900	U
100-42-5	Styrene	9900	U
1330-20-7	Xylene (total)	9900	U

BER014 S25

1F

EPA SAMPLE NO.

S-6 0-4 FT

VOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No.: _____ SDG No.: BER014

Matrix: (soil/water) SOIL Lab Sample ID: 0501688-004A

Sample wt/vol: 4 (g/mL) G Lab File ID: A\A40710.D

Level: (low/med) MED Date Received: 01/31/05

% Moisture: not dec. 36.9 Date Analyzed: 02/02/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 5.00

Soil Extract Volume: 10000 (µl) Soil Aliquot Volume: 100 (µL)

CONCENTRATION UNITS:

Number TICs found: 10 (µg/L or µg/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q
1.		branched alkane (18.12)	18.12	7800	J
2.		branched alkane (18.36)	18.36	32000	J
3.		branched alkane (18.51)	18.51	10000	J
4.		straight-chain alkane (18.9)	18.90	26000	J
5.		branched alkane (19.16)	19.16	11000	J
6.		c3-subs_benzene	19.72	22000	J
7.		unknown cyclic	19.82	14000	J
8.		straight-chain alkane (20.2)	20.20	19000	J
9.		unknown hydrocarbon	20.40	7800	J
10.		unknown	20.64	11000	J

BER014 S26

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S-6 0-4 FTDL

Lab Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No.: _____ SDG No.: BER014

Matrix: (soil/water) SOIL Lab Sample ID: 0501688-004ADL

Sample wt/vol: 4 (g/mL) G Lab File ID: A\A40727.D

Level: (low/med) MED Date Received: 01/31/05

% Moisture: not dec. 36.9 Date Analyzed: 02/03/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 100.00

Soil Extract Volume: 10000 (µL) Soil Aliquot Volume 100 (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg UG/KG	Q
74-87-3	Chloromethane	200000	U
74-83-9	Bromomethane	200000	U
75-01-4	Vinyl chloride	200000	U
75-00-3	Chloroethane	200000	U
75-09-2	Methylene chloride	200000	U
67-64-1	Acetone	200000	U
75-35-4	1,1-Dichloroethene	200000	U
75-15-0	Carbon disulfide	200000	U
75-34-3	1,1-Dichloroethane	200000	U
540-59-0	1,2-Dichloroethene (total)	120000	DJ
67-66-3	Chloroform	200000	U
107-06-2	1,2-Dichloroethane	200000	U
78-93-3	2-Butanone	200000	U
71-55-6	1,1,1-Trichloroethane	200000	U
56-23-5	Carbon tetrachloride	200000	U
75-27-4	Bromodichloromethane	200000	U
78-87-5	1,2-Dichloropropane	200000	U
10061-01-5	cis-1,3-Dichloropropene	200000	U
79-01-6	Trichloroethene	190000	DJ
124-48-1	Dibromochloromethane	200000	U
79-00-5	1,1,2-Trichloroethane	200000	U
71-43-2	Benzene	200000	U
10061-02-6	trans-1,3-Dichloropropene	200000	U
75-25-2	Bromoform	200000	U
108-10-1	4-Methyl-2-pentanone	200000	U
591-78-6	2-Hexanone	200000	U
127-18-4	Tetrachloroethene	1800000	D
79-34-5	1,1,2,2-Tetrachloroethane	200000	U
108-88-3	Toluene	200000	U
108-90-7	Chlorobenzene	200000	U
100-41-4	Ethylbenzene	200000	U
100-42-5	Styrene	200000	U
1330-20-7	Xylene (total)	200000	U

BER014 S27

1F

EPA SAMPLE NO.

S-6 0-4 FTDL

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No.: _____ SDG No.: BER014

Matrix: (soil/water) SOIL Lab Sample ID: 0501688-004ADL

Sample wt/vol: 4 (g/mL) G Lab File ID: A\A40727.D

Level: (low/med) MED Date Received: 01/31/05

% Moisture: not dec. 36.9 Date Analyzed: 02/03/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 100.00

Soil Extract Volume: 10000 (µl) Soil Aliquot Volume: 100 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

5. SURROGATE SPIKE ANALYSIS RESULTS

5.1 VOLATILES

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: H2M LABS, INC. Contract: _____

Code: 10478 Case No.: BER SAS No.: _____ SDG No.: BER014

Level: (low/med) MED

	EPA SAMPLE NO.	SMC1 DCE #	SMC2 TOL #	SMC3 BFB #	OTHER	TOT OUT
01	VBLK020205	93	101	98		0
02	LFB020205	99	101	100		0
03	S-3 0-4 FT	93	100	101		0
04	S-4 0-4 FT	91	103	102		0
05	S-6 0-4 FT	93	101	107		0
06	MSB020205	94	102	99		0
07	S-4 0-4 FTDLMS	94	101	99		0
08	S-4 0-4 FTDLMSD	94	102	99		0
09	S-3 0-4 FTDL	94	101	98		0
10	S-5 0-4 FT	92	101	103		0
11	VBLK020305	95	101	97		0
12	S-4 0-4 FTDL	95	100	97		0
13	S-6 0-4 FTDL	97	101	100		0

			QC Limit
SMC 1	DCE	= 1,2-Dichloroethane-d4	(70-121)
SMC 2	TOL	= Toluene-d8	(84-138)
SMC 3	BFB	= 4-Bromofluorobenzene	(59-113)

Column to be used to flag recovery values

* Values outside of contract required QC limits

6. MATRIX SPIKE / MATRIX SPIKE DUPLICATE SUMMARY

6.1 VOLATILES

3B

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: H2M LABS, INC. Contract:

Lab Code: 10478 Case No.: BER SAS No.: SDG No.: BER014

Matrix Spike - EPA Sample No.: S-4 0-4 FT Level: (low/med) MED

COMPOUND	SPIKE ADDED (µg/Kg)	SAMPLE CONCENTRATION (µg/Kg)	MS CONCENTRATION (µg/Kg)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	890000	0	830000	94	59-172
Trichloroethene	890000	34000	850000	91	62-137
Benzene	890000	0	870000	98	66-142
Toluene	890000	0	930000	104	59-139
Chlorobenzene	890000	0	920000	103	60-133

COMPOUND	SPIKE ADDED (µg/Kg)	MSD CONCENTRATION (µg/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	890000	770000	87	8	22	59-172
Trichloroethene	890000	800000	85	7	24	62-137
Benzene	890000	830000	93	5	21	66-142
Toluene	890000	880000	99	5	21	59-139
Chlorobenzene	890000	880000	98	5	21	60-133

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits

Spike Recovery: 0 out of 10 outside limits

COMMENTS:

3A

SYSTEM MONITORING SPIKE RECOVERY

Lab Name: H2M LABS, INC. Contract:

Lab Code: 10478 Case No.: BER SAS No.: SDG No.: BER014

Sample ID LFB020205 Level: (low/med) MED

COMPOUND	SPIKE ADDED (µg/Kg)	SAMPLE CONCENTRATION (µg/Kg)	SPIKE CONCENTRATION (µg/Kg)	SPIKE % REC #	QC. LIMITS REC.
Chloromethane	6200	0	6400	102	33-149
Bromomethane	6200	0	6600	105	58-144
Vinyl chloride	6200	0	6100	98	20-164
Chloroethane	6200	0	6400	102	33-153
Methylene chloride	6200	0	6600	106	46-157
Acetone	6200	0	6000	96	50-187
1,1-Dichloroethene	6200	0	6200	99	65-142
Carbon disulfide	6200	0	6200	100	52-143
1,1-Dichloroethane	6200	0	6500	104	67-141
1,2-Dichloroethene (total)	12000	0	13000	105	57-150
Chloroform	6200	0	6600	106	68-140
1,2-Dichloroethane	6200	0	6700	107	65-147
2-Butanone	6200	0	6200	100	30-226
1,1,1-Trichloroethane	6200	0	6400	103	78-127
Carbon tetrachloride	6200	0	6300	101	70-136
Bromodichloromethane	6200	0	6700	107	78-137
1,2-Dichloropropane	6200	0	6800	108	81-132
cis-1,3-Dichloropropene	6200	0	6700	107	78-131
Trichloroethene	6200	0	6500	104	72-145
Dibromochloromethane	6200	0	6600	106	82-136
1,1,2-Trichloroethane	6200	0	6600	106	80-139
Benzene	6200	0	6600	105	71-142
trans-1,3-Dichloropropene	6200	0	6600	106	59-147
Bromoform	6200	0	6400	103	81-142
4-Methyl-2-pentanone	6200	0	6500	104	64-170
2-Hexanone	6200	0	6500	103	59-163
Tetrachloroethene	6200	210	6200	100	67-144
1,1,2,2-Tetrachloroethane	6200	0	6400	103	72-152
Toluene	6200	0	6600	106	83-129
Chlorobenzene	6200	0	6700	107	85-128

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Spike Recovery: 0 out of 33 outside limits

COMMENTS:

3A

SYSTEM MONITORING SPIKE RECOVERY

Lab Name: H2M LABS, INC. Contract:

Lab Code: 10478 Case No.: BER SAS No.: SDG No.: BER014

Sample ID LFB020205 Level: (low/med) MED

Ethylbenzene	6200	0	6600	105	80-129
Styrene	6200	0	6800	110	85-126
Xylene (total)	19000	0	21000	110	79-133

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Spike Recovery: 0 out of 33 outside limits

COMMENTS:

3A

SYSTEM MONITORING SPIKE RECOVERY

Lab Name: H2M LABS, INC. Contract:

Lab Code: 10478 Case No.: BER SAS No.: SDG No.: BER014

Sample ID MSB020205 Level: (low/med) MED

COMPOUND	SPIKE ADDED (µg/Kg)	SAMPLE CONCENTRATION (µg/Kg)	SPIKE CONCENTRATION (µg/Kg)	SPIKE % REC #	QC LIMITS REC.
1,1-Dichloroethene	6200	0	5200	84	59-172
Trichloroethene	6200	0	5100	82	62-137
Benzene	6200	0	5600	89	66-142
Toluene	6200	0	5800	93	59-139
Chlorobenzene	6200	0	5900	94	60-133

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Spike Recovery: 0 out of 5 outside limits

COMMENTS:

7. BLANK SUMMARY DATA AND RESULTS

7.1 VOLATILES

4A

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK020205

Lab Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No.: _____ SDG No.: BER014

Lab File ID: A\A40700.D Lab Sample ID: VBLK020205

Date Analyzed: 02/02/05 Time Analyzed: 12:20

GC Column: R-502.2 ID: .53 (mm) Heated Purge: (Y/N) N

Instrument ID: HP5971

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LFB020205	LFB020205	A\A40701.D	12:52
02	S-3 0-4 FT	0501688-001A	A\A40707.D	15:57
03	S-4 0-4 FT	0501688-002A	A\A40708.D	16:27
04	S-6 0-4 FT	0501688-004A	A\A40710.D	17:28
05	MSB020205	MSB020205	A\A40713.D	19:19
06	S-4 0-4 FTDLMS	0501688-002ADLMS	A\A40715.D	20:20
07	S-4 0-4 FTDLMSD	0501688-002ADLMSD	A\A40716.D	20:50
08	S-3 0-4 FTDL	0501688-001ADL	A\A40717.D	21:20
09	S-5 0-4 FT	0501688-003A	A\A40718.D	21:51

COMMENTS: _____

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK020205

Lab Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No.: _____ SDG No.: BER014

Matrix: (soil/water) SOIL Lab Sample ID: VBLK020205

Sample wt/vol: 4 (g/mL) G Lab File ID: A\A40700.D

Level: (low/med) MED Date Received:

% Moisture: not dec. Date Analyzed: 02/02/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: 10000 (µL) Soil Aliquot Volume 100 (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg UG/KG	Q
74-87-3	Chloromethane	1200	U
74-83-9	Bromomethane	1200	U
75-01-4	Vinyl chloride	1200	U
75-00-3	Chloroethane	1200	U
75-09-2	Methylene chloride	1200	U
67-64-1	Acetone	1200	U
75-35-4	1,1-Dichloroethene	1200	U
75-15-0	Carbon disulfide	1200	U
75-34-3	1,1-Dichloroethane	1200	U
540-59-0	1,2-Dichloroethene (total)	1200	U
67-66-3	Chloroform	1200	U
107-06-2	1,2-Dichloroethane	1200	U
78-93-3	2-Butanone	1200	U
71-55-6	1,1,1-Trichloroethane	1200	U
56-23-5	Carbon tetrachloride	1200	U
75-27-4	Bromodichloromethane	1200	U
78-87-5	1,2-Dichloropropane	1200	U
10061-01-5	cis-1,3-Dichloropropene	1200	U
79-01-6	Trichloroethene	1200	U
124-48-1	Dibromochloromethane	1200	U
79-00-5	1,1,2-Trichloroethane	1200	U
71-43-2	Benzene	1200	U
10061-02-6	trans-1,3-Dichloropropene	1200	U
75-25-2	Bromoform	1200	U
108-10-1	4-Methyl-2-pentanone	1200	U
591-78-6	2-Hexanone	1200	U
127-18-4	Tetrachloroethene	210	J
79-34-5	1,1,2,2-Tetrachloroethane	1200	U
108-88-3	Toluene	1200	U
108-90-7	Chlorobenzene	1200	U
100-41-4	Ethylbenzene	1200	U
100-42-5	Styrene	1200	U
1330-20-7	Xylene (total)	1200	U

1F

EPA SAMPLE NO.

VBLK020205

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No.: _____ SDG No.: BER014

Matrix: (soil/water) SOIL Lab Sample ID: VBLK020205

Sample wt/vol: 4 (g/mL) G Lab File ID: A\A40700.D

Level: (low/med) MED Date Received:

% Moisture: not dec. Date Analyzed: 02/02/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: 10000 (µl) Soil Aliquot Volume: 100 (µL)

Number TICs found: 0 CONCENTRATION UNITS: (µg/L or µg/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

4A

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK020305

Lab Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No.: _____ SDG No.: BER014

Lab File ID: A\A40722.D Lab Sample ID: VBLK020305

Date Analyzed: 02/03/05 Time Analyzed: 11:30

GC Column: R-502.2 ID: .53 (mm) Heated Purge: (Y/N) N

Instrument ID: HP5971

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	S-40-4 FTDL	0501688-002ADL	A\A40726.D	13:32
02	S-60-4 FTDL	0501688-004ADL	A\A40727.D	14:02

COMMENTS: _____

_____

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK020305

Lab Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No.: _____ SDG No.: BER014

Matrix: (soil/water) SOIL Lab Sample ID: VBLK020305

Sample wt/vol: 4 (g/mL) G Lab File ID: A\A40722.D

Level: (low/med) MED Date Received:

% Moisture: not dec. Date Analyzed: 02/03/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: 10000 (µL) Soil Aliquot Volume 10000 (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg UG/KG	Q
74-87-3	Chloromethane	1200	U
74-83-9	Bromomethane	1200	U
75-01-4	Vinyl chloride	1200	U
75-00-3	Chloroethane	1200	U
75-09-2	Methylene chloride	1200	U
67-64-1	Acetone	1200	U
75-35-4	1,1-Dichloroethene	1200	U
75-15-0	Carbon disulfide	1200	U
75-34-3	1,1-Dichloroethane	1200	U
540-59-0	1,2-Dichloroethene (total)	1200	U
67-66-3	Chloroform	1200	U
107-06-2	1,2-Dichloroethane	1200	U
78-93-3	2-Butanone	1200	U
71-55-6	1,1,1-Trichloroethane	1200	U
56-23-5	Carbon tetrachloride	1200	U
75-27-4	Bromodichloromethane	1200	U
78-87-5	1,2-Dichloropropane	1200	U
10061-01-5	cis-1,3-Dichloropropene	1200	U
79-01-6	Trichloroethene	1200	U
124-48-1	Dibromochloromethane	1200	U
79-00-5	1,1,2-Trichloroethane	1200	U
71-43-2	Benzene	1200	U
10061-02-6	trans-1,3-Dichloropropene	1200	U
75-25-2	Bromoform	1200	U
108-10-1	4-Methyl-2-pentanone	1200	U
591-78-6	2-Hexanone	1200	U
127-18-4	Tetrachloroethene	1200	U
79-34-5	1,1,2,2-Tetrachloroethane	1200	U
108-88-3	Toluene	1200	U
108-90-7	Chlorobenzene	1200	U
100-41-4	Ethylbenzene	1200	U
100-42-5	Styrene	1200	U
1330-20-7	Xylene (total)	1200	U

BER014 S41

1F

EPA SAMPLE NO.

VBLK020305

VOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No.: _____ SDG No.: BER014

Matrix: (soil/water) SOIL Lab Sample ID: VBLK020305

Sample wt/vol: 4 (g/mL) G Lab File ID: A\A40722.D

Level: (low/med) MED Date Received:

% Moisture: not dec. Date Analyzed: 02/03/05

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: 10000 (µl) Soil Aliquot Volume: 10000 (µL)

CONCENTRATION UNITS:

Number TICs found: 0 (µg/L or µg/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

BER014 S42

8. INTERNAL STANDARD AREA DATA

8.1 VOLATILES

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No.: _____ SDG No.: BER014

Lab File ID (Standard): A\A40698.D Date Analyzed: 02/02/05

EPA Sample No.(VSTD050##): VSTD050 Time Analyzed: 11:08

Instrument ID: HP5971 Heated Purge: (Y/N) N

GC Column: R-502.2 ID: .53 (mm)

		IS1 AREA #	RT #	IS2 DFB AREA #	RT #	IS3 CBZ AREA #	RT #
	12 HOUR STD	112679	11.49	582017	12.45	476584	17.6
	UPPER LIMIT	225358	11.99	1164034	12.95	953168	18.1
	LOWER LIMIT	56340	10.99	291009	11.95	238292	17.1
	EPA SAMPLE						
01	VBLK020205	103841	11.41	538751	12.38	434252	17.58
02	LFB020205	101965	11.45	528922	12.42	429652	17.58
03	S-3 0-4 FT	105219	11.47	535845	12.44	430172	17.58
04	S-4 0-4 FT	108715	11.42	554443	12.38	441442	17.58
05	S-6 0-4 FT	106770	11.43	546024	12.41	438682	17.58
06	MSB020205	109462	11.48	565052	12.44	452012	17.59
07	S-4 0-4 FTDLMS	109957	11.49	567293	12.45	454301	17.60
08	S-4 0-4 FTDLMSD	110231	11.42	558587	12.40	446688	17.58
09	S-3 0-4 FTDL	106165	11.45	549503	12.42	436738	17.59
10	S-5 0-4 FT	109342	11.44	560714	12.41	449201	17.58

IS1 = Bromochloromethane
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No.: _____ SDG No.: BER014

Lab File ID (Standard): A\A40721.D Date Analyzed: 02/03/05

EPA Sample No.(VSTD050##): VSTD050 Time Analyzed: 10:58

Instrument ID: HP5971 Heated Purge: (Y/N) N

GC Column: R-502.2 ID: .53 (mm)

		IS1 AREA #	RT #	IS2 DFB AREA #	RT #	IS3 CBZ AREA #	RT #
	12 HOUR STD	109232	11.4	552619	12.39	453620	17.58
	UPPER LIMIT	218464	11.9	1105238	12.89	907240	18.08
	LOWER LIMIT	54616	10.9	276310	11.89	226810	17.08
	EPA SAMPLE						
01	VBLK020305	106958	11.42	550134	12.39	441411	17.59
02	S-4 0-4 FTDL	108481	11.42	554298	12.41	447984	17.59
03	S-6 0-4 FTDL	105066	11.41	542530	12.40	430468	17.59

IS1 = Bromochloromethane
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

APPENDIX C

Correspondence

Berninger Environmental, Inc.
1615 Ninth Avenue • Bohemia • New York • 11716
Phone: 631 • 588 • 2251
Fax: 631 • 588 • 2926

TERMINAL ELECTRON ACCEPTORS

Client: American Drive-In Cleaners
1345Peninsula Blvd.
Hewlett, New York

Project: American Drive-in Cleaners
1345 Peninsula Blvd.
Hewlett, New York

Site N *o.* V-000616-1

Sample ID#: Boring
Matrix: Liguid
Collection Date: January 31, 2005
Analysis Date: February 01, 2005
Sample Origin: GW-7 Groundwater

Method		Compound Name	Method Range	Results	Units
8166	O_2	Dissolved Oxygen	0.3 to 15.0 mg/L	3.0	mg/L
8171	NO_3^-	Nitrate	0.1 to 10.0 mg/L	0.1	mg/L
8146	Fe^{2+}	Iron (II)	0.02 to 3.00 mg/L	3.00	mg/L
8051	SO_4^{2-}	Sulfate	2 to 70 mg/L	49	mg/L
8034	Mn	Maganese	0.2 to 20.0 mg/L	0.5	mg/L
GW-7	PH			5.9	ph
	Temperature			44.3	Celsius
	Conductivity			529.3	*(us)* cm
	Total Dissolved Solids			361.1	ppm
	Oxidation Reduction Potential			112	mV
GW-8	Ph			5.92	ph
	Temperature			45	Celsius
	Conductivity			678.6	(us) cm
	Total Dissolved Solids			453.8	ppm
	Oxidation Reduction Potential			70	mV

Analyzed By:

Analysis performed by a HACH Odyssey Model DR2500, Spectophotometer, Serial No. 010300000283.
and GeoTech ULTRAMETER Model 6P Cond , Res., TDS, ORP, PH & Temperture

Berninger Environmental, Inc.
groundwater consultants, engineers, geologists
1615 Ninth Avenue
Bohemia • New York • 11716
Phone: 631 • 588 • 2251
Fax: 631 • 588 • 2926

COPY

March 24, 2005

Larry Lampman, Project Manager
Eastern Remedial Bureau
Division of Environmental Remediation
New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12233

Re: Task 1 - - Voluntary Investigation Work Plan
American Drive-In Cleaners of Hewlett, Inc.
1345 Peninsula Boulevard, Hewlett, New York
Site No.: V-00616-1
Index No.: W1-0950-03-02

Dear Mr. Lampman:

Berninger Environmental, Inc., (BEI) respectfully submits the results of Task 2 - Soil Gas Sampling Investigation of the Voluntary Investigation Work Plan for the American Drive-In Dry Cleaners, Hewlett, New York facility referenced above. This interim letter on the soil gas findings is being submitted for New York State Department of Environmental Conservation's (NYSDEC's) and New York State Department of Health's (NYSDOH's) review to provide prompt communication of contaminated media identified during site investigation.

BEI sampled the soil gas at the sampling locations shown on the attached figure. The main objective of the soil gas investigation was to assist in an evaluation of the potential for migration of vapors into off-site locations. Locations were selected in concurrence with the approved work plan and as discussed in the field with the NYSDEC Remedial Bureau, Division of Environmental Remediation, Project Manager, Mr. Larry Lampman. Seven soil gas samples were collected in dedicated summa canisters in accordance with approved protocols for sample collection. The data has been reviewed for usability by a third party validator and has been qualified, as necessary.

As cited in the *NYSDOH Draft Guidance for Evaluating Soil Vapor Intrusion in the State of New York, February 2005*, New York State does not have any standards, criteria or guidance values for concentrations of compounds in subsurface vapors. In absence of these and/or available background levels, the NYSDOH suggests that the soil gas results be compared to the background or site-related outdoor air concentrations (see NYSDOH's database for background concentrations for volatile chemicals in outdoor air). A comparison of the soil gas sampling investigation results and the aforementioned NYSDOH guidelines is provided in the attached table.

As shown, tetrachloroethene and related degradation compounds and other volatile organic compounds (VOCs) are present at elevated concentrations relative to this comparative basis.

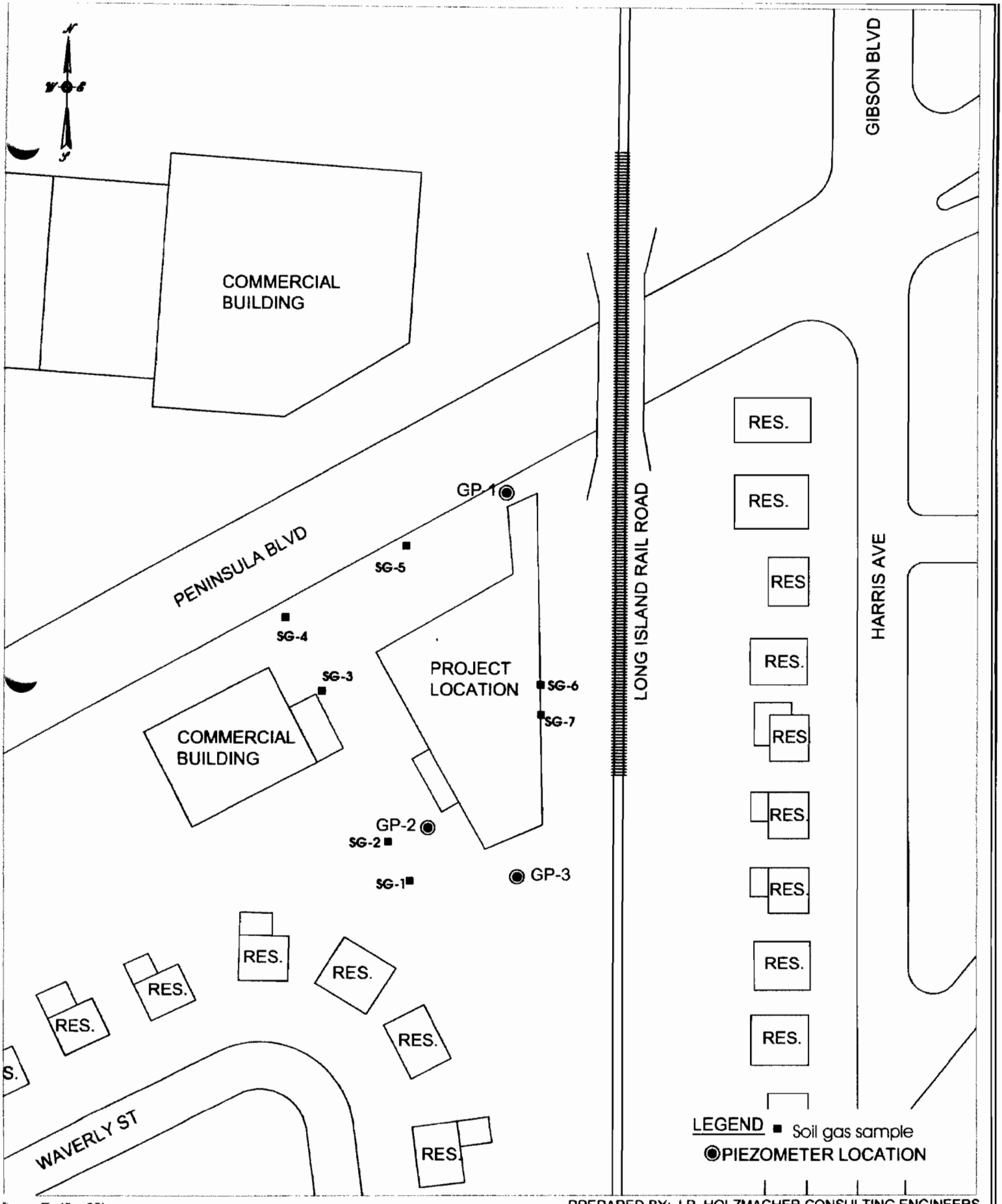
Please advise BEI of your opinion on this soil gas data at your earliest convenience. A report on the soil and groundwater data will be forthcoming after data validation and review. Please feel free to give this office a call if you have any questions.

Sincerely,
Berninger Environmental, Inc.

Walter Berninger
President

Jill Haimson, CGWP, PG
Senior Hydrogeologist

cc: Bertram Moreida
John Soderberg, P.E., Esq
Gary Litwin, NYSDOH



SCALE: 1" = 80'

PREPARED BY: J.R. HOLZMACHER CONSULTING ENGINEERS

PREPARED FOR:
BEI BERNINGER ENVIRONMENTAL, INC.
GROUNDWATER CONSULTANTS, ENGINEERS, GEOLOGISTS
1615 NINTH AVENUE
P.O. BOX 205
BOHEMIA, NEW YORK 11716
PHONE # (631) 588-2251
FAX # (631) 588-2926

TITLE:

AMERICAN DRIVE IN CLEANERS OF HEWLITT, INC.
1345 PENINSULA BLVD.
HEWLITT, NEW YORK

LOCATION MAP OF SOIL GAS SAMPLING

DWN:	VS:HS.:	DATE:	PROJECT NO.:
SRW	–	04/19/04	BRNEN 04-03
CHKD:	APPD:	REV.:	NOTES:
JRH	JRH	–	–

FIGURE NO.
1

VOLATILE ORGANICS EPA Compendium METHOD TO-15

erican Drive In Cleaners Peninsula Blvd, Hewlett NY
OG 104803

Berninger Sample ID:	SG-1	SG-2	SG-3	SG-4	SG-5	SG-6	SG-7	NYSDOH
Laboratory ID:	604508	604509	604510	604511	604512	604513	604514	Indoor Air
Sampling Date:	01/11	01/11	01/11	01/11	01/11	01/11	01/11	Concentration:
Volume Air Analyzed	200ml	200ml	200ml	200ml	200ml	200ml	100ml	Database
								1989 to 1996

| Cas # | Analyte | Units: | | | | | | | |

TABLE 1 - SUMMARY OF VOLATILE ORGANIC COMPOUNDS DETECTED (TO-15) IN SOIL GAS WITH COMPARISON TO NYSDOH DATABASE FOR OUTDOOR AIR

American Drive In Cleaners Peninsula Blvd, Hewlett NY
SDG 104803

Sample ID:	SG-1	SG-2	SG-3	SG-4	SG-5	SG-6	SG-7	NYSDOH
Laboratory ID:	604508	604509	604510	604511	604512	604513	604514	Indoor Air
Sampling Date:	01/11	01/11	01/11	01/11	01/11	01/11	01/11	Concentrations
Volume Air Analyzed	200ml	200ml	200ml	200ml	200ml	200ml	100ml	Database
								1989 to 1996

Cas #	Analyte	Units:													
75-71-8	Dichlorodifluoromethane	ug/m3	2.1		2.1		2.7		1.0	U	1.0	U	2.3		4.6		
76-14-2	1,2-Dichlorotetrafluoroethane	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	
74-87-3	Chloromethane	ug/m3	2.5	U	2.5	U	1.2	J	2.5	U	2.5	U	1.3		2.5		
75-01-4	Vinyl Chloride	ug/m3	1.0	U	**1.5**		**1.0**	**U**	**1.0**	**U**	**230**		**1.0**	**U**	**145**		**<1**
106-99-0	1,3-Butadiene	ug/m3	2.3		1.0	U	1.0	U	2.0		10.4		1.0	U	2.0	U	
74-83-9	Bromomethane	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	
75-00-3	Chloroethane	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	
593-60-2	Bromoethene	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	
75-69-4	Trichlorofluoromethane	ug/m3	1.3		1.1		1.2		1.0	U	1.0	U	1.2		2.2		
76-13-1	Freon TF	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	
75-35-4	1,1-Dichloroethene	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	2.5		1.0	U	4.4		**<3.4**
75-15-0	Carbon Disulfide	ug/m3	1.6		2.5	U	2.5	U	3.0		11.4		2.5	U	5.0	U	
107-05-1	3-Chloropropene	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	
75-09-2	Methylene Chloride	ug/m3	2.5	U	2.5	U	2.5	U	2.5	U	1.1		2.5	U	5.0	U	<1
156-60-5	trans-1,2-Dichloroethene	ug/m3	4.1		1.0	U	1.0	U	1.0	U	45.8		1.0	U	5.6		
110-54-3	n-Hexane	ug/m3	1.6		1.5		0.7	J	10.2		2.9		0.8	J	1.2	J	
75-34-3	1,1-Dichloroethane	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	<1
156-59-2	cis-1,2-Dichloroethene	ug/m3	**83.9**		1.0	U	1.0	U	1.0	U	**355.8**		**2.8**		**231.3**		**<1**
67-66-3	Chloroform	ug/m3	**6.6**		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	<2.4
71-55-6	1,1,1-Trichloroethane	ug/m3	**4.4**		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	**<2.0-2.8**
110-82-7	Cyclohexane	ug/m3	1.0	U	1.0	U	1.0	U	77.0		2.5		1.5		2.0	U	
56-23-5	Carbon Tetrachloride	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	<3.1
540-84-1	2,2,4-Trimethylpentane	ug/m3	0.8	J	0.8	J	0.5	J	1.0	U	1.7		1.0	U	2.0	U	
71-43-2	Benzene	ug/m3	3.2		2.2		1.7		4.6		4.6		1.2		1.9	J	<1.6 - 4.7
107-06-2	1,2-Dichloroethane	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	<1
142-82-5	n-Heptane	ug/m3	0.9	J	1.4		1.0	U	69.9		2.2		2.3		2.0	U	
79-01-6	Trichloroethene	ug/m3	**435.4**		1.0	U	1.0	U	1.0	U	**2.4**		1.0		**257.3**		**<1.7**
78-87-5	1,2-Dichloropropane	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	<1
75-27-4	Bromodichloromethane	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	<5.0
10061-01-5	cis-1,3-Dichloropropene	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	
108-88-3	Toluene	ug/m3	**30.7**		**16.5**		4.6		**383.3**		**3.6**		**69.0**		**5.8**		**1.0 - 6.1**
10061-02-6	trans-1,3-Dichloropropene	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	
79-00-5	1,1,2-Trichloroethane	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	<1
127-18-4	Tetrachloroethene	ug/m3	**6917**		2.1		1.0	U	**20.8**		**11.8**		**43.6**		**2282.0**		**<3.7**
124-48-1	Dibromochloromethane	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	<5.0
106-93-4	1,2-Dibromoethane	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	
108-90-7	Chlorobenzene	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	<2
100-41-4	Ethylbenzene	ug/m3	7.2		1.0		0.9	J	2.0		5.3		1.3		1.5	J	<4.3
1330-20-7	Xylene (m,p)	ug/m3	**33.6**		2.8		2.9		**7.1**		**21.2**		**4.9**		**5.7**		<4.3
95-47-6	Xylene (o)	ug/m3	**10.2**		1.2		1.1		2.1		**6.6**		1.6		1.9	J	<4.3
100-42-5	Styrene	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0		1.0	U	2.0	U	<1
75-25-2	Bromoform	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	<1
79-34-5	1,1,2,2-Tetrachloroethane	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	<1.5
622-96-8	4-Ethyltoluene	ug/m3	**11.4**		**1.1**		**1.1**		**1.4**		**4.8**		**1.4**		**2.2**		<1
108-67-8	1,3,5-Trimethylbenzene	ug/m3	**2.0**		1.0	U	1.0	U	1.0	U	1.0		1.0	U	2.0	U	<1
95-49-8	2-Chlorotoluene	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	
95-63-6	1,2,4-Trimethylbenzene	ug/m3	**10.5**		**1.0**		**1.1**		**1.4**		**4.4**		**1.5**		**2.4**		<1
541-73-1	1,3-Dichlorobenzene	ug/m3	1.0	U	1.0	U	1.0	U	**2.7**		**2.2**		1.0	U	2.0	U	<2
106-46-7	1,4-Dichlorobenzene	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	
95-50-1	1,2-Dichlorobenzene	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	
120-82-1	1,2,4-Trichlorobenzene	ug/m3	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	5.0	U	
87-68-3	Hexachlorobutadiene	ug/m3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	
	Total VOC Concentration (ug/m3)		**7571**		**36.3**		**19.7**		**587.5**		**735.2**		**137.7**		**2958**		

Note **NYSDOH Database for Background Concentrations of VOCs in Outdoor Air 1989-1996.**



New York State Department of
Environmental Conservation

Spill Incidents Database Search

More information:

Environmental Remediation Databases
Glossary of Spills Database Terms

More searches:
New Spill Incidents Search

Other Links of Interest...

Spill Record

Administrative Information

DEC Region: 1
Spill Number: 0425140

Spill Date/Time

Spill Date: 06/29/2004 **Spill Time:** 11:15 AM
Call Received Date: 06/29/2004 **Call Received Time:** 11:15 AM

Location

Spill Name: SUNOCO S/S
Address: 1291 PENINSULA BLVD
City: HEWLETT **County:** Nassau

Spill Description

Material Spilled:	Amount Spilled:
Gasoline	0 Gal.

Cause: Equipment Failure
Source: Gasoline Station
Resource Affected: Soil
Waterbody:

Record Close

Region Close Date: Not closed

If you have questions about this reported incident, please contact the Regional Office where the incident occurred.

Other Links of Interest

Information about the Spill Response and Remediation Program
Phone Numbers for Spill Response and Remediation



New York State Department of
Environmental Conservation

Spill Incidents Database Search

More information:

Environmental Remediation Databases
Glossary of Spills Database Terms

More searches:
New Spill Incidents Search

Other Links of Interest...

Spill Record

Administrative Information

DEC Region: 1
Spill Number: 0306046

Spill Date/Time

Spill Date: 09/08/2003 **Spill Time:** 09:00 AM
Call Received Date: 09/08/2003 **Call Received Time:** 09:10 AM

Location

Spill Name: HSBC BANK
Address: 1315 PENINSULA BLVD
City: HEWLETT **County:** Nassau

Spill Description

Material Spilled:
#2 Fuel Oil

Amount Spilled:
0 Gal.

Cause: Equipment Failure
Source: Commercial/Industrial
Resource Affected: Soil
Waterbody:

Record Close

Region Close Date: Not closed

If you have questions about this reported incident, please contact the Regional Office where the incident occurred.

Other Links of Interest

Information about the Spill Response and Remediation Program
Phone Numbers for Spill Response and Remediation

From "Kimberly J. Simone" <ksimone@H2M.com>

Sent Thursday, June 2, 2005 3:46 pm

To "Waltb (E-mail)" <waltb@optonline.net> , "preferredEnv (E-mail)" <preferredEnv@aol.com>

Cc Jennifer Aracri <Aracri@H2M.com> , Joann Slavin <Slavin@H2M.com> , Jon Weissberg <Weissberg@H2M.com> , Noranne Saager <Saager@H2M.com>

Bcc

Subject American Cleaners- Kingston, NY SDG:BER018

Print E-mail

Attachments BER018.xls 120K

American Cleaners- Kingston, NY SDG:BER018

Attached please find the excel spreadsheet EDD for the above SDG.

If you have any questions, please do not hesitate to contact us.

<<BER018.xls>>
Kimberly Simone
Package Production Coordinator
H2M Labs, Inc.
(631) 694-3040 ext. 1230
Fax: (631) 420-8436
ksimone@H2M.com

Berninger Environmental, Inc.
1615 Ninth Avenue • Bohemia • New York • 11716
Phone: 631 • 588 • 2251
Fax: 631 • 588 • 2926

TERMINAL ELECTRON ACCEPTORS

Client: American Drive-In Cleaners
1345Peninsula Blvd.
Hewlett, New York

Project: American Drive-in Cleaners
1345 Peninsula Blvd.
Hewlett, New York

Site N *o.* V-000616-1

Sample ID#: Boring
Matrix: Liguid
Collection Date: January 31, 2005
Analysis Date: February 01, 2005
Sample Origin: GW-7 Groundwater

Method	Compound Name		Method Range	Results	Units
8166	O_2	**Dissolved Oxygen**	0.3 to 15.0 mg/L	3.0	mg/L
8171	NO_3^-	**Nitrate**	0.1 to 10.0 mg/L	0.1	mg/L
8146	Fe^{2+}	**Iron (II)**	0.02 to 3.00 mg/L	3.00	mg/L
8051	SO_4^{2-}	**Sulfate**	2 to 70 mg/L	49	mg/L
8034	Mn	**Maganese**	0.2 to 20.0 mg/L	0.5	mg/L
GW-7	**PH**			5.9	ph
	Temperature			44.3	Celsius
	Conductivity			529.3	(us) cm
	Total Dissolved Solids			361.1	ppm
	Oxidation Reduction Potential			112	mV
GW-8	**Ph**			5.92	ph
	Temperature			45	Celsius
	Conductivity			678.6	(us) cm
	Total Dissolved Solids			453.8	ppm
	Oxidation Reduction Potential			70	mV

Analyzed By: Walter Berninger

Analysis performed by a HACH Odyssey Model DR2500, Spectophotometer, Serial No. 010300000283.
and GeoTech ULTRAMETER Model 6P Cond., Res., TDS, ORP, PH & Temperture

Berninger Environmental, Inc.

groundwater consultants, engineers, geologists

1615 Ninth Avenue
Bohemia • New York • 11716

Phone: 631 • 588 • 2251
Fax: 631 • 588 • 2926

COPY

March 24, 2005

Larry Lampman, Project Manager
Eastern Remedial Bureau
Division of Environmental Remediation
New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12233

Re: Task 1 - - Voluntary Investigation Work Plan
American Drive-In Cleaners of Hewlett, Inc.
1345 Peninsula Boulevard, Hewlett, New York
Site No.: V-00616-1
Index No.: W1-0950-03-02

Dear Mr. Lampman:

Berninger Environmental, Inc., (BEI) respectfully submits the results of Task 2 - Soil Gas Sampling Investigation of the Voluntary Investigation Work Plan for the American Drive-In Dry Cleaners, Hewlett, New York facility referenced above. This interim letter on the soil gas findings is being submitted for New York State Department of Environmental Conservation's (NYSDEC's) and New York State Department of Health's (NYSDOH's) review to provide prompt communication of contaminated media identified during site investigation.

BEI sampled the soil gas at the sampling locations shown on the attached figure. The main objective of the soil gas investigation was to assist in an evaluation of the potential for migration of vapors into off-site locations. Locations were selected in concurrence with the approved work plan and as discussed in the field with the NYSDEC Remedial Bureau, Division of Environmental Remediation, Project Manager, Mr. Larry Lampman. Seven soil gas samples were collected in dedicated summa canisters in accordance with approved protocols for sample collection. The data has been reviewed for usability by a third party validator and has been qualified, as necessary.

As cited in the *NYSDOH Draft Guidance for Evaluating Soil Vapor Intrusion in the State of New York, February 2005*, New York State does not have any standards, criteria or guidance values for concentrations of compounds in subsurface vapors. In absence of these and/or available background levels, the NYSDOH suggests that the soil gas results be compared to the background or site-related outdoor air concentrations (see NYSDOH's database for background concentrations for volatile chemicals in outdoor air). A comparison of the soil gas sampling investigation results and the aforementioned NYSDOH guidelines is provided in the attached table.

As shown, tetrachloroethene and related degradation compounds and other volatile organic compounds (VOCs) are present at elevated concentrations relative to this comparative basis.

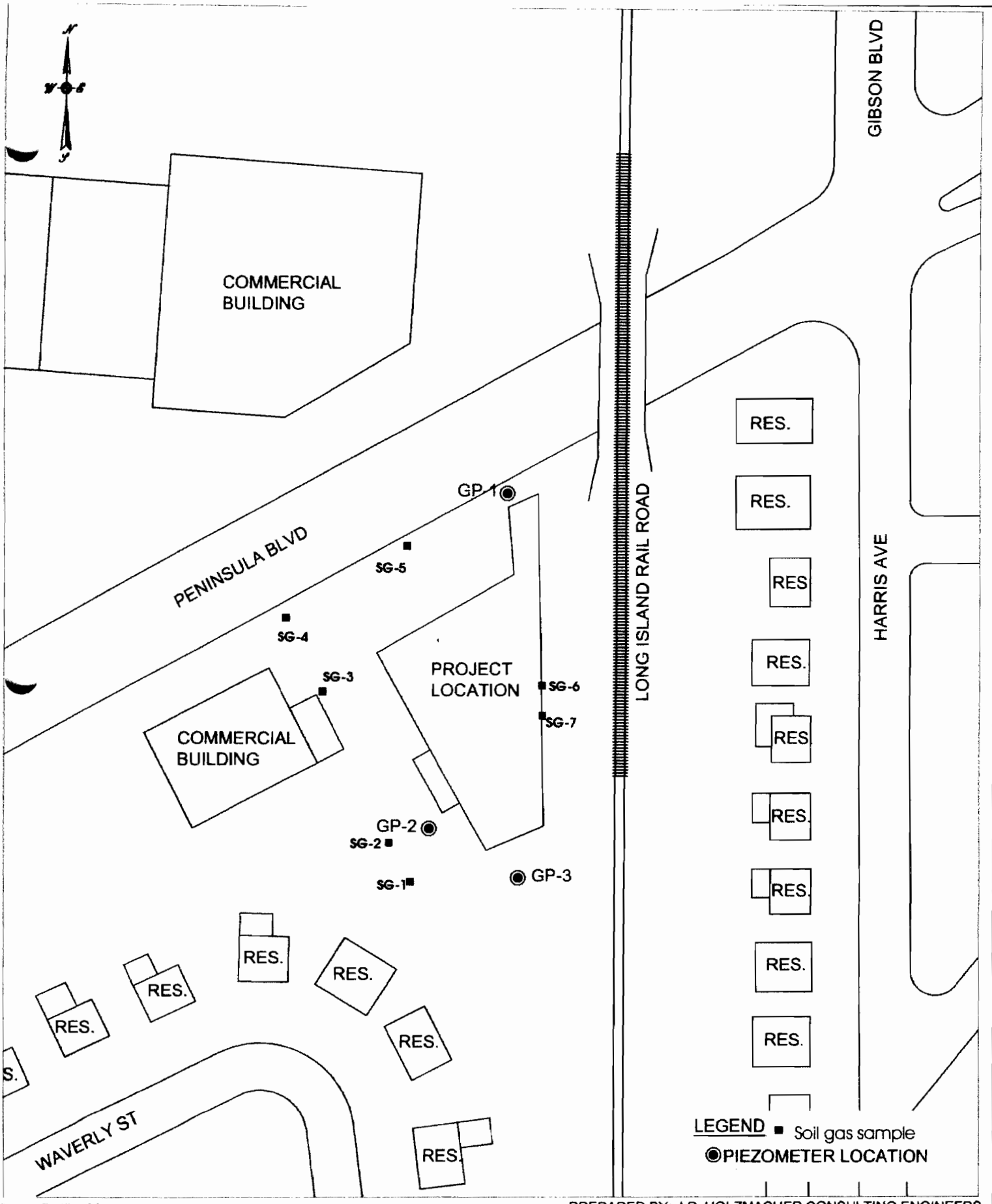
Please advise BEI of your opinion on this soil gas data at your earliest convenience. A report on the soil and groundwater data will be forthcoming after data validation and review. Please feel free to give this office a call if you have any questions.

Sincerely,
Berlinger Environmental, Inc.

Walter Berninger
President

Jill Haimson, CGWP, PG
Senior Hydrogeologist

cc: Bertram Moreida
John Soderberg, P.E., Esq
Gary Litwin, NYSDOH



LE: 1" = 80'

PREPARED BY: J.R. HOLZMACHER CONSULTING ENGINEERS

PREPARED FOR:
BEi BERNINGER ENVIRONMENTAL, INC.
GROUNDWATER CONSULTANTS, ENGINEERS, GEOLOGISTS
1615 NINTH AVENUE
P.O. BOX 205
BOHEMIA, NEW YORK 11716
PHONE # (631) 588-2251
FAX # (631) 588-2926

TITLE:

AMERICAN DRIVE IN CLEANERS OF HEWLITT, INC.
1345 PENINSULA BLVD.
HEWLITT, NEW YORK

LOCATION MAP OF SOIL GAS SAMPLING

DWN:	VS:HS.:	DATE:	PROJECT NO.:
SRW	–	04/19/04	BRNEN 04-03
CHKD:	APPD:	REV.:	NOTES:
JRH	JRH	–	–

FIGURE NO.: 1

VOLATILE ORGANICS EPA Compendium METHOD TO-15

nerican Drive In Cleaners Peninsula Blvd, Hewlett NY
DG 104803

Berninger Sample ID:	SG-1	SG-2	SG-3	SG-4	SG-5	SG-6	SG-7	NYSDOH
Laboratory ID:	604508	604509	604510	604511	604512	604513	604514	Indoor Air
Sampling Date:	01/11	01/11	01/11	01/11	01/11	01/11	01/11	Concentration:
Volume Air Analyzed	200ml	200ml	200ml	200ml	200ml	200ml	100ml	Database
								1989 to 1996

Cas #	Analyte	Units:													
75-71-8	Dichlorodifluoromethane	ppbv	0.60		0.60		0.76		0.50	U	0.50	U	0.84		1.3		
76-14-2	1,2-Dichlorotetrafluoroethane	ppbv	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.40	U	
74-87-3	Chloromethane	ppbv	0.50	U	0.50	U	0.57		0.50	U	0.20	U	0.64		1.2		
75-01-4	Vinyl Chloride	ppbv	0.20	U	0.58		0.20	U	0.20	U	89		0.20	U	56		<1
106-99-0	1,3-Butadiene	ppbv	1.0		0.20	U	0.20	U	0.89		4.6		0.20	U	0.40	U	
74-83-9	Bromomethane	ppbv	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.40	U	
75-00-3	Chloroethane	ppbv	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.40	U	
593-60-2	Bromoethene	ppbv	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.40	U	
75-69-4	Trichlorofluoromethane	ppbv	0.32		0.27		0.28		0.20	U	0.20	U	0.28		0.53		
76-13-1	Freon TF	ppbv	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.40	U	
75-35-4	1,1-Dichloroethene	ppbv	0.20	U	0.20	U	0.20	U	0.20	U	0.62		0.20	U	1.1		<1
75-15-0	Carbon Disulfide	ppbv	0.50		0.50	U	0.50	U	0.98		3.6		0.50	U	1.0	U	
107-05-1	3-Chloropropene	ppbv	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.40	U	
75-09-2	Methylene Chloride	ppbv	0.50	U	0.50	U	0.50	U	0.50	U	0.56		0.50	U	1.0	U	<1
156-60-5	trans-1,2-Dichloroethene	ppbv	1.8		0.20	U	0.20	U	0.20	U	18		0.20	U	2.2		
110-54-3	n-Hexane	ppbv	0.69		0.64		0.30		4.2		1.2		0.35		0.50		
75-34-3	1,1-Dichloroethane	ppbv	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.40	U	<1
156-59-2	cis-1,2-Dichloroethene	ppbv	33		0.20	U	0.20	U	0.20	U	140		1.1		91		<1
67-66-3	Chloroform	ppbv	1.9		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.40	U	<2.4
71-55-6	1,1,1-Trichloroethane	ppbv	0.31		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.40	U	<2.0-2.8
110-82-7	Cyclohexane	ppbv	0.20	U	0.20	U	0.20	U	22		0.71		0.42		0.40	U	
56-23-5	Carbon Tetrachloride	ppbv	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.40	U	<3.1
540-84-1	2,2,4-Trimethylpentane	ppbv	0.33		0.34		0.20		0.20	U	0.70		0.20	U	0.40	U	
71-43-2	Benzene	ppbv	0.99		0.69		0.51		1.4		1.4		0.36		0.58		<1.6 - 4.7
107-06-2	1,2-Dichloroethane	ppbv	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.40	U	<1
142-82-5	n-Heptane	ppbv	0.50		0.77		0.20	U	39		1.2		1.3		0.40	U	
79-01-6	Trichloroethene	ppbv	110		0.20	U	0.20	U	0.20	U	0.61		0.25		65		<1.7
78-87-5	1,2-Dichloropropane	ppbv	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.40	U	<1
75-27-4	Bromodichloromethane	ppbv	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.40	U	<5.0
10061-01-5	cis-1,3-Dichloropropene	ppbv	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.40	U	
108-88-3	Toluene	ppbv	8.0		4.3		1.2		100	J	0.95		18		1.5		1.0 - 6.1
10061-02-6	trans-1,3-Dichloropropene	ppbv	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.40	U	
79-00-5	1,1,2-Trichloroethane	ppbv	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.40	U	<1
127-18-4	Tetrachloroethene	ppbv	1000		0.31		0.20	U	3.0		1.7		6.3		330		<3.7
124-48-1	Dibromochloromethane	ppbv	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.40	U	<5.0
106-93-4	1,2-Dibromoethane	ppbv	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.40	U	
108-90-7	Chlorobenzene	ppbv	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.40	U	<2
100-41-4	Ethylbenzene	ppbv	1.9		0.26		0.25		0.54		1.4		0.34		0.40		<4.3
1330-20-7	Xylene (m,p)	ppbv	7.6		0.64		0.65		1.6		4.8		1.1		1.3		<4.3
95-47-6	Xylene (o)	ppbv	2.3		0.28		0.25		0.48		1.5		0.37		0.43		<4.3
100-42-5	Styrene	ppbv	0.20	U	0.20	U	0.20	U	0.20	U	0.22		0.20	U	0.40	U	<1
75-25-2	Bromoform	ppbv	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.40	U	<1
79-34-5	1,1,2,2-Tetrachloroethane	ppbv	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.40	U	<1.5
622-96-8	4-Ethyltoluene	ppbv	2.6		0.25		0.26		0.32		1.1		0.33		0.50		<1
108-67-8	1,3,5-Trimethylbenzene	ppbv	0.45		0.20	U	0.20	U	0.20	U	0.23		0.20	U	0.40	U	<1
95-49-8	2-Chlorotoluene	ppbv	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.40	U	<2
95-63-6	1,2,4-Trimethylbenzene	ppbv	2.4		0.23		0.26		0.32		1.0		0.35		0.54		
541-73-1	1,3-Dichlorobenzene	ppbv	0.20	U	0.20	U	0.20	U	0.45		0.36		0.20	U	0.40	U	<2
106-46-7	1,4-Dichlorobenzene	ppbv	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.40	U	
95-50-1	1,2-Dichlorobenzene	ppbv	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.40	U	
120-82-1	1,2,4-Trichlorobenzene	ppbv	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	1.0	U	
87-68-3	Hexachlorobutadiene	ppbv	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.40	U	
	Total VOC Concentration (ppbv)		1177		10.2		5.5		175		275		32.1		554		

TABLE 1 - SUMMARY OF VOLATILE ORGANIC COMPOUNDS DETECTED (TO-15) IN SOIL GAS WITH COMPARISON TO NYSDOH DATABASE FOR OUTDOOR AIR

American Drive In Cleaners Peninsula Blvd, Hewlett NY									
SDG 104803									
Berninger Sample ID:		SG-1	SG-2	SG-3	SG-4	SG-5	SG-6	SG-7	NYSDOH
Laboratory ID:		604508	604509	604510	604511	604512	604513	604514	Indoor Air
Sampling Date:		01/11	01/11	01/11	01/11	01/11	01/11	01/11	Concentrations
Volume Air Analyzed		200ml	200ml	200ml	200ml	200ml	200ml	100ml	Database
									1989 to 1996
Cas #	Analyte	Units:							
75-71-8	Dichlorodifluoromethane	ug/m3	2.1	2.1	2.7	1.0 U	1.0 U	2.3	4.6	
76-14-2	1,2-Dichlorotetrafluoroethane	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	
74-87-3	Chloromethane	ug/m3	2.5 U	2.5 U	1.2 J	2.5 U	2.5 U	1.3	2.5	
75-01-4	Vinyl Chloride	ug/m3	1.0 U	**1.5**	**1.0 U**	**1.0 U**	**230**	**1.0 U**	**145**	**<1**
106-99-0	1,3-Butadiene	ug/m3	2.3	1.0 U	1.0 U	2.0	10.4	1.0 U	2.0 U	
74-83-9	Bromomethane	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	
75-00-3	Chloroethane	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	
593-60-2	Bromoethene	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	
75-69-4	Trichlorofluoromethane	ug/m3	1.3	1.1	1.2	1.0 U	1.0 U	1.2	2.2	
76-13-1	Freon TF	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	
75-35-4	1,1-Dichloroethene	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	2.5	1.0 U	4.4	**<3.4**
75-15-0	Carbon Disulfide	ug/m3	1.6	2.5 U	2.5 U	3.0	11.4	2.5 U	5.0 U	
107-05-1	3-Chloropropene	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	
75-09-2	Methylene Chloride	ug/m3	2.5 U	2.5 U	2.5 U	2.5 U	1.1	2.5 U	5.0 U	<1
156-60-5	trans-1,2-Dichloroethene	ug/m3	4.1	1.0 U	1.0 U	1.0 U	45.8	1.0 U	5.6	
110-54-3	n-Hexane	ug/m3	1.6	1.5	0.7 J	10.2	2.9	0.8 J	1.2 J	
75-34-3	1,1-Dichloroethane	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	<1
156-59-2	cis-1,2-Dichloroethene	ug/m3	**83.9**	1.0 U	1.0 U	1.0 U	**355.8**	**2.8**	**231.3**	**<1**
67-66-3	Chloroform	ug/m3	**6.6**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	<2.4
71-55-6	1,1,1-Trichloroethane	ug/m3	**4.4**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	**<2.0-2.8**
110-82-7	Cyclohexane	ug/m3	1.0 U	1.0 U	1.0 U	77.0	2.5	1.5	2.0 U	
56-23-5	Carbon Tetrachloride	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	<3.1
540-84-1	2,2,4-Trimethylpentane	ug/m3	0.8 J	0.8 J	0.5 J	1.0 U	1.7	1.0 U	2.0 U	
71-43-2	Benzene	ug/m3	3.2	2.2	1.7	4.6	4.6	1.2	1.9 J	<1.6 - 4.7
107-06-2	1,2-Dichloroethane	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	<1
142-82-5	n-Heptane	ug/m3	0.9 J	1.4	1.0 U	69.9	2.2	2.3	2.0 U	
79-01-6	Trichloroethene	ug/m3	**435.4**	1.0 U	1.0 U	1.0 U	**2.4**	1.0	**257.3**	**<1.7**
78-87-5	1,2-Dichloropropane	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	<1
75-27-4	Bromodichloromethane	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	<5.0
10061-01-5	cis-1,3-Dichloropropene	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	
108-88-3	Toluene	ug/m3	**30.7**	**16.5**	4.6	**383.3**	3.6	**69.0**	**5.8**	**1.0 - 6.1**
10061-02-6	trans-1,3-Dichloropropene	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	
79-00-5	1,1,2-Trichloroethane	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	<1
127-18-4	Tetrachloroethene	ug/m3	**6917**	2.1	1.0 U	**20.8**	**11.8**	**43.6**	**2282.0**	**<3.7**
124-48-1	Dibromochloromethane	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	<5.0
106-93-4	1,2-Dibromoethane	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	
108-90-7	Chlorobenzene	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	<2
100-41-4	Ethylbenzene	ug/m3	7.2	1.0	0.9 J	2.0	5.3	1.3	1.5 J	<4.3
1330-20-7	Xylene (m,p)	ug/m3	**33.6**	2.6	2.9	**7.1**	**21.2**	**4.9**	**5.7**	<4.3
95-47-6	Xylene (o)	ug/m3	**10.2**	1.2	1.1	2.1	**6.6**	1.6	1.9 J	<4.3
100-42-5	Styrene	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0	1.0 U	2.0 U	<1
75-25-2	Bromoform	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	<1
79-34-5	1,1,2,2-Tetrachloroethane	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	<1.5
622-96-8	4-Ethyltoluene	ug/m3	**11.4**	**1.1**	**1.1**	**1.4**	**4.8**	**1.4**	**2.2**	<1
108-67-8	1,3,5-Trimethylbenzene	ug/m3	**2.0**	1.0 U	1.0 U	1.0 U	1.0	1.0 U	2.0 U	<1
95-49-8	2-Chlorotoluene	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	
95-63-6	1,2,4-Trimethylbenzene	ug/m3	**10.5**	**1.0**	**1.1**	**1.4**	**4.4**	**1.5**	**2.4**	<1
541-73-1	1,3-Dichlorobenzene	ug/m3	1.0 U	1.0 U	1.0 U	**2.7**	**2.2**	1.0 U	2.0 U	<2
106-46-7	1,4-Dichlorobenzene	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	
95-50-1	1,2-Dichlorobenzene	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	
120-82-1	1,2,4-Trichlorobenzene	ug/m3	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	5.0 U	
87-68-3	Hexachlorobutadiene	ug/m3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	
	Total VOC Concentration (ug/m3)		**7571**	**36.3**	**19.7**	**587.5**	**735.2**	**137.7**	**2958**	

Note: **NYSDOH Database for Background Concentrations of VOCs in Outdoor Air 1989-1996.**



New York State Department of
Environmental Conservation

Spill Incidents Database Search

More information:

Environmental Remediation Databases
Glossary of Spills Database Terms

More searches:
New Spill Incidents Search

Other Links of Interest...

Spill Record

Administrative Information

DEC Region: 1
Spill Number: 0425140

Spill Date/Time

Spill Date: 06/29/2004 **Spill Time:** 11:15 AM
Call Received Date: 06/29/2004 **Call Received Time:** 11:15 AM

Location

Spill Name: SUNOCO S/S
Address: 1291 PENINSULA BLVD
City: HEWLETT **County:** Nassau

Spill Description

Material Spilled:	Amount Spilled:
Gasoline	0 Gal.

Cause: Equipment Failure
Source: Gasoline Station
Resource Affected: Soil
Waterbody:

Record Close

Region Close Date: Not closed

If you have questions about this reported incident, please contact the Regional Office where the incident occurred.

Other Links of Interest

Information about the Spill Response and Remediation Program
Phone Numbers for Spill Response and Remediation



New York State Department of
Environmental Conservation

Spill Incidents Database Search

More information:

Environmental Remediation Databases
Glossary of Spills Database Terms

More searches:
New Spill Incidents Search

Other Links of Interest...

Spill Record

Administrative Information

DEC Region: 1
Spill Number: 0306046

Spill Date/Time

Spill Date: 09/08/2003 **Spill Time:** 09:00 AM
Call Received Date: 09/08/2003 **Call Received Time:** 09:10 AM

Location

Spill Name: HSBC BANK
Address: 1315 PENINSULA BLVD
City: HEWLETT **County:** Nassau

Spill Description

Material Spilled:	Amount Spilled:
#2 Fuel Oil	0 Gal.

Cause: Equipment Failure
Source: Commercial/Industrial
Resource Affected: Soil
Waterbody:

Record Close

Region Close Date: Not closed

If you have questions about this reported incident, please contact the Regional Office where the incident occurred.

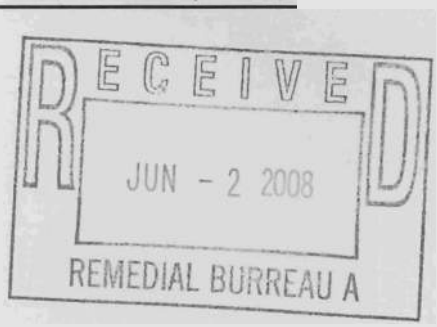
Other Links of Interest

Information about the Spill Response and Remediation Program
Phone Numbers for Spill Response and Remediation

Berninger Environmental, Inc.

groundwater consultants and geologists
90 - B Knickerbocker Avenue
Bohemia • New York • 11716

Phone: 631 • 589 • 6521
Fax: 631 • 589 • 6528



May 22, 2008

Mr. Mark Bufalini
Project Manager
New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 11th Floor
Albany, New York 12233-7015

Re: American Drive-In Cleaners of Hewlett, Inc.
1345 Peninsula Boulevard
Hewlett, New York

Dear Mr. Bufalini:

Berninger Environmental, Inc. (BEI) is providing a summary report on behalf of our client, American Drive-In Cleaners of Hewlett, Inc., for soil vapor samples collected from the rear of three homes located adjacent to the dry cleaners on January 29, 2008.

Background

Berninger Environmental, Inc., under the direction of the New York State Department of Health (NYSDOH), and the NYSDEC obtained these soil gas samples to help assess whether the environmental contamination from operations at the dry cleaner (American Drive-In Cleaners) located at 1345 Peninsula Boulevard, Hewlett, New York has the potential to affect indoor air quality at three homes, located at 1310 Waverly Avenue (SG-1A), 1314 Waverly Avenue (SG-2A) and 1316 Waverly Avenue (SG-3A), Hewlett, New York.

Soil Vapor Migration Study

The three soil gas sampling locations (see attached figure) were installed to collect soil vapor samples in accordance with the February 2005 Draft New York State Department of Health(NYSDOH) "Guidance for Evaluating Soil Vapor Intrusion in the State of New York" protocols (revised 2006).

A hand operated direct drilling system (Geoprobe) was used to implant soil vapor sampling probes to the depths representative of potential vapor movement relative to the adjacent residence. However, at these properties groundwater is very shallow, less than four feet below grade surface (bgs), necessitating a completion of less than 5 feet bgs. Specifically, the Geoprobe equipped with Post-Run Tubing System (PRT), an expendable tip and teflon tubing was used to collect discrete soil gas samples from below grade at a depth of 2.5-3 ft bgs.

After setting up a sealed penetration using hydraulic cement around the top of the PRT, the area around the soil gas sample collection point was encompassed by a plastic container for the introduction of a helium tracer gas. Helium was introduced via a tubing penetration into the plastic container as a tracer gas in order to quantify that no circumvention of air is occurring.

Subsequent to the introduction of helium tracer gas, the annular space was purged a minimum of one to three volumes of soil gas using a personal sampling pump. During purging and sampling, the flow rate did not exceed 0.2 liters per minute. A pre-set regulator and dedicated summa cannister were used to procure the soil gas

sample. Again, the regulator used had a flow rate less than 0.2 liters per minute. Sufficient volume was collected to achieve the detection limits required to evaluate the data relative to the guidelines issued by the NYSDOH.

As specified by the NYSDEC, an ambient air sample was also collected. The ambient outdoor air sample was collected at a representative breathing height (3 to 5 feet above grade), at an upwind location - see attached figure. The ambient air regulator was set to obtain approximately four hours of sampling time; the vacuum readings required that the testing be stopped prior to four hours to ensure that a negative pressure remained. Direct field readings were performed for helium tracer to ensure that the soil gas vapor sample was not compromised due to exterior air circumvention. A sample is considered to be valid if <20 percent tracer gas is present.

After the required pressure changes were observed on the canister gauge, the canister was sealed, and packaged for transport. The field sampling team maintained the following sample log sheet which summarized the following:

a. sample identification,
b. date and time of sample collection,
c. sampling depth,
d. identity of samplers,
e. sampling methods and devices,
f. purge volumes,
g. volume of soil vapor extracted,
h. the type of canisters used, the vacuum before and after samples collected,
I. apparent moisture content (dry, moist, saturated, etc.) of the sampling zone, and
j. chain of custody protocols and records used to track samples from sampling point to analysis.

After collection, the sampling location was also field screened with a PID and a helium detector to provide real time data; this information was recorded in the field book. PID results were both less than 0.2 parts per million (ppm) response units and no helium above instrument detection limits were recorded.

Upon completion of the day's sample collection, the summa canisters were transported under strict chain-of-custody to an NYSDOH-ELAP certified laboratory H2M Laboratories, Inc. located in Melville, New York for VOC analysis by EPA Method TO-15 methodology. The shallow borings associated with soil vapor testing were abandoned by bentonite grout to grade.

Laboratory Analysis

The three samples were analyzed by H2M Laboratories, Inc., an NYSDOH ELAP-Certified laboratory. Summary data sheets are included in as an appendix of this report. An independent third party validation was performed on this data - see attached appendices. As the State of New York does not have any standards or criteria for concentrations of volatile chemicals in soil gas, the results of the laboratory analysis of the three soil gas samples were compared to the *Background Indoor Air Levels of Volatile Organic Compounds in Homes Sampled by the New York State Department of Health, 1989-1996* published by the NYSDOH Bureau of Toxic Substance Assessment in 1997 and included in the NYSDOH *Guidance for Evaluating Soil Vapor Intrusion in the State of New York.*

As indicated in Table 1, numerous VOCs were detected in each of the three soil gas samples. Of the VOCs present, particular focus was on the concentrations of Tetrachoroethene (PCE), a common dry-cleaning chemical and its typical breakdown products such as Trichloroethene (TCE).

PCE and TCE typically detected at concentrations of less than 100 mcg./cu.m and 5 mcg./cu.m, respectively, in soil gas exterior to a home, generally do not result in significant indoor air impacts. Furthermore, based upon NYSDOH recent long term studies on these types of compounds in indoor air, PCE and TCE can be typically detected at concentrations of 2.9 mcg./cu.m and 0.48 mcg./cu.m, respectively, or less in buildings not known to be affected by a chemical spill or other significant sources of these chemicals.

Based upon this comparison, at this time, no PCE or TCE concentrations were present in subsurface soil gas samples that exceeded any specifically identified NYSDOH requirements (matrix tables) at any of the three residences. Letters were developed for distribution to the three residences with an overview of NYSDOH Fact Sheets on these compounds that summarized these facts.

Summary and Conclusions

As required by the NYSDEC and NYSDOH, BEI has obtained subsurface soil gas data at the three closest adjoining residences in accordance with sampling guidelines for same. Based upon testing of these three properties, no PCE or TCE concentrations were identified present in subsurface soil gas samples that exceeded any specifically identified NYSDOH requirement for monitoring, mitigation, etc. at any of the three residences. Letters were developed for distribution to the three residences with an overview of NYSDOH Fact Sheets on these compounds that summarized these facts.

Please feel free to contact me if you have any questions.

Sincerely,
Berninger Environmental, Inc.

Walter Berninger
President/Consultant

enc.

Berninger Environmental, Inc.

groundwater consultants and geologists

90 - B Knickerbocker Avenue
Bohemia • New York • 11716

Phone: 631 • 589 • 6521
Fax: 631 • 589 • 6528

Mr. Adam Hirsch
1310 Waverly Street
Hewlett, New York

May 13, 2008

Re: Soil Vapor Sampling Results - Rear Yard
1310 Waverly Street, Hewlett, New York

Dear Mr. Hirsch:

Enclosed are the laboratory test results for the soil vapor samples collected from the rear of your home (SG-1A) on January 29, 2008. Berninger Environmental, Inc., under the direction of the New York State Department of Health (NYSDOH), obtained this soil gas sample to help assess whether the environmental contamination from operations at the dry cleaner (American Drive-In Cleaners) located at 1345 Peninsula Boulevard, Hewlett, New York has the potential to affect indoor air quality in your home. The soil gas sample was tested for Tetrachoroethene (PCE), a common dry cleaning chemical and its typical breakdown products such as Trichloroethene (TCE).

Soil Gas Sampling Results

In air, concentrations of PCE and TCE are measured in units of micrograms per cubic meter of air. These units are abbreviated as "mcg/cu.m". PCE was detected at a concentration of 25.2J mcg./cu.m at a location selected within your backyard, between your residence and the dry cleaners. PCE was also detected in the outdoor air at 1.42J mcg./cu.m during this air sampling event. TCE was detected at a concentration of 0.27 mcg./cu.m at the soil gas sampling location. TCE was not detected in the outdoor air during this air sampling event.

According to NYSDOH studies, PCE and TCE typically detected at concentrations of less than 100 mcg./cu.m and 5 mcg./cu.m, respectively, in soil gas exterior to a home, generally do not result in significant indoor air impacts. Therefore, at this time, no specific requirements have been established with respect to your residence, other than possible future monitoring. Furthermore, based upon NYSDOH recent long term studies on these types of compounds in indoor air, PCE and TCE can be typically detected at concentrations of 2.9 mcg./cu.m and 0.48 mcg./cu.m, respectively, or less in buildings not known to be affected by a chemical spill or other significant sources of these chemicals.

Enclosed is an NYSDOH fact sheet entitled "Tetrachloroethene (PCE) in Indoor and Outdoor Air dated May 2003" which provides information about the NYSDOH guideline. Enclosed also is the NYSDOH fact sheet entitled "Trichloroethene in Indoor and Outdoor Air dated February 2005" which provides information about the NYSDOH guidelines. As the fact sheets explain, the guidelines are not a line between levels that cause health effects and those that do not. In addition, it is based on the assumption that people are continuously exposed to PCE or TCE in air all day, every day, for as long as a life time, which, is not likely the case for the typical occupancy of a residence.

If you have any health-related questions, please contact Ms. Katherine Comford, Public Health Specialist II of the New York State Department of Health (NYSDOH) at 1-518-402-7850. If you have any questions relating to the environmental investigation of the American Drive-In Cleaners site, please contact Mr. Mark Bufalini of the New York State Department of Environmental Conservation (NYSDEC) at 1-518-402-9622.

Sincerely,
Berninger Environmental, Inc.

Walter Berninger
President/Consultant
enc.

Berninger Environmental, Inc.

groundwater consultants and geologists

90 - B Knickerbocker Avenue
Bohemia • New York • 11716

Phone: 631 • 589 • 6521
Fax. 631 • 589 • 6528

Mr. Ed Surillo
1314 Waverly Street
Hewlett, New York

May 13, 2008

Re: Soil Vapor Sampling Results - Rear Yard
1314 Waverly Street, Hewlett, New York

Dear Mr. Surillo:

Enclosed are the laboratory test results for the soil vapor samples collected from the rear of your home (SG-2A) on January 29, 2008. Berninger Environmental, Inc., under the direction of the New York State Department of Health (NYSDOH), obtained this soil gas sample to help assess whether the environmental contamination from operations at the dry cleaner (American Drive-In Cleaners) located at 1345 Peninsula Boulevard, Hewlett, New York has the potential to affect indoor air quality in your home. The soil gas sample was tested for Tetrachoroethene (PCE), a common dry cleaning chemical and its typical breakdown products such as Trichloroethene (TCE).

Soil Gas Sampling Results

In air, concentrations of PCE and TCE are measured in units of micrograms per cubic meter of air. These units are abbreviated as "mcg/cu.m". PCE was detected at a concentration of 3.32J mcg./cu.m at a location selected within your backyard, between your residence and the dry cleaners. PCE was also detected in the outdoor air at 1.42J mcg./cu.m during this air sampling event. TCE was not detected at the soil gas sampling location. TCE was also not detected in the outdoor air during this air sampling event.

According to NYSDOH studies, PCE and TCE typically detected at concentrations of less than 100 mcg./cu.m and 5 mcg./cu.m, respectively, in soil gas exterior to a home, generally do not result in significant indoor air impacts. Therefore, at this time, no specific requirements have been established with respect to your residence, other than possible future monitoring. Furthermore, based upon NYSDOH recent long term studies on these types of compounds in indoor air, PCE and TCE can be typically detected at concentrations of 2.9 mcg./cu.m and 0.48 mcg./cu.m, respectively, or less in buildings not known to be affected by a chemical spill or other significant sources of these chemicals.

Enclosed is an NYSDOH fact sheet entitled "Tetrachloroethene (PCE) in Indoor and Outdoor Air dated May 2003" which provides information about the NYSDOH guideline. Enclosed also is the NYSDOH fact sheet entitled "Trichloroethene in Indoor and Outdoor Air dated February 2005" which provides information about the NYSDOH guidelines. As the fact sheets explain, the guidelines are not a line between levels that cause health effects and those that do not. In addition, it is based on the assumption that people are continuously exposed to PCE or TCE in air all day, every day, for as long as a life time, which, is not likely the case for the typical occupancy of a residence.

If you have any health-related questions, please contact Ms. Katherine Comford, Public Health Specialist II of the New York State Department of Health (NYSDOH) at 1-518-402-7850. If you have any questions relating to the environmental investigation of the American Drive-In Cleaners site, please contact Mr. Mark Bufalini of the New York State Department of Environmental Conservation (NYSDEC) at 1-518-402-9622.

Sincerely,
Berninger Environmental, Inc.

Walter Berninger
President/Consultant
enc.

Berninger Environmental, Inc.
groundwater consultants and geologists
90 - B Knickerbocker Avenue
Bohemia • New York • 11716
Phone: 631 • 589 • 6521
Fax. 631 • 589 • 6528

Mr. Nora Hsu
1316 Waverly Street
Hewlett, New York

May 13, 2008

Re: Soil Vapor Sampling Results - Rear Yard
1316 Waverly Street, Hewlett, New York

Dear Mr. Hsu:

Enclosed are the laboratory test results for the soil vapor samples collected from the rear of your home (SG-3A) on January 29, 2008. Berninger Environmental, Inc., under the direction of the New York State Department of Health (NYSDOH), obtained this soil gas sample to help assess whether the environmental contamination from operations at the dry cleaner (American Drive-In Cleaners) located at 1345 Peninsula Boulevard, Hewlett, New York has the potential to affect indoor air quality in your home. The soil gas sample was tested for Tetrachoroethene (PCE), a common dry cleaning chemical and its typical breakdown products such as Trichloroethene (TCE).

Soil Gas Sampling Results

In air, concentrations of PCE and TCE are measured in units of micrograms per cubic meter of air. These units are abbreviated as "mcg/cu.m". PCE was detected at a concentration of 2.03J mcg./cu.m at a location selected within your backyard, between your residence and the dry cleaners. PCE was also detected in the outdoor air at 1.42J mcg./cu.m during this air sampling event. TCE was detected at a concentration of 1.50 mcg./cu.m at the soil gas sampling location. TCE was not detected in the outdoor air during this air sampling event.

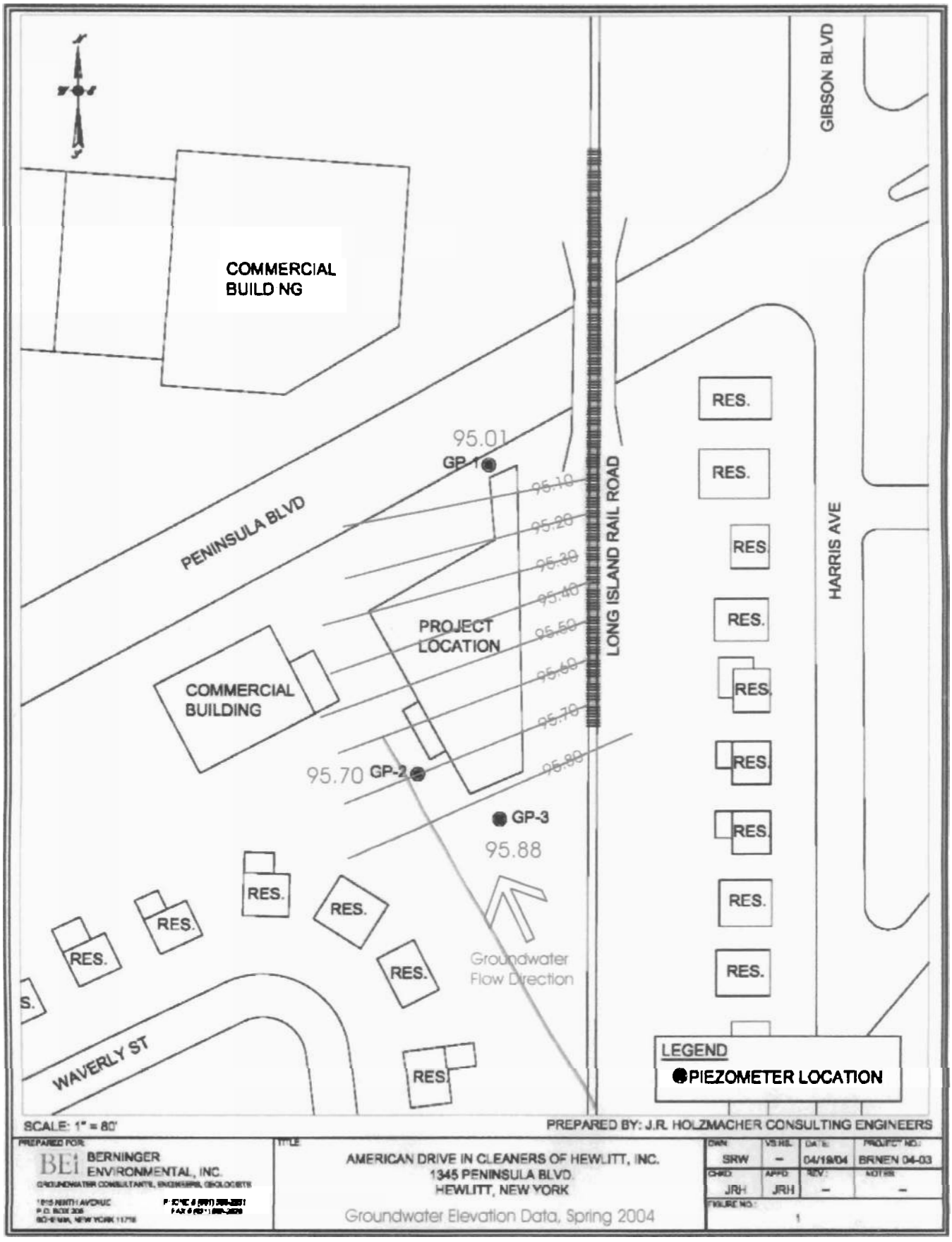
According to NYSDOH studies, PCE and TCE typically detected at concentrations of less than 100 mcg./cu.m and 5 mcg./cu.m, respectively, in soil gas exterior to a home, generally do not result in significant indoor air impacts. Therefore, at this time, no specific requirements have been established with respect to your residence, other than possible future monitoring. Furthermore, based upon NYSDOH recent long term studies on these types of compounds in indoor air, PCE and TCE can be typically detected at concentrations of 2.9 mcg./cu.m and 0.48 mcg./cu.m, respectively, or less in buildings not known to be affected by a chemical spill or other significant sources of these chemicals.

Enclosed is an NYSDOH fact sheet entitled "Tetrachloroethene (PCE) in Indoor and Outdoor Air dated May 2003" which provides information about the NYSDOH guideline. Enclosed also is the NYSDOH fact sheet entitled "Trichloroethene in Indoor and Outdoor Air dated February 2005" which provides information about the NYSDOH guidelines. As the fact sheets explain, the guidelines are not a line between levels that cause health effects and those that do not. In addition, it is based on the assumption that people are continuously exposed to PCE or TCE in air all day, every day, for as long as a life time, which, is not likely the case for the typical occupancy of a residence.

If you have any health-related questions, please contact Ms. Katherine Comford, Public Health Specialist II of the New York State Department of Health (NYSDOH) at 1-518-402-7850. If you have any questions relating to the environmental investigation of the American Drive-In Cleaners site, please contact Mr. Mark Bufalini of the New York State Department of Environmental Conservation (NYSDEC) at 1-518-402-9622.

Sincerely,
Berninger Environmental, Inc.

Walter Berninger
President/Consultant
enc.


COMMERCIAL BUILD NG
PENINSULA BLVD
95.01
GP-1
95.10
95.20
95.30
95.40
95.50
95.60
95.70
95.80
PROJECT LOCATION
COMMERCIAL BUILDING
95.70 GP-2
GP-3
95.88
LONG ISLAND RAIL ROAD
GIBSON BLVD
HARRIS AVE
RES.
WAVERLY ST
Groundwater Flow Direction
LEGEND
PIEZOMETER LOCATION
SCALE: 1" = 80'
PREPARED BY: J.R. HOLZMACHER CONSULTING ENGINEERS
PREPARED FOR:
BEI BERNINGER ENVIRONMENTAL, INC.
GROUNDWATER CONSULTANTS, ENGINEERS, GEOLOGISTS
TITLE:
AMERICAN DRIVE IN CLEANERS OF HEWLITT, INC.
1345 PENINSULA BLVD.
HEWLITT, NEW YORK
Groundwater Elevation Data, Spring 2004
DWN: SRW
VS RE: –
DATE: 04/19/04
PROJECT NO.: BRNEN 04-03
CHKD: JRH
APPD: JRH
REV: –
NOTES: –
FIGURE NO.: 1

AMERICAN ANALYTICAL LABORATORIES

NYSDOH 11418
NJDEP NY050
CTDOH PH-0205
PADEP 68-00573

Wednesday, August 15, 2007

Walter Berninger
Berninger Environmental, Inc.
90 Knickerbocker Avenue, Unit B
Bohemia, NY 11716

TEL: (631) 588-6521
FAX (631) 589-6528

RE: American Cleaners 1345 Peninsula Blvd. H

Order No.: 0708128

Dear Walter Berninger:

American Analytical Laboratories, LLC. received 3 sample(s) on 8/14/2007 for the analyses presented in the following report.

Samples were analyzed in accordance with the test procedures documented on the chain of custody and detailed throughout the text of this report.

The limits provided in the data package are analytical reporting limits and not Federal or Local mandated values to which the sample results should be compared.

There were no problems with the analyses and all data for associated QC met laboratory specifications. If there are any exceptions a Case Narrative is provided in the report.

If you have any questions regarding these tests results, please do not hesitate to call (631) 454-6100 or email me directly at lbeyer@american-analytical.com.

Sincerely,

Lori Beyer
Lab Director

American Analytical Laboratories, LLC.

Date: *15-Aug-07*

CLIENT: Berninger Environmental, Inc.
Project: American Cleaners 1345 Peninsula Blvd. Hewlet
Lab Order: 0708128

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Tag Number	Date Collected	Date Received
0708128-01A	MW-1		8/14/2007 8:30:00 AM	8/14/2007
0708128-02A	MW-2		8/14/2007 8:45:00 AM	8/14/2007
0708128-03A	MW-3		8/14/2007 9:00:00 AM	8/14/2007

AMERICAN ANALYTICAL LABORATORIES
56 TOLEDO STREET • FARMINGDALE, NEW YORK 11735
(631) 454-6100 • FAX (631) 454-8027

TAG # / COC _____

NYSDOH 11418
CTD PH-0205
NJDEP NY050
PADEP 68-573

CHAIN OF CUSTODY / REQUEST FOR ANALYSIS DOCUMENT

CLIENT NAME/ADDRESS: BEI - 90B KNICKERBOCKER BOHEMIA, NY

CONTACT:

SAMPLER (SIGNATURE): Butch Meyers

SAMPLER NAME (PRINT): BUTCH MEYERS

SAMPLE(S) SEALED: YES / NO

CORRECT CONTAINER(S): YES / NO

PROJECT LOCATION: AMERICAN CLEANERS 1345 PENINSULA BLVD HEWLETT, NY

ANALYSIS REQUIRED: 601

LABORATORY ID #		# CONTAINERS	SAMPLING DATE/ TIME	SAMPLE # - LOCATION	FOR METHANOL PRESERVED SAMPLES [VOLATILE VIAL #]
0708128-01A	L	2	8/14/07 @ 8:30		X
-02A	L	2	8:45	MW-2	X
-03A	L	2	9:00		X

P.O.# 708 2113

COOLER TEMPERATURE:

MATRIX S=SOIL; L=LIQUID; SL=SLUDGE; A-AIR; W=WIPE; P=PAINT CHIPS; B=BULK MATERIAL

TYPE G=GRAB; C=COMPOSITE, SS=SPLIT SPOON

TURNAROUND REQUIRED: NORMAL ☑ STAT ☐ BY / /

COMMENTS / INSTRUCTIONS

RELINQUISHED BY (SIGNATURE)	DATE / TIME	PRINTED NAME	RECEIVED BY LAB (SIGNATURE)	DATE / TIME	PRINTED NAME
Butch Meyers	8/14/07 3:00PM	BUTCH MEYERS		8/14/07 3:00 pm	Gary Eppick
RELINQUISHED BY (SIGNATURE)	DATE / TIME	PRINTED NAME	RECEIVED BY LAB (SIGNATURE)	DATE / TIME	PRINTED NAME

AMERICAN ANALYTICAL LABORATORIES, LLC
56 TOLEDO STREET
FARMINGDALE, NEW YORK 11735
TELEPHONE: (631) 454-6100 FAX: (631) 454-8027

DATA REPORTING QUALIFIERS

For reporting results, the following "Results Qualifiers" are used:

Value	If the result is greater than or equal to the detection limit, report the value
U	Indicates the compound was analyzed for but was not detected. Report the minimum detection limit for the sample with the U, i.e. "10U". This is not necessarily the instrument detection limit attainable for this particular sample based on any concentration or dilution that may have been required.
J	Indicates an estimated value. The flag is used: (1) When estimating a concentration for a tentatively identified compound (library search hits, where a 1:1 response is assumed.) (2) When the mass spectral data indicated the identification, however the result was less than the specified detection limit greater than zero. If the detection limit was 10ug/L and a concentration of 3ug/L was calculated report as 3J. This flag is used when similar situations arise on any organic parameter i.e. Pesticide, PCBs and others.
B	Indicates the analyte was found in the blank as well as the sample report "10B".
E	Indicates the analytes concentration exceeds the calibrated range of the instrument for that specific analysis.
D	This flag identifies all compounds identified in an analysis at a secondary dilution factor.
P	This flag is used for Pesticide / PCB target analyte when there is >25% difference for detected concentrations between the two GC Columns. The higher of the two values is reported on Form I and flagged with a "P".
N	This flag indicates presumptive evidence of a compound. This is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It applies to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the flag is not used.
H	Indicates sample was received and/or analyzed outside of The method allowable holding time

American Analytical Laboratories, LLC.

Date: *15-Aug-07*

CLIENT:	Berninger Environmental, Inc.	**Client Sample ID:**	MW-1
Lab Order:	0708128	**Tag Number:**	
Project:	American Cleaners 1345 Peninsula Blvd. Hewlet	**Collection Date:**	8/14/2007 8:30:00 AM
Lab ID:	0708128-01A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILE EPA METHOD 601M		E601				Analyst: LDS
1,1,1,2-Tetrachloroethane	U	0.50		µg/L	1	8/15/2007 10:20:00 AM
1,1,1-Trichloroethane	U	0.50		µg/L	1	8/15/2007 10:20:00 AM
1,1,2,2-Tetrachloroethane	U	0.50		µg/L	1	8/15/2007 10:20:00 AM
1,1,2-Trichloroethane	U	0.50		µg/L	1	8/15/2007 10:20:00 AM
1,1-Dichloroethane	U	0.50		µg/L	1	8/15/2007 10:20:00 AM
1,1-Dichloroethene	U	0.50		µg/L	1	8/15/2007 10:20:00 AM
1,2,3-Trichloropropane	U	1.0		µg/L	1	8/15/2007 10:20:00 AM
1,2-Dichlorobenzene	U	0.50		µg/L	1	8/15/2007 10:20:00 AM
1,2-Dichloroethane	U	0.50		µg/L	1	8/15/2007 10:20:00 AM
1,2-Dichloropropane	U	0.50		µg/L	1	8/15/2007 10:20:00 AM
1,3-Dichlorobenzene	U	0.50		µg/L	1	8/15/2007 10:20:00 AM
1,4-Dichlorobenzene	U	0.50		µg/L	1	8/15/2007 10:20:00 AM
2-Chloroethyl vinyl ether	U	0.50		µg/L	1	8/15/2007 10:20:00 AM
Benzyl chloride	U	1.0		µg/L	1	8/15/2007 10:20:00 AM
Bromobenzene	U	0.50		µg/L	1	8/15/2007 10:20:00 AM
Bromodichloromethane	U	0.50		µg/L	1	8/15/2007 10:20:00 AM
Bromoform	U	0.50		µg/L	1	8/15/2007 10:20:00 AM
Bromomethane	U	0.50		µg/L	1	8/15/2007 10:20:00 AM
Carbon tetrachloride	U	0.50		µg/L	1	8/15/2007 10:20:00 AM
Chlorobenzene	U	0.50		µg/L	1	8/15/2007 10:20:00 AM
Chloroethane	U	0.50		µg/L	1	8/15/2007 10:20:00 AM
Chloroform	U	0.50		µg/L	1	8/15/2007 10:20:00 AM
Chloromethane	U	0.50		µg/L	1	8/15/2007 10:20:00 AM
cis-1,2-Dichloroethene	54	0.50		µg/L	1	8/15/2007 10:20:00 AM
cis-1,3-Dichloropropene	U	0.50		µg/L	1	8/15/2007 10:20:00 AM
Dibromochloromethane	U	0.50		µg/L	1	8/15/2007 10:20:00 AM
Dibromoethane	U	1.0		µg/L	1	8/15/2007 10:20:00 AM
Dichlorodifluoromethane	U	0.50		µg/L	1	8/15/2007 10:20:00 AM
Methylene chloride	21	0.50	B	µg/L	1	8/15/2007 10:20:00 AM
Tetrachloroethene	46	0.50		µg/L	1	8/15/2007 10:20:00 AM
trans-1,2-Dichloroethene	U	0.50		µg/L	1	8/15/2007 10:20:00 AM
trans-1,3-Dichloropropene	U	0.50		µg/L	1	8/15/2007 10:20:00 AM
Trichloroethene	17	0.50		µg/L	1	8/15/2007 10:20:00 AM
Trichlorofluoromethane	U	0.50		µg/L	1	8/15/2007 10:20:00 AM
Vinyl chloride	7.9	0.50		µg/L	1	8/15/2007 10:20:00 AM
Surr: 4-Bromofluorobenzene	99.5	70-134		%REC	1	8/15/2007 10:20:00 AM
Surr: Dibromofluoromethane	102	70-135		%REC	1	8/15/2007 10:20:00 AM
Surr: Toluene-d8	97.4	64-128		%REC	1	8/15/2007 10:20:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits
U	Indicates the compound was analyzed for but not detecte	X	Value exceeds Maximum Contaminant Level

American Analytical Laboratories, LLC.

Date: *15-Aug-07*

CLIENT:	Berninger Environmental, Inc.	**Client Sample ID:**	MW-2
Lab Order:	0708128	**Tag Number:**	
Project:	American Cleaners 1345 Peninsula Blvd. Hewlet	**Collection Date:**	8/14/2007 8:45:00 AM
Lab ID:	0708128-02A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILE EPA METHOD 601M		E601				Analyst: LDS
1,1,1,2-Tetrachloroethane	U	0.50		µg/L	1	8/15/2007 10:58:00 AM
1,1,1-Trichloroethane	U	0.50		µg/L	1	8/15/2007 10:58:00 AM
1,1,2,2-Tetrachloroethane	U	0.50		µg/L	1	8/15/2007 10:58:00 AM
1,1,2-Trichloroethane	U	0.50		µg/L	1	8/15/2007 10:58:00 AM
1,1-Dichloroethane	U	0.50		µg/L	1	8/15/2007 10:58:00 AM
1,1-Dichloroethene	U	0.50		µg/L	1	8/15/2007 10:58:00 AM
1,2,3-Trichloropropane	U	1.0		µg/L	1	8/15/2007 10:58:00 AM
1,2-Dichlorobenzene	U	0.50		µg/L	1	8/15/2007 10:58:00 AM
1,2-Dichloroethane	U	0.50		µg/L	1	8/15/2007 10:58:00 AM
1,2-Dichloropropane	U	0.50		µg/L	1	8/15/2007 10:58:00 AM
1,3-Dichlorobenzene	U	0.50		µg/L	1	8/15/2007 10:58:00 AM
1,4-Dichlorobenzene	U	0.50		µg/L	1	8/15/2007 10:58:00 AM
2-Chloroethyl vinyl ether	U	0.50		µg/L	1	8/15/2007 10:58:00 AM
Benzyl chloride	U	1.0		µg/L	1	8/15/2007 10:58:00 AM
Bromobenzene	U	0.50		µg/L	1	8/15/2007 10:58:00 AM
Bromodichloromethane	U	0.50		µg/L	1	8/15/2007 10:58:00 AM
Bromoform	U	0.50		µg/L	1	8/15/2007 10:58:00 AM
Bromomethane	U	0.50		µg/L	1	8/15/2007 10:58:00 AM
Carbon tetrachloride	U	0.50		µg/L	1	8/15/2007 10:58:00 AM
Chlorobenzene	U	0.50		µg/L	1	8/15/2007 10:58:00 AM
Chloroethane	U	0.50		µg/L	1	8/15/2007 10:58:00 AM
Chloroform	U	0.50		µg/L	1	8/15/2007 10:58:00 AM
Chloromethane	U	0.50		µg/L	1	8/15/2007 10:58:00 AM
cis-1,2-Dichloroethene	27	0.50		µg/L	1	8/15/2007 10:58:00 AM
cis-1,3-Dichloropropene	U	0.50		µg/L	1	8/15/2007 10:58:00 AM
Dibromochloromethane	U	0.50		µg/L	1	8/15/2007 10:58:00 AM
Dibromoethane	U	1.0		µg/L	1	8/15/2007 10:58:00 AM
Dichlorodifluoromethane	U	0.50		µg/L	1	8/15/2007 10:58:00 AM
Methylene chloride	21	0.50	B	µg/L	1	8/15/2007 10:58:00 AM
Tetrachloroethene	130	0.50		µg/L	1	8/15/2007 10:58:00 AM
trans-1,2-Dichloroethene	U	0.50		µg/L	1	8/15/2007 10:58:00 AM
trans-1,3-Dichloropropene	U	0.50		µg/L	1	8/15/2007 10:58:00 AM
Trichloroethene	33	0.50		µg/L	1	8/15/2007 10:58:00 AM
Trichlorofluoromethane	U	0.50		µg/L	1	8/15/2007 10:58:00 AM
Vinyl chloride	U	0.50		µg/L	1	8/15/2007 10:58:00 AM
Surr: 4-Bromofluorobenzene	99.8	70-134		%REC	1	8/15/2007 10:58:00 AM
Surr: Dibromofluoromethane	102	70-135		%REC	1	8/15/2007 10:58:00 AM
Surr: Toluene-d8	100	64-128		%REC	1	8/15/2007 10:58:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits
U	Indicates the compound was analyzed for but not detecte	X	Value exceeds Maximum Contaminant Level

American Analytical Laboratories, LLC.

Date: *15-Aug-07*

CLIENT:	Berninger Environmental, Inc.	**Client Sample ID:**	MW-3
Lab Order:	0708128	**Tag Number:**	
Project:	American Cleaners 1345 Peninsula Blvd. Hewlet	**Collection Date:**	8/14/2007 9:00:00 AM
Lab ID:	0708128-03A	**Matrix:**	LIQUID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILE EPA METHOD 601M		**E601**				Analyst: **LDS**
1,1,1,2-Tetrachloroethane	U	0.50		µg/L	1	8/15/2007 11:36:00 AM
1,1,1-Trichloroethane	U	0.50		µg/L	1	8/15/2007 11:36:00 AM
1,1,2,2-Tetrachloroethane	U	0.50		µg/L	1	8/15/2007 11:36:00 AM
1,1,2-Trichloroethane	U	0.50		µg/L	1	8/15/2007 11:36:00 AM
1,1-Dichloroethane	U	0.50		µg/L	1	8/15/2007 11:36:00 AM
1,1-Dichloroethene	U	0.50		µg/L	1	8/15/2007 11:36:00 AM
1,2,3-Trichloropropane	U	1.0		µg/L	1	8/15/2007 11:36:00 AM
1,2-Dichlorobenzene	U	0.50		µg/L	1	8/15/2007 11:36:00 AM
1,2-Dichloroethane	U	0.50		µg/L	1	8/15/2007 11:36:00 AM
1,2-Dichloropropane	U	0.50		µg/L	1	8/15/2007 11:36:00 AM
1,3-Dichlorobenzene	U	0.50		µg/L	1	8/15/2007 11:36:00 AM
1,4-Dichlorobenzene	U	0.50		µg/L	1	8/15/2007 11:36:00 AM
2-Chloroethyl vinyl ether	U	0.50		µg/L	1	8/15/2007 11:36:00 AM
Benzyl chloride	U	1.0		µg/L	1	8/15/2007 11:36:00 AM
Bromobenzene	U	0.50		µg/L	1	8/15/2007 11:36:00 AM
Bromodichloromethane	U	0.50		µg/L	1	8/15/2007 11:36:00 AM
Bromoform	U	0.50		µg/L	1	8/15/2007 11:36:00 AM
Bromomethane	U	0.50		µg/L	1	8/15/2007 11:36:00 AM
Carbon tetrachloride	U	0.50		µg/L	1	8/15/2007 11:36:00 AM
Chlorobenzene	U	0.50		µg/L	1	8/15/2007 11:36:00 AM
Chloroethane	U	0.50		µg/L	1	8/15/2007 11:36:00 AM
Chloroform	U	0.50		µg/L	1	8/15/2007 11:36:00 AM
Chloromethane	U	0.50		µg/L	1	8/15/2007 11:36:00 AM
cis-1,2-Dichloroethene	32	0.50		µg/L	1	8/15/2007 11:36:00 AM
cis-1,3-Dichloropropene	U	0.50		µg/L	1	8/15/2007 11:36:00 AM
Dibromochloromethane	U	0.50		µg/L	1	8/15/2007 11:36:00 AM
Dibromoethane	U	1.0		µg/L	1	8/15/2007 11:36:00 AM
Dichlorodifluoromethane	U	0.50		µg/L	1	8/15/2007 11:36:00 AM
Methylene chloride	21	0.50	B	µg/L	1	8/15/2007 11:36:00 AM
Tetrachloroethene	7.3	0.50		µg/L	1	8/15/2007 11:36:00 AM
trans-1,2-Dichloroethene	1.2	0.50		µg/L	1	8/15/2007 11:36:00 AM
trans-1,3-Dichloropropene	U	0.50		µg/L	1	8/15/2007 11:36:00 AM
Trichloroethene	5.6	0.50		µg/L	1	8/15/2007 11:36:00 AM
Trichlorofluoromethane	U	0.50		µg/L	1	8/15/2007 11:36:00 AM
Vinyl chloride	U	0.50		µg/L	1	8/15/2007 11:36:00 AM
Surr: 4-Bromofluorobenzene	98.6	70-134		%REC	1	8/15/2007 11:36:00 AM
Surr: Dibromofluoromethane	103	70-135		%REC	1	8/15/2007 11:36:00 AM
Surr: Toluene-d8	96.1	64-128		%REC	1	8/15/2007 11:36:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits
U	Indicates the compound was analyzed for but not detecte	X	Value exceeds Maximum Contaminant Level

L.A.B. Validation Corp. 14 West Point Drive, East Northport, N.Y. 11731

RECEIVED MAR 2 1 2008

DATA VALIDATION REPORT

ORGANIC ANALYSES

EPA Compendium Method TO-15
VOLATILES BY GC/MS

For Soil Gas Samples Collected
January 29, 2008
American Drive-In Cleaners, Hewlett, New York
Berninger Environmental

SAMPLE DELIVERY GROUP NUMBER: BER054
H2M Labs, Inc.

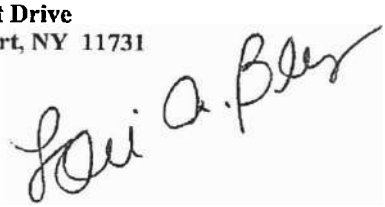
SUBMITTED TO:

Mr. Walter Berninger/President
Berninger Environmental
90 Knickerbocker Avenue, Unit B
Bohemia, New York 11716

March 21, 2008

PREPARED BY:

Lori A. Beyer/President
L.A.B. Validation Corp.
14 West Point Drive
East Northport, NY 11731



Phone (516) 523-7891 email LABValidation@aol.com

American Drive-In Cleaners, Hewlett, New York
Data Validation Report: Volatile Organics

Table of Contents:

Introduction
Data Qualifier Definitions
Sample Receipt

1.0 Volatile Organics by GC/MS EPA Compendium Method TO-15
- 1.1 Holding Time
- 1.2 Surrogate Standards
- 1.3 Matrix Spikes (MS), Matrix Spike Duplicates (MSD)
- 1.4 Laboratory Control Sample
- 1.5 Blank Contamination
- 1.6 GC/MS Instrument Performance Check
- 1.7 Initial and Continuing Calibrations
- 1.8 Internal Standards
- 1.9 Target Compound List Identification
- 1.10 Tentatively Identified Compounds
- 1.11 Compound Quantification and Reported Detection Limits
- 1.12 Overall System Performance

APPENDICES:

A. Data Summary Tables with Qualifications
B. Chain of Custody Documents
C. NYSDEC ASP Summary Forms
D. SDG Narratives
E. Tentatively Identified Compounds (TICs)

Introduction:

A validation was performed on four (4) soil gas [air] samples for Volatile Organic analysis collected by Berninger Environmental and submitted to H2M Labs, Inc. for subsequent analysis under chain of custody documentation. This report contains the laboratory and validation results for the four (4) field samples itemized below. The samples were collected on January 29, 2008.

The samples were analyzed by H2M Labs, Inc. utilizing EPA Method TO-15 and in accordance with NYSDEC Analytical Services Protocol (10/95) and submitted under NYSDEC ASP Category B equivalent deliverable requirements for the associated analytical methodology employed. The analytical testing consisted of the selected TO-15 Target Compound List (TCL) of analytes for Volatile Organics listed in Appendix A.

The data was evaluated in accordance with the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (Publication 9240.1-05) and in conjunction with the analytical methodology for which the samples were analyzed, where applicable and relevant.

The data validation report pertains to the following field soil gas/air samples:

Sample Identification	Laboratory Identification(s)	Sample Matrix	Collection Date
Ambient	0801963-001	Air	01/29/08
SG-1A	0801963-002	Air	01/29/08
SG-2A	0801963-003	Air	01/29/08
SG-3A	0801963-004	Air	01/29/08

Data Qualifier Definitions:

The following definitions provide brief explanations of the qualifiers assigned to results in the data review process.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

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

UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R - The sample results are rejected due to deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."

NJ - The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate quantity.

Sample Receipt:

The Chain of Custody document from January 29, 2008 indicates that four (4) air samples were received at H2M Labs, Inc. the day after the sampling event. Sample login notes and the chain of custody indicate that at the Validated Time of Sample Receipt (VTSR) at the laboratory the canister for #3404 was actually #3405 for SG-1A. No additional discrepancies were notated and therefore the integrity of the canister samples is assumed to be good.

The data summary tables included in Appendix A includes all usable (qualified) and unusable (rejected) results for the samples identified above. These tables summarize the detailed narrative section of the report. All data validation qualifications have been reported in the excel spreadsheet in bold for ease of review and verification.

NOTE:
L.A.B. Validation Corp. believes it is appropriate to note that the data validation criteria utilized for data evaluation is different than the method requirements utilized by the laboratory. Qualified data does not necessarily mean that the laboratory was non-compliant in the analysis that was performed.

Volatile Organics by EPA Compendium Method TO-15

The following method criteria were reviewed: holding times, surrogate standards, LCS, Blanks, Tunes, Calibrations, Internal Standards, Target Component Identification and Quantitation, Reported Quantitation Limits and Overall System Performance. The volatile results were considered to be valid and useable as noted on the data summary tables in Appendix A and within the following text:

1.1 Holding Time

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the technical holding time is exceeded, the data may not be considered valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimates, "J". The non-detects (sample quantitation limits) are required to be flagged as estimated, "J", or unusable, "R", if the holding times are grossly exceeded.

Air samples pertaining to these SDGs were performed within the method required thirty (30) days from sample collection for analysis. No qualifications were required based upon holding time criteria.

1.2 Surrogate Standards

All samples are spiked with surrogate compounds prior to sample analysis to evaluate overall laboratory performance and efficiency of the analytical technique. If the measure of surrogate concentrations is outside contact specification, qualifications are required to be applied to associated samples and analytes.

Recoveries for 4-Bromofluorobenzene fell within established ranges of 70-130% for all analyses pertaining to these SDGs.

1.3 Matrix Spikes (MS)/ Matrix Spike Duplicates (MSD)

The MS/MSD data are generated to determine the long-term precision and accuracy of the analytical method in various matrices.

Matrix Spike/Matrix Spike Duplicate analysis was not performed on samples pertaining to these SDGs. A Laboratory Fortified Blank was analyzed and acceptable recoveries for all spiked components were observed with the following exceptions:

Bromoform – 66%
Tetrachloroethene – 62%
2-Chlorotoluene – 51%
4-Ethyltoluene – 49%
1,3,5-Trimethylbenzene – 67%
1,2,4-Trimethylbenzene – 67%
1,3-Dichlorobenzene – 67%
1,4-Dichlorobenzene – 67%
1,2-Dichlorobenzene – 68%
Hexachlorobutadiene – 46%
1,2,4-Trichlorobenzene – 58%

Non-detects have been qualified estimated, "UJ" and in cases where reported concentrations were obtained, results have been qualified estimated, "J" and must be considered biased low.

1.4 Laboratory Control Sample

The LCS data for laboratory control samples (LCS) are generated to provide information on the accuracy of the analytical method and on the laboratory performance.

Additional QC samples were not analyzed which is acceptable per the method since Lab Fortified Blanks were analyzed (as discussed in Section 1.3 above).

1.5 Blank Contamination

Quality assurance (QA) blanks; i.e. method, trip and field blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field blanks measure cross-contamination of samples during field operations. Storage blanks measure cross-contamination during sample storage of the field samples.

The following table was utilized to qualify target analyte results due to contamination. The largest value from all the associated blanks is required to be utilized:

For:	Flag Sample Result with a "U" when:	Report CRQL & Qualify "U" when:	No Qualification is Needed when:
Methylene Chloride, Acetone, Toluene & 2-Butanone	Sample Conc. Is >CRQL, but </=10x blank value	Sample Conc. is <CRQL and </=10x blank value	Sample Conc. is >CRQL and >10x blank value
Other Contaminants	Sample Conc. Is >CRQL, but </=5x blank value	Sample Conc. Is <CRQL and </=5x blank value	Sample Conc. is >CRQL and >5x blank value

Below is a summary of the compounds in the sample and the associated qualifications that have been applied:

A) **Method Blank Contamination:**

The method blanks associated with field samples was determined to contain acceptable levels of Methylene Chloride. Results were evaluated based on the above criteria and this compound was negated in field samples.

B) **Field Blank Contamination:**

Field Blank analysis was not conducted for this SDG.

C) **Trip Blank Contamination:**

Trip Blank analysis was not submitted with this SDG.

D) **Storage Blank Contamination:**

Storage blanks were not submitted for this SDG. It should be noted that storage blanks are not mandated by EPA Method TO-15.

1.6 GC/MS Instrument Performance Check

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The Tuning standard for volatile organics is Bromofluorobenzene (BFB).

Instrument performance was generated within acceptable limits and frequency for Bromofluorobenzene (BFB) for all analyses conducted for this SDG.

1.7 Initial and Continuing Calibrations

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration checks document that the instrument is giving satisfactory daily performance.

A) Response Factor GC/MS:
The response factor measures the instrument's response to specific chemical compounds. The response factor for all compounds must be >/= 0.05 in both initial and continuing calibrations. A value <0.05 indicates a serious detection and quantitation problem (poor sensitivity). Analytes detected in the sample will be qualified as estimated, "J". All non-detects for that compound in the corresponding samples will be rejected, "R".

All the response factors for the target analytes reported were found to be within acceptable limits (>/=0.05), for the initial and continuing calibrations.

B) Percent Relative Standard Deviation (%RSD) and Percent Difference (%D):
Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentrations. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be <30% and %D must be <25%. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J" and non-detects are flagged "UJ". If %RSD and %D grossly exceed QC criteria, non-detect data may be qualified, "R", unusable. Additionally, in cases where the %RSD is >30% and eliminating either the high or the low point of the curve does not restore the %RSD to less than or equal to 30% then positive results are qualified, "J". In cases where removal of either the low or high point restores the linearity,

then only low or high level results will be qualified, "J" in the portion of the curve where non linearity exists.

Initial Calibrations: The initial calibrations provided and the %RSD were within acceptable limits (30%) for all target compounds.

Continuing Calibrations: The continuing calibrations provided and the %D was within acceptable limits (25%) with the following exceptions:

CCAL – 02/08/08:
Tetrachloroethene – 29.8%

Samples "Ambient, SG-1A and SG-2A have been qualified "J" as required for this analyte.

CCAL – 02/13/08:
Heptane – 25.7%

Sample SG-3A has been qualified, "UJ" as required for this analyte.

1.8 Internal Standards

Internal Standards (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of 2 (-50% to +100%) from the associated continuing calibration standard. The retention time of the internal standard must not vary more than +/- 30 seconds from the associated continuing calibration standard. If the area count is outside the (-50% to +100%) range of the associated standard, all of the positive results for compounds quantitated using that IS are qualified as estimated, "J", and all non-detects as "UJ", or "R" if there is a severe loss of sensitivity.

If an internal standard retention time varies by more than 30 seconds, professional judgment will be used to determine either partial or total rejection of the data for that sample fraction.

Internal Standard area responses met QC requirements for all analysis pertaining to this data set.

1.9 Target Compound List Identification

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and by comparison to the ion spectra obtained from known standards. For the results to be a positive hit, the sample peak must be within =/- 0.06RRT units of the standard compound and have an ion spectra which has a ratio of the primary and secondary m/e intensities within 20% of that in the standard compound.

GC/MS spectra met the qualitative criteria for identification. All retention times were within required specifications.

1.10 Tentatively Identified Compounds (TICs)

TICs were reported in accordance with the project requirements. The identification must be considered tentative (both quantitative and qualitative) due to the lack of required compound specific response factors. Consequently all concentrations should be considered estimate, "J" and as a result of the qualitative uncertainty should be qualified, "N" where an identification has been made.

GC/MS "3 best match spectra" met method criteria.

TICs are presented in Appendix B and primarily consist of unknown hydrocarbons and aromatic compounds.

1.11 Compound Quantification and Reported Detection Limits

GC/MS quantitative analysis is considered to be acceptable. Correct internal standards and response factors and air volumes were used to calculate final concentrations.

Sample results have been presented in ug/m3 as well as ppbv.

All samples were analyzed undiluted.

1.12 Overall System Performance

GC/MS analytical methodology was acceptable for this analysis.

Reviewer's Signature Lori A Bly **Date** 03/21/08

L.A.B. Validation Corp. 14 West Point Drive, East Northport, N.Y. 11731

Appendix A
Data Summary Tables
With Qualifications

Phone (516) 523-7891 email LABValidation@aol.com

VOLATILE ORGANICS EPA Compendium METHOD TO-15

American Cleaners, Hewlett, NY SDG BER054

	Beminger Sample ID:		Ambient	SG-1A	SG-2A	SG-3A
	Laboratory ID:		0801963-001	0801963-002	0801963-003	0801963-004
	Sampling Date:		1/29/2008	1/29/2008	1/29/2008	1/29/2008
	Dilution		1	1	1	1
Cas #	Analyte	Units:				
75-71-8	Dichlorodifluoromethane	ug/m3	2.27	2.18	2.13	2.82
76-14-2	1,2-Dichlorotetrafluoroethane	ug/m3	1.40 U	1.40 U	1.40 U	1.40 U
74-87-3	Chloromethane	ug/m3	1.12	0.76	0.41 U	1.20
106-99-0	1,3-Butadiene	ug/m3	0.44 U	0.44 U	0.44 U	0.44 U
74-83-9	Bromomethane	ug/m3	0.78 U	0.78 U	0.78 U	0.78 U
75-01-4	Vinyl Chloride	ug/m3	0.51 U	0.51 U	0.51 U	0.51 U
75-00-3	Chloroethane	ug/m3	0.53 U	0.53 U	0.53 U	0.53 U
75-09-2	Methylene Chloride	ug/m3	16.3 U	15.5 U	6.77 U	4.41 U
107-05-1	3-Chloropropene	ug/m3	0.63 U	0.63 U	0.63 U	0.63 U
593-60-2	Bromoethene	ug/m3	0.87 U	0.87 U	0.87 U	0.87 U
75-15-0	Carbon Disulfide	ug/m3	0.62 U	1.06	3.21	0.62 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ug/m3	1.53 U	1.53 U	1.53 U	1.53 U
75-35-4	1,1-Dichloroethene	ug/m3	0.79 U	0.79 U	0.79 U	0.79 U
75-34-3	1,1-Dichloroethane	ug/m3	0.81 U	0.81 U	0.81 U	0.81 U
75-69-4	Trichlorofluoromethane	ug/m3	1.35	1.52	1.18	2.19
110-54-3	Hexane	ug/m3	1.37	13.4	12.4	1.59
156-60-5	trans-1,2-Dichloroethene	ug/m3	0.79 U	0.79 U	0.79 U	0.79 U
156-59-2	cis-1,2-Dichloroethene	ug/m3	0.79 U	0.79 U	0.79 U	0.79 U
67-66-3	Chloroform	ug/m3	0.98 U	0.98 U	0.98 U	0.98 U
107-06-2	1,2-Dichloroethane	ug/m3	0.79 U	0.79 U	0.79 U	0.79 U
71-55-6	1,1,1-Trichloroethane	ug/m3	1.09 U	1.09 U	1.09 U	1.09 U
110-82-7	Cyclohexane	ug/m3	0.69 U	0.69 U	0.69 U	0.72
56-23-5	Carbon Tetrachloride	ug/m3	1.26 U	1.26 U	1.26 U	1.26 U
75-27-4	Bromodichloromethane	ug/m3	1.34 U	1.34 U	1.34 U	1.34 U
78-87-5	1,2-Dichloropropane	ug/m3	0.92 U	0.92 U	0.92 U	0.92 U
540-84-1	2,2,4-Trimethylpentane	ug/m3	0.51 J	1.45	0.93 U	1.78
10061-01-5	cis-1,3-Dichloropropene	ug/m3	0.91 U	0.91 U	0.91 U	0.91 U
79-01-6	Trichloroethene	ug/m3	0.25 U	0.27	0.25 U	1.50
71-43-2	Benzene	ug/m3	0.93	3.55	3.23	1.25
124-48-1	Dibromochloromethane	ug/m3	1.70 U	1.70 U	1.70 U	1.70 U
10061-02-6	trans-1,3-Dichloropropene	ug/m3	0.91 U	0.91 U	0.91 U	0.91 U
79-00-5	1,1,2-Trichloroethane	ug/m3	1.09 U	1.09 U	1.09 U	1.09 U
75-25-2	Bromoform	ug/m3	2.07 UJ	2.07 UJ	2.07 UJ	2.07 UJ
142-82-5	Heptane	ug/m3	0.45 J	2.46	3.24	1.35 J
106-93-4	1,2-Dibromoethane	ug/m3	1.54 U	1.54 U	1.54 U	1.54 U
127-18-4	Tetrachloroethene	ug/m3	1.42 J	25.2 J	3.32 J	2.03 J
79-34-5	1,1,2,2-Tetrachloroethane	ug/m3	1.37 U	1.37 U	1.37 U	1.37 U
108-88-3	Toluene	ug/m3	1.77	21.9	34.3	9.04
108-90-7	Chlorobenzene	ug/m3	0.92 U	0.92 U	0.92 U	0.92 U
100-41-4	Ethylbenzene	ug/m3	0.26 J	4.43	7.82	3.13
100-42-5	Styrene	ug/m3	0.85 U	0.43 J	1.02	0.85 U
1330-20-7	Xylene (m,p)	ug/m3	0.78 J	14.7	28.3	10.2
95-47-6	Xylene (o)	ug/m3	0.26 J	3.78	7.21	4.26
95-49-8	2-Chlorotoluene	ug/m3	1.04 UJ	1.04 UJ	1.04 UJ	1.04 UJ
622-96-8	4-Ethyltoluene	ug/m3	0.98 UJ	1.38 J	2.65 J	1.97 J
108-67-8	1,3,5-Trimethylbenzene	ug/m3	0.98 UJ	0.98 UJ	1.33 J	1.82 J
95-63-6	1,2,4-Trimethylbenzene	ug/m3	0.98 UJ	3.20 J	5.80 J	6.83 J
541-73-1	1,3-Dichlorobenzene	ug/m3	1.20 UJ	1.20 UJ	1.20 UJ	1.20 UJ
106-46-7	1,4-Dichlorobenzene	ug/m3	1.20 UJ	1.20 UJ	1.20 UJ	1.20 UJ
95-50-1	1,2-Dichlorobenzene	ug/m3	1.20 UJ	1.20 UJ	1.20 UJ	1.20 UJ
87-68-3	Hexachlorobutadiene	ug/m3	2.13 UJ	2.13 UJ	2.13 UJ	2.13 UJ
120-82-1	1,2,4-Trichlorobenzene	ug/m3	1.48 UJ	1.48 UJ	1.48 UJ	1.48 UJ

VOLATILE ORGANICS EPA Compendium METHOD TO-15

American Cleaners, Hewlett, NY SDG BER054

Cas #	Analyte	Units:	Ambient 0801963-001 1/29/2008 1	SG-1A 0801963-002 1/29/2008 1	SG-2A 0801963-003 1/29/2008 1	SG-3A 0801963-004 1/29/2008 1
	Berminger Sample ID:					
	Laboratory ID:					
	Sampling Date:					
	Dilution					
75-71-8	Dichlorodifluoromethane	ppbv	0.46	0.44	0.43	0.57
76-14-2	1,2-Dichlorotetrafluoroethane	ppbv	0.20 U	0.20 U	0.20 U	0.20 U
74-87-3	Chloromethane	ppbv	0.54	0.37	0.20 U	0.58
106-99-0	1,3-Butadiene	ppbv	0.20 U	0.20 U	0.20 U	0.20 U
74-83-9	Bromomethane	ppbv	0.20 U	0.20 U	0.20 U	0.20 U
75-01-4	Vinyl Chloride	ppbv	0.20 U	0.20 U	0.20 U	0.20 U
75-00-3	Chloroethane	ppbv	0.20 U	0.20 U	0.20 U	0.20 U
75-09-2	Methylene Chloride	ppbv	4.69 U	4.47 U	1.95 U	1.27 U
107-05-1	3-Chloropropene	ppbv	0.20 U	0.20 U	0.20 U	0.20 U
593-60-2	Bromoethene	ppbv	0.20 U	0.20 U	0.20 U	0.20 U
75-15-0	Carbon Disulfide	ppbv	0.20 U	0.34	1.03	0.20 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ppbv	0.20 U	0.20 U	0.20 U	0.20 U
75-35-4	1,1-Dichloroethene	ppbv	0.20 U	0.20 U	0.20 U	0.20 U
75-34-3	1,1-Dichloroethane	ppbv	0.20 U	0.20 U	0.20 U	0.20 U
75-69-4	Trichlorofluoromethane	ppbv	0.24	0.27	0.21	0.39
110-54-3	Hexane	ppbv	0.39	3.79	3.51	0.45
156-60-5	trans-1,2-Dichloroethene	ppbv	0.20 U	0.20 U	0.20 U	0.20 U
156-59-2	cis-1,2-Dichloroethene	ppbv	0.20 U	0.20 U	0.20 U	0.20 U
67-66-3	Chloroform	ppbv	0.20 U	0.20 U	0.20 U	0.20 U
107-06-2	1,2-Dichloroethane	ppbv	0.20 U	0.20 U	0.20 U	0.20 U
71-55-6	1,1,1-Trichloroethane	ppbv	0.20 U	0.20 U	0.20 U	0.20 U
110-82-7	Cyclohexane	ppbv	0.20 U	0.20 U	0.20 U	0.21
56-23-5	Carbon Tetrachloride	ppbv	0.20 U	0.20 U	0.20 U	0.20 U
75-27-4	Bromodichloromethane	ppbv	0.20 U	0.20 U	0.20 U	0.20 U
78-87-5	1,2-Dichloropropane	ppbv	0.20 U	0.20 U	0.20 U	0.20 U
540-84-1	2,2,4-Trimethylpentane	ppbv	0.11 J	0.31	0.20 U	0.38
10061-01-5	cis-1,3-Dichloropropene	ppbv	0.20 U	0.20 U	0.20 U	0.20 U
79-01-6	Trichloroethene	ppbv	0.05 U	0.05	0.05 U	0.28
71-43-2	Benzene	ppbv	0.29	1.11	1.01	0.39
124-48-1	Dibromochloromethane	ppbv	0.20 U	0.20 U	0.20 U	0.20 U
10061-02-6	trans-1,3-Dichloropropene	ppbv	0.20 U	0.20 U	0.20 U	0.20 U
79-00-5	1,1,2-Trichloroethane	ppbv	0.20 U	0.20 U	0.20 U	0.20 U
75-25-2	Bromoform	ppbv	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ
142-82-5	Heptane	ppbv	0.11 J	0.60	0.79	0.33 J
106-93-4	1,2-Dibromoethane	ppbv	0.20 U	0.20 U	0.20 U	0.20 U
127-18-4	Tetrachloroethene	ppbv	0.21 J	3.72 J	0.49 J	0.30 J
79-34-5	1,1,2,2-Tetrachloroethane	ppbv	0.20 U	0.20 U	0.20 U	0.20 U
108-88-3	Toluene	ppbv	0.47	5.81	9.10	2.40
108-90-7	Chlorobenzene	ppbv	0.20 U	0.20 U	0.20 U	0.20 U
100-41-4	Ethylbenzene	ppbv	0.06 J	1.02	1.80	0.72
100-42-5	Styrene	ppbv	0.20 U	0.10 J	0.24	0.20 U
1330-20-7	Xylene (m,p)	ppbv	0.18 J	3.38	5.51	2.35
95-47-6	Xylene (o)	ppbv	0.06 J	0.87	1.66	0.98
95-49-8	2-Chlorotoluene	ppbv	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ
622-96-8	4-Ethyltoluene	ppbv	0.20 UJ	0.28 J	0.54 J	0.40 J
108-67-8	1,3,5-Trimethylbenzene	ppbv	0.20 UJ	0.28 UJ	0.27 J	0.37 J
95-63-6	1,2,4-Trimethylbenzene	ppbv	0.20 UJ	0.65 J	1.18 J	1.39 J
541-73-1	1,3-Dichlorobenzene	ppbv	0.20 UJ	0.28 UJ	0.20 UJ	0.20 UJ
106-46-7	1,4-Dichlorobenzene	ppbv	0.20 UJ	0.28 UJ	0.20 UJ	0.20 UJ
95-50-1	1,2-Dichlorobenzene	ppbv	0.20 UJ	0.28 UJ	0.20 UJ	0.20 UJ
87-68-3	Hexachlorobutadiene	ppbv	0.20 UJ	0.28 UJ	0.20 UJ	0.20 UJ
120-82-1	1,2,4-Trichlorobenzene	ppbv	0.20 UJ	0.28 UJ	0.20 UJ	0.20 UJ
	Total Tentatively Identified Compounds	ppbv	3.9	335.3	568.1	5.3

Appendix B
Chain of Custody

H2M LABS, INC.

575 Broad Hollow Rd., Melville, NY 11747
Tel: (631) 694-3040 Fax:(631) 420-8436

AIR CANISTER CHAIN OF CUSTODY

Client Contact Information	Project Manager: Walter Berninger	CLIENT: Berninger	H2M SDG NO.: BER054
Company: Berninger Environmental	Phone: 631-589 6521	Samplers Name(s) Ronald Borhcher	C.O# 91
Address: 90-B Knickerbocker Ave	Site Contact:	Helium Tracer	
City/State/Zip Bohemia, N.Y.			
Phone:			
FAX:			
Project Name: American Hewlitt	Analysis Turnaround Time		
Site:	Standard (Specify)_____		
PO # 8012298	Rush (Specify)_____		

Sample Identification	Date Collected	Time Collected	Temp. (F)	Canister Pressure FIELD Initial("Hg) (Start)	FIELD ("Hg) / PSI (Stop)	LAB Outgoing ("Hg) (Lab)	LAB Incoming ("Hg) (Lab)	Flow Controller ID	Canister ID	Can Size (L)	LAB ID No.	Analysis TO-15	Analysis OTHER	Matrix Indoor / Ambient Air	Matrix Soil Gas	Matrix Source Level
SG-3A	1/29/08	1400	50°	-29	-2	-30		1074	~~1616~~ 1619	6.0	080129-009	✓				
SG-2A	1/29/08	1420	|	-30	-1	-30		908	1616	|	-003	✓				
SG-1A	1/29/08	1630	|	-28	-3	-30		1021	~~3404~~ 3415	|	-002	✓				
Ambient	1/29/08	1430	✓	-30+	-2	-30		2126	3426	↓	-001	✓				

	Pressure			Temperature (Fahrenheit)			
	Ambient	Maximum	Minimum		Ambient	Maximum	Minimum
Start				Start			
Stop				Stop			

Special Instructions/QC Requirements & Comments:

Samples Relinquished by: Butch Meyers BEI	Date/Time: 1/30/08 2:15	Received by:	Date/Time: 1/30/08 14:15
Relinquished by:	Date/Time:	Received by:	Date/Time:

WHITE COPY - ORIGINAL YELLOW COPY - CLIENT PINK COPY - LABORATORY

BER054 S6 Notify lab if equipment is damaged upon receipt. Client is responsible for damage to equipement

L.A.B. Validation Corp. 14 West Point Drive, East Northport, N.Y. 11731

Appendix C
NYSDEC ASP
Summary Forms

Phone (516) 523-7891 email LABValidation@aol.com

L.A.B. Validation Corp. 14 West Point Drive, East Northport, N.Y. 11731

Appendix D
SDG Narrative

Phone (516) 523-7891 email LABValidation@aol.com

H2M LABS, INC.

SDG NARRATIVE FOR VOLATILE ORGANICS IN AIR
SAMPLES RECEIVED: 1/30/08
SDG #: BER054

For Samples:

AMBIENT	SG-2A
SG-1A	SG-3A

The above canister samples were analyzed for volatile organics in air by EPA method TO15 in accordance with the NYSDEC ASP, Rev. 2000.

All QC data and calibrations met the requirements of the method, and no problems were encountered with sample analysis. The following should be noted:

- Sample results are reported in both ppbv and ug/m^3.
- No matrix spike/matrix spike duplicate was submitted with this SDG. A lab-fortified blank was analyzed and met QC limits except for several later elutes.
- TIC compounds, identified as siloxanes, that are suspected to be column bleed introduced by the analytical system, were flagged with the qualifier "X".
- TIC's identified as "alkanes" are listed on the TIC from 1F however are not counted in the number of TIC's reported.
- Low levels of methylene chloride was present in the method blanks and a TIC suspected of originating from column bleed was present in the blanks associated with these samples. These analytes were flagged with a "B" qualifier if present in samples associated with these blanks.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Date Reported: February 21, 2008

Joann M. Slavin
Senior Vice President

BER054 S11

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

SDG: BER054

Analytical Requirements

Customer Sample Code	Laboratory Sample Code	MSVOA
AMBIENT	0801963-001	X
SG-1A	0801963-002	X
SG-2A	0801963-003	X
SG-3A	0801963-004	X

CLP, (Non-CLP) (Please indicate year of protocol)

ASP B
10/95
CEL 2/21/08

BER054 S3

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
VOLATILE (VOA)
ANALYSES

SDG: BER054

Laboratory Samp ID	Client Sample ID	Matrix	Analytical Protocol	Date Collected	DateRecd at Lab	Date Extracted	Date Analyzed	Extraction Method	DF	Level	Aux Cleanup
0801963-001A	AMBIENT	Air	ETO-15	29-Jan-08	30-Jan-08		09-Feb-08		1	LOW	
0801963-002A	SG-1A	Air	ETO-15	29-Jan-08	30-Jan-08		08-Feb-08		1	LOW	
0801963-003A	SG-2A	Air	ETO-15	29-Jan-08	30-Jan-08		08-Feb-08		1	LOW	
0801963-004A	SG-3A	Air	ETO-15	29-Jan-08	30-Jan-08		14-Feb-08		1	LOW	

L.A.B. Validation Corp. 14 West Point Drive, East Northport, N.Y. 11731

Appendix E
Tentatively Identified Compounds (TICs)

Phone (516) 523-7891 email LABValidation@aol.com

1F

EPA SAMPLE NO.

AMBIENT

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No.: _____ SDG No.: BER054

Matrix: (soil/water) AIR Lab Sample ID: 0801963-001A

Sample wt/vol: 400 (g/mL) ML Lab File ID: I3314.D

Level: (low/med) LOW Date Received: 01/30/08

% Moisture: not dec. Date Analyzed: 02/09/08

GC Column: Rtx1 ID: .32 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 2 CONCENTRATION UNITS: (µg/L or µg/Kg) ppbv

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q	
	(DEL) Alkane: Branched (4.01)	4.01	1.40	J	
~~|	(DEL) Alkane: Straight Chain~~	~~4.24~~	~~1.70~~	~~BJ~~	R
	(DEL) Alkane: Branched (5.09)	5.09	2.50		
~~|	unknown(susp_column bleed) (15.85)~~	~~15.85~~	~~1.00~~	~~N~~	R
~~|	unknown(susp_column bleed) (19.58)~~	~~19.58~~	~~2.70~~	~~N~~	R

for
3/8/08

BER054 S17

1F

EPA SAMPLE NO.

SG-1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No.: _____ SDG No.: BER054

Matrix: (soil/water) AIR Lab Sample ID: 0801963-002A

Sample wt/vol: 400 (g/mL) ML Lab File ID: I3309.D

Level: (low/med) LOW Date Received: 01/30/08

% Moisture: not dec. Date Analyzed: 02/08/08

GC Column: Rtx1 ID: .32 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

Number TICs found: 3 CONCENTRATION UNITS: (µg/L or µg/Kg) ppbv

	CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q
1.		unknown alkene (3.72)	3.72	14.8	J
2.		unknown alkene (4.17)	4.17	10.9	J
3.		(DEL) Alkane: Branched (14.61)	14.61	18.9	J
4.		(DEL) Alkane: Branched (14.97)	14.97	42.2	J
5.		(DEL) Alkane: Straight-Chain (15.34)	15.34	81.7	J
6.		unknown alkene (18.47)	18.47	61.1	J
7.		(DEL) Alkane: Branched (18.79)	18.79	26.9	J
8.		(DEL) Alkane: Cyclic	18.85	29.3	J
9.		(DEL) Alkane: Branched (19.24)	19.24	30.6	J
10.		(DEL) Alkane: Straight-Chain (19.74)	19.74	18.9	J

BER054 S20

1F

EPA SAMPLE NO.

SG-2A

VOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No.: _____ SDG No.: BER054

Matrix: (soil/water) AIR Lab Sample ID: 0801963-003A

Sample wt/vol: 400 (g/mL) ML Lab File ID: I3310.D

Level: (low/med) LOW Date Received: 01/30/08

% Moisture: not dec. Date Analyzed: 02/08/09

GC Column: Rtx1 ID: .32 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: [illegible]

CONCENTRATION UNITS:

Number TICs found: 4 (µg/L or µg/Kg) ppbv

	CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	
1.		unknown alkene (3.72)	3.72	11.1	J
2.		(DEL) Alkane: Branched (14.61)	14.61	26.6	J
3.		(DEL) Alkane: Branched (14.98)	14.98	61.5	J
4.		(DEL) Alkane: Straight-Chain (15.35)	15.35	110	
5.		unknown alkene (18.47)	18.47	103	
6.		unknown alkene (18.69)	18.69	19.6	J
7.		(DEL) Alkane: Branched (18.79)	18.79	55.9	J
8.		unknown alkene (18.85)	18.85	64.2	J
9.		(DEL) Alkane: Branched (19.25)	19.25	70.8	J
10.		(DEL) Alkane: Straight-Chain (19.74)	19.74	43.4	J

BER054 S23

1F

EPA SAMPLE NO.

SG-3A

VOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: H2M LABS, INC. Contract: _____

Lab Code: 10478 Case No.: BER SAS No.: _____ SDG No.: BER054

Matrix: (soil/water) AIR Lab Sample ID: 0801963-004A

Sample wt/vol: 400 (g/mL) ML Lab File ID: I3357.D

Level: (low/med) LOW Date Received: 01/30/08

% Moisture: not dec. **Date Analyzed: 02/14/08**

GC Column: Rtx1 ID: .32 (mm) **Dilution Factor: 1.00**

Soil Extract Volume: (µl) **Soil Aliquot Volume: 0 (µL)**

CONCENTRATION UNITS:

Number TICs found: 1 (µg/L or µg/Kg) ppbv

	CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q
1.		(DEL) Alkane: Branched (4.03)	4.03	1.70	J
2.		(DEL) Alkane: Straight-Chain	4.27	1.30	J
3.		(DEL) Alkane: Branched (5.11)	5.11	2.30	J
~~4.~~		~~unknown(susp_column bleed)~~	~~15.85~~	~~2.30~~	~~BJX~~

R

for 3/18/08

BER054 S26

SUPPLEMENTAL REMEDIAL INVESTIGATION REPORT

FOR

AMERICAN DRIVE-IN CLEANERS OF HEWLETT, INC.

1345 PENINSULA BOULEVARD
HEWLETT, NEW YORK

Site No.: 130228

Index No.: CO 1-20180509-116

PREPARED FOR

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
625 BROADWAY
ALBANY, NEW YORK 12233-7016

PREPARED BY

Prepared by:
John V. Soderberg, P.E.
PO Box 263
Stony Brook, New York 11790

FINAL
August 2022 (revised)

TABLE OF CONTENTS

1.0 INTRODUCTION ..... Page 1
1.1 Purpose ..... Page 1

2.0 SITE HISTORY ..... Page 1
2.1 Physical Site Description ..... Page 1
2.2 Site History, Ownership and Land Use ..... Page 1
2.3 Adjacent Property Land Use ..... Page 2
2.4 Geographic Setting ..... Page 3
2.5 Hydrogeology ..... Page 3
2.6 Topography ..... Page 6
2.7 Water Supply Wells ..... Page 6
2.8 Drainage Pattern ..... Page 6
2.9 Soils ..... Page 7
2.10 Infrastructure ..... Page 7

3.0 SUMMARY OF PAST INVESTIGATIONS ..... Page 8
3.1 NCDH 2002 Sampling ..... Page 8

4.0 SUPPLEMENTAL REMEDIAL INVESTIGATION RESULTS ..... Page 9
Task 1
4.1 On-site Monitoring Well Groundwater Results ..... Page 9
4.2 Off-site Groundwater Results ..... Page 9
4.3 Emerging Contaminants (PFAS and 1,4 Dioxane) Results ..... Page 10
Task 2
4.4 On-site and Off-site Soil Vapor Results ..... Page 11
Task 3
4.5 Groundwater Flow Direction Survey ..... Page 11
5.0 HEALTH AND SAFETY PLAN ..... Page 11

6.0 COMMUNITY AIR MONITORING PLAN ..... Page 11

7.0 CONCLUSION ..... Page 12

TABLE OF CONTENTS

List of Figures

Figure - 1 Location Map
Figure - 2 USGS Topographic USGS Quadrangle (Lynbrook)
Figure - 3 Aerial Photograph with Subject Property
Figure - 4 Public Water Supply Location Map
Figure - 5 Groundwater Elevation Map with Subject Property
Figure - 6 Site Plan and Survey
Figure - 7 Monitoring Well Sampling Locations
Figure - 8 Soil Gas Sampling Locations
Figure - 9 Updated Groundwater flow Survey

List of Appendices

Appendix - A Previous Soil Vapor Intrusion Report
Appendix - B NCDOH Data
Appendix - C Validated Groundwater data (On and Off-site with PFAS)
Appendix – D Validated SVI data
Appendix – E Community Air Monitoring Plan data

List of Tables

Table – 1 Tabulated Monitoring Well Data
Table – 2 Tabulated Off-site Groundwater Data
Table – 3 Tabulated PFAS and 1,4 Dioxane Data (MW-1, MW-3 and MW-6A)
Table – 4 Tabulated Soil Vapor Sample Data

1.0 INTRODUCTION

This Supplemental Remedial Investigation Report (SRIR) has been developed pursuant to the requirements of an executed Order on Consent (OOC) dated June 25, 2018. Previously the site was listed under the Voluntary Cleanup Agreement (June, 2003) between the New York State Department of Environmental Conservation, Division of Environmental Remediation (DER), and American Drive-In Cleaners of Hewlett, Inc., the Volunteer. The site has formally transitioned to an Order on Consent as of the June 25, 2018 date. The site is located at 1345 Peninsula Boulevard, Hewlett, New York 11557 (see Figure 1), fully described as Section 038, Block 446, Lot Nos. 61, 63, 70 and 72.

1.1 Purpose

The purpose of the SRIR is to:

- determine the current nature and delineate the extent of contamination in groundwater and soil gas on-site and emanating from the site;
- collect and evaluate on and off-site groundwater and soil gas data to evaluate the current potential impact to public health and the environment;
- Identify collected data needed for monitoring natural attenuation, potential feasible cleanup technologies and presumptive remedies.

2.0 SITE HISTORY

2.1 Physical Site Description

Site Name: American Drive-In Cleaners of Hewlett, Inc.

Owner: Mr. Bertram Moreida, President of American Drive-In Cleaners of Hewlett, Inc.

Location: 1345 Peninsula Boulevard, Hewlett, New York 11557, Latitude 40º 38'40" N, Longitude 73º42'7"W

Former Voluntary Cleanup Agreement: Site No.: V-00616-1

2.2 Site Description, History of Ownership and Land Use

The American Drive-In Cleaners of Hewlett, Inc. (American Drive-In Cleaners) site is situated on a triangular shaped parcel approximately 0.6686 acres in size located on

the south side of Peninsula Boulevard and 432.28 feet east of the intersection of Mill Road and Peninsula Boulevard (Figures 1 and 2). The eastern boundary of the site abuts the Rockaway Branch right-of-way of the Long Island Railroad (LIRR). The LIRR tracks are installed in a north/south direction and parallel to Harris Avenue located to the east of this right-of-way.

The site is developed with a one-story slab-on-grade approximately10,000 ft^2 cinder block/ brick-faced building that encompasses more than 60 percent of the footprint of the subject parcel. The building is situated along the eastern boundary of the parcel. The building shape is an irregular triangle and measures between 144 feet and 164 feet in the north/south direction and between 35 feet and 178 feet in the east/west direction. The south rear-side of the building measures approximately 50-feet in the east/west direction. The front side (entrance) of the property is at the south side of Peninsula Boulevard. The undeveloped portion of the property, to the west and south of the building, is asphalt paved for parking.

In an interview with Mr. Moreida on October 3, 2003, he indicated that the subject property had been developed from vacant land circa 1958-59 for use as a dry cleaner. He purchased solely the dry cleaning business at the subject property in 1960 and the real estate (the subject property) in1965 from the Estate of Philip Basser. He further indicated that the original portion of the building (northern portion) was constructed in 1958-59 with two minor additions to the southern portion of the building in 1963 (boiler room) and circa 1985 (dry cleaning machine room).

2.3 Adjacent Property Land Use

The Peninsula Boulevard corridor and surrounding areas have been used for commercial purposes and residential housing since before the date of development of the subject property. (see Figures 2 and 3). In particular, the adjacent properties' current uses include:

North: Directly to the north is Peninsula Boulevard. A strip shopping center is present on the north side of Peninsula Boulevard with various retail/commercial operations such as the following: jewelry store, liquor store, food restaurant, hair cutting salon, nail salon, clothing store, butcher, florist, shoe store, electronic store, optical store, stationary stores, video store, toy shop, bakery and a large supermarket (Foodtown located at 1368 Peninsula Boulevard). A ballfield and associated park are located to the north of the shopping center.

South: The areas to the southeast and southwest of the subject property are predominantly residential. A u-shaped residentially developed street is

present to the southwest (Chestnut Drive) with additional residential development along Harris Avenue to the southeast.

East: Directly to the east of the subject property is the elevated portion of the railroad tracks of the Long Island Railroad. Further to the east is residential development along Harris Avenue.

West: Directly to the west is a commercial bank building (HSBC). Further to the west is a Sunoco Gasoline Station, a Shell Gasoline Station, a hair cutting salon and another dry cleaners (Mill Road Drive-In Dry Cleaners), along Mill Road. To the northwest, along Peninsula Boulevard, a commercial retail zone exists. Further to the west-southwest is residential development

2.4 Geographic Setting

Previous investigators have concluded that the Laurentide continental ice sheet deposited two major terminal moraines on Long Island during the Wisconsinan stage of the Pleistocene Epoch (Cadwell, 1989). These moraines formed two lines of hills that trend generally east-west along the island. American Drive-In Cleaners of Hewlett, Inc. lies in the outwash plain south of the confluence of the Harbor Hill and Ronkonkoma moraines and is within the drainage area of the south shore bays of Long Island.

2.5 Hydrogeology

A concise and accurate description of the geology, physiography and drainage of Nassau County is found in the Soil Survey of Nassau County, New York (USDA). Relevant excerpts of this study are included below. Nassau County is part of the Coastal Plain physiographic province. The county is characterized by undulating or rolling landscapes in the northern part and a flat plain with a gently southward tilt in the southern part. A lobe of rolling topography protrudes farther to the south along the eastern edge of the county. Extensive tidal areas and marshes are just south of the plain and a barrier beach and dunes form the southern outline of the county.

Elevation in the county ranges from sea level to about 340 feet above sea level near the eastern edge of the county, just south of NYS Route 25. The landforms at the higher elevations were deposited as a terminal moraine. These areas have irregular topography that is crossed by deep glacial drainage channels near the north shore. These channels empty into deep bays on the north shore. The steepest relief is along drainage channels or on the side slopes adjacent to the bays. An outwash plain, which

is to the south of the terminal moraine, has a maximum elevation of about 180 feet just northeast of Hicksville and slopes gradually to the south some 8 to 10 miles, finally reaching tidal area at sea level.

Nassau County is underlain by bedrock, but most of it is at a depth of several hundred feet. The closest surficial bedrock is to the west in the boroughs of Bronx and Queens in New York City and areas to the northwest in Westchester County near Long Island Sound. From these areas of surface exposure, the rock surface dips to the southeast to form a solid basement below Nassau County. Most of the bedrock consists of Cretaceous sedimentary layers. Some of the older rocks in the area are the 200 million year old Triassic red beds and lava flows off New Jersey and Connecticut and Cambrian metamorphic rocks in the New York City area that are 450 million years old.

During the late Cretaceous Period the sediments from the eroding Appalachian Highlands were carried by streams and rivers to low-lying coastal areas. The sand, silt and clay of the Raritan and Magothy formations, which form the foundation of Long Island, were deposited as deltas in areas of shallow water. The Raritan formation is below sea level and the Magothy formation is at the surface of several sites along the north shore. The Magothy is the primary potable water supply aquifer on Long Island.

During the Tertiary Period the area of Long Island was uplifted above sea level and the Cretaceous sediments were eroded and dissected by streams and rivers. The valley now occupied by Long Island Sound was cut by a major river and smaller tributary streams formed valleys which are now the north shore bays.

During the Pleistocene Epoch of the Quaternary Period, several major glacial advances into the northern United States occurred. This epoch is divided into four major glacial stages. From oldest to youngest, they are: Nebraskan, Kansan, Illinoisan and Wisconsinan. During the Illinoisan advance, the ice sheet reached a position just north of the Long Island area. Outwash sand and gravel, of the Jameco gravel formation, was deposited by meltwater streams. Following the Illinoisan stage, sea level rose close to its present level and a clay (Gardiner clay) containing marine fossils was deposited in the shallow coastal waters surrounding Long Island.

During the Wisconsinan glacial advance the ice reached a position represented on most of Long Island by the Ronkonkoma terminal moraine. In the latter part of this stage, the ice sheet receded from a point east of Lake Success and established a new position along the north shore marked by the Harbor Hill terminal moraine. West of Lake Success this lobe of ice overrode the Ronkonkoma moraine and pushed as far south as Staten Island. This caused the terminal moraine/deposits in Nassau County to form a wide band of irregular topography occupying the northern half of the county, while in adjacent Suffolk County the terminal moraine deposits were far

enough apart to be two distinct landforms separated by a flat plain. During the Wisconsinan advance sea level dropped about 350 feet below its current elevation to expose a broad flat coastal plain.

As the climate again warmed, about 11,000 years ago, the Wisconsinan period ended and the Holocene, or present, period began. The ice sheet receded to its present polar limits and sea level rose to its present level. Currents and wave action modified the outwash plain to create the present-day shoreline.

These overlying Pleistocene deposits, referred to as the Upper Glacial aquifer, is a highly prolific aquifer and consists of three distinct units. The oldest and deepest unit is a sand and gravel layer associated with the Ronkonkoma ice sheet. After the recession of the ice sheet sea level rose to near its' present level. During this interstadial period, marine and/or lacustrine sediments were deposited over the Ronkonkoma deposits, a clay bed at the base, separated from an upper clay bed by a band of silty sandy beds. Overlying the clay is a terminal moraine and adjacent outwash deposits associated with the Harbor Hill ice sheet.

Direction and rate of groundwater flow are controlled by the rate and distribution of water entering and leaving the aquifer systems, the geometry of these systems and the distribution of water transmitting and storage properties of these aquifer systems. Based upon a projection from review of Nassau County Water Table Maps, local groundwater flow direction in the shallowest aquifer (the Upper Glacial aquifer) is expected to be in the south (either southwest or southeast) dependent upon local discharge patterns to surface water headwater areas. Published literature values for estimated average hydraulic conductivity for the Upper Glacial Aquifer is 270 feet per day horizontal with rates of 27 feet per day for vertical flow. Previous work performed by BEI proximate to the study area has determined the depth to groundwater within the Upper Glacial aquifer as approximately 5-10 feet below grade surface (bgs). Previous groundwater flow surveys conducted have documented flow direction to the northwest, possibly due to the PSW (N-01346) to the northwest changing the gradient. An updated groundwater flow survey will be conducted and will include: updated casing elevations and also current depth to water measurements.

The subject property is located within the boundaries of Hydrogeologic Zone VII: South Shore Shallow Flow Discharge System. Zone VII is located south of the Magothy recharge zone on the South Shore and discharges to Nassau and western Suffolk South Shore bays where tidal exchange facilitates the dilution and dispersion of contaminants. Zone VII is a shallow flow zone, thus contamination from activities in Zone VII will mainly affect the Glacial aquifer. Zone VII contains a number of streams that feed the South Shore bays. These streams are important recreationally, ecologically and as a freshwater source to South Shore bays.

2.6 Topography

The subject site is located approximately 25-30 feet above mean sea level and the National Geodetic Vertical Datum of 1929 (USGS-Lynbrook Quadrangle - Figure 2). The land surface is relatively flat within the study area with slope in topographic grade to the south-southwest towards proximate surface water (canals and bays).

2.7 Water Supply Wells

Berninger Environmental conducted an investigation on the potable (drinking) and non-potable water supply wells located within a half-mile radius of the subject site. Region I of the NYSDEC requires that all wells (potable supply and non-potable supply) which pump at least 45 gallons per minute must be permitted. A review of these records indicated that the Long Island Water Corporation (LIWC) is the distributer of potable water in the area of the subject site and one public supply well (N-01346) is located within approximately ½ mile of the study site. The location of this well is presented in Figure 4. This public supply well is located approximately ½ mile to the northwest and hydraulic down gradient of the site. The table below provides data on this well. An updated groundwater flow survey will be provided in order to determine if contamination emanating from the subject site is potentially impacting the PSW. More information on the updated survey is provided in section 4.0-Task 3.

Well Field Data

Well No.	Aquifer	Land Surface	Depth to Bottom	Depth to Screen
N-01346	Jameco	10 ft msl	160 ft bgs	135 ft bgs

2.8 Drainage Pattern

There are several proximate surface water areas relative to the study property. These include Motts Creek (closest), Willow Pond and Georges Creek within a one mile radius. Based upon an evaluation of topographic grade changes, the local surficial and hydraulic drainage pattern is likely into the drainage basin of Motts Creek (slightly up gradient) or Georges Creek, which ultimately discharge to the areas of the south shore bays and the Atlantic Ocean. The surface water bodies observed within a ½ mile radius of the site include only Motts Creek. The localized groundwater flow direction for the shallow Upper Glacial aquifer at the site is to the north northwest as depicted in the localized groundwater flow survey. Figure-5.

2.9 Soils

According to the United States Department of Agriculture Soil Conservation Service and the Soil Survey of Nassau County, New York, the soils at the subject site are classified Us-Urban land Sudbury complex. This unit consists of urbanized areas and very deep, moderately well drained soils. This soil unit is noted to be on nearly level plains. The areas of this soil are variable in shape and are as much as several hundred acres each. Slope ranges from 0 to 3 percent. This unit consists of about 70 percent urbanized areas, 20 percent moderately well drained Sudbury soils and 10 percent other soils. The urbanized areas and Sudbury soils are so intermingled that it was not practical to map them separately. The urbanized areas are buildings, roads, driveways, parking lots and other manmade structures. Included with this soil, in mapping, are small areas of excessively drained to moderately well drained Udipsamments and well drained Riverhead soils. The Udipsamments are in areas of construction activity where sandy material has been mixed with the surface layer and subsoil. The typical sequence, depth and composition of the layers of Sudbury soils are as follows:

Surface layer: Surface to 5-inches, dark reddish brown fine sandy loam

Subsoil: 5 to 18-inches, yellowish brown sandy loam

18+-inches, mottled, yellowish brown gravelly loamy sand

Substratum: 28-to 40-inches, mottled, pale brown very gravelly sand
40 to 60-inches, very pale brown, very gravelly sand

2.10 Infrastructure

During the interview with Mr. Moreida, the following site specific information regarding utilities and infrastructure relative to the subject property was established see Figure 6. The property has been connected to the municipal sewer system since its development circa 1958-59. Therefore, all bathrooms and wastewater piping within the building have been and are connected to the on-site municipal sanitary system. No other in-situ drainage structure were identified within the building. The municipal sewer line enters the building at its northwest corner, at which location both natural gas and municipal water lines are also present.

Electric and telephone service enter the building from above ground poles. The property is served by natural gas (KeySpan), which is used predominantly for a dual-fired boiler steam generation and heating system. A 1,000 gallon No. 2 fuel oil above ground storage tank (AST), with secondary containment (lube cube-style) is present

at the western exterior side of the building, near the interior boiler room. A small capacity on-site water supply well is used, in addition to municipal potable water, for make-up water for the non-contact cooling water system. The hazardous materials storage area is a steel trailer located at the rear southern portion of the subject property, exterior and not joined to the building. The current and historic dumpster location is at the mid-central portion of the subject property.
No storm water dry wells or catch basins were observed to be present on the subject property. Drainage appears to flow into Peninsula Boulevard and to perimeter areas of the subject property.

3.0 SUMMARY OF PAST INVESTIGATIONS

Information available to Berninger Environmental, Inc. (BEI) from an interview with Mr. Moreida indicated that the Nassau County Department of Health (NCDH) had previously inspected, collected and analyzed samples of wastewater emanating from boiler blow-down water and/or former evaporative water discharges and the shallow soils at the southeastern perimeter of the subject property. A discussion of these activities is provided below; BEI has not been provided with actual copies of the NCDH inspection reports, except for that data provided in Appendix B. These inspection reports have been requested under the Freedom of Information (FOIL) Process

3.1 NCDH Sampling 2002 Program

On January 15, 2002, Nassau County Department of Health (NCDH) collected samples of wastewater being discharged to a location outside the southeastern side of the site building. The water samples were collected from a wastewater stream caused by either former boiler blow-down and/or evaporator discharges from a unit located within the American Drive-In Cleaners. This sample analyzed by the NCDH laboratory detected a concentration of tetrachloroethylene (PCE) at a concentration of 7.3 parts per billion (ppb). A second round of sampling in March 2002 reported a concentration of 16 ppb.

On March 19, 2002 soil samples were also collected by NCDH at the same wastewater discharge location at the southeastern side of the building from a depth of 2 to 6-inches below grade surface (bgs). These soil samples reported concentrations of PCE up to 4,000 ppb. The same soil sample contained an elevated concentration of abreakdown product of PCE, known as cis-l,2-Dichloroethene (1,2-DCE) at a concentration of 7,400 ppb.

A soil gas study was also conducted during January of 2008 and the results concluded that neither PCE nor TCE was detected in three (3) soil gas samples collected. The samples were collected south of the site within the backyard areas of the three (3) closest residences to the subject site. Please refer to Appendix-A for the complete soil gas sampling Report.

4.0 SUPPLEMENTAL REMEDIAL INVESTIGATION RESULTS

Task 1 - Monitoring Well Sampling and Off-site Groundwater Collection

A total of seven (7) monitoring wells were sampled from the subject property on July 31, 2019 and analyzed via EPA test method 8260 (VOCs) and select wells MW-1, 3 and 6A were sampled for emerging contaminants PFAS (21 list) and 1,4 Dioxane. During the investigation off-site monitoring wells MW-4, 5 and 6 were unable to be located as new construction of the sidewalk in this area north of the site, appeared to be the cause for the missing wells. In leu of sampling from the off-site wells, temporary sampling points were installed off-site at these locations in order to replicate the sampling intervals proposed in the SRIWP.

Utilizing the currently viable monitoring wells located throughout the site, samples were obtained using low-flow sampling techniques. Temporary well points were installed to the north of the property along Peninsula Boulevard and sampled at depths of 5-9'; 15-19' and 26-30'. Further information on the sample collection protocol is provided in section 5.0 of the SRIWP. Please see Figure-7 for the locations of the monitoring wells and temporary off-site well locations.

4.1 On-site Monitoring Well Sampling Results

Analytical data provided for on-site monitoring wells (MW-1, MW-2, MW-3, MW-6A, MW-7, MW-8 and MW-N. Samples were analyzed via EPA method 8260 for VOCs utilizing low-flow sampling techniques. All the on-site monitoring wells exhibited some amount of PCE and daughter breakdown products from 110 ppb in MW-3 to 32,000 ppb at MW-1. Complete breakdown through to Vinyl Chloride was observed at select well locations where *cis*-1, 2 DCE was present at elevated levels ranging from 2,000 ppb 15,000 ppb. The data for each of the wells is tabulated and included as Table-1 of the Report.

4.2 Off-site multi-level Groundwater Results

Off-site groundwater was collected at three (3) locations GW-4, GW-5 and GW-6 and at multiple depths: 5-9', 15-19', 26-30'. The highest concentration detected was cis-1, 2, DCE at the GW-4@ 15-19' at 35,000 ppb. Contamination levels at the bottom of GW-4, at the 30' mark was mainly non-detect with very minimal DCE. GW-5 was similar to GW-4 with regard to the distribution of PCE and breakdown products throughout each depth. The highest detection at the GW-5 location was again, *cis*-1, 2 DCE at 15-19' with a concentration of 10,000 ppb and leveling off at 570 ppb from 25-29' bgs. GW-6 was the western most off-site groundwater sample collected. Very minimal contamination was detected at this location with the highest detection in the 15-19' depth with cis-1, 2 DCE at 110 ppb and TCE at 12 ppb. Based on these concentration levels, further delineation to the west of GW-6 does not appear necessary. Tabulated

data for the off-site groundwater samples is included as Table-2 and validated lab data for all groundwater data is included as Appendix-C.

4.3 Emerging Contaminants (PFAS and 1, 4 Dioxane) Results

Sampling for emerging contaminants was sampled at select wells MW-1, MW-3 and MW-6A. Sampling was originally intended at MW-2, but there was not enough recovery from this well to procure a sample. MW-6A was used to substitute sampling in lieu of MW-2 and was a field-based decision.

The lab results indicated detections of PFOA and PFOS at MW-1 of 181 ppt and 3,530 ppt; MW-3 at 235 ppt and 40.3 ppt; and MW-6A at 121 ppt and 2,380 ppt respectively.

Tabulate analytical data is provided for PFAS and 1,4 Dioxane as Table-3. Please refer to Figure-7 for the sampling locations. Third party validated lab for the emerging contaminants is included as Appendix- C.

Task 2 - Soil Gas Investigation Results

All soil gas samples were collected in accordance with the New York State Health Department (NYSDOH) "Guidance for Evaluating Soil Vapor Intrusion in the State of New York" protocols. The Geoprobe will be equipped with a Post-Run Tubing System (PRT) and soil gas samples were collected from beneath whatever land surface materials (concrete, asphalt or grass) encountered. The PRT tubing was set at a minimum depth of 4 feet (bgs) and the point was extracted from the probe rods. Upon extracting the probe point, the tubing exiting the probe rods, and the probe rod borehole was sealed with bentonite or a hydraulic cement. The area around the soil gas sample collection point encompassed bya plastic container for the introduction of a tracer gas such as helium. Helium was introduced via a tubing penetration into the plastic container as a tracer gas in order to quantify that no circumvention of air was occurring. The plastic tracer container was sealed to the ground surface and sealed where the tubing exits the container. A helium detector was connected inline between the sample container sampling point to ensure that no more than ten percent (<10%) helium infiltrated the sampling media.

Subsequent to the introduction of helium tracer gas, the annular space was purged a minimum of one volume of soil gas using a personal sampling pump. During purging and sampling, the flow rate did not exceed 0.2 liters per minute. A pre-set regulator and dedicated summa cannister were used to procure the soil gas samples. The cannisters were labeled with all pertinent information for the laboratory. Samples were analyzed via EPA TO-15 for volatile organic compounds with third party lab validation.

4.4 On-site and Off-site Soil Gas Results

A series of on and off-site soil gas samples and one (1) outdoor ambient air sample was collected at select locations as seen on Figure-8. A total of five (5) Soil vapor samples were collected for a two (2) hour flow duration and labeled SV-1-SV-5. The highest concentration of PCE was detected at the SV-3 location with a concentration of 300 µg/m3. The outdoor ambient (OA-1) air sample detected PCE at 108 µg/m3. SV-1, 2, 4 and 5 all detected PCE at or below 60 µg/m3. Please refer to Table-4 for tabulated soil vapor results and Figure-8 for posted concentrations with relation to sampling location. Please see Appendix-D for SVI validated lab data.

Task 3 – Groundwater Gradient Survey

4.5 Groundwater Flow Direction Survey

An updated groundwater flow survey was conducted in order to confirm the groundwater flow of northwest. Casing elevations on a minimum of five (5) monitoring wells were surveyed to the nearest one hundredth (.01') of a foot from the north side of the well casing. Depth to water (DTW) measurements were also included in the be gauged from the north side of the well casing in order to determine the current water table gradient in the area of the subject site. Based upon the updated survey information a groundwater flow direction of NNW (350deg) has been documented. Please refer to Figure-9 for the updated groundwater flow survey.

5.0 HEALTH AND SAFETY PLAN (HASP)

The site-specific Health and Safety Plan developed and approved under the initial Remedial Investigation Work Plan was adhered to by all personnel involved in the investigation. Incorporated into the plan was a section on community health and safety with measures to ensure the public living and working near the site, including facility employees or visitors, were protected from exposure to site contaminants during intrusive activities or on-site treatment actions.

6.0 COMMUNITY AIR MONITORING PLAN

A Community Air Monitoring Plan (CAMP) provides for real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each

designated work area when certain activities are in progress at contaminated sites. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air. VOC and particulate monitoring were performed during all ground intrusive activities and is provided for the July 31st and August 15th investigation activities. Please see Appendix-E for the CAMP data.

7.0 CONCLUSION

In conclusion, groundwater flow direction has been determined to be slightly north of original surveys performed but remains in a generally NNW direction. On-site monitoring wells had contamination at select locations with PCE levels discovered site wide. Vertical off-site delineation has been achieved with only moderate concentrations observed in GW-6 at 30' bgs. Attempting to retrieve samples beyond this depth may risk the potential for mechanically induced vertical transport of contamination as a result of puncturing the confining unit at approximately 32' bgs.

Soil vapor PCE concentrations were detected at off-site locations with SV-3 showing the highest PCE level of 325 ug/m3. Based on these results a supplemental soil gas investigation Work Plan will be developed in order to determine SVI impacts at the strip mall to the north of the site.

Biological degradation is evident both site-wide and off-site in groundwater with daughter breakdown products observed through to Vinyl Chloride. Based on this observation it is accurate to conclude that natural attenuation via the process of dehalorespiration is occurring both on and off-site, and further monitoring of this process is recommended.

FIGURES

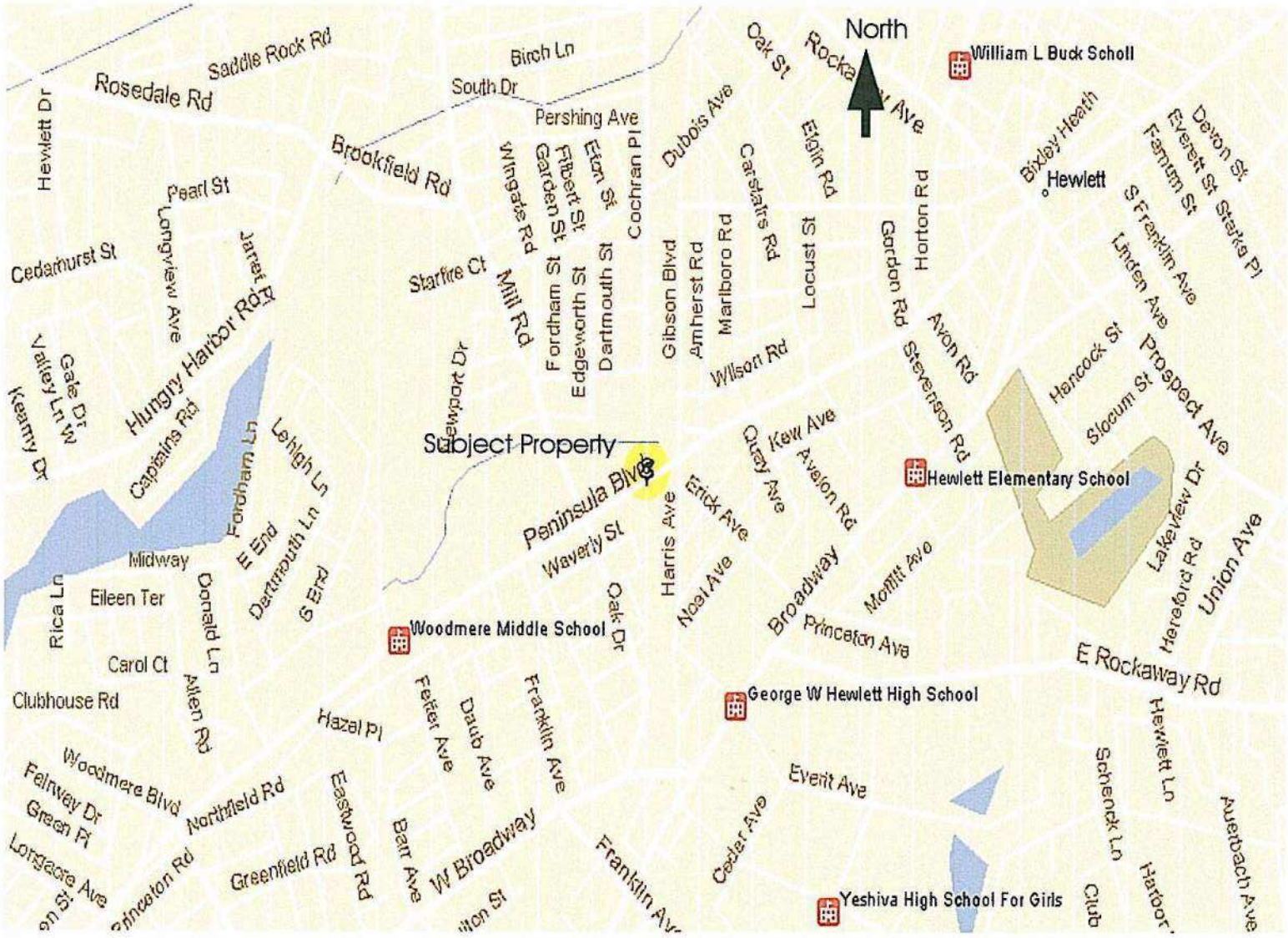
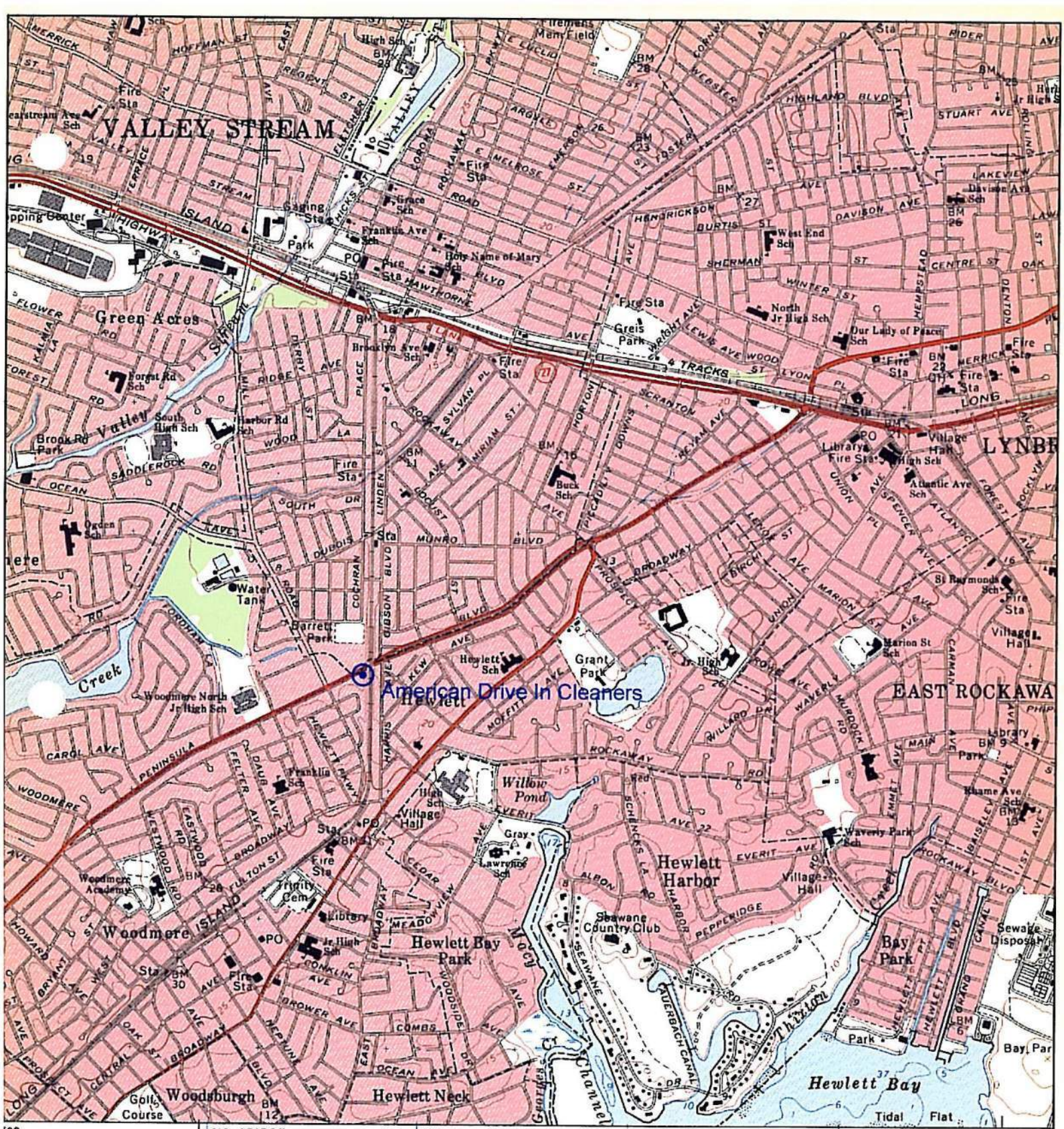


Figure 1 - Location Map for American Drive-In Cleaners
1345 Peninsula Boulevard, Hewlett, New York

No scale



<Default> - 1 Markers, Length = 0 feet

American Drive In Cleaners - 040° 38' 38.9" N, 073° 42' 09.6" W

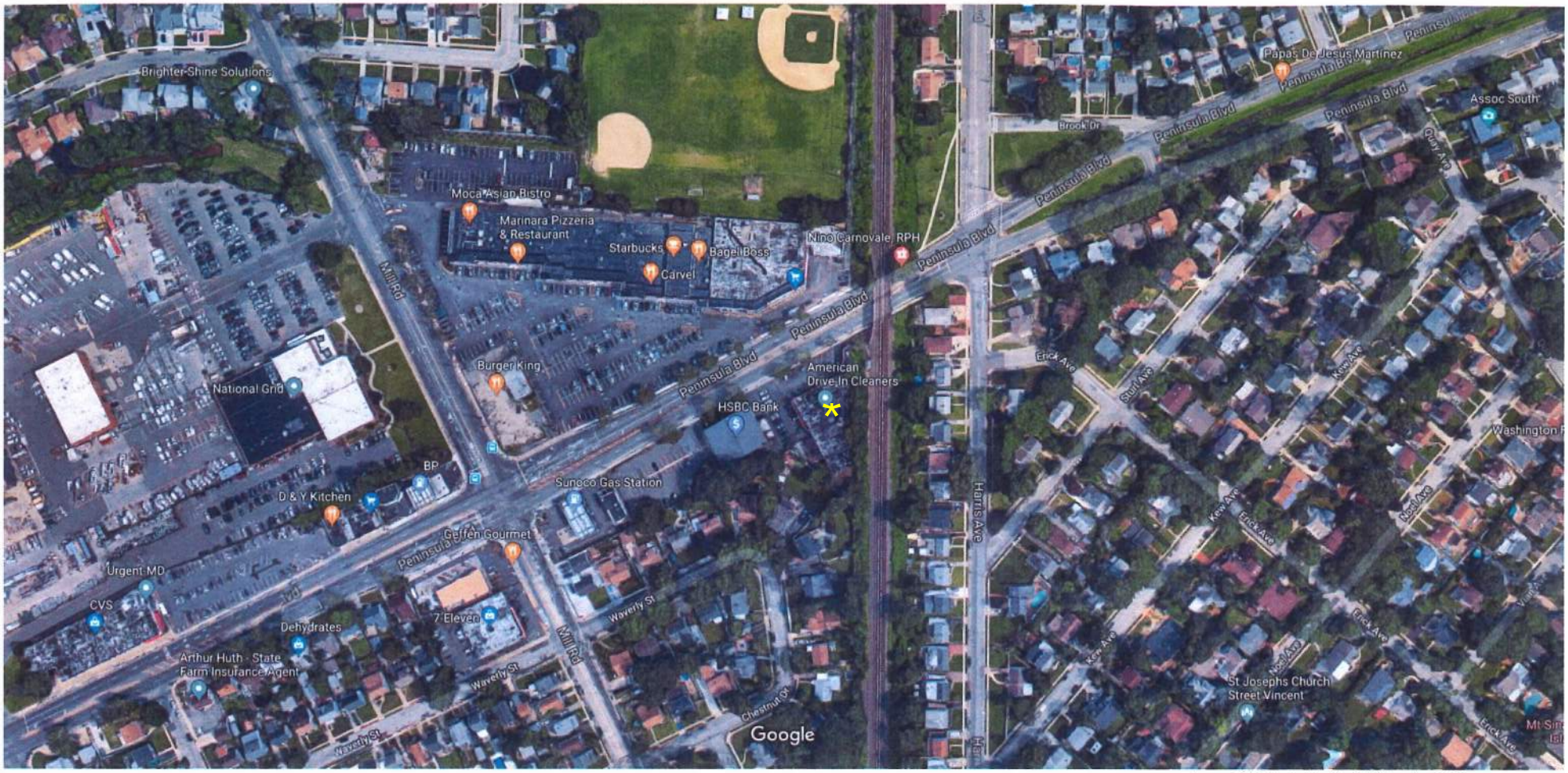
ıe: LYNBROOK
Date: 10/3/103
Scale: 1 inch equals 2000 feet

Location: 040° 38' 48.6" N 073° 41' 36.2" W
Caption: American Drive In Cleaners
1345 Peninsula Blvd.
Hewlett, NY 11557
Figure #2

Copyright (C) 1997, Maptech, Inc.

Figure-2

Google Maps



Imagery ©2018 Google, Map data ©2018 Google 100 ft

Set a home address

Set a work address

Updated 3 min ago

Moderate traffic in this area
Typical conditions

Hewlett 83°

* site (yellow asterisk)

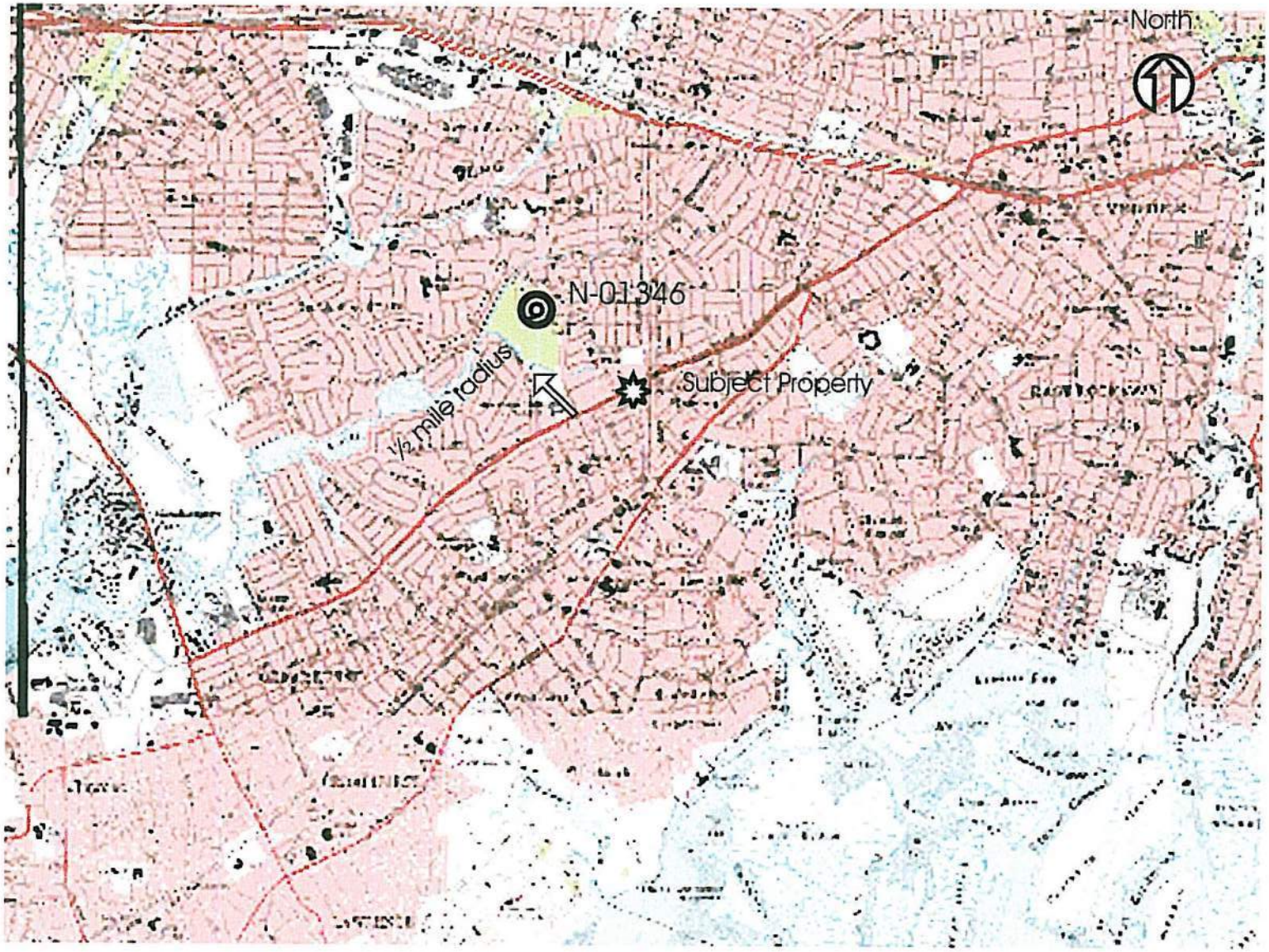


Figure 4 - Public Water Supply Well Location Map

1 inch = Approx. 3,200 feet

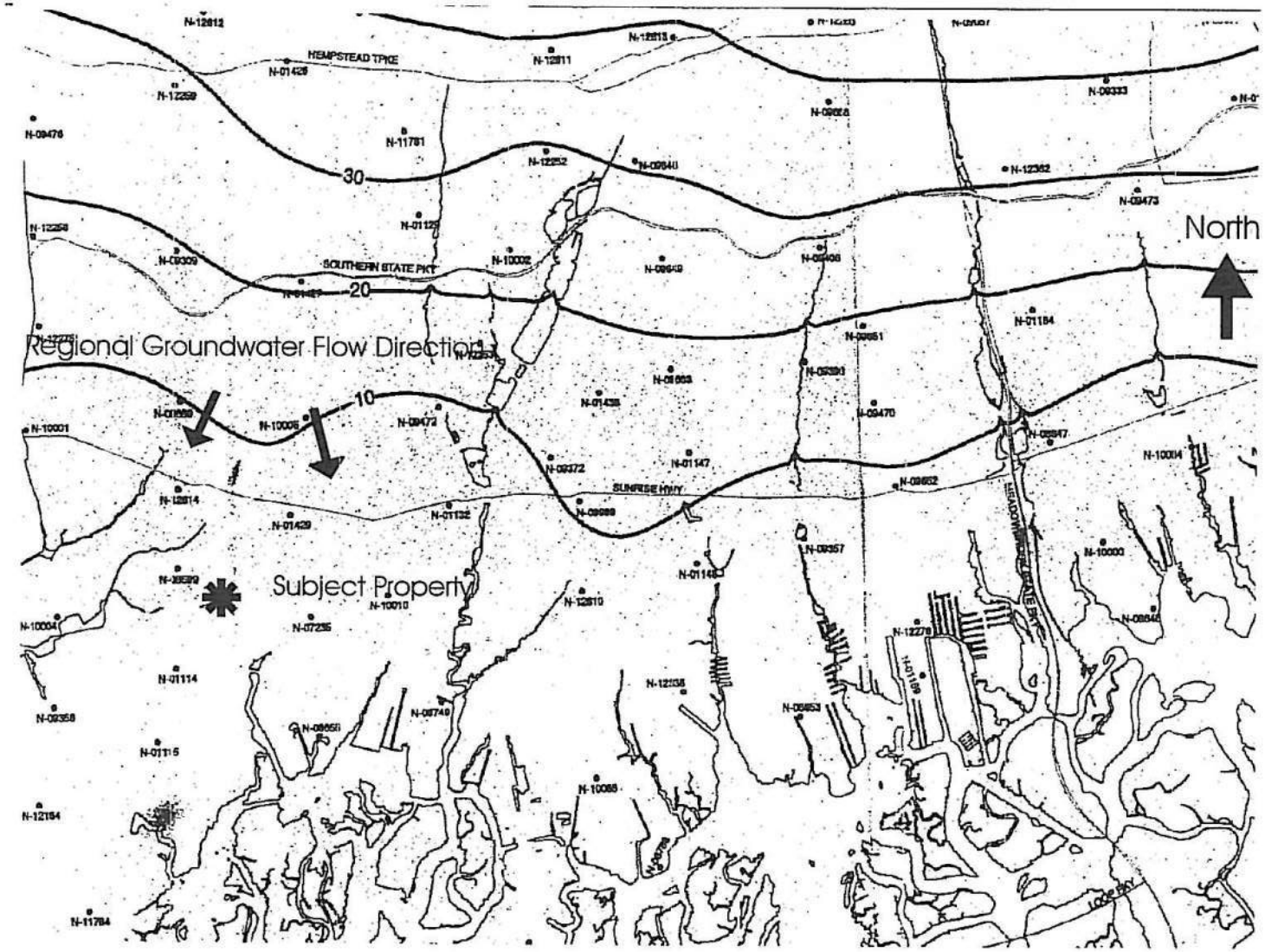


Figure 5 - Groundwater Elevation Map with Subject Property

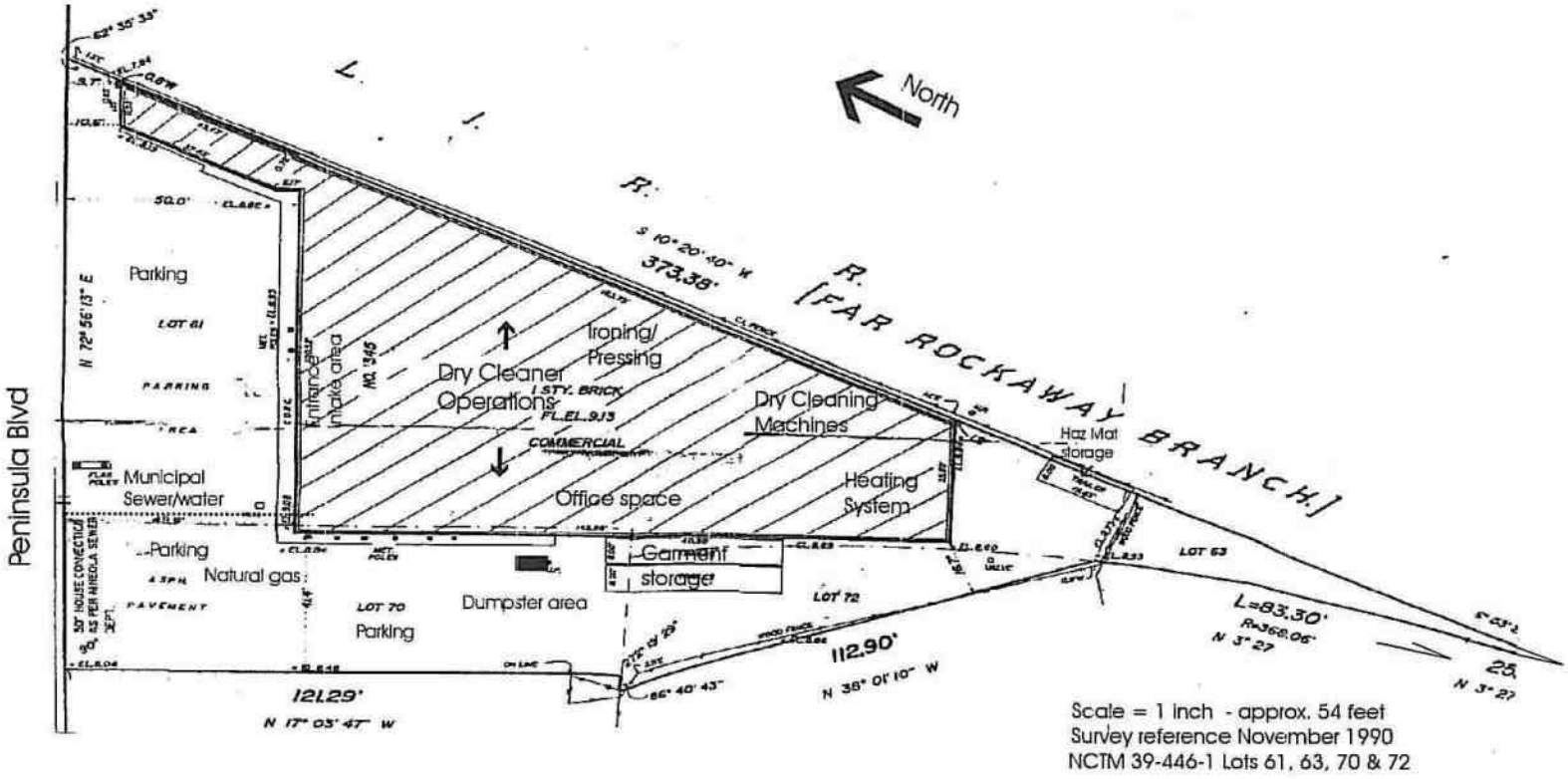
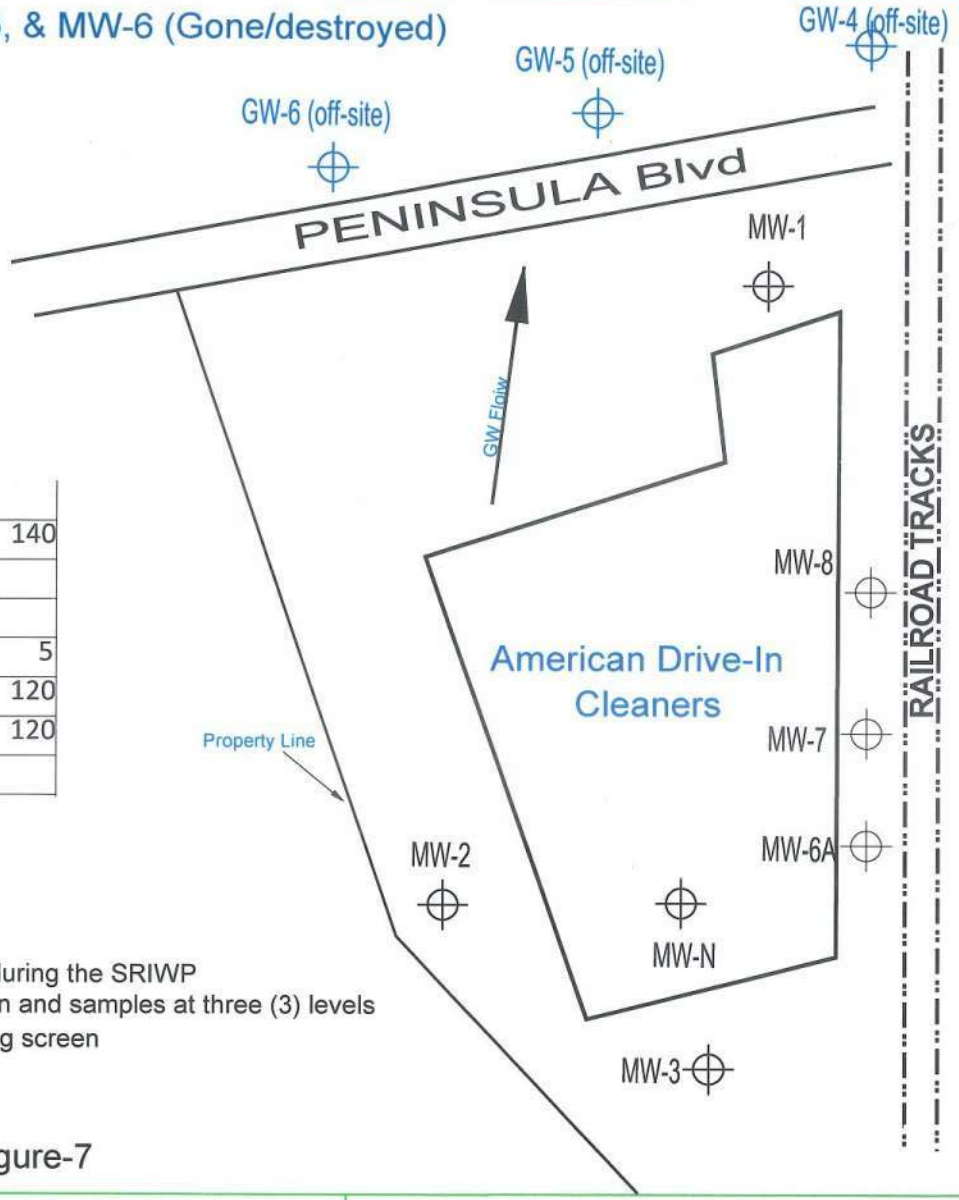


Figure 6 - Site Plan and Survey
American Drive-In Cleaners of Hewlett, Inc.
1345 Peninsula Boulevard, Hewlett, New York

*Monitoring Wells MW-4, MW-5, & MW-6 (Gone/destroyed)

ID	Depth'	PCE	TCE	DCE	VC
GW-4	5-9'	150	100	350	n/d
	15-19'	J	1,300	35,000	24
	26-30'	J	n/d	60	n/d
GW-5	5-9'	33	46	260	n/d
	15-19'	47	1,700	10,000	12
	26-30'	9	300	570	9
GW-6	5-9'	n/d	n/d	7	n/d
	15-19'	n/d	12	110	n/d
	26-30'	n/d	n/d	n/d	n/d

ID	Depth'	PCE	TCE	DCE	VC
MW-1	surfac~ 5'	32,000	9,900	14,000	140
MW-2	surfac~ 5'	190	75	100	n/d
MW-3	surfac~ 5'	110	31	18	n/d
MW-6A	surfac~ 5'	5,200	1,400	2,600	5
MW-7	surfac~ 5'	11,000	1,300	1,800	120
MW-8	surfac~ 5'	270	110	5,625	120
MW-N	surfac~ 5'	1,600	13	17	n/d



Note: Off-site wells MW-4, 5 and 6 were found to be covered by new sidewalk during the SRIWP
Temp groundwater borings will be performed at each former off-site MW location and samples at three (3) levels : surface(5')-9'; 15'-19'; and 26' -30', utilizing a 4' - SP-15 stainless steel sampling screen

Figure-7

BEi Berninger Environmental
groundwater consultants, geologists and scientists
A WRS Environmental Services Company
Phone: 631 589 6521
17 Old Dock Road Yaphank, NY 11980

AMERICAN DRIVE-IN CLEANERS
MONITORING WELLS

DRAWN BY: WB

AMERICAN DRIVE-IN CLEANERS
13454 PENINSULA BLVD.
HEWLETT, NEW YORK



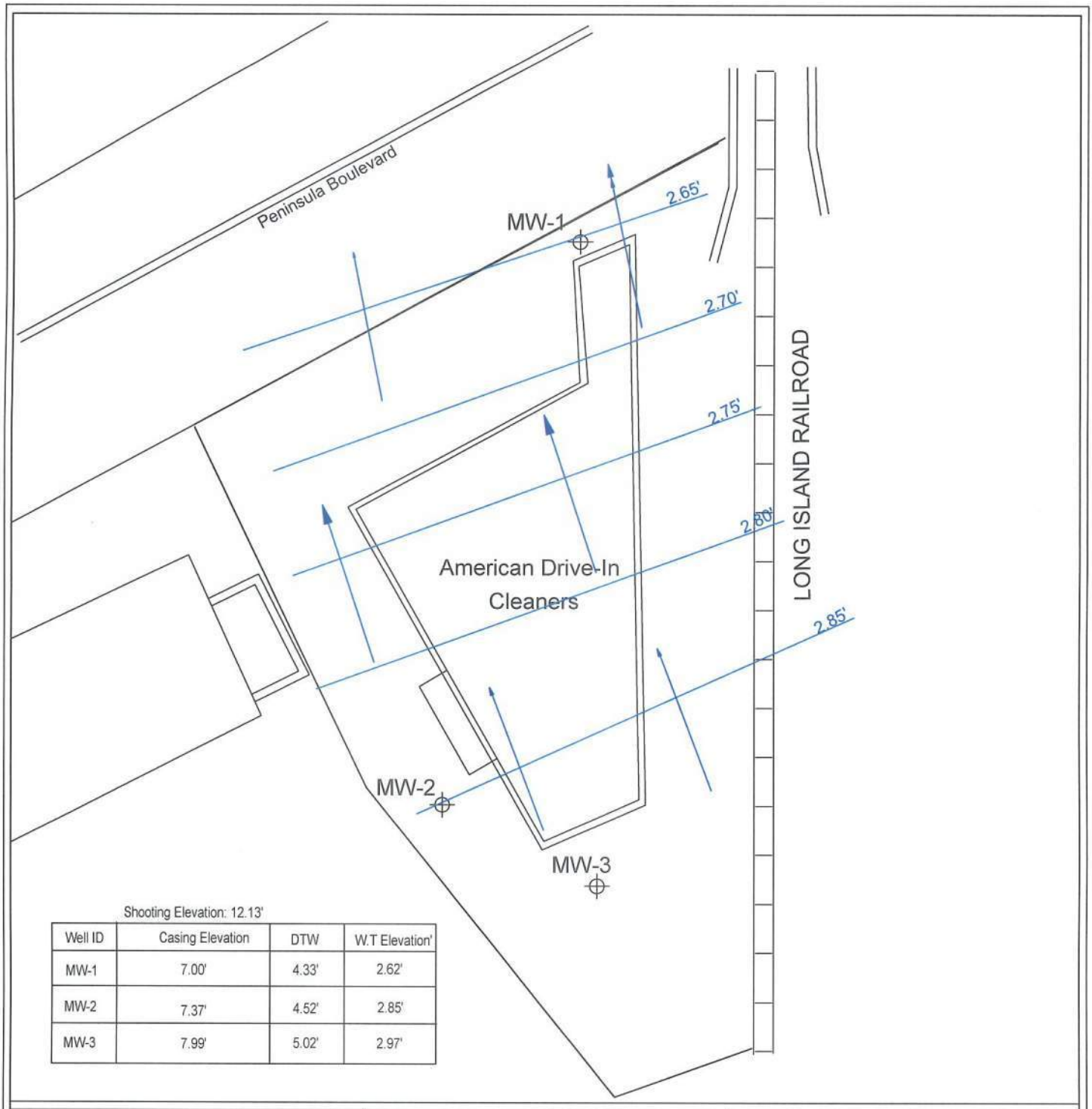
BEi Berninger Environmental
groundwater consultants, geologists and scientists
A WRS Environmental Services Company
Phone: 631 589 6521
17 Old Dock Road Yaphank, NY 11980

AMERICAN DRIVE-IN CLEANERS
13454 PENINSULA BLVD.
HEWLETT, NEW YORK

DRAWN BY: jgh

DATE Sept 2019 jgh

Figure-8
Soil Gas Sampling Locations



Shooting Elevation: 12.13'

Well ID	Casing Elevation	DTW	W.T Elevation'
MW-1	7.00'	4.33'	2.62'
MW-2	7.37'	4.52'	2.85'
MW-3	7.99'	5.02'	2.97'

Groundwater Flow Direction

Figure-9

American Drive-In

1345 Peninsula Blvd.

Hewlett, NY

BEi Berninger Environmental

groundwater consultants, geologists and scientists

A WRS Environmental Services Company

Phone: 631 589 6521

17 Old Dock Road Yaphank, NY 11980

TABLES

Table-1

Tabulated Monitoring Well Data

American Analytical Laboratories, LLC.
WorkOrder: 1908001
Client: WRS d.b.a Berninger Environmental
Project: American Drive-In Cleaners, 1345 Peninsula Blvd, Hewlett, NY

(19) TOGsGW Limits

Abbreviation:
NA = Not available, no value specified in TOGsGW Limits

		Client Sample ID:		MW-1		MW-2		MW-3		
		Laboratory ID:		1908001-001		1908001-002		1908001-003		
		Sampling Date:		07/31/2019		07/31/2019		07/31/2019		
Cas #:	**Procedure:**	**Analyte:**	**Units:**		**Q**		**Q**		**Q**	**Limits**
630-20-6	VOLATILE SW-846 METHOD 8260	1,1,1,2-Tetrachloroethane	PPB	0.25	U	0.25	U	0.25	U	5
71-55-6	VOLATILE SW-846 METHOD 8260	1,1,1-Trichloroethane	PPB	0.25	U	0.25	U	0.25	U	5
79-34-5	VOLATILE SW-846 METHOD 8260	1,1,2,2-Tetrachloroethane	PPB	0.25	U	0.25	U	0.25	U	5
76-13-1	VOLATILE SW-846 METHOD 8260	1,1,2-Trichloro-1,2,2-trifluoroethane	PPB	0.25	U	0.25	U	0.25	U	5
79-00-5	VOLATILE SW-846 METHOD 8260	1,1,2-Trichloroethane	PPB	0.25	U	0.25	U	0.25	U	1
75-34-3	VOLATILE SW-846 METHOD 8260	1,1-Dichloroethane	PPB	0.25	U	0.25	U	0.25	U	5
75-35-4	VOLATILE SW-846 METHOD 8260	***1,1-Dichloroethene***	PPB	**15**		0.25	U	0.25	U	**5**
563-58-6	VOLATILE SW-846 METHOD 8260	1,1-Dichloropropene	PPB	0.25	U	0.25	U	0.25	U	1
87-61-6	VOLATILE SW-846 METHOD 8260	1,2,3-Trichlorobenzene	PPB	0.25	U	0.25	U	0.25	U	5
96-18-4	VOLATILE SW-846 METHOD 8260	1,2,3-Trichloropropane	PPB	0.25	U	0.25	U	0.25	U	5
95-93-2	VOLATILE SW-846 METHOD 8260	1,2,4,5-Tetramethylbenzene	PPB	0.25	U	0.25	U	0.25	U	5
120-82-1	VOLATILE SW-846 METHOD 8260	1,2,4-Trichlorobenzene	PPB	0.25	U	0.25	U	0.25	U	5
95-63-6	VOLATILE SW-846 METHOD 8260	1,2,4-Trimethylbenzene	PPB	3.6		0.25	U	0.25	U	5
96-12-8	VOLATILE SW-846 METHOD 8260	1,2-Dibromo-3-chloropropane	PPB	0.25	U	0.25	U	0.25	U	0.04
106-93-4	VOLATILE SW-846 METHOD 8260	1,2-Dibromoethane	PPB	0.25	U	0.25	U	0.25	U	0.0006
95-50-1	VOLATILE SW-846 METHOD 8260	1,2-Dichlorobenzene	PPB	0.65	J	0.25	U	0.25	U	3
107-06-2	VOLATILE SW-846 METHOD 8260	1,2-Dichloroethane	PPB	0.25	U	0.25	U	0.25	U	0.6
78-87-5	VOLATILE SW-846 METHOD 8260	1,2-Dichloropropane	PPB	0.25	U	0.25	U	0.25	U	1
108-67-8	VOLATILE SW-846 METHOD 8260	1,3,5-Trimethylbenzene	PPB	0.25	U	0.25	U	0.25	U	5
541-73-1	VOLATILE SW-846 METHOD 8260	1,3-Dichlorobenzene	PPB	0.25	U	0.25	U	0.25	U	3
142-28-9	VOLATILE SW-846 METHOD 8260	1,3-dichloropropane	PPB	0.25	U	0.25	U	0.25	U	5
106-46-7	VOLATILE SW-846 METHOD 8260	1,4-Dichlorobenzene	PPB	0.25	U	0.25	U	0.25	U	3
123-91-1	VOLATILE SW-846 METHOD 8260	1,4-Dioxane	PPB	0.25	U	0.25	U	0.25	U	NA
594-20-7	VOLATILE SW-846 METHOD 8260	2,2-Dichloropropane	PPB	0.25	U	0.25	U	0.25	U	5
78-93-3	VOLATILE SW-846 METHOD 8260	2-Butanone	PPB	0.50	U	0.50	U	0.50	U	50
110-75-8	VOLATILE SW-846 METHOD 8260	2-Chloroethyl vinyl ether	PPB	10	U	10	U	10	U	NA
95-49-8	VOLATILE SW-846 METHOD 8260	2-Chlorotoluene	PPB	0.25	U	0.25	U	0.25	U	5
591-78-6	VOLATILE SW-846 METHOD 8260	2-Hexanone	PPB	0.50	U	0.50	U	0.50	U	50
67-63-0	VOLATILE SW-846 METHOD 8260	2-Propanol	PPB	0.25	U	0.25	U	0.25	U	NA
106-43-4	VOLATILE SW-846 METHOD 8260	4-Chlorotoluene	PPB	0.25	U	0.25	U	0.25	U	5
99-87-6	VOLATILE SW-846 METHOD 8260	4-Isopropyltoluene	PPB	0.25	U	0.25	U	0.25	U	5
108-10-1	VOLATILE SW-846 METHOD 8260	4-Methyl-2-pentanone	PPB	0.50	U	0.50	U	0.50	U	NA
67-64-1	VOLATILE SW-846 METHOD 8260	Acetone	PPB	19	B	39	B	25	B	50
71-43-2	VOLATILE SW-846 METHOD 8260	Benzene	PPB	0.25	U	0.25	U	0.25	U	1
108-86-1	VOLATILE SW-846 METHOD 8260	Bromobenzene	PPB	0.25	U	0.25	U	0.25	U	5
74-97-5	VOLATILE SW-846 METHOD 8260	Bromochloromethane	PPB	0.25	U	0.25	U	0.25	U	5
75-27-4	VOLATILE SW-846 METHOD 8260	Bromodichloromethane	PPB	0.25	U	0.25	U	0.25	U	50
75-25-2	VOLATILE SW-846 METHOD 8260	Bromoform	PPB	0.25	U	0.25	U	0.25	U	50
74-83-9	VOLATILE SW-846 METHOD 8260	Bromomethane	PPB	0.25	U	0.25	U	0.25	U	5
75-15-0	VOLATILE SW-846 METHOD 8260	Carbon disulfide	PPB	0.25	U	0.25	U	0.25	U	NA
56-23-5	VOLATILE SW-846 METHOD 8260	Carbon tetrachloride	PPB	0.25	U	0.25	U	0.25	U	5
108-90-7	VOLATILE SW-846 METHOD 8260	Chlorobenzene	PPB	0.25	U	0.25	U	0.25	U	5
75-45-6	VOLATILE SW-846 METHOD 8260	Chlorodifluoromethane	PPB	0.25	U	0.25	U	0.25	U	NA
75-00-3	VOLATILE SW-846 METHOD 8260	Chloroethane	PPB	0.25	U	0.25	U	0.25	U	5
67-66-3	VOLATILE SW-846 METHOD 8260	Chloroform	PPB	0.25	U	0.25	U	0.25	U	7
74-87-3	VOLATILE SW-846 METHOD 8260	Chloromethane	PPB	0.25	U	0.25	U	0.25	U	5
156-59-2	VOLATILE SW-846 METHOD 8260	***cis-1,2-Dichloroethene***	PPB	**14000**	D	**100**		**18**		**5**
10061-01-5	VOLATILE SW-846 METHOD 8260	cis-1,3-Dichloropropene	PPB	0.25	U	0.25	U	0.25	U	0.4
110-82-7	VOLATILE SW-846 METHOD 8260	Cyclohexane	PPB	0.25	U	0.25	U	0.25	U	NA
124-48-1	VOLATILE SW-846 METHOD 8260	Dibromochloromethane	PPB	0.25	U	0.25	U	0.25	U	50
74-95-3	VOLATILE SW-846 METHOD 8260	Dibromomethane	PPB	0.25	U	0.25	U	0.25	U	5
75-71-8	VOLATILE SW-846 METHOD 8260	Dichlorodifluoromethane	PPB	0.25	U	0.25	U	0.25	U	5
108-20-3	VOLATILE SW-846 METHOD 8260	Diisopropyl ether	PPB	0.50	U	0.50	U	0.50	U	NA
64-17-5	VOLATILE SW-846 METHOD 8260	Ethanol	PPB	2.5	U	2.5	U	2.5	U	NA
100-41-4	VOLATILE SW-846 METHOD 8260	Ethylbenzene	PPB	0.76	J	0.25	U	0.25	U	5
76-14-2	VOLATILE SW-846 METHOD 8260	Freon-114	PPB	0.25	U	0.25	U	0.25	U	NA
87-68-3	VOLATILE SW-846 METHOD 8260	Hexachlorobutadiene	PPB	0.25	U	0.25	U	0.25	U	0.5
98-82-8	VOLATILE SW-846 METHOD 8260	***Isopropylbenzene***	PPB	**24**		0.25	U	0.25	U	**5**
179601-23-1	VOLATILE SW-846 METHOD 8260	m,p-Xylene	PPB	0.67	J	0.50	U	0.50	U	5
79-20-9	VOLATILE SW-846 METHOD 8260	Methyl Acetate	PPB	0.25	U	0.25	U	0.25	U	NA
1634-04-4	VOLATILE SW-846 METHOD 8260	Methyl tert-butyl ether	PPB	0.25	U	0.25	U	0.25	U	10
75-09-2	VOLATILE SW-846 METHOD 8260	Methylene chloride	PPB	2.4	B	2.8	B	2.9	B	5
104-51-8	VOLATILE SW-846 METHOD 8260	n-Butylbenzene	PPB	0.25	U	0.25	U	0.25	U	5
103-65-1	VOLATILE SW-846 METHOD 8260	n-Propylbenzene	PPB	2.7		0.25	U	0.25	U	5
91-20-3	VOLATILE SW-846 METHOD 8260	Naphthalene	PPB	0.25	U	0.25	U	0.25	U	10
95-47-6	VOLATILE SW-846 METHOD 8260	o-Xylene	PPB	1.1	J	0.25	U	0.25	U	5
105-05-5	VOLATILE SW-846 METHOD 8260	p-Diethylbenzene	PPB	0.25	U	0.25	U	0.25	U	NA
622-96-8	VOLATILE SW-846 METHOD 8260	p-Ethyltoluene	PPB	4.4		0.25	U	0.25	U	NA
135-98-8	VOLATILE SW-846 METHOD 8260	sec-Butylbenzene	PPB	0.25	U	0.25	U	0.25	U	5
100-42-5	VOLATILE SW-846 METHOD 8260	Styrene	PPB	0.25	U	0.25	U	0.25	U	5
75-65-0	VOLATILE SW-846 METHOD 8260	t-Butyl alcohol	PPB	2.5	U	2.5	U	2.5	U	NA
98-06-6	VOLATILE SW-846 METHOD 8260	tert-Butylbenzene	PPB	1.0	J	0.25	U	0.25	U	5
127-18-4	VOLATILE SW-846 METHOD 8260	***Tetrachloroethene***	PPB	**32000**	D	**190**		**110**		**5**
108-88-3	VOLATILE SW-846 METHOD 8260	Toluene	PPB	0.49	J	0.25	U	0.26	BJ	5
156-60-5	VOLATILE SW-846 METHOD 8260	***trans-1,2-Dichloroethene***	PPB	**120**		0.85	J	1.1	J	**5**
10061-02-6	VOLATILE SW-846 METHOD 8260	trans-1,3-Dichloropropene	PPB	0.25	U	0.25	U	0.25	U	0.4
79-01-6	VOLATILE SW-846 METHOD 8260	***Trichloroethene***	PPB	**9900**	D	**75**		**31**		**5**
75-69-4	VOLATILE SW-846 METHOD 8260	Trichlorofluoromethane	PPB	0.25	U	0.25	U	0.25	U	5
108-05-4	VOLATILE SW-846 METHOD 8260	Vinyl acetate	PPB	0.25	U	0.25	U	0.25	U	NA
75-01-4	VOLATILE SW-846 METHOD 8260	***Vinyl chloride***	PPB	**140**		0.25	U	0.25	U	**2**
108-87-2	VOLATILE SW-846 METHOD 8260	Methylcyclohexane	PPB	0.25	U	0.25	U	0.25	U	NA
107-02-8	VOLATILE SW-846 METHOD 8260	Acrolein	PPB	1.0	U	1.0	U	1.0	U	5
107-13-1	VOLATILE SW-846 METHOD 8260	Acrylonitrile	PPB	0.25	U	0.25	U	0.25	U	5
1330-20-7	VOLATILE SW-846 METHOD 8260	Xylenes, Total	PPB	1.8	J	0.75	U	0.75	U	5

American Analytical Laboratories, LLC.
WorkOrder: 1908001
Client: WRS d.b.a Berninger Environmental
Project: American Drive-In Cleaners, 1345 Peninsula Blvd, Hewlett, NY

(19) TOGsGW Limits

Abbreviation:
NA = Not available, no value specified in TOGsGW Limits

		Client Sample ID:		MW-6A		MW-7		MW-8		MW-N		
		Laboratory ID:		1908001-004		1908001-005		1908001-006		1908001-007		
		Sampling Date:		07/31/2019		07/31/2019		07/31/2019		07/31/2019		
Cas #:	**Procedure:**	**Analyte:**	**Units:**		**Q**		**Q**		**Q**		**Q**	**Limits**
630-20-6	VOLATILE SW-846 METHOD 8260	1,1,1,2-Tetrachloroethane	PPB	0.25	U	0.25	U	0.25	U	0.25	U	5
71-55-6	VOLATILE SW-846 METHOD 8260	1,1,1-Trichloroethane	PPB	0.25	U	0.25	U	0.25	U	0.25	U	5
79-34-5	VOLATILE SW-846 METHOD 8260	1,1,2,2-Tetrachloroethane	PPB	0.25	U	0.25	U	0.25	U	0.25	U	5
76-13-1	VOLATILE SW-846 METHOD 8260	1,1,2-Trichloro-1,2,2-trifluoroethane	PPB	0.25	U	0.25	U	0.25	U	0.25	U	5
79-00-5	VOLATILE SW-846 METHOD 8260	1,1,2-Trichloroethane	PPB	0.25	U	0.25	U	0.25	U	0.25	U	1
75-34-3	VOLATILE SW-846 METHOD 8260	1,1-Dichloroethane	PPB	0.25	U	0.25	U	0.25	U	0.25	U	5
75-35-4	VOLATILE SW-846 METHOD 8260	1,1-Dichloroethene	PPB	0.50	J	1.0	J	1.1	J	0.25	U	5
563-58-6	VOLATILE SW-846 METHOD 8260	1,1-Dichloropropene	PPB	0.25	U	0.25	U	0.25	U	0.25	U	1
87-61-6	VOLATILE SW-846 METHOD 8260	1,2,3-Trichlorobenzene	PPB	0.25	U	0.25	U	0.25	U	0.25	U	5
96-18-4	VOLATILE SW-846 METHOD 8260	1,2,3-Trichloropropane	PPB	0.25	U	0.25	U	0.25	U	0.25	U	5
95-93-2	VOLATILE SW-846 METHOD 8260	1,2,4,5-Tetramethylbenzene	PPB	0.25	U	0.25	U	0.25	U	0.25	U	5
120-82-1	VOLATILE SW-846 METHOD 8260	1,2,4-Trichlorobenzene	PPB	0.25	U	0.25	U	0.25	U	0.25	U	5
95-63-6	VOLATILE SW-846 METHOD 8260	1,2,4-Trimethylbenzene	PPB	0.25	U	0.25	U	0.25	U	0.25	U	5
96-12-8	VOLATILE SW-846 METHOD 8260	1,2-Dibromo-3-chloropropane	PPB	0.25	U	0.25	U	0.25	U	0.25	U	0.04
106-93-4	VOLATILE SW-846 METHOD 8260	1,2-Dibromoethane	PPB	0.25	U	0.25	U	0.25	U	0.25	U	0.0006
95-50-1	VOLATILE SW-846 METHOD 8260	1,2-Dichlorobenzene	PPB	0.25	U	0.25	U	0.25	U	0.25	U	3
107-06-2	VOLATILE SW-846 METHOD 8260	1,2-Dichloroethane	PPB	0.25	U	0.25	U	0.25	U	0.25	U	0.6
78-87-5	VOLATILE SW-846 METHOD 8260	1,2-Dichloropropane	PPB	0.25	U	0.25	U	0.25	U	0.25	U	1
108-67-8	VOLATILE SW-846 METHOD 8260	1,3,5-Trimethylbenzene	PPB	0.25	U	0.25	U	0.25	U	0.25	U	5
541-73-1	VOLATILE SW-846 METHOD 8260	1,3-Dichlorobenzene	PPB	0.25	U	0.25	U	0.25	U	0.25	U	3
142-28-9	VOLATILE SW-846 METHOD 8260	1,3-dichloropropane	PPB	0.25	U	0.25	U	0.25	U	0.25	U	5
106-46-7	VOLATILE SW-846 METHOD 8260	1,4-Dichlorobenzene	PPB	0.25	U	0.25	U	0.25	U	0.25	U	3
123-91-1	VOLATILE SW-846 METHOD 8260	1,4-Dioxane	PPB	0.25	U	0.25	U	0.25	U	0.25	U	NA
594-20-7	VOLATILE SW-846 METHOD 8260	2,2-Dichloropropane	PPB	0.25	U	0.25	U	0.25	U	0.25	U	5
78-93-3	VOLATILE SW-846 METHOD 8260	2-Butanone	PPB	0.50	U	0.50	U	0.50	U	0.50	U	50
110-75-8	VOLATILE SW-846 METHOD 8260	2-Chloroethyl vinyl ether	PPB	10	U	10	U	10	U	10	U	NA
95-49-8	VOLATILE SW-846 METHOD 8260	2-Chlorotoluene	PPB	0.25	U	0.25	U	0.25	U	0.25	U	5
591-78-6	VOLATILE SW-846 METHOD 8260	2-Hexanone	PPB	0.50	U	0.50	U	0.50	U	0.50	U	50
67-63-0	VOLATILE SW-846 METHOD 8260	2-Propanol	PPB	0.25	U	0.25	U	0.25	U	0.25	U	NA
106-43-4	VOLATILE SW-846 METHOD 8260	4-Chlorotoluene	PPB	0.25	U	0.25	U	0.25	U	0.25	U	5
99-87-6	VOLATILE SW-846 METHOD 8260	4-Isopropyltoluene	PPB	0.25	U	0.25	U	0.25	U	0.25	U	5
108-10-1	VOLATILE SW-846 METHOD 8260	4-Methyl-2-pentanone	PPB	0.50	U	0.50	U	0.50	U	0.50	U	NA
67-64-1	VOLATILE SW-846 METHOD 8260	Acetone	PPB	47	B	23	B	23	B	18	B	50
71-43-2	VOLATILE SW-846 METHOD 8260	Benzene	PPB	0.25	U	0.25	U	0.25	U	0.25	U	1
108-86-1	VOLATILE SW-846 METHOD 8260	Bromobenzene	PPB	0.25	U	0.25	U	0.25	U	0.25	U	5
74-97-5	VOLATILE SW-846 METHOD 8260	Bromochloromethane	PPB	0.25	U	0.25	U	0.25	U	0.25	U	5
75-27-4	VOLATILE SW-846 METHOD 8260	Bromodichloromethane	PPB	0.25	U	0.25	U	0.44	J	0.25	U	50
75-25-2	VOLATILE SW-846 METHOD 8260	Bromoform	PPB	0.25	U	0.25	U	0.25	U	0.25	U	50
74-83-9	VOLATILE SW-846 METHOD 8260	Bromomethane	PPB	0.25	U	0.25	U	0.25	U	0.25	U	5
75-15-0	VOLATILE SW-846 METHOD 8260	Carbon disulfide	PPB	0.25	U	0.25	U	0.25	U	0.25	U	NA
56-23-5	VOLATILE SW-846 METHOD 8260	Carbon tetrachloride	PPB	0.25	U	0.25	U	0.25	U	0.25	U	5
108-90-7	VOLATILE SW-846 METHOD 8260	Chlorobenzene	PPB	0.25	U	0.25	U	0.25	U	0.25	U	5
75-45-6	VOLATILE SW-846 METHOD 8260	Chlorodifluoromethane	PPB	0.25	U	0.25	U	0.25	U	0.25	U	NA
75-00-3	VOLATILE SW-846 METHOD 8260	Chloroethane	PPB	0.25	U	0.25	U	0.25	U	0.25	U	5
67-66-3	VOLATILE SW-846 METHOD 8260	Chloroform	PPB	0.25	U	0.25	U	0.29	J	0.25	U	7
74-87-3	VOLATILE SW-846 METHOD 8260	Chloromethane	PPB	0.25	U	0.25	U	0.25	U	0.25	U	5
156-59-2	VOLATILE SW-846 METHOD 8260	***cis-1,2-Dichloroethene***	PPB	**2600**	D	**1800**	D	**5500**	D	**17**		**5**
10061-01-5	VOLATILE SW-846 METHOD 8260	cis-1,3-Dichloropropene	PPB	0.25	U	0.25	U	0.25	U	0.25	U	0.4
110-82-7	VOLATILE SW-846 METHOD 8260	Cyclohexane	PPB	0.25	U	0.25	U	0.25	U	0.25	U	NA
124-48-1	VOLATILE SW-846 METHOD 8260	Dibromochloromethane	PPB	0.25	U	0.25	U	0.25	U	0.25	U	50
74-95-3	VOLATILE SW-846 METHOD 8260	Dibromomethane	PPB	0.25	U	0.25	U	0.25	U	0.25	U	5
75-71-8	VOLATILE SW-846 METHOD 8260	Dichlorodifluoromethane	PPB	0.25	U	0.25	U	0.25	U	0.25	U	5
108-20-3	VOLATILE SW-846 METHOD 8260	Diisopropyl ether	PPB	0.50	U	0.50	U	0.50	U	0.50	U	NA
64-17-5	VOLATILE SW-846 METHOD 8260	Ethanol	PPB	2.5	U	2.5	U	2.5	U	2.5	U	NA
100-41-4	VOLATILE SW-846 METHOD 8260	Ethylbenzene	PPB	0.25	U	0.25	U	0.25	U	0.25	U	5
76-14-2	VOLATILE SW-846 METHOD 8260	Freon-114	PPB	0.25	U	0.25	U	0.25	U	0.25	U	NA
87-68-3	VOLATILE SW-846 METHOD 8260	Hexachlorobutadiene	PPB	0.25	U	0.25	U	0.25	U	0.25	U	0.5
98-82-8	VOLATILE SW-846 METHOD 8260	Isopropylbenzene	PPB	0.25	U	0.25	U	0.25	U	0.25	U	5
179601-23-1	VOLATILE SW-846 METHOD 8260	m,p-Xylene	PPB	0.50	U	0.50	U	0.50	U	0.50	U	5
79-20-9	VOLATILE SW-846 METHOD 8260	Methyl Acetate	PPB	0.25	U	0.25	U	0.25	U	0.25	U	NA
1634-04-4	VOLATILE SW-846 METHOD 8260	Methyl tert-butyl ether	PPB	0.25	U	0.25	U	0.25	U	0.25	U	10
75-09-2	VOLATILE SW-846 METHOD 8260	Methylene chloride	PPB	2.8	B	2.7	B	2.9	B	2.8	B	5
104-51-8	VOLATILE SW-846 METHOD 8260	n-Butylbenzene	PPB	0.25	U	0.25	U	0.25	U	0.25	U	5
103-65-1	VOLATILE SW-846 METHOD 8260	n-Propylbenzene	PPB	0.25	U	0.25	U	0.25	U	0.25	U	5
91-20-3	VOLATILE SW-846 METHOD 8260	Naphthalene	PPB	0.25	U	0.25	U	0.25	U	0.25	U	10
95-47-6	VOLATILE SW-846 METHOD 8260	o-Xylene	PPB	0.25	U	0.25	U	0.25	U	0.25	U	5
105-05-5	VOLATILE SW-846 METHOD 8260	p-Diethylbenzene	PPB	0.25	U	0.25	U	0.25	U	0.25	U	NA
622-96-8	VOLATILE SW-846 METHOD 8260	p-Ethyltoluene	PPB	0.25	U	0.25	U	0.25	U	0.25	U	NA
135-98-8	VOLATILE SW-846 METHOD 8260	sec-Butylbenzene	PPB	0.25	U	0.25	U	0.25	U	0.25	U	5
100-42-5	VOLATILE SW-846 METHOD 8260	Styrene	PPB	0.25	U	0.25	U	0.25	U	0.25	U	5
75-65-0	VOLATILE SW-846 METHOD 8260	t-Butyl alcohol	PPB	2.5	U	2.5	U	2.5	U	2.5	U	NA
98-06-6	VOLATILE SW-846 METHOD 8260	tert-Butylbenzene	PPB	0.25	U	0.25	U	0.25	U	0.25	U	5
127-18-4	VOLATILE SW-846 METHOD 8260	***Tetrachloroethene***	PPB	**5200**	D	**11000**	D	**270**	D	**1600**	D	**5**
108-88-3	VOLATILE SW-846 METHOD 8260	Toluene	PPB	0.36	BJ	0.25	U	0.25	U	0.31	BJ	5
156-60-5	VOLATILE SW-846 METHOD 8260	***trans-1,2-Dichloroethene***	PPB	**25**		**23**		**120**		0.25	U	**5**
10061-02-6	VOLATILE SW-846 METHOD 8260	trans-1,3-Dichloropropene	PPB	0.25	U	0.25	U	0.25	U	0.25	U	0.4
79-01-6	VOLATILE SW-846 METHOD 8260	***Trichloroethene***	PPB	**1400**	D	**1300**	D	**110**		**13**		**5**
75-69-4	VOLATILE SW-846 METHOD 8260	Trichlorofluoromethane	PPB	0.25	U	0.25	U	0.25	U	0.25	U	5
108-05-4	VOLATILE SW-846 METHOD 8260	Vinyl acetate	PPB	0.25	U	0.25	U	0.25	U	0.25	U	NA
75-01-4	VOLATILE SW-846 METHOD 8260	***Vinyl chloride***	PPB	**5.0**		**23**		**120**		0.25	U	**2**
108-87-2	VOLATILE SW-846 METHOD 8260	Methylcyclohexane	PPB	0.75	U	0.75	U	0.75	U	0.75	U	NA
107-02-8	VOLATILE SW-846 METHOD 8260	Acrolein	PPB	0.25	U	0.25	U	0.25	U	0.25	U	5
107-13-1	VOLATILE SW-846 METHOD 8260	Acrylonitrile	PPB	1.0	U	1.0	U	1.0	U	1.0	U	5
1330-20-7	VOLATILE SW-846 METHOD 8260	Xylenes, Total	PPB	0.25	U	0.25	U	0.25	U	0.25	U	5

Table-2

Tabulated Off-site Groundwater Data

American Analytical Laboratories, LLC.
WorkOrder: 1908134
Client: WRS d.b.a Berninger Environmental
Project: American Drive-In Cleaners, 1345 Peninsula Blvd, Hewlett, NY

Abbreviation:
NA = Not available, no value specified in TOGsGW Limits

		Client Sample ID:		GW-4 @ 5-9'		GW-4 @ 15-19'		GW-4 @ 26-30'		TOGs Groundwater Limits
		Laboratory ID:		1908134-001		1908134-002		1908134-003		
		Sampling Date:		08/15/2019		08/15/2019		08/15/2019		
Cas #:	**Procedure:**	**Analyte:**	**Units:**		**Q**		**Q**		**Q**	
630-20-6	VOLATILE SW-846 METHOD 8260	1,1,1,2-Tetrachloroethane	PPB	0.25	U	0.25	U	0.25	U	5
71-55-6	VOLATILE SW-846 METHOD 8260	1,1,1-Trichloroethane	PPB	0.25	U	0.25	U	0.25	U	5
79-34-5	VOLATILE SW-846 METHOD 8260	1,1,2,2-Tetrachloroethane	PPB	0.25	U	0.25	U	0.25	U	5
76-13-1	VOLATILE SW-846 METHOD 8260	1,1,2-Trichloro-1,2,2-trifluoroethane	PPB	0.25	U	0.25	U	0.25	U	5
79-00-5	VOLATILE SW-846 METHOD 8260	1,1,2-Trichloroethane	PPB	0.25	U	0.25	U	0.25	U	1
75-34-3	VOLATILE SW-846 METHOD 8260	1,1-Dichloroethane	PPB	0.25	U	0.25	U	0.25	U	5
75-35-4	VOLATILE SW-846 METHOD 8260	***1,1-Dichloroethene***	PPB	2.1		***99***		0.25	U	5
563-58-6	VOLATILE SW-846 METHOD 8260	1,1-Dichloropropene	PPB	0.25	U	0.25	U	0.25	U	1
87-61-6	VOLATILE SW-846 METHOD 8260	1,2,3-Trichlorobenzene	PPB	0.25	U	0.25	U	0.25	U	5
96-18-4	VOLATILE SW-846 METHOD 8260	1,2,3-Trichloropropane	PPB	0.25	U	0.25	U	0.25	U	5
95-93-2	VOLATILE SW-846 METHOD 8260	1,2,4,5-Tetramethylbenzene	PPB	0.25	U	0.25	U	0.25	U	5
120-82-1	VOLATILE SW-846 METHOD 8260	1,2,4-Trichlorobenzene	PPB	0.25	U	0.25	U	0.25	U	5
95-63-6	VOLATILE SW-846 METHOD 8260	1,2,4-Trimethylbenzene	PPB	0.25	U	0.25	U	0.25	U	5
96-12-8	VOLATILE SW-846 METHOD 8260	1,2-Dibromo-3-chloropropane	PPB	0.25	U	0.25	U	0.25	U	0.04
106-93-4	VOLATILE SW-846 METHOD 8260	1,2-Dibromoethane	PPB	0.25	U	0.25	U	0.25	U	0.0006
95-50-1	VOLATILE SW-846 METHOD 8260	1,2-Dichlorobenzene	PPB	0.25	U	0.25	U	0.25	U	3
107-06-2	VOLATILE SW-846 METHOD 8260	1,2-Dichloroethane	PPB	0.25	U	0.25	U	0.25	U	0.6
78-87-5	VOLATILE SW-846 METHOD 8260	1,2-Dichloropropane	PPB	0.25	U	0.25	U	0.25	U	1
108-67-8	VOLATILE SW-846 METHOD 8260	1,3,5-Trimethylbenzene	PPB	0.25	U	0.25	U	0.25	U	5
541-73-1	VOLATILE SW-846 METHOD 8260	1,3-Dichlorobenzene	PPB	0.25	U	0.25	U	0.25	U	3
142-28-9	VOLATILE SW-846 METHOD 8260	1,3-dichloropropane	PPB	0.25	U	0.25	U	0.25	U	5
106-46-7	VOLATILE SW-846 METHOD 8260	1,4-Dichlorobenzene	PPB	0.25	U	0.25	U	0.25	U	3
123-91-1	VOLATILE SW-846 METHOD 8260	1,4-Dioxane	PPB	0.25	U	0.25	U	0.25	U	NA
594-20-7	VOLATILE SW-846 METHOD 8260	2,2-Dichloropropane	PPB	0.25	U	0.25	U	0.25	U	5
78-93-3	VOLATILE SW-846 METHOD 8260	2-Butanone	PPB	0.50	U	0.50	U	0.50	U	50
110-75-8	VOLATILE SW-846 METHOD 8260	2-Chloroethyl vinyl ether	PPB	10	U	10	U	10	U	NA
95-49-8	VOLATILE SW-846 METHOD 8260	2-Chlorotoluene	PPB	0.25	U	0.25	U	0.25	U	5
591-78-6	VOLATILE SW-846 METHOD 8260	2-Hexanone	PPB	0.50	U	0.50	U	0.50	U	50
67-63-0	VOLATILE SW-846 METHOD 8260	2-Propanol	PPB	0.25	U	0.25	U	0.25	U	NA
106-43-4	VOLATILE SW-846 METHOD 8260	4-Chlorotoluene	PPB	0.25	U	0.25	U	0.25	U	5
99-87-6	VOLATILE SW-846 METHOD 8260	4-Isopropyltoluene	PPB	0.25	U	0.25	U	0.25	U	5
108-10-1	VOLATILE SW-846 METHOD 8260	4-Methyl-2-pentanone	PPB	0.50	U	0.50	U	0.50	U	NA
67-64-1	VOLATILE SW-846 METHOD 8260	Acetone	PPB	17	B	13	B	11	B	50
71-43-2	VOLATILE SW-846 METHOD 8260	Benzene	PPB	0.25	U	0.25	U	0.25	U	1
108-86-1	VOLATILE SW-846 METHOD 8260	Bromobenzene	PPB	0.25	U	0.25	U	0.25	U	5
74-97-5	VOLATILE SW-846 METHOD 8260	Bromochloromethane	PPB	0.25	U	0.25	U	0.25	U	5
75-27-4	VOLATILE SW-846 METHOD 8260	Bromodichloromethane	PPB	0.25	U	0.25	U	0.25	U	50
75-25-2	VOLATILE SW-846 METHOD 8260	Bromoform	PPB	0.25	U	0.25	U	0.25	U	50
74-83-9	VOLATILE SW-846 METHOD 8260	Bromomethane	PPB	0.25	U	0.25	U	0.25	U	5
75-15-0	VOLATILE SW-846 METHOD 8260	Carbon disulfide	PPB	0.25	U	0.25	U	0.25	U	NA
56-23-5	VOLATILE SW-846 METHOD 8260	Carbon tetrachloride	PPB	0.25	U	0.25	U	0.25	U	5
108-90-7	VOLATILE SW-846 METHOD 8260	Chlorobenzene	PPB	0.25	U	0.25	U	0.25	U	5
75-45-6	VOLATILE SW-846 METHOD 8260	Chlorodifluoromethane	PPB	0.25	U	0.25	U	0.25	U	NA
75-00-3	VOLATILE SW-846 METHOD 8260	Chloroethane	PPB	0.25	U	0.25	U	0.25	U	5
67-66-3	VOLATILE SW-846 METHOD 8260	Chloroform	PPB	0.25	U	0.25	U	0.25	U	7
74-87-3	VOLATILE SW-846 METHOD 8260	Chloromethane	PPB	0.25	U	0.25	U	0.25	U	5
156-59-2	VOLATILE SW-846 METHOD 8260	***cis-1,2-Dichloroethene***	PPB	***330***	D	***35000***	D	***59***		5
10061-01-5	VOLATILE SW-846 METHOD 8260	cis-1,3-Dichloropropene	PPB	0.25	U	0.25	U	0.25	U	0.4
110-82-7	VOLATILE SW-846 METHOD 8260	Cyclohexane	PPB	0.25	U	0.25	U	0.25	U	NA
124-48-1	VOLATILE SW-846 METHOD 8260	Dibromochloromethane	PPB	0.25	U	0.25	U	0.25	U	50
74-95-3	VOLATILE SW-846 METHOD 8260	Dibromomethane	PPB	0.25	U	0.25	U	0.25	U	5
75-71-8	VOLATILE SW-846 METHOD 8260	Dichlorodifluoromethane	PPB	0.25	U	0.25	U	0.25	U	5
108-20-3	VOLATILE SW-846 METHOD 8260	Diisopropyl ether	PPB	0.50	U	0.50	U	0.50	U	NA
64-17-5	VOLATILE SW-846 METHOD 8260	Ethanol	PPB	2.5	U	2.5	U	2.5	U	NA
100-41-4	VOLATILE SW-846 METHOD 8260	Ethylbenzene	PPB	0.25	U	0.25	U	0.25	U	5
76-14-2	VOLATILE SW-846 METHOD 8260	Freon-114	PPB	0.25	U	0.25	U	0.25	U	NA
87-68-3	VOLATILE SW-846 METHOD 8260	Hexachlorobutadiene	PPB	0.25	U	0.25	U	0.25	U	0.5
98-82-8	VOLATILE SW-846 METHOD 8260	Isopropylbenzene	PPB	0.25	U	0.25	U	0.25	U	5
179601-23-1	VOLATILE SW-846 METHOD 8260	m,p-Xylene	PPB	0.50	U	0.50	U	0.50	U	5
79-20-9	VOLATILE SW-846 METHOD 8260	Methyl Acetate	PPB	0.25	U	0.25	U	0.25	U	NA
1634-04-4	VOLATILE SW-846 METHOD 8260	Methyl tert-butyl ether	PPB	0.25	U	0.54	J	0.25	U	10
75-09-2	VOLATILE SW-846 METHOD 8260	Methylene chloride	PPB	6.4	B	6.2	B	6.3	B	5
104-51-8	VOLATILE SW-846 METHOD 8260	n-Butylbenzene	PPB	0.25	U	0.25	U	0.25	U	5
103-65-1	VOLATILE SW-846 METHOD 8260	n-Propylbenzene	PPB	0.25	U	0.25	U	0.25	U	5
91-20-3	VOLATILE SW-846 METHOD 8260	Naphthalene	PPB	0.25	U	0.25	U	0.25	U	10
95-47-6	VOLATILE SW-846 METHOD 8260	o-Xylene	PPB	0.25	U	0.25	U	0.25	U	5
105-05-5	VOLATILE SW-846 METHOD 8260	p-Diethylbenzene	PPB	0.25	U	0.25	U	0.25	U	NA
622-96-8	VOLATILE SW-846 METHOD 8260	p-Ethyltoluene	PPB	0.25	U	0.25	U	0.25	U	NA
135-98-8	VOLATILE SW-846 METHOD 8260	sec-Butylbenzene	PPB	0.25	U	0.25	U	0.25	U	5
100-42-5	VOLATILE SW-846 METHOD 8260	Styrene	PPB	0.25	U	0.25	U	0.25	U	5
75-65-0	VOLATILE SW-846 METHOD 8260	t-Butyl alcohol	PPB	2.5	U	2.5	U	2.5	U	NA
98-06-6	VOLATILE SW-846 METHOD 8260	tert-Butylbenzene	PPB	0.25	U	0.25	U	0.25	U	5
127-18-4	VOLATILE SW-846 METHOD 8260	***Tetrachloroethene***	PPB	***150***	D	0.78	J	0.79	J	5
108-88-3	VOLATILE SW-846 METHOD 8260	Toluene	PPB	0.25	U	0.68	J	0.25	U	5
156-60-5	VOLATILE SW-846 METHOD 8260	***trans-1,2-Dichloroethene***	PPB	***6.7***		***190***		0.49	J	5
10061-02-6	VOLATILE SW-846 METHOD 8260	trans-1,3-Dichloropropene	PPB	0.25	U	0.25	U	0.25	U	0.4
79-01-6	VOLATILE SW-846 METHOD 8260	***Trichloroethene***	PPB	***100***		***1300***	D	0.25	U	5
75-69-4	VOLATILE SW-846 METHOD 8260	Trichlorofluoromethane	PPB	0.25	U	0.25	U	0.25	U	5
108-05-4	VOLATILE SW-846 METHOD 8260	Vinyl acetate	PPB	0.25	U	0.25	U	0.25	U	NA
75-01-4	VOLATILE SW-846 METHOD 8260	***Vinyl chloride***	PPB	0.25	U	***24***		0.25	U	2
1330-20-7	VOLATILE SW-846 METHOD 8260	Xylenes, Total	PPB	0.75	U	0.75	U	0.75	U	5
108-87-2	VOLATILE SW-846 METHOD 8260	Methylcyclohexane	PPB	0.25	U	0.25	U	0.25	U	NA
107-02-8	VOLATILE SW-846 METHOD 8260	Acrolein	PPB	1.0	U	1.0	U	1.0	U	5
107-13-1	VOLATILE SW-846 METHOD 8260	Acrylonitrile	PPB	0.25	U	0.25	U	0.25	U	5

American Analytical Laboratories, LLC.
WorkOrder: 1908134
Client: WRS d.b.a Berninger Environmental
Project: American Drive-In Cleaners, 1345 Peninsula Blvd, Hewlett, NY

Abbreviation:
NA = Not available, no value specified in TOGsGW Limits

		Client Sample ID:		GW-5 @ 5-9'		GW-5 @ 15-19"		GW-5 @ 26-30'		TOGs Groundwater Limits
		Laboratory ID:		1908134-004		1908134-005		1908134-006		
		Sampling Date:		08/15/2019		08/15/2019		08/15/2019		
Cas #:	**Procedure:**	**Analyte:**	**Units:**		**Q**		**Q**		**Q**	
630-20-6	VOLATILE SW-846 METHOD 8260	1,1,1,2-Tetrachloroethane	PPB	0.25	U	0.25	U	0.25	U	5
71-55-6	VOLATILE SW-846 METHOD 8260	1,1,1-Trichloroethane	PPB	0.25	U	0.25	U	0.25	U	5
79-34-5	VOLATILE SW-846 METHOD 8260	1,1,2,2-Tetrachloroethane	PPB	0.25	U	0.25	U	0.25	U	5
76-13-1	VOLATILE SW-846 METHOD 8260	1,1,2-Trichloro-1,2,2-trifluoroethane	PPB	0.25	U	0.25	U	0.25	U	5
79-00-5	VOLATILE SW-846 METHOD 8260	1,1,2-Trichloroethane	PPB	0.25	U	0.25	U	0.25	U	1
75-34-3	VOLATILE SW-846 METHOD 8260	1,1-Dichloroethane	PPB	0.25	U	0.25	U	0.25	U	5
75-35-4	VOLATILE SW-846 METHOD 8260	***1,1-Dichloroethene***	PPB	0.25	U	***30***		***12***		5
563-58-6	VOLATILE SW-846 METHOD 8260	1,1-Dichloropropene	PPB	0.25	U	0.25	U	0.25	U	1
87-61-6	VOLATILE SW-846 METHOD 8260	1,2,3-Trichlorobenzene	PPB	0.25	U	0.25	U	0.25	U	5
96-18-4	VOLATILE SW-846 METHOD 8260	1,2,3-Trichloropropane	PPB	0.25	U	0.25	U	0.25	U	5
95-93-2	VOLATILE SW-846 METHOD 8260	1,2,4,5-Tetramethylbenzene	PPB	0.25	U	0.25	U	0.25	U	5
120-82-1	VOLATILE SW-846 METHOD 8260	1,2,4-Trichlorobenzene	PPB	0.25	U	0.25	U	0.25	U	5
95-63-6	VOLATILE SW-846 METHOD 8260	1,2,4-Trimethylbenzene	PPB	0.25	U	0.25	U	0.25	U	5
96-12-8	VOLATILE SW-846 METHOD 8260	1,2-Dibromo-3-chloropropane	PPB	0.25	U	0.25	U	0.25	U	0.04
106-93-4	VOLATILE SW-846 METHOD 8260	1,2-Dibromoethane	PPB	0.25	U	0.25	U	0.25	U	0.0006
95-50-1	VOLATILE SW-846 METHOD 8260	1,2-Dichlorobenzene	PPB	0.25	U	0.25	U	0.25	U	3
107-06-2	VOLATILE SW-846 METHOD 8260	1,2-Dichloroethane	PPB	0.25	U	0.25	U	0.25	U	0.6
78-87-5	VOLATILE SW-846 METHOD 8260	1,2-Dichloropropane	PPB	0.25	U	0.25	U	0.25	U	1
108-67-8	VOLATILE SW-846 METHOD 8260	1,3,5-Trimethylbenzene	PPB	0.25	U	0.25	U	0.25	U	5
541-73-1	VOLATILE SW-846 METHOD 8260	1,3-Dichlorobenzene	PPB	0.25	U	0.25	U	0.25	U	3
142-28-9	VOLATILE SW-846 METHOD 8260	1,3-dichloropropane	PPB	0.25	U	0.25	U	0.25	U	5
106-46-7	VOLATILE SW-846 METHOD 8260	1,4-Dichlorobenzene	PPB	0.25	U	0.25	U	0.25	U	3
123-91-1	VOLATILE SW-846 METHOD 8260	1,4-Dioxane	PPB	0.25	U	0.25	U	0.25	U	NA
594-20-7	VOLATILE SW-846 METHOD 8260	2,2-Dichloropropane	PPB	0.25	U	0.25	U	0.25	U	5
78-93-3	VOLATILE SW-846 METHOD 8260	2-Butanone	PPB	0.50	U	0.50	U	0.50	U	50
110-75-8	VOLATILE SW-846 METHOD 8260	2-Chloroethyl vinyl ether	PPB	10	U	10	U	10	U	NA
95-49-8	VOLATILE SW-846 METHOD 8260	2-Chlorotoluene	PPB	0.25	U	0.25	U	0.25	U	5
591-78-6	VOLATILE SW-846 METHOD 8260	2-Hexanone	PPB	0.50	U	0.50	U	0.50	U	50
67-63-0	VOLATILE SW-846 METHOD 8260	2-Propanol	PPB	0.25	U	0.25	U	0.25	U	NA
106-43-4	VOLATILE SW-846 METHOD 8260	4-Chlorotoluene	PPB	0.25	U	0.25	U	0.25	U	5
99-87-6	VOLATILE SW-846 METHOD 8260	4-Isopropyltoluene	PPB	0.25	U	0.25	U	0.25	U	5
108-10-1	VOLATILE SW-846 METHOD 8260	4-Methyl-2-pentanone	PPB	0.50	U	0.50	U	0.50	U	NA
67-64-1	VOLATILE SW-846 METHOD 8260	Acetone	PPB	19	B	13	B	30	B	50
71-43-2	VOLATILE SW-846 METHOD 8260	Benzene	PPB	0.25	U	0.25	U	0.25	U	1
108-86-1	VOLATILE SW-846 METHOD 8260	Bromobenzene	PPB	0.25	U	0.25	U	0.25	U	5
74-97-5	VOLATILE SW-846 METHOD 8260	Bromochloromethane	PPB	0.25	U	0.25	U	0.25	U	5
75-27-4	VOLATILE SW-846 METHOD 8260	Bromodichloromethane	PPB	0.25	U	0.25	U	0.25	U	50
75-25-2	VOLATILE SW-846 METHOD 8260	Bromoform	PPB	0.25	U	0.25	U	0.25	U	50
74-83-9	VOLATILE SW-846 METHOD 8260	Bromomethane	PPB	0.25	U	0.25	U	0.25	U	5
75-15-0	VOLATILE SW-846 METHOD 8260	Carbon disulfide	PPB	0.25	U	0.25	U	0.25	U	NA
56-23-5	VOLATILE SW-846 METHOD 8260	Carbon tetrachloride	PPB	0.25	U	0.25	U	0.25	U	5
108-90-7	VOLATILE SW-846 METHOD 8260	Chlorobenzene	PPB	0.25	U	0.25	U	0.25	U	5
75-45-6	VOLATILE SW-846 METHOD 8260	Chlorodifluoromethane	PPB	0.25	U	0.25	U	0.25	U	NA
75-00-3	VOLATILE SW-846 METHOD 8260	Chloroethane	PPB	0.25	U	0.25	U	0.25	U	5
67-66-3	VOLATILE SW-846 METHOD 8260	Chloroform	PPB	0.25	U	0.25	U	0.25	U	7
74-87-3	VOLATILE SW-846 METHOD 8260	Chloromethane	PPB	0.25	U	0.25	U	0.25	U	5
156-59-2	VOLATILE SW-846 METHOD 8260	***cis-1,2-Dichloroethene***	PPB	***260***	D	***10000***	D	***570***	D	5
10061-01-5	VOLATILE SW-846 METHOD 8260	cis-1,3-Dichloropropene	PPB	0.25	U	0.25	U	0.25	U	0.4
110-82-7	VOLATILE SW-846 METHOD 8260	Cyclohexane	PPB	0.25	U	0.25	U	0.25	U	NA
124-48-1	VOLATILE SW-846 METHOD 8260	Dibromochloromethane	PPB	0.25	U	0.25	U	0.25	U	50
74-95-3	VOLATILE SW-846 METHOD 8260	Dibromomethane	PPB	0.25	U	0.25	U	0.25	U	5
75-71-8	VOLATILE SW-846 METHOD 8260	Dichlorodifluoromethane	PPB	0.25	U	0.25	U	0.25	U	5
108-20-3	VOLATILE SW-846 METHOD 8260	Diisopropyl ether	PPB	0.50	U	0.50	U	0.50	U	NA
64-17-5	VOLATILE SW-846 METHOD 8260	Ethanol	PPB	2.5	U	2.5	U	2.5	U	NA
100-41-4	VOLATILE SW-846 METHOD 8260	Ethylbenzene	PPB	0.25	U	0.25	U	0.25	U	5
76-14-2	VOLATILE SW-846 METHOD 8260	Freon-114	PPB	0.25	U	0.25	U	0.25	U	NA
87-68-3	VOLATILE SW-846 METHOD 8260	Hexachlorobutadiene	PPB	0.25	U	0.25	U	0.25	U	0.5
98-82-8	VOLATILE SW-846 METHOD 8260	Isopropylbenzene	PPB	0.25	U	0.25	U	0.25	U	5
179601-23-1	VOLATILE SW-846 METHOD 8260	m,p-Xylene	PPB	0.50	U	0.50	U	0.50	U	5
79-20-9	VOLATILE SW-846 METHOD 8260	Methyl Acetate	PPB	0.25	U	0.25	U	0.25	U	NA
1634-04-4	VOLATILE SW-846 METHOD 8260	Methyl tert-butyl ether	PPB	0.25	U	0.27	J	0.25	U	10
75-09-2	VOLATILE SW-846 METHOD 8260	Methylene chloride	PPB	6.2	B	5.2	B	5.5	B	5
104-51-8	VOLATILE SW-846 METHOD 8260	n-Butylbenzene	PPB	0.25	U	0.25	U	0.25	U	5
103-65-1	VOLATILE SW-846 METHOD 8260	n-Propylbenzene	PPB	0.25	U	0.25	U	0.25	U	5
91-20-3	VOLATILE SW-846 METHOD 8260	Naphthalene	PPB	0.25	U	0.25	U	0.25	U	10
95-47-6	VOLATILE SW-846 METHOD 8260	o-Xylene	PPB	0.25	U	0.25	U	0.25	U	5
105-05-5	VOLATILE SW-846 METHOD 8260	p-Diethylbenzene	PPB	0.25	U	0.25	U	0.25	U	NA
622-96-8	VOLATILE SW-846 METHOD 8260	p-Ethyltoluene	PPB	0.25	U	0.25	U	0.25	U	NA
135-98-8	VOLATILE SW-846 METHOD 8260	sec-Butylbenzene	PPB	0.25	U	0.25	U	0.25	U	5
100-42-5	VOLATILE SW-846 METHOD 8260	Styrene	PPB	0.25	U	0.25	U	0.25	U	5
75-65-0	VOLATILE SW-846 METHOD 8260	t-Butyl alcohol	PPB	2.5	U	2.5	U	2.5	U	NA
98-06-6	VOLATILE SW-846 METHOD 8260	tert-Butylbenzene	PPB	0.25	U	0.25	U	0.25	U	5
127-18-4	VOLATILE SW-846 METHOD 8260	***Tetrachloroethene***	PPB	***33***		***47***		***9.6***		5
108-88-3	VOLATILE SW-846 METHOD 8260	Toluene	PPB	0.25	U	0.28	J	0.25	U	5
156-60-5	VOLATILE SW-846 METHOD 8260	***trans-1,2-Dichloroethene***	PPB	1.5	J	***63***		2.7		5
10061-02-6	VOLATILE SW-846 METHOD 8260	trans-1,3-Dichloropropene	PPB	0.25	U	0.25	U	0.25	U	0.4
79-01-6	VOLATILE SW-846 METHOD 8260	***Trichloroethene***	PPB	***46***		***1700***	D	***300***		5
75-69-4	VOLATILE SW-846 METHOD 8260	Trichlorofluoromethane	PPB	0.25	U	0.25	U	0.25	U	5
108-05-4	VOLATILE SW-846 METHOD 8260	Vinyl acetate	PPB	0.25	U	0.25	U	0.25	U	NA
75-01-4	VOLATILE SW-846 METHOD 8260	***Vinyl chloride***	PPB	0.25	U	***12***		***8.9***		2
1330-20-7	VOLATILE SW-846 METHOD 8260	Xylenes, Total	PPB	0.75	U	0.75	U	0.75	U	5
108-87-2	VOLATILE SW-846 METHOD 8260	Methylcyclohexane	PPB	0.25	U	0.25	U	0.25	U	NA
107-02-8	VOLATILE SW-846 METHOD 8260	Acrolein	PPB	1.0	U	1.0	U	1.0	U	5
107-13-1	VOLATILE SW-846 METHOD 8260	Acrylonitrile	PPB	0.25	U	0.25	U	0.25	U	5

American Analytical Laboratories, LLC.
WorkOrder: 1908134
Client: WRS d.b.a Berninger Environmental
Project: American Drive-In Cleaners, 1345 Peninsula Blvd, Hewlett, NY

Abbreviation:
NA = Not available, no value specified in TOGsGW Limits

		Client Sample ID:		GW-6 @ 5-9'		GW-6 @ 15-19'		GW-6 @ 26-30'		TOGs Groundwater Limits
		Laboratory ID:		1908134-007		1908134-008		1908134-009		
		Sampling Date:		08/15/2019		08/15/2019		08/15/2019		
Cas #:	**Procedure:**	**Analyte:**	**Units:**		**Q**		**Q**		**Q**	
630-20-6	VOLATILE SW-846 METHOD 8260	1,1,1,2-Tetrachloroethane	PPB	0.25	U	0.25	U	0.25	U	**5**
71-55-6	VOLATILE SW-846 METHOD 8260	1,1,1-Trichloroethane	PPB	0.25	U	0.25	U	0.25	U	**5**
79-34-5	VOLATILE SW-846 METHOD 8260	1,1,2,2-Tetrachloroethane	PPB	0.25	U	0.25	U	0.25	U	**5**
76-13-1	VOLATILE SW-846 METHOD 8260	1,1,2-Trichloro-1,2,2-trifluoroethane	PPB	0.25	U	0.25	U	0.25	U	**5**
79-00-5	VOLATILE SW-846 METHOD 8260	1,1,2-Trichloroethane	PPB	0.25	U	0.25	U	0.25	U	**1**
75-34-3	VOLATILE SW-846 METHOD 8260	1,1-Dichloroethane	PPB	0.25	U	0.25	U	0.25	U	**5**
75-35-4	VOLATILE SW-846 METHOD 8260	1,1-Dichloroethene	PPB	0.25	U	0.51	J	0.25	U	**5**
563-58-6	VOLATILE SW-846 METHOD 8260	1,1-Dichloropropene	PPB	0.25	U	0.25	U	0.25	U	**1**
87-61-6	VOLATILE SW-846 METHOD 8260	1,2,3-Trichlorobenzene	PPB	0.25	U	0.25	U	0.25	U	**5**
96-18-4	VOLATILE SW-846 METHOD 8260	1,2,3-Trichloropropane	PPB	0.25	U	0.25	U	0.25	U	**5**
95-93-2	VOLATILE SW-846 METHOD 8260	1,2,4,5-Tetramethylbenzene	PPB	0.25	U	0.25	U	0.25	U	**5**
120-82-1	VOLATILE SW-846 METHOD 8260	1,2,4-Trichlorobenzene	PPB	0.25	U	0.25	U	0.25	U	**5**
95-63-6	VOLATILE SW-846 METHOD 8260	1,2,4-Trimethylbenzene	PPB	0.25	U	0.25	U	0.25	U	**5**
96-12-8	VOLATILE SW-846 METHOD 8260	1,2-Dibromo-3-chloropropane	PPB	0.25	U	0.25	U	0.25	U	**0.04**
106-93-4	VOLATILE SW-846 METHOD 8260	1,2-Dibromoethane	PPB	0.25	U	0.25	U	0.25	U	**0.0006**
95-50-1	VOLATILE SW-846 METHOD 8260	1,2-Dichlorobenzene	PPB	0.25	U	0.25	U	0.25	U	**3**
107-06-2	VOLATILE SW-846 METHOD 8260	1,2-Dichloroethane	PPB	0.25	U	0.25	U	0.25	U	**0.6**
78-87-5	VOLATILE SW-846 METHOD 8260	1,2-Dichloropropane	PPB	0.25	U	0.25	U	0.25	U	**1**
108-67-8	VOLATILE SW-846 METHOD 8260	1,3,5-Trimethylbenzene	PPB	0.25	U	0.25	U	0.25	U	**5**
541-73-1	VOLATILE SW-846 METHOD 8260	1,3-Dichlorobenzene	PPB	0.25	U	0.25	U	0.25	U	**3**
142-28-9	VOLATILE SW-846 METHOD 8260	1,3-dichloropropane	PPB	0.25	U	0.25	U	0.25	U	**5**
106-46-7	VOLATILE SW-846 METHOD 8260	1,4-Dichlorobenzene	PPB	0.25	U	0.25	U	0.25	U	**3**
123-91-1	VOLATILE SW-846 METHOD 8260	1,4-Dioxane	PPB	0.25	U	0.25	U	0.25	U	**NA**
594-20-7	VOLATILE SW-846 METHOD 8260	2,2-Dichloropropane	PPB	0.25	U	0.25	U	0.25	U	**5**
78-93-3	VOLATILE SW-846 METHOD 8260	2-Butanone	PPB	0.50	U	0.50	U	0.50	U	**50**
110-75-8	VOLATILE SW-846 METHOD 8260	2-Chloroethyl vinyl ether	PPB	10	U	10	U	10	U	**NA**
95-49-8	VOLATILE SW-846 METHOD 8260	2-Chlorotoluene	PPB	0.25	U	0.25	U	0.25	U	**5**
591-78-6	VOLATILE SW-846 METHOD 8260	2-Hexanone	PPB	0.50	U	0.50	U	0.50	U	**50**
67-63-0	VOLATILE SW-846 METHOD 8260	2-Propanol	PPB	0.25	U	0.25	U	0.25	U	**NA**
106-43-4	VOLATILE SW-846 METHOD 8260	4-Chlorotoluene	PPB	0.25	U	0.25	U	0.25	U	**5**
99-87-6	VOLATILE SW-846 METHOD 8260	4-Isopropyltoluene	PPB	0.25	U	0.25	U	0.25	U	**5**
108-10-1	VOLATILE SW-846 METHOD 8260	4-Methyl-2-pentanone	PPB	0.50	U	0.50	U	0.50	U	**NA**
67-64-1	VOLATILE SW-846 METHOD 8260	Acetone	PPB	16	B	24	B	18	B	**50**
71-43-2	VOLATILE SW-846 METHOD 8260	Benzene	PPB	0.25	U	0.25	U	0.25	U	**1**
108-86-1	VOLATILE SW-846 METHOD 8260	Bromobenzene	PPB	0.25	U	0.25	U	0.25	U	**5**
74-97-5	VOLATILE SW-846 METHOD 8260	Bromochloromethane	PPB	0.25	U	0.25	U	0.25	U	**5**
75-27-4	VOLATILE SW-846 METHOD 8260	Bromodichloromethane	PPB	0.25	U	0.25	U	0.25	U	**50**
75-25-2	VOLATILE SW-846 METHOD 8260	Bromoform	PPB	0.25	U	0.25	U	0.25	U	**50**
74-83-9	VOLATILE SW-846 METHOD 8260	Bromomethane	PPB	0.25	U	0.25	U	0.25	U	**5**
75-15-0	VOLATILE SW-846 METHOD 8260	Carbon disulfide	PPB	0.25	U	0.25	U	0.25	U	**NA**
56-23-5	VOLATILE SW-846 METHOD 8260	Carbon tetrachloride	PPB	0.25	U	0.25	U	0.25	U	**5**
108-90-7	VOLATILE SW-846 METHOD 8260	Chlorobenzene	PPB	0.25	U	0.25	U	0.25	U	**5**
75-45-6	VOLATILE SW-846 METHOD 8260	Chlorodifluoromethane	PPB	0.25	U	0.25	U	0.25	U	**NA**
75-00-3	VOLATILE SW-846 METHOD 8260	Chloroethane	PPB	0.25	U	0.25	U	0.25	U	**5**
67-66-3	VOLATILE SW-846 METHOD 8260	Chloroform	PPB	0.25	U	0.25	U	0.25	U	**7**
74-87-3	VOLATILE SW-846 METHOD 8260	Chloromethane	PPB	0.25	U	0.25	U	0.25	U	**5**
156-59-2	VOLATILE SW-846 METHOD 8260	***cis-1,2-Dichloroethene***	PPB	***6.8***		***110***		0.25	U	**5**
10061-01-5	VOLATILE SW-846 METHOD 8260	cis-1,3-Dichloropropene	PPB	0.25	U	0.25	U	0.25	U	**0.4**
110-82-7	VOLATILE SW-846 METHOD 8260	Cyclohexane	PPB	0.25	U	0.25	U	0.25	U	**NA**
124-48-1	VOLATILE SW-846 METHOD 8260	Dibromochloromethane	PPB	0.25	U	0.25	U	0.25	U	**50**
74-95-3	VOLATILE SW-846 METHOD 8260	Dibromomethane	PPB	0.25	U	0.25	U	0.25	U	**5**
75-71-8	VOLATILE SW-846 METHOD 8260	Dichlorodifluoromethane	PPB	0.25	U	0.25	U	0.25	U	**5**
108-20-3	VOLATILE SW-846 METHOD 8260	Diisopropyl ether	PPB	0.50	U	0.50	U	0.50	U	**NA**
64-17-5	VOLATILE SW-846 METHOD 8260	Ethanol	PPB	2.5	U	2.5	U	2.5	U	**NA**
100-41-4	VOLATILE SW-846 METHOD 8260	Ethylbenzene	PPB	0.25	U	0.25	U	0.25	U	**5**
76-14-2	VOLATILE SW-846 METHOD 8260	Freon-114	PPB	0.25	U	0.25	U	0.25	U	**NA**
87-68-3	VOLATILE SW-846 METHOD 8260	Hexachlorobutadiene	PPB	0.25	U	0.25	U	0.25	U	**0.5**
98-82-8	VOLATILE SW-846 METHOD 8260	Isopropylbenzene	PPB	0.25	U	0.25	U	0.25	U	**5**
179601-23-1	VOLATILE SW-846 METHOD 8260	m,p-Xylene	PPB	0.50	U	0.50	U	0.50	U	**5**
79-20-9	VOLATILE SW-846 METHOD 8260	Methyl Acetate	PPB	0.25	U	0.25	U	0.25	U	**NA**
1634-04-4	VOLATILE SW-846 METHOD 8260	Methyl tert-butyl ether	PPB	0.25	U	0.60	J	0.25	U	**10**
75-09-2	VOLATILE SW-846 METHOD 8260	Methylene chloride	PPB	5.8	B	5.6	B	6.9	B	**5**
104-51-8	VOLATILE SW-846 METHOD 8260	n-Butylbenzene	PPB	0.25	U	0.25	U	0.25	U	**5**
103-65-1	VOLATILE SW-846 METHOD 8260	n-Propylbenzene	PPB	0.25	U	0.25	U	0.25	U	**5**
91-20-3	VOLATILE SW-846 METHOD 8260	Naphthalene	PPB	0.25	U	0.25	U	0.25	U	**10**
95-47-6	VOLATILE SW-846 METHOD 8260	o-Xylene	PPB	0.25	U	0.25	U	0.25	U	**5**
105-05-5	VOLATILE SW-846 METHOD 8260	p-Diethylbenzene	PPB	0.25	U	0.25	U	0.25	U	**NA**
622-96-8	VOLATILE SW-846 METHOD 8260	p-Ethyltoluene	PPB	0.25	U	0.25	U	0.25	U	**NA**
135-98-8	VOLATILE SW-846 METHOD 8260	sec-Butylbenzene	PPB	0.25	U	0.25	U	0.25	U	**5**
100-42-5	VOLATILE SW-846 METHOD 8260	Styrene	PPB	0.25	U	0.25	U	0.25	U	**5**
75-65-0	VOLATILE SW-846 METHOD 8260	t-Butyl alcohol	PPB	2.5	U	2.5	U	2.5	U	**NA**
98-06-6	VOLATILE SW-846 METHOD 8260	tert-Butylbenzene	PPB	0.25	U	0.25	U	0.25	U	**5**
127-18-4	VOLATILE SW-846 METHOD 8260	Tetrachloroethene	PPB	0.25	U	0.25	U	0.25	U	**5**
108-88-3	VOLATILE SW-846 METHOD 8260	Toluene	PPB	0.25	U	0.25	U	0.25	U	**5**
156-60-5	VOLATILE SW-846 METHOD 8260	trans-1,2-Dichloroethene	PPB	0.25	U	0.93	J	0.25	U	**5**
10061-02-6	VOLATILE SW-846 METHOD 8260	trans-1,3-Dichloropropene	PPB	0.25	U	0.25	U	0.25	U	**0.4**
79-01-6	VOLATILE SW-846 METHOD 8260	***Trichloroethene***	PPB	0.25	U	***12***		0.25	U	**5**
75-69-4	VOLATILE SW-846 METHOD 8260	Trichlorofluoromethane	PPB	0.25	U	0.25	U	0.25	U	**5**
108-05-4	VOLATILE SW-846 METHOD 8260	Vinyl acetate	PPB	0.25	U	0.25	U	0.25	U	**NA**
75-01-4	VOLATILE SW-846 METHOD 8260	Vinyl chloride	PPB	0.25	U	0.25	U	0.25	U	**2**
1330-20-7	VOLATILE SW-846 METHOD 8260	Xylenes, Total	PPB	0.75	U	0.75	U	0.75	U	**5**
108-87-2	VOLATILE SW-846 METHOD 8260	Methylcyclohexane	PPB	0.25	U	0.25	U	0.25	U	**NA**
107-02-8	VOLATILE SW-846 METHOD 8260	Acrolein	PPB	1.0	U	1.0	U	1.0	U	**5**
107-13-1	VOLATILE SW-846 METHOD 8260	Acrylonitrile	PPB	0.25	U	0.25	U	0.25	U	**5**

Table-3

Tabulated PFAS and 1, 4 Dioxane Data

SAMPLE		PREPARED	ANALYZED		ANALYTE	RESULT	UNIT	QUALIFIER	MDL	RL	DIL FAC
MW-1	PFOA	8/8/2019 6:01	8/10/2019 20:59	Dilution1	Perfluorobutanoic acid (PFBA)	12.4	ng/l	JD	3.12	17.8	10
MW-1	PFOA	8/8/2019 6:01	8/13/2019 10:07	Dilution2	Perfluorooctanesulfonic acid (PFOS)	3530	ng/l	DB	9.64	35.7	20
MW-1	PFOA	8/8/2019 6:01	8/9/2019 8:26	INITIAL	Perfluoropentanoic acid (PFPeA)	16.2	ng/l		0.44	1.78	1
MW-1	PFOA	8/8/2019 6:01	8/9/2019 8:26	INITIAL	Perfluorohexanoic acid (PFHxA)	25.9	ng/l		0.52	1.78	1
MW-1	PFOA	8/8/2019 6:01	8/9/2019 8:26	INITIAL	Perfluoroheptanoic acid (PFHpA)	29	ng/l		0.22	1.78	1
MW-1	PFOA	8/8/2019 6:01	8/9/2019 8:26	INITIAL	Perfluorooctanoic acid (PFOA)	181	ng/l		0.76	1.78	1
MW-1	PFOA	8/8/2019 6:01	8/9/2019 8:26	INITIAL	Perfluorononanoic acid (PFNA)	17.5	ng/l		0.24	1.78	1
MW-1	PFOA	8/8/2019 6:01	8/9/2019 8:26	INITIAL	Perfluorodecanoic acid (PFDA)	17.1	ng/l		0.28	1.78	1
MW-1	PFOA	8/8/2019 6:01	8/9/2019 8:26	INITIAL	Perfluoroundecanoic acid (PFUnA)	1.45	ng/l	J	0.98	1.78	1
MW-1	PFOA	8/8/2019 6:01	8/9/2019 8:26	INITIAL	Perfluorododecanoic acid (PFDoA)			U	0.49	1.78	1
MW-1	PFOA	8/8/2019 6:01	8/9/2019 8:26	INITIAL	Perfluorotridecanoic acid (PFTriA)			U	1.16	1.78	1
MW-1	PFOA	8/8/2019 6:01	8/9/2019 8:26	INITIAL	Perfluorotetradecanoic acid (PFTeA)			U	0.26	1.78	1
MW-1	PFOA	8/8/2019 6:01	8/9/2019 8:26	INITIAL	Perfluorobutanesulfonic acid (PFBS)	11.8	ng/l		0.18	1.78	1
MW-1	PFOA	8/8/2019 6:01	8/9/2019 8:26	INITIAL	Perfluorohexanesulfonic acid (PFHxS)	49.3	ng/l	B	0.15	1.78	1
MW-1	PFOA	8/8/2019 6:01	8/9/2019 8:26	INITIAL	Perfluoroheptanesulfonic Acid (PFHpS)	27.1	ng/l		0.17	1.78	1
MW-1	PFOA	8/8/2019 6:01	8/9/2019 8:26	INITIAL	Perfluorodecanesulfonic acid (PFDS)			U	0.29	1.78	1
MW-1	PFOA	8/8/2019 6:01	8/9/2019 8:26	INITIAL	Perfluorooctanesulfonamide (FOSA)	18.9	ng/l	B	0.31	1.78	1
MW-1	PFOA	8/8/2019 6:01	8/9/2019 8:26	INITIAL	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	322	ng/l		2.77	17.8	1
MW-1	PFOA	8/8/2019 6:01	8/9/2019 8:26	INITIAL	N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	22.9	ng/l		1.7	17.8	1
MW-1	PFOA	8/8/2019 6:01	8/9/2019 8:26	INITIAL	6:2 FTS			U	1.78	17.8	1
MW-1	PFOA	8/8/2019 6:01	8/9/2019 8:26	INITIAL	8:2 FTS			U	1.78	17.8	1
MW-1	SW8270D SIM	8/6/2019 8:33	8/8/2019 1:20	INITIAL	1,4-Dioxane			UF1*	0.17	0.17	1

U = Indicates the analyte was analyzed for but not detected.

F1 = MS and/or MSD Recovery is outside acceptance limits.

*** = RPD of the LCS and LCSD exceeds the control limits**

B = Compound was found in the blank and sample.

J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

D = Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.

SAMPLE		PREPARED	ANALYZED		ANALYTE	RESULT	UNIT	QUALIFIER	MDL	RL	DIL FAC
MW-3	PFOA	8/8/2019 6:01	8/9/2019 9:14	INITIAL	Perfluorobutanoic acid (PFBA)	5.77	ng/l		0.3	1.72	1
MW-3	PFOA	8/8/2019 6:01	8/9/2019 9:14	INITIAL	Perfluoropentanoic acid (PFPeA)	7.36	ng/l		0.42	1.72	1
MW-3	PFOA	8/8/2019 6:01	8/9/2019 9:14	INITIAL	Perfluorohexanoic acid (PFHxA)	10.3	ng/l		0.5	1.72	1
MW-3	PFOA	8/8/2019 6:01	8/9/2019 9:14	INITIAL	Perfluoroheptanoic acid (PFHpA)	7.2	ng/l		0.22	1.72	1
MW-3	PFOA	8/8/2019 6:01	8/9/2019 9:14	INITIAL	Perfluorooctanoic acid (PFOA)	40.3	ng/l		0.73	1.72	1
MW-3	PFOA	8/8/2019 6:01	8/9/2019 9:14	INITIAL	Perfluorononanoic acid (PFNA)	6.72	ng/l		0.23	1.72	1
MW-3	PFOA	8/8/2019 6:01	8/9/2019 9:14	INITIAL	Perfluorodecanoic acid (PFDA)	2.94	ng/l		0.27	1.72	1
MW-3	PFOA	8/8/2019 6:01	8/9/2019 9:14	INITIAL	Perfluoroundecanoic acid (PFUnA)			U	0.95	1.72	1
MW-3	PFOA	8/8/2019 6:01	8/9/2019 9:14	INITIAL	Perfluorododecanoic acid (PFDoA)			U	0.47	1.72	1
MW-3	PFOA	8/8/2019 6:01	8/9/2019 9:14	INITIAL	Perfluorotridecanoic acid (PFTriA)			U	1.12	1.72	1
MW-3	PFOA	8/8/2019 6:01	8/9/2019 9:14	INITIAL	Perfluorotetradecanoic acid (PFTeA)	0.35	ng/l	J	0.25	1.72	1
MW-3	PFOA	8/8/2019 6:01	8/9/2019 9:14	INITIAL	Perfluorobutanesulfonic acid (PFBS)	8.11	ng/l		0.17	1.72	1
MW-3	PFOA	8/8/2019 6:01	8/9/2019 9:14	INITIAL	Perfluorohexanesulfonic acid (PFHxS)	8.88	ng/l	B	0.15	1.72	1
MW-3	PFOA	8/8/2019 6:01	8/9/2019 9:14	INITIAL	Perfluoroheptanesulfonic Acid (PFHpS)	2.51	ng/l		0.16	1.72	1
MW-3	PFOA	8/8/2019 6:01	8/9/2019 9:14	INITIAL	Perfluorooctanesulfonic acid (PFOS)	235	ng/l	B	0.47	1.72	1
MW-3	PFOA	8/8/2019 6:01	8/9/2019 9:14	INITIAL	Perfluorodecanesulfonic acid (PFDS)			U	0.28	1.72	1
MW-3	PFOA	8/8/2019 6:01	8/9/2019 9:14	INITIAL	Perfluorooctanesulfonamide (FOSA)	0.35	ng/l	JB	0.3	1.72	1
MW-3	PFOA	8/8/2019 6:01	8/9/2019 9:14	INITIAL	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)			U	2.67	17.2	1
MW-3	PFOA	8/8/2019 6:01	8/9/2019 9:14	INITIAL	N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)			U	1.64	17.2	1
MW-3	PFOA	8/8/2019 6:01	8/9/2019 9:14	INITIAL	6:2 FTS			U	1.72	17.2	1
MW-3	PFOA	8/8/2019 6:01	8/9/2019 9:14	INITIAL	8:2 FTS			U	1.72	17.2	1
MW-3	SW8270D SIM	8/6/2019 8:33	8/7/2019 9:05	INITIAL	1,4-Dioxane			U*	0.17	0.17	1

U = Indicates the analyte was analyzed for but not detected.

F1 = MS and/or MSD Recovery is outside acceptance limits.

*** = RPD of the LCS and LCSD exceeds the control limits**

B = Compound was found in the blank and sample.

J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

D = Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.

SAMPLE		PREPARED	ANALYZED		ANALYTE	RESULT	UNIT	QUALIFIER	MDL	RL	DIL FAC
MW-6A	PFOA	8/8/2019 6:01	8/10/2019 21:47	Dilution1	Perfluorooctanesulfonic acid (PFOS)	2380	ng/l	D	4.81	17.8	10
MW-6A	PFOA	8/8/2019 6:01	8/9/2019 9:22	INITIAL	Perfluorobutanoic acid (PFBA)	4.83	ng/l		0.31	1.78	1
MW-6A	PFOA	8/8/2019 6:01	8/9/2019 9:22	INITIAL	Perfluoropentanoic acid (PFPeA)	13.2	ng/l		0.44	1.78	1
MW-6A	PFOA	8/8/2019 6:01	8/9/2019 9:22	INITIAL	Perfluorohexanoic acid (PFHxA)	18.8	ng/l		0.52	1.78	1
MW-6A	PFOA	8/8/2019 6:01	8/9/2019 9:22	INITIAL	Perfluoroheptanoic acid (PFHpA)	21.2	ng/l		0.22	1.78	1
MW-6A	PFOA	8/8/2019 6:01	8/9/2019 9:22	INITIAL	Perfluorooctanoic acid (PFOA)	121	ng/l		0.76	1.78	1
MW-6A	PFOA	8/8/2019 6:01	8/9/2019 9:22	INITIAL	Perfluorononanoic acid (PFNA)	12.1	ng/l		0.24	1.78	1
MW-6A	PFOA	8/8/2019 6:01	8/9/2019 9:22	INITIAL	Perfluorodecanoic acid (PFDA)	6.97	ng/l		0.28	1.78	1
MW-6A	PFOA	8/8/2019 6:01	8/9/2019 9:22	INITIAL	Perfluoroundecanoic acid (PFUnA)	1.96	ng/l		0.98	1.78	1
MW-6A	PFOA	8/8/2019 6:01	8/9/2019 9:22	INITIAL	Perfluorododecanoic acid (PFDoA)	1.22	ng/l	J	0.49	1.78	1
MW-6A	PFOA	8/8/2019 6:01	8/9/2019 9:22	INITIAL	Perfluorotridecanoic acid (PFTriA)			U	1.16	1.78	1
MW-6A	PFOA	8/8/2019 6:01	8/9/2019 9:22	INITIAL	Perfluorotetradecanoic acid (PFTeA)	0.42	ng/l	J	0.26	1.78	1
MW-6A	PFOA	8/8/2019 6:01	8/9/2019 9:22	INITIAL	Perfluorobutanesulfonic acid (PFBS)	14.2	ng/l		0.18	1.78	1
MW-6A	PFOA	8/8/2019 6:01	8/9/2019 9:22	INITIAL	Perfluorohexanesulfonic acid (PFHxS)	111	ng/l	B	0.15	1.78	1
MW-6A	PFOA	8/8/2019 6:01	8/9/2019 9:22	INITIAL	Perfluoroheptanesulfonic Acid (PFHpS)	55.4	ng/l		0.17	1.78	1
MW-6A	PFOA	8/8/2019 6:01	8/9/2019 9:22	INITIAL	Perfluorodecanesulfonic acid (PFDS)			U	0.28	1.78	1
MW-6A	PFOA	8/8/2019 6:01	8/9/2019 9:22	INITIAL	Perfluorooctanesulfonamide (FOSA)	139	ng/l	B	0.31	1.78	1
MW-6A	PFOA	8/8/2019 6:01	8/9/2019 9:22	INITIAL	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	229	ng/l		2.76	17.8	1
MW-6A	PFOA	8/8/2019 6:01	8/9/2019 9:22	INITIAL	N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	3.07	ng/l	J	1.69	17.8	1
MW-6A	PFOA	8/8/2019 6:01	8/9/2019 9:22	INITIAL	6:2 FTS			U	1.78	17.8	1
MW-6A	PFOA	8/8/2019 6:01	8/9/2019 9:22	INITIAL	8:2 FTS			U	1.78	17.8	1
MW-6A	SW8270D SIM	8/6/2019 8:33	8/7/2019 9:26	INITIAL	1,4-Dioxane			U*	0.17	0.17	1

U = Indicates the analyte was analyzed for but not detected.

F1 = MS and/or MSD Recovery is outside acceptance limits.

*** = RPD of the LCS and LCSD exceeds the control limits**

B = Compound was found in the blank and sample.

J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

D = Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.

Table-4

Tabulated Soil Vapor Data

	Lab Sample ID:		L1934510-01	L1934510-02	L1934510-03	L1934510-04	L1934510-05	L1934510-06
	Sample Name:		SV-1	SV-2	SV-3	SV-4	SV-5	OA-1
	Sample Date:		31-JUL-19	31-JUL-19	31-JUL-19	31-JUL-19	31-JUL-19	31-JUL-19
			-	-	-	-	-	-
Volatile Organics in Air	**CasNum**	**Units**						
1,2-Dichlorobenzene	95-50-1	ug/m3	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
2-Butanone	78-93-3	ug/m3	40.1	14.8	15.2	12.6	4.57	1.47 U
1,2,4-Trimethylbenzene	95-63-6	ug/m3	5.51	10	8.65	5.7	4.9	0.983 U
4-Ethyltoluene	622-96-8	ug/m3	1.16	2.06	1.95	1.3	0.983 U	0.983 U
Heptane	142-82-5	ug/m3	65.2	8.61	5.45	3.41	2.22	0.82 U
1,2-Dichloro-1,1,2,2-tetrafluoroethane	76-14-2	ug/m3	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
1,1-Dichloroethane	75-34-3	ug/m3	0.809 U	0.809 U	0.809 U	0.809 U	0.809 U	0.809 U
1,4-Dichlorobenzene	106-46-7	ug/m3	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
Chlorobenzene	108-90-7	ug/m3	0.921 U	0.921 U	0.921 U	0.921 U	0.921 U	0.921 U
Styrene	100-42-5	ug/m3	1.22	1.55	3.23	1.81	1.15	0.852 U
trans-1,2-Dichloroethene	156-60-5	ug/m3	19.1	1.31	0.9	0.793 U	0.793 U	0.793 U
1,4-Dioxane	123-91-1	ug/m3	0.721 U	0.721 U	0.721 U	0.721 U	0.721 U	0.721 U
1,3-Butadiene	106-99-0	ug/m3	11.3	0.575	4.89	4.62	1.27	0.442 U
3-Chloropropene	107-05-1	ug/m3	0.626 U	0.626 U	0.626 U	0.626 U	0.626 U	0.626 U
1,2-Dichloroethene (total)	540-59-0	ug/m3	73.3	7.57	12.4	0.793 U	0.793 U	0.793 U
1,2-Dichloropropane	78-87-5	ug/m3	0.924 U	0.924 U	0.924 U	0.924 U	0.924 U	0.924 U
Trichlorofluoromethane	75-69-4	ug/m3	3.14	6.07	7.25	3.53	3.96	1.65
Vinyl chloride	75-01-4	ug/m3	**2.24**	0.511 U	**1.6**	0.511 U	0.511 U	0.511 U
tert-Butyl Alcohol	75-65-0	ug/m3	13.1	60.9	24.5	25.5	19.1	1.52 U
Bromomethane	74-83-9	ug/m3	0.777 U	0.777 U	0.777 U	0.777 U	0.777 U	0.777 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	ug/m3	1.53 U	1.53 U	1.53 U	1.53 U	1.53 U	1.53 U
1,2,4-Trichlorobenzene	120-82-1	ug/m3	1.48 U	1.48 U	1.48 U	1.48 U	1.48 U	1.48 U
Hexachlorobutadiene	87-68-3	ug/m3	2.13 U	2.13 U	2.13 U	2.13 U	2.13 U	2.13 U
Chloromethane	74-87-3	ug/m3	1.2	1.57	1.02	0.812	0.803	1.14
Dibromochloromethane	124-48-1	ug/m3	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Cyclohexane	110-82-7	ug/m3	38.9	3.92	2.01	2.63	3.89	0.688 U
Benzyl chloride	100-44-7	ug/m3	1.04 U	1.04 U	1.04 U	1.04 U	1.04 U	1.04 U
cis-1,3-Dichloropropene	10061-01-5	ug/m3	0.908 U	0.908 U	0.908 U	0.908 U	0.908 U	0.908 U
trans-1,3-Dichloropropene	10061-02-6	ug/m3	0.908 U	0.908 U	0.908 U	0.908 U	0.908 U	0.908 U
Tetrachloroethene	127-18-4	ug/m3	**15.9**	**21.8**	**325**	**60.6**	**29**	**108**
cis-1,2-Dichloroethene	156-59-2	ug/m3	**54.3**	**6.26**	**11.5**	0.793 U	0.793 U	0.793 U
1,3,5-Trimethylbenzene	108-67-8	ug/m3	1.56	2.69	2.36	1.44	1.35	0.983 U
Ethyl Acetate	141-78-6	ug/m3	1.8 U	8.58	1.8 U	1.8 U	1.8 U	1.8 U
1,1,1-Trichloroethane	71-55-6	ug/m3	1.09 U	1.09 U	1.09 U	1.09 U	1.09 U	1.09 U
1,3-Dichlorobenzene	541-73-1	ug/m3	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
Benzene	71-43-2	ug/m3	38.3	13.7	7.99	9.36	4.34	0.891
Dichlorodifluoromethane	75-71-8	ug/m3	0.989 U	0.989 U	0.989 U	1.01	1.18	1.81
Methylene chloride	75-09-2	ug/m3	1.74 U	**19.5**	1.74 U	1.74 U	**1.85**	1.74 U
2-Hexanone	591-78-6	ug/m3	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U
4-Methyl-2-pentanone	108-10-1	ug/m3	2.05 U	15.8	6.97	3.98	4.96	2.05 U
Carbon disulfide	75-15-0	ug/m3	56.7	5.85	7.63	7.63	6.98	0.623 U
Trichloroethene	79-01-6	ug/m3	**27.6**	**32.6**	**59.7**	1.07 U	1.07 U	1.07 U
o-Xylene	95-47-6	ug/m3	4.52	7.43	7.56	5.21	3.67	0.869 U
Tetrahydrofuran	109-99-9	ug/m3	1.47 U	4.48	1.99	1.69	1.56	1.47 U
Vinyl bromide	593-60-2	ug/m3	0.874 U	0.874 U	0.874 U	0.874 U	0.874 U	0.874 U
1,1,2,2-Tetrachloroethane	79-34-5	ug/m3	1.37 U	1.37 U	1.37 U	1.37 U	1.37 U	1.37 U
1,2-Dichloroethane	107-06-2	ug/m3	0.809 U	0.809 U	0.809 U	0.809 U	0.809 U	0.809 U
Bromoform	75-25-2	ug/m3	2.07 U	2.07 U	2.07 U	2.07 U	2.07 U	2.07 U
Chloroethane	75-00-3	ug/m3	1.69	0.528 U	0.528 U	0.528 U	0.528 U	0.528 U
Ethylbenzene	100-41-4	ug/m3	3.36	6.25	5.73	4.04	2.91	0.869 U
Toluene	108-88-3	ug/m3	26.6	260	27.9	20.6	15.6	2.75
Acetone	67-64-1	ug/m3	242	108	65.3	100	34.7	13.7
1,2-Dibromoethane	106-93-4	ug/m3	1.54 U	1.54 U	1.54 U	1.54 U	1.54 U	1.54 U
iso-Propyl Alcohol	67-63-0	ug/m3	3.64	80.6	1.23 U	2.45	1.23 U	1.23 U
p/m-Xylene	179601-23-1	ug/m3	10.8	19.1	19.8	13	9.47	1.74 U
Bromodichloromethane	75-27-4	ug/m3	1.34 U	1.34 U	1.34 U	1.34 U	1.34 U	1.34 U
Carbon tetrachloride	56-23-5	ug/m3	1.26 U	1.26 U	1.26 U	1.26 U	1.26 U	1.26 U
1,1-Dichloroethene	75-35-4	ug/m3	0.793 U	0.793 U	0.793 U	0.793 U	0.793 U	0.793 U
Ethyl Alcohol	64-17-5	ug/m3	9.61	61.6	11.9	14.2	11	9.42 U
Methyl tert butyl ether	1634-04-4	ug/m3	0.721 U	0.721 U	0.721 U	0.721 U	0.721 U	0.721 U
1,3-Dichloropropene, Total	542-75-6	ug/m3	0.908 U	0.908 U	0.908 U	0.908 U	0.908 U	0.908 U
1,1,2-Trichloroethane	79-00-5	ug/m3	1.09 U	1.09 U	1.09 U	1.09 U	1.09 U	1.09 U
Chloroform	67-66-3	ug/m3	4.98	1.24	12.1	0.977 U	0.977 U	0.977 U
Xylene (Total)	1330-20-7	ug/m3	15.3	26.5	27.4	18.2	13.1	0.869 U
n-Hexane	110-54-3	ug/m3	225	10.2	7.19	5.64	3.04	2.44
2,2,4-Trimethylpentane	540-84-1	ug/m3	0.934 U	12	3.59	3.26	2.62	0.934 U
			-	-	-	-	-	-
			-	-	-	-	-	-
			-	-	-	-	-	-

*Alpha Analytical Labs provides this custom reporting format as a convenience to our clients. As such, we cannot be held liable for errors or omissions associated with the sample results.

*Refer to the laboratory report in Adobe Acrobat (.PDF) format to check results or read any associated project narrative that may be present. In all cases, the signed, hardcopy Alpha Analytical Labs laboratory report is the official document for reporting laboratory results.

APPENDICES

Appendix-A

Previous SVI Report

Berninger Environmental, Inc.

groundwater consultants and geologists
90 - B Knickerbocker Avenue **Phone: 631 • 589 • 6521**
Bohemia • New York • 11716 **Fax: 631 • 589 • 6528**

May 22, 2008

Mr. Mark Bufalini
Project Manager
New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 11th Floor
Albany, New York 12233-7015

Re: American Drive-In Cleaners of Hewlett, Inc.
1345 Peninsula Boulevard
Hewlett, New York

Dear Mr. Bufalini:

Berninger Environmental, Inc. (BEI) is providing a summary report on behalf of our client, American Drive-In Cleaners of Hewlett, Inc., for soil vapor samples collected from the rear of three homes located adjacent to the dry cleaners on January 29, 2008.

Background

Berninger Environmental, Inc., under the direction of the New York State Department of Health (NYSDOH), and the NYSDEC obtained these soil gas samples to help assess whether the environmental contamination from operations at the dry cleaner (American Drive-In Cleaners) located at 1345 Peninsula Boulevard, Hewlett, New York has the potential to affect indoor air quality at three homes, located at 1310 Waverly Avenue (SG-1A), 1314 Waverly Avenue (SG-2A) and 1316 Waverly Avenue (SG-3A), Hewlett, New York.

Soil Vapor Migration Study

The three soil gas sampling locations (see attached figure) were installed to collect soil vapor samples in accordance with the February 2005 Draft New York State Department of Health(NYSDOH) "Guidance for Evaluating Soil Vapor Intrusion in the State of New York" protocols (revised 2006).

A hand operated direct drilling system (Geoprobe) was used to implant soil vapor sampling probes to the depths representative of potential vapor movement relative to the adjacent residence. However, at these properties groundwater is very shallow, less than four feet below grade surface (bgs), necessitating a completion of less than 5 feet bgs. Specifically, the Geoprobe equipped with Post-Run Tubing System (PRT), an expendable tip and teflon tubing was used to collect discrete soil gas samples from below grade at a depth of 2.5-3 ft bgs.

After setting up a sealed penetration using hydraulic cement around the top of the PRT, the area around the soil gas sample collection point was encompassed by a plastic container for the introduction of a helium tracer gas. Helium was introduced via a tubing penetration into the plastic container as a tracer gas in order to quantify that no circumvention of air is occurring.

Subsequent to the introduction of helium tracer gas, the annular space was purged a minimum of one to three volumes of soil gas using a personal sampling pump. During purging and sampling, the flow rate did not exceed 0.2 liters per minute. A pre-set regulator and dedicated summa cannister were used to procure the soil

gas sample. Again, the regulator used had a flow rate less than 0.2 liters per minute. Sufficient volume was collected to achieve the detection limits required to evaluate the data relative to the guidelines issued by the NYSDOH.

As specified by the NYSDEC, an ambient air sample was also collected. The ambient outdoor air sample was collected at a representative breathing height (3 to 5 feet above grade), at an upwind location - see attached figure. The ambient air regulator was set to obtain approximately four hours of sampling time; the vacuum readings required that the testing be stopped prior to four hours to ensure that a negative pressure remained. Direct field readings were performed for helium tracer to ensure that the soil gas vapor sample was not compromised due to exterior air circumvention. A sample is considered to be valid if <20 percent tracer gas is present.

After the required pressure changes were observed on the canister gauge, the canister was sealed, and packaged for transport. The field sampling team maintained the following sample log sheet which summarized the following:

a. sample identification,
b. date and time of sample collection,
c. sampling depth,
d. identity of samplers,
e. sampling methods and devices,
f. purge volumes,
g. volume of soil vapor extracted,
h. the type of canisters used, the vacuum before and after samples collected,
I. apparent moisture content (dry, moist, saturated, etc.) of the sampling zone, and
j. chain of custody protocols and records used to track samples from sampling point to analysis.

After collection, the sampling location was also field screened with a PID and a helium detector to provide real time data; this information was recorded in the field book. PID results were both less than 0.2 parts per million (ppm) response units and no helium above instrument detection limits were recorded**.**

Upon completion of the day's sample collection, the summa canisters were transported under strict chain-of-custody to an NYSDOH-ELAP certified laboratory H2M Laboratories, Inc. located in Melville, New York for VOC analysis by EPA Method TO-15 methodology. The shallow borings associated with soil vapor testing were abandoned by bentonite grout to grade.

Laboratory Analysis

The three samples were analyzed by H2M Laboratories, Inc., an NYSDOH ELAP-Certified laboratory. Summary data sheets are included in as an appendix of this report. An independent third party validation was performed on this data - see attached appendices. As the State of New York does not have any standards or criteria for concentrations of volatile chemicals in soil gas, the results of the laboratory analysis of the three soil gas samples were compared to the *Background Indoor Air Levels of Volatile Organic Compounds in Homes Sampled by the New York State Department of Health, 1989-1996* published by the NYSDOH Bureau of Toxic Substance Assessment in 1997 and included in the NYSDOH *Guidance for Evaluating Soil Vapor Intrusion in the State of New York*.

As indicated in Table 1, numerous VOCs were detected in each of the three soil gas samples. Of the VOCs present, particular focus was on the concentrations of Tetrachoroethene (PCE), a common dry-cleaning chemical and its typical breakdown products such as Trichloroethene (TCE).

PCE and TCE typically detected at concentrations of less than 100 mcg./cu.m and 5 mcg./cu.m, respectively, in soil gas exterior to a home, generally do not result in significant indoor air impacts. Furthermore, based upon NYSDOH recent long term studies on these types of compounds in indoor air, PCE and TCE can be typically detected at concentrations of 2.9 mcg./cu.m and 0.48 mcg./cu.m, respectively, or less in buildings not known to be affected by a chemical spill or other significant sources of these chemicals.

Based upon this comparison, at this time, no PCE or TCE concentrations were present in subsurface soil gas samples that exceeded any specifically identified NYSDOH requirements (matrix tables) at any of the three residences. Letters were developed for distribution to the three residences with an overview of NYSDOH Fact Sheets on these compounds that summarized these facts.

Summary and Conclusions

As required by the NYSDEC and NYSDOH, BEI has obtained subsurface soil gas data at the three closest adjoining residences in accordance with sampling guidelines for same. Based upon testing of these three properties, no PCE or TCE concentrations were identified present in subsurface soil gas samples that exceeded any specifically identified NYSDOH requirement for monitoring, mitigation, etc. at any of the three residences. Letters were developed for distribution to the three residences with an overview of NYSDOH Fact Sheets on these compounds that summarized these facts.

Please feel free to contact me if you have any questions.

Sincerely,
Berninger Environmental, Inc.

Walter Berninger
President/Consultant

enc.

Berninger Environmental, Inc.

groundwater consultants and geologists
90 - B Knickerbocker Avenue **Phone: 631 • 589 • 6521**
Bohemia • New York • 11716 **Fax: 631 • 589 • 6528**

Mr. Adam Hirsch August 07, 2008
1310 Waverly Street
Hewlett, New York

Re: Soil Vapor Sampling Results - Rear Yard
1310 Waverly Street, Hewlett, New York

Dear Mr. Hirsch:

Enclosed are the laboratory test results for the soil vapor samples collected from the rear of your home (SG-1A) on January 29, 2008. Berninger Environmental, Inc., under the direction of the New York State Department of Health (NYSDOH), obtained this soil gas sample to help assess whether the environmental contamination from operations at the dry cleaner (American Drive-In Cleaners) located at 1345 Peninsula Boulevard, Hewlett, New York has the potential to affect indoor air quality in your home. The soil gas sample was tested for Tetrachoroethene (PCE), a common dry cleaning chemical and its typical breakdown products such as Trichloroethene (TCE).

Soil Gas Sampling Results

In air, concentrations of PCE and TCE are measured in units of micrograms per cubic meter of air. These units are abbreviated as "mcg/cu.m". PCE was detected at a concentration of 25.2J mcg./cu.m at a location selected within your backyard, between your residence and the dry cleaners. PCE was also detected in the outdoor air at 1.42J mcg./cu.m during this air sampling event. TCE was detected at a concentration of 0.27 mcg./cu.m at the soil gas sampling location. TCE was not detected in the outdoor air during this air sampling event.

According to NYSDOH studies, PCE and TCE typically detected at concentrations of less than 100 mcg./cu.m and 5 mcg./cu.m, respectively, in soil gas exterior to a home, generally do not result in significant indoor air impacts. Therefore, at this time, no specific requirements have been established with respect to your residence, other than possible future monitoring. Furthermore, based upon NYSDOH recent long term studies on these types of compounds in indoor air, PCE and TCE can be typically detected at concentrations of 2.9 mcg./cu.m and 0.48 mcg./cu.m, respectively, or less in buildings not known to be affected by a chemical spill or other significant sources of these chemicals.

Enclosed is an NYSDOH fact sheet entitled "Tetrachloroethene (PCE) in Indoor and Outdoor Air dated May 2003" which provides information about the NYSDOH guideline. Enclosed also is the NYSDOH fact sheet entitled "Trichloroethene in Indoor and Outdoor Air dated February 2005" which provides information about the NYSDOH guidelines. As the fact sheets explain, the guidelines are not a line between levels that cause health effects and those that do not. In addition, it is based on the assumption that people are continuously exposed to PCE or TCE in air all day, every day, for as long as a life time, which, is not likely the case for the typical occupancy of a residence.

If you have any health-related questions, please contact Ms. Katherine Comford, Public Health Specialist II of the New York State Department of Health (NYSDOH) at 1-518-402-7850**.** If you have any questions relating to the environmental investigation of the American Drive-In Cleaners site, please contact Mr. Mark Bufalini of the New York State Department of Environmental Conservation (NYSDEC) at 1-518-402-7850.

Sincerely,
Berninger Environmental, Inc.

Walter Berninger
President/Consultant
enc.

Berninger Environmental, Inc.

groundwater consultants and geologists
90 - B Knickerbocker Avenue **Phone: 631 • 589 • 6521**
Bohemia • New York • 11716 **Fax: 631 • 589 • 6528**

Mr. Ed Surillo August 07, 2008
1314 Waverly Street
Hewlett, New York

Re: Soil Vapor Sampling Results - Rear Yard
1314 Waverly Street, Hewlett, New York

Dear Mr. Surillo:

Enclosed are the laboratory test results for the soil vapor samples collected from the rear of your home (SG-2A) on January 29, 2008. Berninger Environmental, Inc., under the direction of the New York State Department of Health (NYSDOH), obtained this soil gas sample to help assess whether the environmental contamination from operations at the dry cleaner (American Drive-In Cleaners) located at 1345 Peninsula Boulevard, Hewlett, New York has the potential to affect indoor air quality in your home. The soil gas sample was tested for Tetrachoroethene (PCE), a common dry cleaning chemical and its typical breakdown products such as Trichloroethene (TCE).

Soil Gas Sampling Results

In air, concentrations of PCE and TCE are measured in units of micrograms per cubic meter of air. These units are abbreviated as "mcg/cu.m". PCE was detected at a concentration of 3.32J mcg./cu.m at a location selected within your backyard, between your residence and the dry cleaners. PCE was also detected in the outdoor air at 1.42J mcg./cu.m during this air sampling event. TCE was not detected at the soil gas sampling location. TCE was also not detected in the outdoor air during this air sampling event.

According to NYSDOH studies, PCE and TCE typically detected at concentrations of less than 100 mcg./cu.m and 5 mcg./cu.m, respectively, in soil gas exterior to a home, generally do not result in significant indoor air impacts. Therefore, at this time, no specific requirements have been established with respect to your residence, other than possible future monitoring. Furthermore, based upon NYSDOH recent long term studies on these types of compounds in indoor air, PCE and TCE can be typically detected at concentrations of 2.9 mcg./cu.m and 0.48 mcg./cu.m, respectively, or less in buildings not known to be affected by a chemical spill or other significant sources of these chemicals.

Enclosed is an NYSDOH fact sheet entitled "Tetrachloroethene (PCE) in Indoor and Outdoor Air dated May 2003" which provides information about the NYSDOH guideline. Enclosed also is the NYSDOH fact sheet entitled "Trichloroethene in Indoor and Outdoor Air dated February 2005" which provides information about the NYSDOH guidelines. As the fact sheets explain, the guidelines are not a line between levels that cause health effects and those that do not. In addition, it is based on the assumption that people are continuously exposed to PCE or TCE in air all day, every day, for as long as a life time, which, is not likely the case for the typical occupancy of a residence.

If you have any health-related questions, please contact Ms. Katherine Comford, Public Health Specialist II of the New York State Department of Health (NYSDOH) at 1-518-402-7850. If you have any questions relating to the environmental investigation of the American Drive-In Cleaners site, please contact Mr. Mark Bufalini of the New York State Department of Environmental Conservation (NYSDEC) at 1-518-402-7850.

Sincerely,
Berninger Environmental, Inc.

Walter Berninger
President/Consultant
enc.

Berninger Environmental, Inc.

groundwater consultants and geologists
90 - B Knickerbocker Avenue **Phone: 631 • 589 • 6521**
Bohemia • New York • 11716 **Fax: 631 • 589 • 6528**

Mr. Nora Hsu August 07, 2008
1316 Waverly Street
Hewlett, New York

Re: Soil Vapor Sampling Results - Rear Yard
1316 Waverly Street, Hewlett, New York

Dear Mr. Hsu:

Enclosed are the laboratory test results for the soil vapor samples collected from the rear of your home (SG-3A) on January 29, 2008. Berninger Environmental, Inc., under the direction of the New York State Department of Health (NYSDOH), obtained this soil gas sample to help assess whether the environmental contamination from operations at the dry cleaner (American Drive-In Cleaners) located at 1345 Peninsula Boulevard, Hewlett, New York has the potential to affect indoor air quality in your home. The soil gas sample was tested for Tetrachoroethene (PCE), a common dry cleaning chemical and its typical breakdown products such as Trichloroethene (TCE).

Soil Gas Sampling Results

In air, concentrations of PCE and TCE are measured in units of micrograms per cubic meter of air. These units are abbreviated as "mcg/cu.m". PCE was detected at a concentration of 2.03J mcg./cu.m at a location selected within your backyard, between your residence and the dry cleaners. PCE was also detected in the outdoor air at 1.42J mcg./cu.m during this air sampling event. TCE was detected at a concentration of 1.50 mcg./cu.m at the soil gas sampling location. TCE was not detected in the outdoor air during this air sampling event.

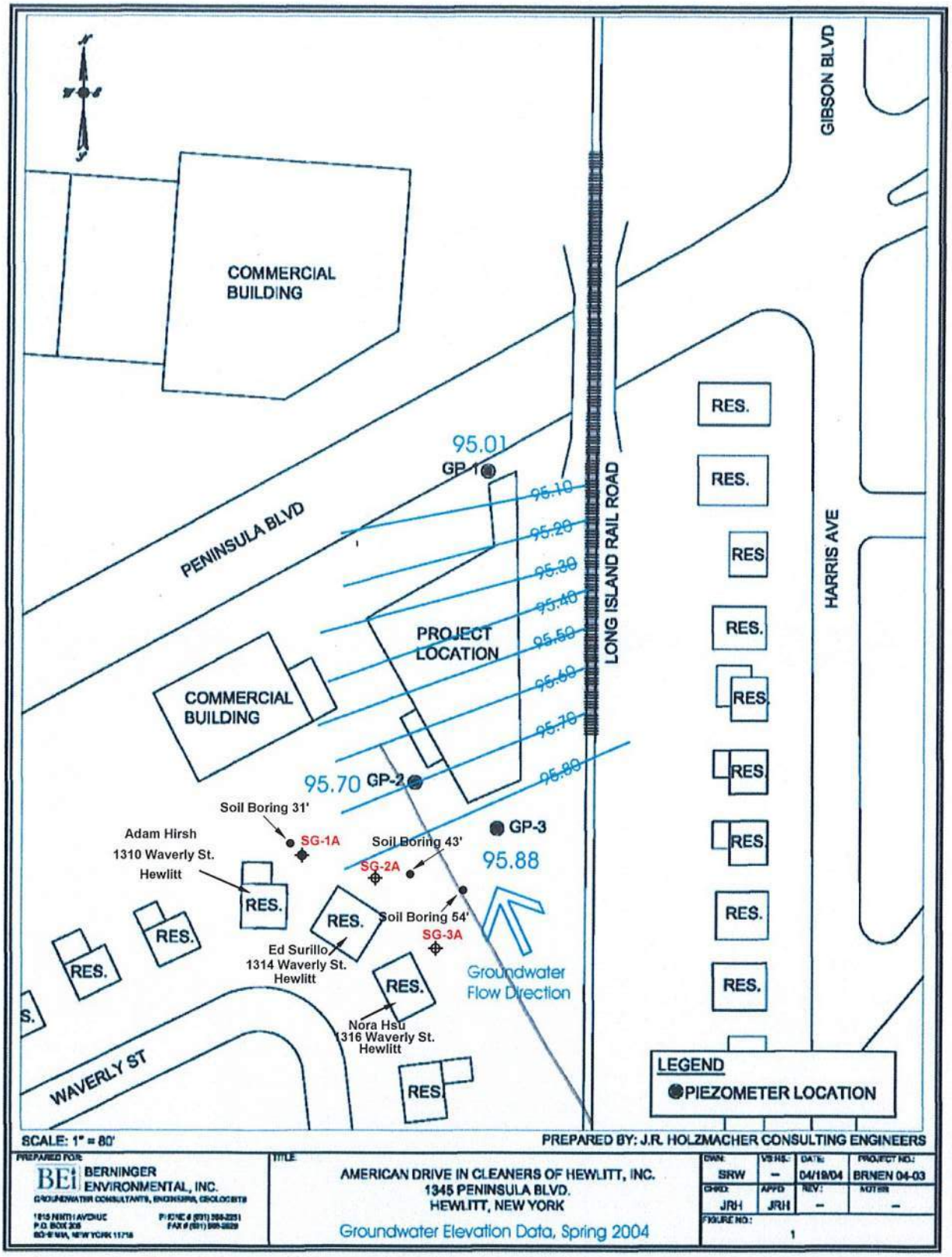
According to NYSDOH studies, PCE and TCE typically detected at concentrations of less than 100 mcg./cu.m and 5 mcg./cu.m, respectively, in soil gas exterior to a home, generally do not result in significant indoor air impacts. Therefore, at this time, no specific requirements have been established with respect to your residence, other than possible future monitoring. Furthermore, based upon NYSDOH recent long term studies on these types of compounds in indoor air, PCE and TCE can be typically detected at concentrations of 2.9 mcg./cu.m and 0.48 mcg./cu.m, respectively, or less in buildings not known to be affected by a chemical spill or other significant sources of these chemicals.

Enclosed is an NYSDOH fact sheet entitled "Tetrachloroethene (PCE) in Indoor and Outdoor Air dated May 2003" which provides information about the NYSDOH guideline. Enclosed also is the NYSDOH fact sheet entitled "Trichloroethene in Indoor and Outdoor Air dated February 2005" which provides information about the NYSDOH guidelines. As the fact sheets explain, the guidelines are not a line between levels that cause health effects and those that do not. In addition, it is based on the assumption that people are continuously exposed to PCE or TCE in air all day, every day, for as long as a life time, which, is not likely the case for the typical occupancy of a residence.

If you have any health-related questions, please contact Ms. Katherine Comford, Public Health Specialist II of the New York State Department of Health (NYSDOH) at 1-518-402-7850**.** If you have any questions relating to the environmental investigation of the American Drive-In Cleaners site, please contact Mr. Mark Bufalini of the New York State Department of Environmental Conservation (NYSDEC) at 1-518-402-7850.

Sincerely,
Berninger Environmental, Inc.

Walter Berninger
President/Consultant
enc.


COMMERCIAL BUILDING
PENINSULA BLVD
95.01
GP-1
95.10
95.20
95.30
95.40
95.50
95.60
95.70
95.80
PROJECT LOCATION
LONG ISLAND RAIL ROAD
GIBSON BLVD
HARRIS AVE
RES.
COMMERCIAL BUILDING
95.70 GP-2
Soil Boring 31'
SG-1A
Adam Hirsh
1310 Waverly St.
Hewlitt
Soil Boring 43'
SG-2A
GP-3
95.88
Soil Boring 54'
SG-3A
Ed Surillo
1314 Waverly St.
Hewlitt
Groundwater Flow Direction
Nora Hsu
1316 Waverly St.
Hewlitt
WAVERLY ST
LEGEND
PIEZOMETER LOCATION
SCALE: 1" = 80'
PREPARED BY: J.R. HOLZMACHER CONSULTING ENGINEERS
PREPARED FOR:
BERNINGER ENVIRONMENTAL, INC.
GROUNDWATER CONSULTANTS, ENGINEERS, GEOLOGISTS
1515 NORTH AVENUE
P.O. BOX 205
BOHEMIA, NEW YORK 11716
PHONE # (631) 589-2251
FAX # (631) 589-2629
TITLE:
AMERICAN DRIVE IN CLEANERS OF HEWLITT, INC.
1345 PENINSULA BLVD.
HEWLITT, NEW YORK
Groundwater Elevation Data, Spring 2004
DWN: SRW
VSHS: --
DATE: 04/19/04
PROJECT NO.: BRNEN 04-03
CHKD: JRH
APPD: JRH
REV.: --
NOTES: --
FIGURE NO.: 1

Appendix-B

NCDOH Data

Nassau County Dept. of Health

Sampling at [illegible] Drive in Garden, Hewlett

Sample Date	Sample Location*	Sample Matrix	Detections	Concentration**
3/15/02	Rear of Bldg. (# 1)	Water	c-1,2 DCE	1.3
			TCE	1.4
			PCE	7.3
3/19/02	"	Water	c-1,2 DCE	0.7
			TCE	2.5
			PCE	16
3/19/02	"	Soil (2-6" depth)	c-1,2 DCE	7400
			PCE	4000
3/19/02	Below Evaporator Discharge (# 2)	Soil (2-6" depth)	PCE	390
3/19/02	Front of Building (# 3)	Water	None	
3/19/02	"	Soil (2-6" depth)	PCE	480

* Sample location numbers refer to attached site diagram.
** All results are in ppb

Appendix-C

Validated Groundwater Data

L.A.B. Validation Corp, 14 West Point Drive, East Northport, NY 11731

DATA USABILITY SUMMARY REPORT – DUSR
DATA VALIDATION SUMMARY

ORGANIC ANALYSES
VOLATILES BY GC/MS
1,4-DIOXANE BY SIM GC/MS
ISOTOPE DILUTION ORGANIC ANALYSIS
POLYFLUORINATED ALKYL SUBSTANCES (21 ANALYTES)
BY LIQUID CHROMATOGRAPHY/TANDEM MASS SPECTROMETRY (LC/MS/MS)
BY MODIFIED EPA METHOD 537

For Groundwater Samples Collected
July 31, 2019 and August 15, 2019
From 1345 Peninsula Boulevard, Hewlett, New York
American Drive-In Cleaners
Project #11391
Collected by WRS d.b.a. Berninger Environmental.

SAMPLE DELIVERY GROUP NUMBERs:
460-188226-1 (1,4-Dioxane and PFAS)
BY EUROFINS TESTAMERICA EDISON - NJ (ELAP #11452)
BY EUROFINS TESTAMERICA, SACRAMENTO -CA (ELAP #11666)
1908001 and 1908134 (Volatiles)
BY AMERICAN ANALYTICAL (ELAP #11418)

SUBMITTED TO:

Mr. Justin Halpin
WRS d.b.a. Berninger Environmental
17 Old Dock Road
Yaphank, NY 11980

October 04, 2019

Lori A Beyer

PREPARED BY:

Lori A. Beyer/President
L.A.B. Validation Corp.
14 West Point Drive
East Northport, NY 11731

(516) 523-7891; email LABValidation@aol.com

American Drive-In Cleaners; 1345 Peninsula Boulevard, Hewlett, New York.
Data Validation Summary (DUSR):
July/August 2019 Groundwater Sampling Events; - Volatiles, 1,4-Dioxane and PFAS.

Table of Contents:

Introduction
Data Qualifier Definitions
Sample Receipt
1.0 Volatile Organics by GC/MS SW846 Method 8260C
- 1.1 Holding Time
- 1.2 System Monitoring Compound (Surrogate) Recovery
- 1.3 Matrix Spikes (MS), Matrix Spike Duplicates (MSD)
- 1.4 Laboratory Control Sample/Blank Spikes
- 1.5 Blank Contamination
- 1.6 GC/MS Instrument Performance Check (Tuning)
- 1.7 Initial and Continuing Calibrations
- 1.8 Internal Standards
- 1.9 Field Duplicates
- 1.10 Target Compound List Identification
- 1.11 Compound Quantification and Reported Detection Limits
- 1.12 Overall System Performance

2.0 1,4-Dioxane by GC/MS SW846 Method 8270D (SIM)
- 2.1 Holding Time
- 2.2 System Monitoring Compound (Surrogate) Recovery
- 2.3 Matrix Spikes (MS), Matrix Spike Duplicates (MSD)
- 2.4 Laboratory Control Sample/Blank Spikes
- 2.5 Blank Contamination
- 2.6 GC/MS Instrument Performance Check (Tuning)
- 2.7 Initial and Continuing Calibrations
- 2.8 Internal Standards
- 2.9 Field Duplicates
- 2.10 Target Compound List Identification
- 2.11 Compound Quantification and Reported Detection Limits
- 2.12 Overall System Performance\\

3.0 PFAS by LC/MS/MS EPA Modified Method 537
- 3.1 Holding Time
- 3.2 Surrogate Recovery
- 3.3 Matrix Spikes (MS), Matrix Spike Duplicates (MSD)
- 3.4 Laboratory Control Sample
- 3.5 Method Blanks
- 3.6 Initial and Continuing Calibrations
- 3.7 Internal Standards
- 3.8 Field Duplicates
- 3.9 Target Compound List Identification
- 3.10 Compound Quantification and Reported Detection Limits
- 3.11 Overall System Performance

APPENDICES:
A. Chain of Custody Documents and Sample Receipt Checklists
B. Case Narratives
C. Data Summary Form Is with Qualifications

Introduction:

A validation was performed on groundwater samples and the associated quality control (MS/MSD/Field Duplicate/Field Blanks/Trip Blanks) for organic analysis for samples collected under chain of custody documentation by WRS d.b.a. Berninger Environmental and submitted to American Analytical and Eurofins TestAmerica Edison for subsequent analysis. Samples for EPA Method 537 were sent from Eurofins Edison to Eurofins Sacramento. This report contains the laboratory and validation results for the field samples itemized below with corresponding required analysis.

The samples were analyzed by American Analytical (Volatiles), Eurofins TestAmerica Edison (1,4-Dioxane) and Eurofins TestAmerica Sacramento (PFAS), utilizing SW846 and EPA Methods and submitted under NYSDEC ASP Category B equivalent deliverable requirements for the associated analytical methodologies employed. The analytical testing and data review for groundwater samples consisted of Volatile Organics, 1,4-Dioxane Semivolatile Organics and the twenty-one (21) target analytes in EPA Method 537 for PFAS. The data was evaluated in accordance with EPA Region II National Functional Guidelines for Organic Data Review and EPA Region II SOPs for 8260, 8270 and in conjunction with the analytical methodologies for which the samples were analyzed, where applicable and relevant.

Sample ID	Lab ID	Analysis	Date Collected/Received
MW-1 [Plus, MS/MSD]	1908001-001	Volatiles by SW846 Methods 5030C/8260C	7/31/19, 8/01/19
MW-2	1908001-002	Volatiles by SW846 Methods 5030C/8260C	7/31/19, 8/01/19
MW-3	1908001-003	Volatiles by SW846 Methods 5030C/8260C	7/31/19, 8/01/19
MW-6A	1908001-004	Volatiles by SW846 Methods 5030C/8260C	7/31/19, 8/01/19
MW-7	1908001-005	Volatiles by SW846 Methods 5030C/8260C	7/31/19, 8/01/19
MW-8	1908001-006	Volatiles by SW846 Methods 5030C/8260C	7/31/19, 8/01/19
MW-N	1908001-007	Volatiles by SW846 Methods 5030C/8260C	7/31/19, 8/01/19
Trip Blank	1908001-008	Volatiles by SW846 Methods 5030C/8260C	7/31/19, 8/01/19
Field Blank	1908001-009	Volatiles by SW846 Methods 5030C/8260C	7/31/19, 8/01/19
GW-4 @ 5-9'	1908134-001	Volatiles by SW846 Methods 5030C/8260C	8/15/2019
GW-4 @ 15-19'	1908134-002	Volatiles by SW846 Methods 5030C/8260C	8/15/2019
GW-4 @ 26-30'	1908134-003	Volatiles by SW846 Methods 5030C/8260C	8/15/2019
GW-5 @ 5-9'	1908134-004	Volatiles by SW846 Methods 5030C/8260C	8/15/2019
GW-5 @ 15-19'	1908134-005	Volatiles by SW846 Methods 5030C/8260C	8/15/2019
GW-5 @ 26-30'	1908134-006	Volatiles by SW846 Methods 5030C/8260C	8/15/2019
GW-6 @ 5-9' [Plus, MS/MSD]	1908134-007	Volatiles by SW846 Methods 5030C/8260C	8/15/2019
GW-6 @ 15-19'	1908134-008	Volatiles by SW846 Methods 5030C/8260C	8/15/2019
GW-6 @ 26-30'	1908134-009	Volatiles by SW846 Methods 5030C/8260C	8/15/2019
Field Blank	1908134-010	Volatiles by SW846 Methods 5030C/8260C	8/15/2019
Trip Blank	1908134-011	Volatiles by SW846 Methods 5030C/8260C	8/15/2019
MW-1 [Plus, MS/MSD]	460-188226-1	1,4-Dioxane by 8270D SIM, 21 PFAS Compounds by EPA Method 537	7/31/19, 8/02/19
MW-1DUP	460-188226-2	1,4-Dioxane by 8270D SIM, 21 PFAS Compounds by EPA Method 537	7/31/19, 8/02/19
MW-3	460-188226-3	1,4-Dioxane by 8270D SIM, 21 PFAS Compounds by EPA Method 537	7/31/19, 8/02/19
MW-6A	460-188226-4	1,4-Dioxane by 8270D SIM, 21 PFAS Compounds by EPA Method 537	7/31/19, 8/02/19
Field Blanks (F.B.)	460-188226-5	1,4-Dioxane by 8270D SIM, 21 PFAS Compounds by EPA Method 537	7/31/19, 8/02/19

Data Qualifier Definitions:

The following definitions provide brief explanations of the qualifiers assigned to results in the data review process.

U - The analyte was analyzed for but was not detected above the reported sample quantitation limit.

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

UJ - The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

R - The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.

N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."

NJ - The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate quantity.

J+ - The result is an estimated quantity, but the result may be biased high. (Equis qualified, JK)

J- - The result is an estimated quantity, but the result may be biased low. (Equis qualified, JL)

D - Analyte concentration is from diluted analysis.

Sample Receipt:
The Chain of Custody documents indicates that the samples were received via laboratory courier upon completion of the sampling events. Sample login notes were generated. The cooler temperature for sample receipts was recorded upon receipt and determined to be acceptable (< 6 degrees C). The actual temperatures are recorded on the chain of custody documents and sample receipt checklists provided in Appendix A of this report.

No problems and/or discrepancies were noted, consequently, the integrity of the samples has been assumed to be good.

The data summary Form I's included in Appendix C include all usable (qualified) and unusable (rejected) results for the samples identified above. The Form I's summarize the detailed narrative section of the report. All data validation qualifications have been reported on the Form I's for ease of review and verification.

NOTE:
L.A.B. Validation Corp. believes it is appropriate to note that the data validation criteria utilized for data evaluation is different than the method requirements utilized by the laboratory. Qualified data does not necessarily mean that the laboratory was non-compliant in the analysis that was performed.

1.0 Volatile Organics by GC/MS SW846 Method 8260C

The following method criteria were reviewed: holding times, SMCs, MS, MSD, LCS, Laboratory Spiked Blanks, Field Duplicates, Method Blanks, Tunes, Calibrations, Internal Standards, Target Component Identification, Quantitation, Reported Quantitation Limits and Overall System Performance. The Volatile results are valid and useable except for non-detects for 2-Chloroethyl Vinyl Ether in all samples due to non-recoverable MS/MSD/LCS values as a result of acid preservation and non-detects for Acrolein and Ethanol in all samples due to low calibration responses as noted within the following text:

1.1 Holding Time

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the technical holding time is exceeded, the data may not be considered valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimates, "J". The non-detects (sample quantitation limits) are required to be flagged as estimated, "J", or unusable, "R", if the holding times are grossly exceeded.

Samples pertaining to these SDGs were analyzed within the Method required holding times as well as the technical holding times for data validation. No data validation qualifiers were required based upon holding time. Groundwater, Field and Trip Blank analysis and reanalysis was performed within holding times of 14 days for HCL preserved vials.

1.2 System Monitoring Compound (Surrogate) Recovery

All samples are spiked with surrogate compounds prior to sample analysis to evaluate overall laboratory performance and efficiency of the analytical technique. If the measure of surrogate concentrations is outside contract specification, qualifications are required to be applied to associated samples and analytes.

Surrogate recoveries (%R) for Dibromofluoromethane, Toluene-d8 and 4-Bromofluorobenzene were found to be within acceptable limits for surrogate compounds for all analyses pertaining to these SDGs.

1.3 Matrix Spikes (MS)/ Matrix Spike Duplicates (MSD)

The MS/MSD data are generated to determine the long-term precision and accuracy of the analytical method in various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. The MS/MSD may be used in conjunction with other QC criteria for additional qualification of data.

MS/MSD was submitted on MW-1 by Berninger. The laboratory also selected GW-6 @ 5-9' for MS/MSD analysis. 2-Chloroethyl-vinyl ether was not recoverable due to acid preservation. Non-detects in all samples have been rejected, "R."

MW-1 MS/MSD – High recovery was obtained for 1,1,2-Trichloro-1,2,2-trifluoroethane (136%/134%), 1,4-Dioxane (135%/128%), Acetone (138%), Acrylonitrile (121%), Dichlorodifluoromethane (158%/154%), Ethanol (152%) and Methylcyclohexane (140%/136%). These compounds were not found in the parent sample. High recovery does not support any potential loss of detection and/or result bias. No qualifiers were applied based on these outliers. Recovery values for cis-1,2-Dichloroethene, Tetrachloroethene, trans-=1,2-dichloroethene and Trichloroethene were also obtained due to high parent concentration relative to spike amount. No qualifiers are required.

Data was not qualified for RPD outliers. Outliers for RPD were determined to be reasonable per the methodology.

GW-6 5-9' MS/MSD yielded high Acetone (148%/206%),Ethanol (162%/177%) and t-Butyl Alcohol (143%/154%). No qualifiers are required.

Batch MS/MSD data was also submitted in the data packages. Data was not qualified based on samples collected from a different site.

The National Functional Guidelines and EPA Region 2 SOPs state that "No qualifications to the data is necessary based on MS data alone."

1.4 Laboratory Control Sample/Blank Spikes

The LCS data for laboratory control samples (LCS) are generated to provide information on the accuracy of the analytical method and on the laboratory performance.

Acceptable LCS/Blank Spike and LCS/LCS Duplicate was analyzed. In cases where high recovery was obtained and associated sample results were non-detect, no qualifications to the data is required since high recovery does not support any potential loss of detection and/or result bias. Acceptable recovery values RPD were observed.

Based on professional judgment, no qualifications were made for RPD outliers.

1.5 Blank Contamination

Quality assurance (QA) blanks; i.e. method, trip and field blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field blanks measure cross-contamination of samples during field operations.

The following table was utilized to qualify target analyte results due to contamination. The largest value from all the associated blanks is required to be utilized:

Blank Type	Blank Result	Sample Result	Action for Samples
Method, Storage, field, Trip, Instrument	Detects	Not Detected	No qualification required
	<CRQL*	<CRQL*	Report CRQL value with a U
		>/= CRQL* and <2x the CRQL**	No qualification required
	>CRQL*	</= CRQL*	Report CRQL value with a U
		>/=CRQL* and </= blank concentration	Report blank value for sample concentration with a U
		>/= CRQL* and > blank concentration	No qualification required
	=CRQL*	</= CRQL*	Report CRQL value with a U
		>CRQL*	No qualification required
	Gross Contamination**	Detects	Report blank value for sample concentration with a U

*2x the CRQL for methylene chloride, 2-butanone and acetone.
**Qualifications based on instrument blank results affect only the sample analyzed immediately after the sample that has target compounds that exceed the calibration range or non-target compounds that exceed 100 ug/L.

Below is a summary of the compounds in the sample and the associated qualifications that have been applied:

A) **Method Blank Contamination:**
The laboratory reported detections of Methylene Chloride, Acetone, Toluene and 1,2,3-Trichlorobenzene have been negated, "U" due to laboratory contamination in all samples.

B) **Field Blank Contamination:**
Ethylbenzene (0.33 ug/L), m,p-Xylene (1.2 ug/L), o-Xylene (0.50 ug/L) and Acetone were detected in the Field Blank from 7/31/19. Acetone was detected above the reporting limit and therefore reanalyzed. Reanalysis confirms the Acetone detection (which was negated, "U" in all field samples. the laboratory reported concentrations in MW-1 were negated, "U" for Ethylbenzene and Xylenes.

C) **Trip Blank Contamination:**
Trip Blanks did not have any detections after negated method blank contaminants.

1.6 GC/MS Instrument Performance Check

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances.

The Tuning standard for volatile organics is Bromofluorobenzene (BFB).

Instrument performance was generated within acceptable limits and frequency for Bromofluorobenzene (BFB) for all analyses conducted for these SDGs.

1.7 Initial and Continuing Calibrations

Satisfactory instrument calibration is established to ensure that the instrument can produce acceptable quantitative data. An initial calibration demonstrates that the instrument can produce acceptable performance at the beginning of an experimental sequence.

The continuing calibration checks document that the instrument is giving satisfactory daily performance. Initial calibration verifications were acceptable.

A) Response Factor GC/MS:
The response factor measures the instrument's response to specific chemical compounds. The response factor for all compounds must be >/= 0.05 in both initial and continuing calibrations. A value <0.05 indicates a serious detection and quantitation problem (poor sensitivity). Analytes detected in the sample will be qualified as estimated, "J". All non-detects for that compound in the corresponding samples will be rejected, "R". Method 8260C allows for a minimum response factor of 0.1 for Acetone and 2-Butanone. Validation criteria allows response factor to be /=>0.01 for poor responders (Acetone, MEK, Carbon Disulfide, Chloroethane, Chloromethane, Cyclohexane, 1,2-Dibromoethane, Dichlorodifluoromethane, cis-1,2-Dichloroethene, 1,2-Dichloropropane, 1,2-Dibromo-3-chloropropane, Isopropylbenzene, Methyl Acetate, Methylene Chloride, Methylcyclohexane, MTBE, trans-1,2-Dichloroethene, 4-Methyl-2-Pentanone, 2-Hexanone, Trichlorofluoromethane, 1,1,2-Trichloro-1,2,2-Trifluoroethane.

All the response factors for the target analytes reported were found to be within acceptable limits (>/=0.05) and (>/= 0.01 for poor responders) and minimum response criteria in Table 4 of Method 8260C, for the initial and continuing calibrations for all reported analytes except for Ethanol and Acrolein. Non-detects in all samples have been rejected, "R."

B) Percent Relative Standard Deviation (%RSD) and Percent Difference (%D):

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentrations. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be <20% and %D must be <20%. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J" and non-detects are flagged "UJ". If %RSD and %D grossly exceed QC criteria, non-detect data may be qualified, "R", unusable. Additionally, in cases where the %RSD is >20% and eliminating either the high or the low point of the curve does not restore the %RSD to less than or equal to 20% then positive results are qualified, "J". In cases where removal of either the low or high point restores the linearity, then only low or high-level results will be qualified, "J" in the portion of the curve where non-linearity exists. ICV must meet 30% criteria. Poor responders must be </= 40%.

*Method 8260C allows for several analytes to be outside requirements due to the large number of compounds.

Initial Calibrations: The initial calibrations provided and the %RSD were within acceptable limits (20%) and (40% for poor responders) for all reported compounds.

Continuing Calibrations: The continuing calibrations provided and the %D was within acceptable limits (20%) and (40% for poor responders) for all reported compounds except for Acetone (39.6%) and p-Ethyl toluene (39.0%) in the calibration associated with 7/31/19 samples and Acrylonitrile (85.5%) in the calibration associated with 8/15/19 samples. Results have been qualified, "J/UJ."

1.8 Internal Standards

Internal Standards (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of 2 (-50% to +100%) from the associated continuing calibration standard. The retention time of the internal standard must not vary more than +/-30 seconds from the associated continuing calibration standard. If the area count is outside the (-50% to +100%) range of the associated standard, all the positive results for compounds quantitated using that IS are qualified as estimated, "J", and all non-detects as "UJ", or "R" if there is a severe loss of sensitivity.

If an internal standard retention time varies by more than 30 seconds, professional judgment will be used to determine either partial or total rejection of the data for that sample fraction.

All samples were spiked with the internal standards Fluorobenzene, Chlorobenzene-d5 and 1,4-Dichlorobenzene-d4 prior to sample analysis. The area responses and retention time of each internal standard met QC criteria in all samples associated with this SDG.

1.9 Field Duplicates

Field duplicate samples are collected and analyzed as an indication of overall precision. These results are expected to have more variability than laboratory duplicate samples. Acceptable RPD is 50%. Field Duplicates were not required for these sampling events for Volatile Organics.

1.10 Target Compound List Identification

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and by comparison to the ion spectra obtained from known standards. For the results to be a positive hit, the sample peak must be within =/- 0.06RRT units of the standard compound and have an ion spectrum which has a ratio of the primary and secondary m/e intensities within 20% of that in the standard compound.
GC/MS spectra met the qualitative criteria for identification. All retention times were within required specifications.

1.11 Compound Quantification and Reported Detection Limits

GC/MS quantitative analysis is acceptable. Correct internal standards per SW846 and response factors were used to calculate final concentrations.

As required, the laboratory reported "J" values between the reporting limits (RL) and Method Detection Limits (MDLs). This is consistent with common laboratory practices and a requirement of the National Environmental Laboratory Approval Program (NELAP). Groundwater samples were initially analyzed undiluted at 5mls. Based on chlorinated analytes over the instruments' calibration range, secondary and tertiary dilutions were required.

Results are not reported for initial analysis and diluted values qualified, "D as required. Dilutions are reported on the Form I's.

1.12 Overall System Performance

Good resolution and chromatographic performance were observed.

2.0 1,4-Dioxane by GCMS SW846 Method 8270D (SIM).

The following method criteria were reviewed: holding times, Surrogates, MS, MSD, LCS, Blanks, Tunes, Calibrations, Internal Standards, Target Component Identification, Quantitation, Reported Quantitation Limits and overall system performance. The 1,4-Dioxane results are valid and usable except for non-detects in MW-1 and MW-1 DUP due to non-recoverable MS/MSD values as noted within the following text:

2.1 Holding Time

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the technical holding time is exceeded, the data may not be considered valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimates, "J". The non-detects (sample quantitation limits) are required to be flagged as estimated, "J", or unusable, "R", if the holding times are grossly exceeded.

Samples were extracted and analyzed within the method required holding times and the technical holding times (7 days from collection for groundwater/field blanks) and 40 days from extraction to analysis) required for data validation.

2.2 Surrogate Recovery

All samples are spiked with surrogate compounds prior to sample preparation/extraction to evaluate overall laboratory performance and efficiency of the analytical technique. Additionally, the sample itself may produce effects due to such factors as interferences and high concentrations of analytes. Since the effects of the sample matrix are frequently outside the control of the laboratory and may present relatively unique problems, the evaluation of the data is dependent upon reextraction and/or reanalysis to confirm/negate laboratory error or matrix related problems. Discussion of

surrogate recoveries that fell outside (above/below) QC guidelines is itemized below:

Samples were spiked with Nitrobenzene-d5 surrogate standard at the sample extraction portion of analysis for 1,4-Dioxane. Recovery values were acceptable.

2.3 Matrix Spikes (MS)/Matrix Spike Duplicates (MSD)

The MS/MSD data are generated to determine the long-term precision and accuracy of the analytical method in various matrices.

MS/MSD data was performed on MW-1. 1,4-Dioxane was not recoverable in either the MS or MSD. Spike concentration of 0.8 ug/L was not recoverable. Non-detects in the parent sample and field duplicate (MW-1 DUP) must be considered unreliable and have been rejected, "R."

2.4 Laboratory Control Sample/Laboratory Control Duplicates

The LCS data for laboratory control samples (LCS) are generated to provide information on the accuracy of the analytical method and on the laboratory performance.

LCS/LCS Duplicate yielded acceptable recovery values for 1,4 Dioxane. RPD fell outside acceptance range. Data was not qualified based on RPD values.

2.5 Method Blanks

Quality assurance (QA) blanks; i.e. method, trip and field blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Field blanks measure cross-contamination of samples during field operations.

The following table was utilized to qualify target analyte results due to contamination. The largest value from all the associated blanks is required to be utilized:

For:	Flag Sample Result with a "U" when:	Report CRQL & Qualify "U" when:	No Qualification is Needed when:
Phthalates (common laboratory contaminants)	Sample Conc. is >CRQL, but </=5x blank value	Sample Conc. Is <CRQL and </=5x blank value	Sample Conc. is >CRQL and >5x blank value
Other Contaminants	Sample Conc. is >CRQL, but </=1x blank value	Sample Conc. Is <CRQL and </=1x blank value	Sample Conc. is >CRQL and >1x blank value

Below is a summary of the compounds in the sample and the associated qualification that have been applied:

A) **Method Blank Contamination:**
1,4-Dioxane was not detected in the method blank associated with sample analysis.

B) **Field Blank Contamination:**
1,4-Dioxane was not detected in the Field Blank.

2.6 GC/MS Instrument Performance Check

Tuning and performance criteria are established to ensure adequate mass resolution proper identification of compounds and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The Tuning standard for semivolatile organics is decafluorotriphenylphosphine (DFTPP).

Instrument performance was generated within acceptable limits and frequency (12 hours) for decafluorotriphenylphosphine (DFTPP) for all analyses.

2.7 Initial and Continuing Calibrations

Satisfactory instrument calibration is established to ensure that the instrument can produce acceptable quantitative data. An initial calibration demonstrates that the instrument can give acceptable performance at the beginning of an experimental sequence.
The continuing calibration checks document that the instrument is giving satisfactory daily performance.

A) Response Factor GC/MS:
The response factor measures the instrument's response to specific chemical compounds. The response factor for all compounds must be >/= 0.05 in both initial and continuing calibrations. A value <0.05 indicates a serious detection and quantitation problem (poor sensitivity). Analytes detected in the sample will be qualified as estimated, "J". All non-detects for that compound in the corresponding samples will be rejected, "R".

1,4-Dioxane response factors reported were found to be within acceptable limits (>/=0.05), for the initial (average RRF) and continuing calibrations.

B) Percent Relative Standard Deviation (%RSD) and Percent Difference (%D):
Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentrations. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be <20% and %D must be <20%. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J" and non-detects are flagged "UJ". If %RSD and %D grossly exceed QC criteria, non-detect data may be qualified, "R", unusable. Additionally, in cases where the %RSD is >30% and eliminating either the high or the low point of the curve does not restore the %RSD to less than or equal to 20% then positive results are qualified, "J". In cases where removal of either the low or high point restores the linearity, then only low or high-level results will be qualified, "J" in the portion of the curve where non-linearity exists. Due to the large number of analytes in this method, it is expected for some analytes to fall outside acceptance criteria and the calibration is still considered valid.

Acceptable Initial Calibration Verifications were performed.

Initial Calibrations: The initial calibrations provided and the %RSD were within acceptable limits (20%) for 1,4-Dioxane.

Continuing Calibrations: The continuing calibrations provided and the %D was within acceptable limits (20%) for 1,4-Dioxane with the exceptions noted below:

CCAL CBNAMS4 8/6/19 – 1,4-Dioxane – 23.8% "UJ" non-detects in MW-3 and MW-6A.

2.8 Internal Standards

Internal Standards (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of 2 (-

50% to +100%) from the associated continuing calibration standard. The retention time of the internal standard must not vary more than +/- 30 seconds from the associated continuing calibration standard. If the area count is outside the (-50% to +100%) range of the associated standard, all the positive results for compounds quantitated using that IS are qualified as estimated, "J", and all non-detects as "UJ", or "R" if there is a severe loss of sensitivity.

If an internal standard retention time varies by more than 30 seconds, professional judgment will be used to determine either partial or total rejection of the data for that sample fraction.

Samples were spiked with the internal standard DCBd4 and Naphthalene-d8 for SIM analysis. The area responses and retention time of this internal standard met QC criteria in all samples associated with these samples.

2.9 Field Duplicates

Field duplicate samples are collected and analyzed as an indication of overall precision. These results are expected to have more variability than laboratory duplicate samples. An acceptable RPD is 50% for soil samples.

1,4-Dioxane was not detected in MW-1 DUP. Non-detects must be considered unreliable and have been rejected, "R" due to MW-1 MS/MSD data.

2.10 Target Compound List Identification

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and by comparison to the ion spectra obtained from known standards. For the results to be a positive hit, the sample peak must be within =/- 0.06RRT units of the standard compound and have an ion spectrum which has a ratio of the primary and secondary m/e intensities within 20% of that in the standard compound.

Mass spectra meet criteria for 1,4-Dioxane.

2.11 Compound Quantification and Reported Detection Limits

GC/MS quantitative analysis is acceptable. Correct internal standards, response factors were used to calculate final concentrations.

As required, the laboratory reported "J" values between the reporting limits (RL) and Method Detection Limits (MDLs). This is consistent with common laboratory practices and a requirement of the National Environmental Laboratory Approval Program (NELAP). Samples were analyzed undiluted. 1,4-Dioxane was not detected in any of the groundwater samples.

2.12 Overall System Performance

Acceptable system performance was maintained throughout the analysis.

3.0 PFAS Analytes by LC/MS/MS EPA Modified Method 537

The following method criteria were reviewed: holding times, Surrogates, MS, MSD, LCS/LCS Duplicates, Method Blanks, Calibrations, Internal Standards, Field Duplicate, Target Component Identification, Quantitation, Reported Quantitation Limits and Overall System Performance. The PFAS results are valid and useable as noted within the following text:

3.1 Holding Time

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the technical holding time is exceeded, the data may not be considered valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimates, "J". The non-detects (sample quantitation limits) are required to be flagged as estimated, "J", or unusable, "R", if the holding times are grossly exceeded.

Samples were extracted and performed within the method required holding times of 14 days from collection to extraction and 28 days from extraction to analysis for sample extracts. No data validation qualifiers were required based upon holding time.

3.2 System Monitoring Compound (Surrogate) Recovery

All samples are spiked with surrogate compounds prior to sample analysis to evaluate overall laboratory performance and efficiency of the analytical technique. If the measure of surrogate concentrations is outside contract specification, qualifications are required to be applied to associated samples and analytes.

Surrogate recoveries (%R) were found to be within acceptable limits for all analyses.

3.3 Matrix Spikes (MS)/ Matrix Spike Duplicates (MSD)

The MS/MSD data are generated to determine the long-term precision and accuracy of the analytical method in various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. The MS/MSD may be used in conjunction with other QC criteria for additional qualification of data.

MS/MSD analysis on MW-1 yielded acceptable recovery and RPD values for all spiked analytes where the parent concentration was less than 4x the spike level. Spike recoveries are not applicable where sample concentration exceed 4x the spike level.

The National Functional Guidelines and EPA Region 2 SOPs state that "No qualifications to the data is necessary based on MS data alone."

3.4 Laboratory Control Sample

The LCS data for laboratory control samples (LCS) are generated to provide information on the accuracy of the analytical method and on the laboratory performance.

Acceptable LCS was analyzed. Recovery values were acceptable for all spiked compounds.

3.5 Blank Contamination

Quality assurance (QA) blanks; i.e. method, trip and field blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field blanks measure cross-contamination of

samples during field operations.

The following table was utilized to qualify target analyte results due to contamination. The largest value from all the associated blanks is required to be utilized:

Blank Type	Blank Result	Sample Result	Action for Samples
Method, Storage, field, Instrument	Detects	Not Detected	No qualification required
	<CRQL	<CRQL	Report CRQL value with a U
		>/= CRQL and <2x the CRQL	No qualification required
	>CRQL	</= CRQL	Report CRQL value with a U
		>/=CRQL and </= blank concentration	Report blank value for sample concentration with a U
		>/= CRQL and > blank concentration	No qualification required
	=CRQL	</= CRQL	Report CRQL value with a U
		>CRQL	No qualification required
	Gross Contamination	Detects	Report blank value for sample concentration with a U

Below is a summary of the compounds in the blanks and the associated qualifications that have been applied:

A) **Method Blank Contamination:**
PFHxS was detected at 0.413 ng/L, PFOA 2.574 ng/L and FOSA at 2.482 ng/L in the extraction blank associated with sample analysis. FOSA was negated, "U" in MW-3. Remaining sample detections must be considered real.

B) **Field Blank Contamination:**
PFHxS was detected in the Field Blank at 0.28 ng/L. No additional qualifiers are required based on this low detection.

3.6 Initial and Continuing Calibrations

Satisfactory instrument calibration is established to ensure that the instrument can produce acceptable quantitative data. An initial calibration demonstrates that the instrument can produce acceptable performance at the beginning of an experimental sequence.

The continuing calibration checks document that the instrument is giving satisfactory daily performance.
Initial and continuing calibration verifications were acceptable.

3.7 Internal Standards

Internal Standards (IS) performance criteria ensure that the LC/MS/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of 1 (-50% to +50%) from the associated continuing calibration standard. The retention time of the internal standard must not vary more than +/-60 seconds from the associated continuing calibration standard. If the area count is outside the (-50% to +50%) range of the associated standard, all the positive results for compounds quantitated using that IS are qualified as estimated, "J", and all non-detects as "UJ", or "R" if there is a severe loss of sensitivity.

If an internal standard retention time varies by more than 60 seconds, professional judgment will be used to determine either partial or total rejection of the data for that sample fraction.

All samples were spiked with the internal standards 13C2-PFOA prior to sample analysis. The area responses and retention time of this internal standard met QC criteria except for diluted reanalysis of MW-1 and MW-6A due to complicated matrices. MW-1 MS/MSD exhibited similar response which confirms a sample matrix effect. High internal standard response indicates reported concentrations must be considered estimated, biased low, "J-."

3.8 Field Duplicates

Field duplicate samples are collected and analyzed as an indication of overall precision. These results are expected to have more variability than laboratory duplicate samples. Acceptable precision was observed for MW-1 and MW-1 DUP for all detected compounds.

3.9 Target Compound List Identification

TCL compounds are identified on the LC/MS/MS by using the analyte's relative retention time (RRT) obtained from known standards.

LC/MS/MS raw data met the qualitative criteria for identification. All retention times were within required specifications.

3.10 Compound Quantification and Reported Detection Limits

LC/MS/MS quantitative analysis is acceptable. Samples were extracted by solid phase extraction techniques. Correct internal standards per EPA Method 537 and response factors were used to calculate final concentrations.

As required, the laboratory reported "J" values between the reporting limits (RL) and Method Detection Limits (MDLs). This is consistent with common laboratory practices and a requirement of the National Environmental Laboratory Approval Program (NELAP). Samples were initially analyzed undiluted. MW-1, MW-1 DUP and MW-6A required secondary and tertiary dilutions due to analyte concentration over the instruments' calibration range. Results have been qualified, "D" where compound was obtained from diluted run. EPA Method 537 analysis was performed by Eurofins TestAmerica Sacramento. Results are reported in ng/L where (1 ng/L = 0.001 ug/L).

3.11 Overall System Performance

Good resolution and chromatographic performance were observed.

Reviewer's Signature Lori A. Beyer **Date** 10/4/13

Appendix A
Chain of Custody Documents
And Sample Receipt Checklists

CHAIN OF CUSTODY

AMERICAN ANALYTICAL LABORATORIES

56 Toledo Street, Farmingdale NY 11735
(T) 631-454-6100 (F) 631-454-8027
www.american-analytical.com

CERTIFICATIONS
NY ELAP - 11418 PA DEP - 68-00573
NJ DEP - NY050 CT DOH - PH-0205

Client Information

Company Name: BEI
Address: 7 Old Dock Rd.
City: Yaphank State: NY Zip: 11980
Project Contact: Justin
Phone #: 631 589 6521
E-mail: jhalpin@wsls.com

Project Information

Project Name: American Drive-In Cleaners
Street: 1345 Peninsula Blvd.
City: Hewlett State: NY Zip:
Project # / Purchase Order #: 29270
Sampler's Name / Company: JH/BEI
Sampler's Signature:

Analytical Test / Information

8260C (VOC's)

LAB SAMPLE # (LAB USE ONLY)	Client Sample ID	Sample Type	Matrix Code	Date	Time	Glass / Plastic	Total # of bottles	Sample Containers: Number of Each Preserved Bottle: NONE	HCl	NaOH	HNO_3	H_2SO_4	DI Water (5035A)	MeOH	OTHER	8260C (VOC's)
1908001-001	MW-1 (MS/MSD)	G	GL	7/31/19	9:00	G	6		X							X
002	MW-2				9:30		2		X							X
003	MW-3				10:00		2		X							X
004	MW-6A				10:30		2		X							X
005	MW-7				11:00		2		X							X
006	MW-8				11:30		2		X							X
007	MW-N				12:00		2		X							X
008	Trip Blanks				"		2		X							X
009	Field Blanks (F.B)				"		2		X							X

Turnaround Time (Business Days)

- [✓] Standard 7-10 Business Days
- [ ] 3 Day *RUSH*
- [ ] 5 Day *RUSH*
- [ ] 2 Day *RUSH*
- [ ] 4 Day *RUSH*
- [ ] 1 Day *RUSH*

Please contact laboratory for rush service availability

SAMPLE TYPE

G = Grab
C = Composite
B = Blank

MATRIX CODE

L = Liquid PC = Paint Chip
S = Soil SL = Sludge
O = Oil SD = Solid
W = Wipe M = Misc

ELECTRONIC DELIVERABLES

NYCRR Part 375 - please circle
Unres/ Comm/ Industrial/ Residential/ Res Residential/ PGW
NJ Soil Clean Up Criteria **SCDOH Action Levels**
CP 51 - Gas / Fuel **TCLP Hazardous Waste**
TOGS **NYSDEC EQUIS**

Comments / Remarks

P.O 29270
ASP-CAT B
Cooler Temp: 2.1°C

Sample custody must be documented below, each time samples change possession, with a signature, date, and time.

RELINQUISHED BY (SIGNATURE)	DATE / TIME	PRINTED NAME	RECEIVED BY LAB (SIGNATURE)	DATE / TIME	PRINTED NAME
	8/1/19 9:00	J. Halpin	P Masi	8/1/19 0900	P Masi
RELINQUISHED BY (SIGNATURE)	DATE / TIME	PRINTED NAME	RECEIVED BY LAB (SIGNATURE)	DATE / TIME	PRINTED NAME

Page 1 of 1

CHAIN OF CUSTODY

AMERICAN ANALYTICAL LABORATORIES

56 Toledo Street, Farmingdale NY 11735
(T) 631-454-6100 (F) 631-454-8027
www.american-analytical.com

CERTIFICATIONS
NY ELAP - 11418 PA DEP - 68-00573
NJ DEP - NY050 CT DOH - PH-0205

Client Information

Company Name: BET
Address: 2 Old Dock Rd.
City: Yaphank State: NY Zip:
Project Contact: T-H
Phone #: 631-599-6521
E-mail:

Project Information

Project Name: American Drive-In Corp
Street: 1345 Peninsula Blvd.
City: Hewlett State: NY Zip:
Project # / Purchase Order #: 1351
Sampler's Name / Company: T-H / BET
Sampler's Signature:

Analytical Test / Information

8260 C

LAB SAMPLE # (LAB USE ONLY)	Client Sample ID	Sample Type	Matrix Code	Date	Time	Glass / Plastic	Total # of bottles	Number of Each Preserved Bottle: NONE	HCl	NaOH	HNO_3	H_2SO_4	DI Water (5035A)	MeOH	OTHER	8260 C
1908134-001	GW-4D 5-9'	G	L	8/15/19	8:00	G	2		X							X
002	" " 15-19'				8:30				X							X
003	" " 26-30'				8:00				X							X
004	GW-5D 5-9'				9:50				X							X
005	GW-5D 15-19'				10:00				X							X
006	GW-5D 26-30'				10:15				X							X
007	GW-6D 5-9' (MS/MSD)				12:00		6		X							X
008	GW-6D 15-19'				11:45				X							X
009	GW-6D 26-30'				11:30				X							X
010	Field Blanks				12:30											X
011	Trip Blanks															X

Turnaround Time (Business Days)

- [x] Standard 7-10 Business Days
- [ ] 5 Day *RUSH*
- [ ] 4 Day *RUSH*
- [ ] 3 Day *RUSH*
- [ ] 2 Day *RUSH*
- [ ] 1 Day *RUSH*

Please contact laboratory for rush service availability

SAMPLE TYPE: G = Grab; C = Composite; B = Blank

MATRIX CODE: L = Liquid; S = Soil; O = Oil; W = Wipe; PC = Paint Chip; SL = Sludge; SD = Solid; M = Misc

ELECTRONIC DELIVERABLES

NYCRR Part 375 - please circle
Unres/ Comm/ Industrial/ Residential/ Res Residential/ PGW
NJ Soil Clean Up Criteria
CP 51 - Gas / Fuel
TOGS
SCDOH Action Levels
TCLP Hazardous Waste
NYSDEC EQUIS

Comments / Remarks

PO# 29490
CAT-B-ASP
Cooler Temp: 1.6°C

Sample custody must be documented below, each time samples change possession, with a signature, date, and time.

RELINQUISHED BY (SIGNATURE)	DATE / TIME	PRINTED NAME	RECEIVED BY LAB (SIGNATURE)	DATE / TIME	PRINTED NAME
	8/15/19 16:20	T-H		8/15/19 16:20	
RELINQUISHED BY (SIGNATURE)	DATE / TIME	PRINTED NAME	RECEIVED BY LAB (SIGNATURE)	DATE / TIME	PRINTED NAME

Rush 8/16/19 @ 12:00 PM

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

777 New Durham Road
Edison, New Jersey 08817
Phone: (732) 549-3900 Fax: (732) 549-3679

NYC 222

CHAIN OF CUSTODY / ANALYSIS REQUEST

Page 1 of 1

Name (for report and invoice) Justin Halpin (BEI)
Company WRS (dba BEI)
Address 17 aa Dock Rd.
City Yaphank State NY Zip 11980
Phone 631-589-6621 Fax —

Samplers Name (Printed) Jody / Steve
P. O. # 29141

Site/Project Identification: American Drive-in Cleaners
State (Location of site): NJ: ☐ NY: ☑ Other:
Regulatory Program: NYS DEC DKQP: ☐

Analysis Turnaround Time
Standard ☑
Rush Charges Authorized For:
2 Week ☐
1 Week ☐
Other ☐

LAB USE ONLY
Project No:
Job No: 188226

Sample Identification	Date	Time	Matrix	No. of Cont.	PFAS	1,4 Dioxane	Sample Numbers
MW-1 (dup/ms/msd)	7/31/19		W	16	X	X	1, 2
MW-3	↓		W	4	X	X	3
MW-6A	↓		W	4	X	X	4
Field Blanks (F.B)	↓	—	W	4	X	X	5
T.B	↓		W	1	X	X	6

460-188226 Chain of Custody

SUB WORK

Preservation Used: 1 = Ice, 2 = HCl, 3 = H_2SO_4, 4 = HNO_3, 5 = NaOH Soil:
6 = Other _____, 7 = Other _____ Water:

Special Instructions ASP-CAT-B deliverables (NYS)

Water Metals Filtered (Yes/No)? _____

	Relinquished by	Company	Date / Time	Received by	Company
1)		BEI/WRS	8/2/19 1053		TAL
2)		TAL	8/2/19 1618		TAL
3)		TAL	8/2/19 18:20		TAEdi
4)					

Laboratory Certifications: New Jersey (12028), New York (11452), Pennsylvania (68-522), Connecticut (PH-0200), Rhode Island (132).
Massachusetts (M-NJ312), North Carolina (No. 578)

TAL - 0016 (0715)

Sample Log-In Check List

Client Name:	**Berninger**		Work Order Number: **1908001**
Logged by:	**Lori Beyer**	**8/1/2019 9:00 AM**	Lori Beyer
Completed By:	**Lori Beyer**	**8/1/2019 9:21 AM**	Lori Beyer
Reviewed By:	**Phyllis Masi**	**8/1/2019 12:00 AM**	Phyllis Masi

Chain of Custody

1.	Were seals intact?	Yes	x	No	☐	Not Present	☐
2.	Is Chain of Custody complete?	Yes	x	No	☐	Not Present	☐
3.	How was the sample delivered?	Yes	x	No	☐	Not Present	☐

Log In

4.	Coolers are present?	Yes	x	No	☐	Not Present	☐
5.	Was an attempt made to cool the samples?	Yes	x	No	☐	NA	☐
6.	Were all samples received at a temperature of >0° C to 6.0°C	Yes	x	No	☐	NA	☐
7.	Sample(s) in proper container(s)?	Yes	x	No	☐		
8.	Sufficient sample volume for indicated test(s)?	Yes	x	No	☐		
9.	Are samples (except VOA and ONG) properly preserved?	Yes	x	No	☐		
10.	Was preservative added to bottles?	Yes	☐	No	x		
11.	Is the headspace in the VOA vials less than 1/4 inch or 6 mm?	Yes	x	No	☐	Not Present	☐
12.	Were any sample containers received broken?	Yes	x	No	☐		
13.	Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes	x	No	☐		
14.	Are matrices correctly identified on Chain of Custody?	Yes	x	No	☐		
15.	Is it clear what analyses were requested?	Yes	x	No	☐		
16.	Were all holding times able to be met? (If no, notify customer for authorization.)	Yes	x	No	☐		

Special Handling (if applicable)

17.	Was client notified of all discrepancies with this order?	Yes	☐	No	☐	Not Present	x

Person Notified: Date:

By Whom: Via ☐ email ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

18. Additional remarks:

Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
		Good	No			

Sample Log-In Check List

Client Name:	**Berninger**		Work Order Number: **1908134**
Logged by:	**Lori Beyer**	**8/15/2019 4:20 PM**	Lori Beyer
Completed By:	**Lori Beyer**	**8/15/2019 4:53 PM**	Lori Beyer
Reviewed By:	**Lori Beyer**	**8/15/2019 5:15 PM**	Lori Beyer

Chain of Custody

1.	Were seals intact?	Yes	x	No	☐	Not Present	☐
2.	Is Chain of Custody complete?	Yes	x	No	☐	Not Present	☐
3.	How was the sample delivered?	Yes	x	No	☐	Not Present	☐

Log In

4.	Coolers are present?	Yes	x	No	☐	Not Present	☐
5.	Was an attempt made to cool the samples?	Yes	x	No	☐	NA	☐
6.	Were all samples received at a temperature of >0° C to 6.0°C	Yes	x	No	☐	NA	☐
7.	Sample(s) in proper container(s)?	Yes	x	No	☐		
8.	Sufficient sample volume for indicated test(s)?	Yes	x	No	☐		
9.	Are samples (except VOA and ONG) properly preserved?	Yes	x	No	☐		
10.	Was preservative added to bottles?	Yes	☐	No	x		
11.	Is the headspace in the VOA vials less than 1/4 inch or 6 mm?	Yes	x	No	☐	Not Present	☐
12.	Were any sample containers received broken?	Yes	x	No	☐		
13.	Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes	x	No	☐		
14.	Are matrices correctly identified on Chain of Custody?	Yes	x	No	☐		
15.	Is it clear what analyses were requested?	Yes	x	No	☐		
16.	Were all holding times able to be met? (If no, notify customer for authorization.)	Yes	x	No	☐		

Special Handling (if applicable)

17.	Was client notified of all discrepancies with this order?	Yes	☐	No	☐	Not Present	x

Person Notified: Date:

By Whom: Via ☐ email ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

18. Additional remarks:

Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
		Good	No			

Login Sample Receipt Checklist

Client: WRS Environmental Services

Job Number: 460-188226-1

Login Number: 188226
List Number: 1
Creator: Rivera, Kenneth

List Source: Eurofins TestAmerica, Edison

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	False	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: WRS Environmental Services

Job Number: 460-188226-1

Login Number: 188226
List Number: 2
Creator: Kintaudi, Pauline W

List Source: Eurofins TestAmerica, Sacramento
List Creation: 08/05/19 11:46 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.0c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Appendix B
Case Narratives

American Analytical Laboratories, LLC. - Case Narrative

WO#: 1908001

Date Reported: 8/16/2019
Revision v1

Client: WRS d.b.a Berninger Environmental

Project: American Drive-In Cleaners, 1345 Peninsula Blvd, Hewlett, NY

Samples were analyzed using the methods outlined in the following references:

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846 and additional methods as detailed throughout the text of the report. All method blanks, laboratory spikes, and/or matrix spikes met quality assurance objectives with exceptions notated in this Narrative discussion and/or the QC summary section of the report.

Volatile LCS are analyzed with preservatives - HCL/Methanol depending on level of analysis (high/low) similar to sample analysis. Outliers can be attributed to the presence of chemical preservatives. 2-Chloroethyl vinyl ether readily breaks down under acidic conditions. Samples that are acid preserved, including standards will exhibit breakdown. The data user should take note.

Field Blank for VOA was determined to contain Acetone above the LOQ. Second vial was analyzed to confirm.

MW-1 was seleected for MS/MSD analysis.

In cases where target analyte concentrations were over the calibration range, a diluted reanalysis was performed.

The following parameters (if included in this report) are not offered by NY ELAP: VOA 8260 Soil; 1,2,4,5-Tetramethylbenzene, Chlorodifluoromethane, Diisopropyl ether, Ethanol, Freon-114, p-Diethylbenzene, p-Ethyltoluene, Limonene. VOA 8260 Liquid; 1,2,4,5-Tetramethylbenzene, Chlorodifluoromethane, Freon-114, p-Diethylbenzene, p-Ethyltoluene, Limonene. Pesticides 8081 Soil; DBCP. Herbicides 8151 Soil; 3,5-Dichlorobenzoic Acid, 4-Nitrophenol, Acifluorfen, Bentazon, Chloramben, DCPA, Picloram, SM 2540G Total Volatile Solids, Soil TKN, Soil Organic Nitrogen, Total Phosphorus in soil, Percent Moisture, pH in non-potable water and temperature at which pH is measured, SM 4500-SO3 B Sulfite in Liquid, Total Sulfur in Soil, Acid Soluble Chloride by ASTMC1152, Water Soluble Chloride by ASTMC1218, Chlorine Demand by SM 2350 B, Total Residual Chlorine in Liquid and Reactivity to Sulfide and Reactivity to Cyanide.

The test results meet the requirements of the NYSDOH and NELAC standards, except where noted. The information contained in this analytical report is the sole property of American Analytical Laboratories, LLC. or the client for which this report was issued. The results contained in this report are only representative of the samples received. The sample receipt checklist is included as part of this lab report. Conditions can vary at different times and at different sampling conditions. American Analytical is not responsible for the use or interpretation of the data included herein.

9/9/19

American Analytical Laboratories, LLC. - Case Narrative

WO#: 1908134

Date Reported: 9/4/2019
Revision v1

Client: WRS d.b.a Berninger Environmental

Project: American Drive-In Cleaners, 1345 Peninsula Blvd, Hewlett, NY

Samples were analyzed using the methods outlined in the following references:

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846 and additional methods as detailed throughout the text of the report. All method blanks, laboratory spikes, and/or matrix spikes met quality assurance objectives with exceptions notated in this Narrative discussion.

Volatile LCS are analyzed with preservatives - HCL/Methanol depending on level of analysis (high/low) similar to sample analysis. Outliers can be attributed to the presence of chemical preservatives. 2-Chloroethyl vinyl ether readily breaks down under acidic conditions. Samples that are acid preserved, including standards will exhibit breakdown. The data user should take note.

GW-6 @ 5-9' was seleected for MS/MSD analysis.

The following parameters (if included in this report) are not offered by NY ELAP: VOA 8260 Soil; 1,2,4,5-Tetramethylbenzene, Chlorodifluoromethane, Diisopropyl ether, Ethanol, Freon-114, p-Diethylbenzene, p-Ethyltoluene, Limonene. VOA 8260 Liquid; 1,2,4,5-Tetramethylbenzene, Chlorodifluoromethane, Freon-114, p-Diethylbenzene, p-Ethyltoluene, Limonene. Pesticides 8081 Soil; DBCP. Herbicides 8151 Soil; 3,5-Dichlorobenzoic Acid, 4-Nitrophenol, Acifluorfen, Bentazon, Chloramben, DCPA, Picloram, SM 2540G Total Volatile Solids, Soil TKN, Soil Organic Nitrogen, Total Phosphorus in soil, Percent Moisture, pH in non-potable water and temperature at which pH is measured, SM 4500-SO3 B Sulfite in Liquid, Total Sulfur in Soil, Acid Soluble Chloride by ASTMC1152, Water Soluble Chloride by ASTMC1218, Chlorine Demand by SM 2350 B, Total Residual Chlorine in Liquid and Reactivity to Sulfide and Reactivity to Cyanide.

The test results meet the requirements of the NYSDOH and NELAC standards, except where noted. The information contained in this analytical report is the sole property of American Analytical Laboratories, LLC. or the client for which this report was issued. The results contained in this report are only representative of the samples received. The sample receipt checklist is included as part of this lab report. Conditions can vary at different times and at different sampling conditions. American Analytical is not responsible for the use or interpretation of the data included herein.

9/9/19

CASE NARRATIVE

Client: WRS Environmental Services

Project: American Drive-in Cleaners

Report Number: 460-188226-1

This case narrative is in the form of an exception report, where only the anomalies related to this report, method specific performance and/or QA/QC issues are discussed. If there are no issues to report, this narrative will include a statement that documents that there are no relevant data issues.

It should be noted that samples with elevated Reporting Limits (RLs) as a result of a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the RLs are unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes or interferences which exceed the calibration range of the instrument.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 08/02/2019; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 2.5 C.

Note: All samples which require thermal preservation are considered acceptable if the arrival temperature is within 2C of the required temperature or method specified range. For samples with a specified temperature of 4C, samples with a temperature ranging from just above freezing temperature of water to 6C shall be acceptable. Samples that are hand delivered immediately following collection may not meet these criteria, however they will be deemed acceptable according to NELAC standards, if there is evidence that the chilling process has begun, such as arrival on ice, etc.

1,4 DIOXANE BY METHOD 8270 SIM

Samples MW-1 (460-188226-1), MW-1DUP (460-188226-2), MW-3 (460-188226-3), MW-6A (460-188226-4) and Field Blanks(F.B) (460-188226-5) were analyzed for 1,4 Dioxane by Method 8270 SIM in accordance with EPA SW-846 Method 8270D SIM DKQP. The samples were prepared on 08/06/2019 and analyzed on 08/07/2019 and 08/08/2019.

The continuing calibration verification (CCV) analyzed in batch 460-630106 was outside the method criteria for the following analyte(s): 1,4-Dioxane. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for batch preparation batch 460-629899 and analytical batch 460-630104 recovered outside control limits for the following analytes: 1,4-Dioxane.

1,4-Dioxane exceeded the RPD limit for LCSD 460-629899/3-A. Refer to the QC report for details.

1,4-Dioxane failed the recovery criteria low for the MS/MSD of sample MW-1MS (460-188226-1) in batch 460-630393.

Refer to the QC report for details.

No other difficulties were encountered during the SVOC SIM DKQP analysis.

All other quality control parameters were within the acceptance limits.

PERFLUORINATED HYDROCARBONS (PFC)

Samples MW-1 (460-188226-1), MW-1DUP (460-188226-2), MW-3 (460-188226-3), MW-6A (460-188226-4) and Field Blanks(F.B) (460-188226-5) were analyzed for Perfluorinated Hydrocarbons (PFC) in accordance with PFC. The samples were prepared on 08/08/2019 and analyzed on 08/09/2019, 08/10/2019 and 08/13/2019.

Due to the high concentration of N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA), the matrix spike / matrix spike duplicate (MS/MSD) for preparation batch 320-313282 and analytical batch 320-313696 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria.

The method blank for preparation batch 320-313282 and analytical batch 320-313696 contained Perfluorooctanesulfonic acid (PFOS) and Perfluorooctanesulfonamide (FOSA) above the reporting limit (RL). Associated samples were not re-extracted and/or re-analyzed because results were greater than 10X the value found in the method blank or below the reporting limit for those analytes.

The matrix spike and matrix spike duplicate has detections which exceeded the calibration range as a result of fortification with standard solution. The parent samples was within the calibration range.

Results for samples MW-1 (460-188226-1), MW-1 (460-188226-1[MS]), MW-1 (460-188226-1[MSD]), MW-1DUP (460-188226-2) and MW-6A (460-188226-4) were reported from the analysis of a diluted extract due to high concentration of the target analyte in the analysis of the undiluted extract. The dilution factor was applied to the labeled internal standard area counts and these area counts were within acceptance limits.

Results for samples MW-1 (460-188226-1), MW-1 (460-188226-1[MS]) and MW-1 (460-188226-1[MSD]) were reported from the analysis of a diluted extract due to high concentration of the target analyte in the analysis of the undiluted extract. The dilution factor was applied to the labeled internal standard area counts and these area counts were within acceptance limits.

The following samples are slightly yellow and contain particulate at the bottom of the bottle prior to extraction: W-1 (460-188226-1), MW-1 (460-188226-1[MS]), MW-1 (460-188226-1[MSD]), MW-1DUP (460-188226-2), MW-3 (460-188226-3) and MW-6A (460-188226-4)

During the solid phase extraction process, the following samples have non-settable particulate which clogged the solid phase extraction column MW-1 (460-188226-1[MS]), MW-1 (460-188226-1[MSD]) and MW-1DUP (460-188226-2).

The following samples are slightly yellow after extraction: MW-1 (460-188226-1), MW-1 (460-188226-1[MS]), MW-1 (460-188226-1[MSD]), MW-1DUP (460-188226-2), MW-3 (460-188226-3) and MW-6A (460-188226-4)

Perfluorooctanesulfonamide (FOSA) and Perfluorooctanesulfonic acid (PFOS) were detected in method blank MB 320-313282/1-A at levels exceeding the reporting limit. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Perfluorohexanesulfonic acid (PFHxS) was detected in method blank MB 320-313282/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA) and Perfluorooctanesulfonic acid (PFOS) failed the recovery criteria high for the MS of sample MW-1MS (460-188226-1) in batch 320-314779.

Perfluorooctanoic acid (PFOA) and Perfluorooctanesulfonic acid (PFOS) failed the recovery criteria low for the MSD of sample MW-1MSD (460-188226-1) in batch 320-314779. N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA) failed the recovery criteria high.

Refer to the QC report for details.

The presence of the '4' qualifier in the data indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount.

Samples MW-1 (460-188226-1)[10X], MW-1 (460-188226-1)[20X], MW-1DUP (460-188226-2)[20X] and MW-6A (460-188226-4)[10X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No other difficulties were encountered during the Perfluorinated Hydrocarbons (PFC) analysis.

All other quality control parameters were within the acceptance limits.

Appendix C
Data Summary Form I's
with Qualifications

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

MW-1

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908001

Matrix: Liquid Lab Sample ID: 1908001-001A

Sample wt/vol: 5mL Lab File ID: V1-0035.D

Level: (low/med) LOW Date Collected: 7/31/2019 9:00 AM

% Moisture: N/A Date Received: 8/1/2019 9:00 AM

Extract Volume: 5000(µl) Date Prepped: 8/5/2019 8:18 AM

Seq Number: 808758 Date Analyzed: 8/6/2019 6:28 AM

GC Column: V1 06/10/2019 SN#1629116 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 22885/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
630-20-6	1,1,1,2-Tetrachloroethane	0.25	U	0.25	0.25	2.0
71-55-6	1,1,1-Trichloroethane	0.25	U	0.25	0.25	2.0
79-34-5	1,1,2,2-Tetrachloroethane	0.25	U	0.25	0.25	2.0
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.25	U	0.25	0.25	2.0
79-00-5	1,1,2-Trichloroethane	0.25	U	0.25	0.25	2.0
75-34-3	1,1-Dichloroethane	0.25	U	0.25	0.25	2.0
75-35-4	1,1-Dichloroethene	15		0.25	0.25	2.0
563-58-6	1,1-Dichloropropene	0.25	U	0.25	0.25	2.0
87-61-6	1,2,3-Trichlorobenzene	0.25	U	0.25	0.25	2.0
96-18-4	1,2,3-Trichloropropane	0.25	U	0.25	0.25	2.0
95-93-2	1,2,4,5-Tetramethylbenzene	0.25	U	0.25	0.25	2.0
120-82-1	1,2,4-Trichlorobenzene	0.25	U	0.25	0.25	2.0
95-63-6	1,2,4-Trimethylbenzene	3.6		0.25	0.25	2.0
96-12-8	1,2-Dibromo-3-chloropropane	0.25	U	0.25	0.25	2.0
106-93-4	1,2-Dibromoethane	0.25	U	0.25	0.25	2.0
95-50-1	1,2-Dichlorobenzene	0.65	J	0.25	0.25	2.0
107-06-2	1,2-Dichloroethane	0.25	U	0.25	0.25	2.0
78-87-5	1,2-Dichloropropane	0.25	U	0.25	0.25	2.0
108-67-8	1,3,5-Trimethylbenzene	0.25	U	0.25	0.25	2.0
541-73-1	1,3-Dichlorobenzene	0.25	U	0.25	0.25	2.0
142-28-9	1,3-dichloropropane	0.25	U	0.25	0.25	2.0
106-46-7	1,4-Dichlorobenzene	0.25	U	0.25	0.25	2.0
123-91-1	1,4-Dioxane	0.25	U	0.25	0.25	1.0
594-20-7	2,2-Dichloropropane	0.25	U	0.25	0.25	2.0
78-93-3	2-Butanone	0.50	U	0.50	0.50	4.0
110-75-8	2-Chloroethyl vinyl ether	10	R ~~U~~	10	10	20
95-49-8	2-Chlorotoluene	0.25	U	0.25	0.25	2.0
591-78-6	2-Hexanone	0.50	U	0.50	0.50	4.0
67-63-0	2-Propanol	0.25	U	0.25	0.25	2.0
106-43-4	4-Chlorotoluene	0.25	U	0.25	0.25	2.0
99-87-6	4-Isopropyltoluene	0.25	U	0.25	0.25	2.0
108-10-1	4-Methyl-2-pentanone	0.50	U	0.50	0.50	4.0
67-64-1	Acetone	19	~~B~~ UJ	5.0	5.0	10

SW8260C

9/9/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

MW-1

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908001

Matrix: Liquid Lab Sample ID: 1908001-001A

Sample wt/vol: 5mL Lab File ID: V1-0035.D

Level: (low/med) LOW Date Collected: 7/31/2019 9:00 AM

% Moisture: N/A Date Received: 8/1/2019 9:00 AM

Extract Volume: 5000(µl) Date Prepped: 8/5/2019 8:18 AM

Seq Number: 808758 Date Analyzed: 8/6/2019 6:28 AM

GC Column: V1 06/10/2019 SN#1629116 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 22885/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
71-43-2	Benzene	0.25	U	0.25	0.25	2.0
108-86-1	Bromobenzene	0.25	U	0.25	0.25	2.0
74-97-5	Bromochloromethane	0.25	U	0.25	0.25	2.0
75-27-4	Bromodichloromethane	0.25	U	0.25	0.25	2.0
75-25-2	Bromoform	0.25	U	0.25	0.25	2.0
74-83-9	Bromomethane	0.25	U	0.25	0.25	2.0
75-15-0	Carbon disulfide	0.25	U	0.25	0.25	2.0
56-23-5	Carbon tetrachloride	0.25	U	0.25	0.25	2.0
108-90-7	Chlorobenzene	0.25	U	0.25	0.25	2.0
75-45-6	Chlorodifluoromethane	0.25	U	0.25	0.25	2.0
75-00-3	Chloroethane	0.25	U	0.25	0.25	2.0
67-66-3	Chloroform	0.25	U	0.25	0.25	2.0
74-87-3	Chloromethane	0.25	U	0.25	0.25	2.0
10061-01-5	cis-1,3-Dichloropropene	0.25	U	0.25	0.25	2.0
110-82-7	Cyclohexane	0.25	U	0.25	0.25	2.0
124-48-1	Dibromochloromethane	0.25	U	0.25	0.25	2.0
74-95-3	Dibromomethane	0.25	U	0.25	0.25	2.0
75-71-8	Dichlorodifluoromethane	0.25	U	0.25	0.25	2.0
108-20-3	Diisopropyl ether	0.50	U	0.50	0.50	2.0
64-17-5	Ethanol	2.5	~~U~~ R	2.5	2.5	10
100-41-4	Ethylbenzene	0.76	~~J~~ U	0.25	0.25	2.0
76-14-2	Freon-114	0.25	U	0.25	0.25	2.0
87-68-3	Hexachlorobutadiene	0.25	U	0.25	0.25	2.0
98-82-8	Isopropylbenzene	24		0.25	0.25	2.0
179601-23-1	m,p-Xylene	0.67	~~J~~ U	0.50	0.50	4.0
79-20-9	Methyl Acetate	0.25	U	0.25	0.25	2.0
1634-04-4	Methyl tert-butyl ether	0.25	U	0.25	0.25	2.0
75-09-2	Methylene chloride	2.4	~~B~~ U	0.25	0.25	2.0
104-51-8	n-Butylbenzene	0.25	U	0.25	0.25	2.0
103-65-1	n-Propylbenzene	2.7		0.25	0.25	2.0
91-20-3	Naphthalene	0.25	U	0.25	0.25	2.0
95-47-6	o-Xylene	1.1	~~J~~ U	0.25	0.25	2.0
105-05-5	p-Diethylbenzene	0.25	U	0.25	0.25	2.0

SW8260C

for 9/9/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

MW-1

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908001

Matrix: Liquid Lab Sample ID: 1908001-001A

Sample wt/vol: 5mL Lab File ID: V1-0035.D

Level: (low/med) LOW Date Collected: 7/31/2019 9:00 AM

% Moisture: N/A Date Received: 8/1/2019 9:00 AM

Extract Volume: 5000(µl) Date Prepped: 8/5/2019 8:18 AM

Seq Number: 808758 Date Analyzed: 8/6/2019 6:28 AM

GC Column: V1 06/10/2019 SN#1629116 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 22885/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
622-96-8	p-Ethyltoluene	4.4	J	0.25	0.25	2.0
135-98-8	sec-Butylbenzene	0.25	U	0.25	0.25	2.0
100-42-5	Styrene	0.25	U	0.25	0.25	2.0
75-65-0	t-Butyl alcohol	2.5	U	2.5	2.5	10
98-06-6	tert-Butylbenzene	1.0	J	0.25	0.25	2.0
108-88-3	Toluene	0.49	J	0.25	0.25	2.0
156-60-5	trans-1,2-Dichloroethene	120		0.25	0.25	2.0
10061-02-6	trans-1,3-Dichloropropene	0.25	U	0.25	0.25	2.0
75-69-4	Trichlorofluoromethane	0.25	U	0.25	0.25	2.0
108-05-4	Vinyl acetate	0.25	U	0.25	0.25	2.0
75-01-4	Vinyl chloride	140		0.25	0.25	2.0
1330-20-7	Xylenes, Total	1.8	J V	0.75	0.75	6.0
108-87-2	Methylcyclohexane	0.25	U	0.25	0.25	2.0
107-02-8	Acrolein	1.0	U R	1.0	1.0	10
107-13-1	Acrylonitrile	0.25	U	0.25	0.25	2.0

SW8260C

10/4/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

MW-1

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908001

Matrix: Liquid Lab Sample ID: 1908001-001A

Sample wt/vol: 5mL Lab File ID: V1-0010.D

Level: (low/med) LOW Date Collected: 7/31/2019 9:00 AM

% Moisture: N/A Date Received: 8/1/2019 9:00 AM

Extract Volume: 5000(µl) Date Prepped: 8/8/2019 11:06 AM

Seq Number: 810385 Date Analyzed: 8/8/2019 5:29 PM

GC Column: V1 06/10/2019 SN#1629116 Dilution Factor: 100.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 22944/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
156-59-2	cis-1,2-Dichloroethene	14000	D	25	25	200
79-01-6	Trichloroethene	9900	D	25	25	200

SW8260C

8/9/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

MW-1

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908001

Matrix: Liquid Lab Sample ID: 1908001-001A

Sample wt/vol: 5mL Lab File ID: V1-0009.D

Level: (low/med) LOW Date Collected: 7/31/2019 9:00 AM

% Moisture: N/A Date Received: 8/1/2019 9:00 AM

Extract Volume: 5000(µl) Date Prepped: 8/8/2019 11:06 AM

Seq Number: 810384 Date Analyzed: 8/8/2019 4:59 PM

GC Column: V1 06/10/2019 SN#1629116 Dilution Factor: 500.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 22944/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
127-18-4	Tetrachloroethene	32000	D	130	130	1000

SW8260C

for 9/19/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

MW-2

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908001

Matrix: Liquid Lab Sample ID: 1908001-002A

Sample wt/vol: 5mL Lab File ID: V1-0012.D

Level: (low/med) LOW Date Collected: 7/31/2019 9:10 AM

% Moisture: N/A Date Received: 8/1/2019 9:00 AM

Extract Volume: 5000(µl) Date Prepped: 8/8/2019 11:06 AM

Seq Number: 810387 Date Analyzed: 8/8/2019 6:31 PM

GC Column: V1 06/10/2019 SN#1629116 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 22944/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
630-20-6	1,1,1,2-Tetrachloroethane	0.25	U	0.25	0.25	2.0
71-55-6	1,1,1-Trichloroethane	0.25	U	0.25	0.25	2.0
79-34-5	1,1,2,2-Tetrachloroethane	0.25	U	0.25	0.25	2.0
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.25	U	0.25	0.25	2.0
79-00-5	1,1,2-Trichloroethane	0.25	U	0.25	0.25	2.0
75-34-3	1,1-Dichloroethane	0.25	U	0.25	0.25	2.0
75-35-4	1,1-Dichloroethene	0.25	U	0.25	0.25	2.0
563-58-6	1,1-Dichloropropene	0.25	U	0.25	0.25	2.0
87-61-6	1,2,3-Trichlorobenzene	0.25	U	0.25	0.25	2.0
96-18-4	1,2,3-Trichloropropane	0.25	U	0.25	0.25	2.0
95-93-2	1,2,4,5-Tetramethylbenzene	0.25	U	0.25	0.25	2.0
120-82-1	1,2,4-Trichlorobenzene	0.25	U	0.25	0.25	2.0
95-63-6	1,2,4-Trimethylbenzene	0.25	U	0.25	0.25	2.0
96-12-8	1,2-Dibromo-3-chloropropane	0.25	U	0.25	0.25	2.0
106-93-4	1,2-Dibromoethane	0.25	U	0.25	0.25	2.0
95-50-1	1,2-Dichlorobenzene	0.25	U	0.25	0.25	2.0
107-06-2	1,2-Dichloroethane	0.25	U	0.25	0.25	2.0
78-87-5	1,2-Dichloropropane	0.25	U	0.25	0.25	2.0
108-67-8	1,3,5-Trimethylbenzene	0.25	U	0.25	0.25	2.0
541-73-1	1,3-Dichlorobenzene	0.25	U	0.25	0.25	2.0
142-28-9	1,3-dichloropropane	0.25	U	0.25	0.25	2.0
106-46-7	1,4-Dichlorobenzene	0.25	U	0.25	0.25	2.0
123-91-1	1,4-Dioxane	0.25	U	0.25	0.25	1.0
594-20-7	2,2-Dichloropropane	0.25	U	0.25	0.25	2.0
78-93-3	2-Butanone	0.50	U	0.50	0.50	4.0
110-75-8	2-Chloroethyl vinyl ether	10	R U	10	10	20
95-49-8	2-Chlorotoluene	0.25	U	0.25	0.25	2.0
591-78-6	2-Hexanone	0.50	U	0.50	0.50	4.0
67-63-0	2-Propanol	0.25	U	0.25	0.25	2.0
106-43-4	4-Chlorotoluene	0.25	U	0.25	0.25	2.0
99-87-6	4-Isopropyltoluene	0.25	U	0.25	0.25	2.0
108-10-1	4-Methyl-2-pentanone	0.50	U	0.50	0.50	4.0
67-64-1	Acetone	39	~~B~~ UJ	5.0	5.0	10

SW8260C

9/19/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

MW-2

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908001

Matrix: Liquid Lab Sample ID: 1908001-002A

Sample wt/vol: 5mL Lab File ID: V1-0012.D

Level: (low/med) LOW Date Collected: 7/31/2019 9:10 AM

% Moisture: N/A Date Received: 8/1/2019 9:00 AM

Extract Volume: 5000(µl) Date Prepped: 8/8/2019 11:06 AM

Seq Number: 810387 Date Analyzed: 8/8/2019 6:31 PM

GC Column: V1 06/10/2019 SN#1629116 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 22944/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
71-43-2	Benzene	0.25	U	0.25	0.25	2.0
108-86-1	Bromobenzene	0.25	U	0.25	0.25	2.0
74-97-5	Bromochloromethane	0.25	U	0.25	0.25	2.0
75-27-4	Bromodichloromethane	0.25	U	0.25	0.25	2.0
75-25-2	Bromoform	0.25	U	0.25	0.25	2.0
74-83-9	Bromomethane	0.25	U	0.25	0.25	2.0
75-15-0	Carbon disulfide	0.25	U	0.25	0.25	2.0
56-23-5	Carbon tetrachloride	0.25	U	0.25	0.25	2.0
108-90-7	Chlorobenzene	0.25	U	0.25	0.25	2.0
75-45-6	Chlorodifluoromethane	0.25	U	0.25	0.25	2.0
75-00-3	Chloroethane	0.25	U	0.25	0.25	2.0
67-66-3	Chloroform	0.25	U	0.25	0.25	2.0
74-87-3	Chloromethane	0.25	U	0.25	0.25	2.0
156-59-2	cis-1,2-Dichloroethene	100		0.25	0.25	2.0
10061-01-5	cis-1,3-Dichloropropene	0.25	U	0.25	0.25	2.0
110-82-7	Cyclohexane	0.25	U	0.25	0.25	2.0
124-48-1	Dibromochloromethane	0.25	U	0.25	0.25	2.0
74-95-3	Dibromomethane	0.25	U	0.25	0.25	2.0
75-71-8	Dichlorodifluoromethane	0.25	U	0.25	0.25	2.0
108-20-3	Diisopropyl ether	0.50	U	0.50	0.50	2.0
64-17-5	Ethanol	2.5	~~U~~ R	2.5	2.5	10
100-41-4	Ethylbenzene	0.25	U	0.25	0.25	2.0
76-14-2	Freon-114	0.25	U	0.25	0.25	2.0
87-68-3	Hexachlorobutadiene	0.25	U	0.25	0.25	2.0
98-82-8	Isopropylbenzene	0.25	U	0.25	0.25	2.0
179601-23-1	m,p-Xylene	0.50	U	0.50	0.50	4.0
79-20-9	Methyl Acetate	0.25	U	0.25	0.25	2.0
1634-04-4	Methyl tert-butyl ether	0.25	U	0.25	0.25	2.0
75-09-2	Methylene chloride	2.8	~~B~~ U	0.25	0.25	2.0
104-51-8	n-Butylbenzene	0.25	U	0.25	0.25	2.0
103-65-1	n-Propylbenzene	0.25	U	0.25	0.25	2.0
91-20-3	Naphthalene	0.25	U	0.25	0.25	2.0
95-47-6	o-Xylene	0.25	U	0.25	0.25	2.0

SW8260C

9/9/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

MW-2

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908001

Matrix: Liquid Lab Sample ID: 1908001-002A

Sample wt/vol: 5mL Lab File ID: V1-0012.D

Level: (low/med) LOW Date Collected: 7/31/2019 9:10 AM

% Moisture: N/A Date Received: 8/1/2019 9:00 AM

Extract Volume: 5000(µl) Date Prepped: 8/8/2019 11:06 AM

Seq Number: 810387 Date Analyzed: 8/8/2019 6:31 PM

GC Column: V1 06/10/2019 SN#1629116 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 22944/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
105-05-5	p-Diethylbenzene	0.25	U	0.25	0.25	2.0
622-96-8	p-Ethyltoluene	0.25	~~U~~	(J) 0.25	0.25	2.0
135-98-8	sec-Butylbenzene	0.25	U	0.25	0.25	2.0
100-42-5	Styrene	0.25	U	0.25	0.25	2.0
75-65-0	t-Butyl alcohol	2.5	U	2.5	2.5	10
98-06-6	tert-Butylbenzene	0.25	U	0.25	0.25	2.0
127-18-4	Tetrachloroethene	190		0.25	0.25	2.0
108-88-3	Toluene	0.25	U	0.25	0.25	2.0
156-60-5	trans-1,2-Dichloroethene	0.85	J	0.25	0.25	2.0
10061-02-6	trans-1,3-Dichloropropene	0.25	U	0.25	0.25	2.0
79-01-6	Trichloroethene	75		0.25	0.25	2.0
75-69-4	Trichlorofluoromethane	0.25	U	0.25	0.25	2.0
108-05-4	Vinyl acetate	0.25	U	0.25	0.25	2.0
75-01-4	Vinyl chloride	0.25	U	0.25	0.25	2.0
1330-20-7	Xylenes, Total	0.75	U	0.75	0.75	6.0
108-87-2	Methylcyclohexane	0.25	U	0.25	0.25	2.0
107-02-8	Acrolein	1.0	~~U~~	R 1.0	1.0	10
107-13-1	Acrylonitrile	0.25	U	0.25	0.25	2.0

SW8260C

for 10/3/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

MW-3

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908001

Matrix: Liquid Lab Sample ID: 1908001-003A

Sample wt/vol: 5mL Lab File ID: V1-0013.D

Level: (low/med) LOW Date Collected: 7/31/2019 10:20 AM

% Moisture: N/A Date Received: 8/1/2019 9:00 AM

Extract Volume: 5000(µl) Date Prepped: 8/8/2019 11:06 AM

Seq Number: 810388 Date Analyzed: 8/8/2019 7:01 PM

GC Column: V1 06/10/2019 SN#1629116 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 22944/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
630-20-6	1,1,1,2-Tetrachloroethane	0.25	U	0.25	0.25	2.0
71-55-6	1,1,1-Trichloroethane	0.25	U	0.25	0.25	2.0
79-34-5	1,1,2,2-Tetrachloroethane	0.25	U	0.25	0.25	2.0
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.25	U	0.25	0.25	2.0
79-00-5	1,1,2-Trichloroethane	0.25	U	0.25	0.25	2.0
75-34-3	1,1-Dichloroethane	0.25	U	0.25	0.25	2.0
75-35-4	1,1-Dichloroethene	0.25	U	0.25	0.25	2.0
563-58-6	1,1-Dichloropropene	0.25	U	0.25	0.25	2.0
87-61-6	1,2,3-Trichlorobenzene	0.25	U	0.25	0.25	2.0
96-18-4	1,2,3-Trichloropropane	0.25	U	0.25	0.25	2.0
95-93-2	1,2,4,5-Tetramethylbenzene	0.25	U	0.25	0.25	2.0
120-82-1	1,2,4-Trichlorobenzene	0.25	U	0.25	0.25	2.0
95-63-6	1,2,4-Trimethylbenzene	0.25	U	0.25	0.25	2.0
96-12-8	1,2-Dibromo-3-chloropropane	0.25	U	0.25	0.25	2.0
106-93-4	1,2-Dibromoethane	0.25	U	0.25	0.25	2.0
95-50-1	1,2-Dichlorobenzene	0.25	U	0.25	0.25	2.0
107-06-2	1,2-Dichloroethane	0.25	U	0.25	0.25	2.0
78-87-5	1,2-Dichloropropane	0.25	U	0.25	0.25	2.0
108-67-8	1,3,5-Trimethylbenzene	0.25	U	0.25	0.25	2.0
541-73-1	1,3-Dichlorobenzene	0.25	U	0.25	0.25	2.0
142-28-9	1,3-dichloropropane	0.25	U	0.25	0.25	2.0
106-46-7	1,4-Dichlorobenzene	0.25	U	0.25	0.25	2.0
123-91-1	1,4-Dioxane	0.25	U	0.25	0.25	1.0
594-20-7	2,2-Dichloropropane	0.25	U	0.25	0.25	2.0
78-93-3	2-Butanone	0.50	U	0.50	0.50	4.0
110-75-8	2-Chloroethyl vinyl ether	10	R-U	10	10	20
95-49-8	2-Chlorotoluene	0.25	U	0.25	0.25	2.0
591-78-6	2-Hexanone	0.50	U	0.50	0.50	4.0
67-63-0	2-Propanol	0.25	U	0.25	0.25	2.0
106-43-4	4-Chlorotoluene	0.25	U	0.25	0.25	2.0
99-87-6	4-Isopropyltoluene	0.25	U	0.25	0.25	2.0
108-10-1	4-Methyl-2-pentanone	0.50	U	0.50	0.50	4.0
67-64-1	Acetone	25	~~B~~ UJ	5.0	5.0	10

SW8260C

8/19/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

MW-3

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908001

Matrix: Liquid Lab Sample ID: 1908001-003A

Sample wt/vol: 5mL Lab File ID: V1-0013.D

Level: (low/med) LOW Date Collected: 7/31/2019 10:20 AM

% Moisture: N/A Date Received: 8/1/2019 9:00 AM

Extract Volume: 5000(µl) Date Prepped: 8/8/2019 11:06 AM

Seq Number: 810388 Date Analyzed: 8/8/2019 7:01 PM

GC Column: V1 06/10/2019 SN#1629116 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 22944/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
71-43-2	Benzene	0.25	U	0.25	0.25	2.0
108-86-1	Bromobenzene	0.25	U	0.25	0.25	2.0
74-97-5	Bromochloromethane	0.25	U	0.25	0.25	2.0
75-27-4	Bromodichloromethane	0.25	U	0.25	0.25	2.0
75-25-2	Bromoform	0.25	U	0.25	0.25	2.0
74-83-9	Bromomethane	0.25	U	0.25	0.25	2.0
75-15-0	Carbon disulfide	0.25	U	0.25	0.25	2.0
56-23-5	Carbon tetrachloride	0.25	U	0.25	0.25	2.0
108-90-7	Chlorobenzene	0.25	U	0.25	0.25	2.0
75-45-6	Chlorodifluoromethane	0.25	U	0.25	0.25	2.0
75-00-3	Chloroethane	0.25	U	0.25	0.25	2.0
67-66-3	Chloroform	0.25	U	0.25	0.25	2.0
74-87-3	Chloromethane	0.25	U	0.25	0.25	2.0
156-59-2	cis-1,2-Dichloroethene	18		0.25	0.25	2.0
10061-01-5	cis-1,3-Dichloropropene	0.25	U	0.25	0.25	2.0
110-82-7	Cyclohexane	0.25	U	0.25	0.25	2.0
124-48-1	Dibromochloromethane	0.25	U	0.25	0.25	2.0
74-95-3	Dibromomethane	0.25	U	0.25	0.25	2.0
75-71-8	Dichlorodifluoromethane	0.25	U	0.25	0.25	2.0
108-20-3	Diisopropyl ether	0.50	U	0.50	0.50	2.0
64-17-5	Ethanol	2.5	~~U~~ R	2.5	2.5	10
100-41-4	Ethylbenzene	0.25	U	0.25	0.25	2.0
76-14-2	Freon-114	0.25	U	0.25	0.25	2.0
87-68-3	Hexachlorobutadiene	0.25	U	0.25	0.25	2.0
98-82-8	Isopropylbenzene	0.25	U	0.25	0.25	2.0
179601-23-1	m,p-Xylene	0.50	U	0.50	0.50	4.0
79-20-9	Methyl Acetate	0.25	U	0.25	0.25	2.0
1634-04-4	Methyl tert-butyl ether	0.25	U	0.25	0.25	2.0
75-09-2	Methylene chloride	2.9	~~B~~ U	0.25	0.25	2.0
104-51-8	n-Butylbenzene	0.25	U	0.25	0.25	2.0
103-65-1	n-Propylbenzene	0.25	U	0.25	0.25	2.0
91-20-3	Naphthalene	0.25	U	0.25	0.25	2.0
95-47-6	o-Xylene	0.25	U	0.25	0.25	2.0

SW8260C

for 9/9/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

MW-3

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908001

Matrix: Liquid Lab Sample ID: 1908001-003A

Sample wt/vol: 5mL Lab File ID: V1-0013.D

Level: (low/med) LOW Date Collected: 7/31/2019 10:20 AM

% Moisture: N/A Date Received: 8/1/2019 9:00 AM

Extract Volume: 5000(µl) Date Prepped: 8/8/2019 11:06 AM

Seq Number: 810388 Date Analyzed: 8/8/2019 7:01 PM

GC Column: V1 06/10/2019 SN#1629116 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 22944/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
105-05-5	p-Diethylbenzene	0.25	U	0.25	0.25	2.0
622-96-8	p-Ethyltoluene	0.25	~~U~~ UJ	0.25	0.25	2.0
135-98-8	sec-Butylbenzene	0.25	U	0.25	0.25	2.0
100-42-5	Styrene	0.25	U	0.25	0.25	2.0
75-65-0	t-Butyl alcohol	2.5	U	2.5	2.5	10
98-06-6	tert-Butylbenzene	0.25	U	0.25	0.25	2.0
127-18-4	Tetrachloroethene	110		0.25	0.25	2.0
108-88-3	Toluene	0.26	~~BJ~~ U	0.25	0.25	2.0
156-60-5	trans-1,2-Dichloroethene	1.1	J	0.25	0.25	2.0
10061-02-6	trans-1,3-Dichloropropene	0.25	U	0.25	0.25	2.0
79-01-6	Trichloroethene	31		0.25	0.25	2.0
75-69-4	Trichlorofluoromethane	0.25	U	0.25	0.25	2.0
108-05-4	Vinyl acetate	0.25	U	0.25	0.25	2.0
75-01-4	Vinyl chloride	0.25	U	0.25	0.25	2.0
1330-20-7	Xylenes, Total	0.75	U	0.75	0.75	6.0
108-87-2	Methylcyclohexane	0.25	U	0.25	0.25	2.0
107-02-8	Acrolein	1.0	~~U~~ R	1.0	1.0	10
107-13-1	Acrylonitrile	0.25	U	0.25	0.25	2.0

SW8260C

for 9/19/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

MW-6A

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908001

Matrix: Liquid Lab Sample ID: 1908001-004A

Sample wt/vol: 5mL Lab File ID: V1-0014.D

Level: (low/med) LOW Date Collected: 7/31/2019 10:30 AM

% Moisture: N/A Date Received: 8/1/2019 9:00 AM

Extract Volume: 5000(µl) Date Prepped: 8/8/2019 11:06 AM

Seq Number: 810389 Date Analyzed: 8/8/2019 7:32 PM

GC Column: V1 06/10/2019 SN#1629116 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 22944/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
630-20-6	1,1,1,2-Tetrachloroethane	0.25	U	0.25	0.25	2.0
71-55-6	1,1,1-Trichloroethane	0.25	U	0.25	0.25	2.0
79-34-5	1,1,2,2-Tetrachloroethane	0.25	U	0.25	0.25	2.0
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.25	U	0.25	0.25	2.0
79-00-5	1,1,2-Trichloroethane	0.25	U	0.25	0.25	2.0
75-34-3	1,1-Dichloroethane	0.25	U	0.25	0.25	2.0
75-35-4	1,1-Dichloroethene	0.50	J	0.25	0.25	2.0
563-58-6	1,1-Dichloropropene	0.25	U	0.25	0.25	2.0
87-61-6	1,2,3-Trichlorobenzene	0.25	U	0.25	0.25	2.0
96-18-4	1,2,3-Trichloropropane	0.25	U	0.25	0.25	2.0
95-93-2	1,2,4,5-Tetramethylbenzene	0.25	U	0.25	0.25	2.0
120-82-1	1,2,4-Trichlorobenzene	0.25	U	0.25	0.25	2.0
95-63-6	1,2,4-Trimethylbenzene	0.25	U	0.25	0.25	2.0
96-12-8	1,2-Dibromo-3-chloropropane	0.25	U	0.25	0.25	2.0
106-93-4	1,2-Dibromoethane	0.25	U	0.25	0.25	2.0
95-50-1	1,2-Dichlorobenzene	0.25	U	0.25	0.25	2.0
107-06-2	1,2-Dichloroethane	0.25	U	0.25	0.25	2.0
78-87-5	1,2-Dichloropropane	0.25	U	0.25	0.25	2.0
108-67-8	1,3,5-Trimethylbenzene	0.25	U	0.25	0.25	2.0
541-73-1	1,3-Dichlorobenzene	0.25	U	0.25	0.25	2.0
142-28-9	1,3-dichloropropane	0.25	U	0.25	0.25	2.0
106-46-7	1,4-Dichlorobenzene	0.25	U	0.25	0.25	2.0
123-91-1	1,4-Dioxane	0.25	U	0.25	0.25	1.0
594-20-7	2,2-Dichloropropane	0.25	U	0.25	0.25	2.0
78-93-3	2-Butanone	0.50	U	0.50	0.50	4.0
110-75-8	2-Chloroethyl vinyl ether	10	R U	10	10	20
95-49-8	2-Chlorotoluene	0.25	U	0.25	0.25	2.0
591-78-6	2-Hexanone	0.50	U	0.50	0.50	4.0
67-63-0	2-Propanol	0.25	U	0.25	0.25	2.0
106-43-4	4-Chlorotoluene	0.25	U	0.25	0.25	2.0
99-87-6	4-Isopropyltoluene	0.25	U	0.25	0.25	2.0
108-10-1	4-Methyl-2-pentanone	0.50	U	0.50	0.50	4.0
67-64-1	Acetone	47	~~R~~ UJ	5.0	5.0	10

SW8260C

for 9/9/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

MW-6A

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908001

Matrix: Liquid Lab Sample ID: 1908001-004A

Sample wt/vol: 5mL Lab File ID: V1-0014.D

Level: (low/med) LOW Date Collected: 7/31/2019 10:30 AM

% Moisture: N/A Date Received: 8/1/2019 9:00 AM

Extract Volume: 5000(µl) Date Prepped: 8/8/2019 11:06 AM

Seq Number: 810389 Date Analyzed: 8/8/2019 7:32 PM

GC Column: V1 06/10/2019 SN#1629116 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 22944/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
71-43-2	Benzene	0.25	U	0.25	0.25	2.0
108-86-1	Bromobenzene	0.25	U	0.25	0.25	2.0
74-97-5	Bromochloromethane	0.25	U	0.25	0.25	2.0
75-27-4	Bromodichloromethane	0.25	U	0.25	0.25	2.0
75-25-2	Bromoform	0.25	U	0.25	0.25	2.0
74-83-9	Bromomethane	0.25	U	0.25	0.25	2.0
75-15-0	Carbon disulfide	0.25	U	0.25	0.25	2.0
56-23-5	Carbon tetrachloride	0.25	U	0.25	0.25	2.0
108-90-7	Chlorobenzene	0.25	U	0.25	0.25	2.0
75-45-6	Chlorodifluoromethane	0.25	U	0.25	0.25	2.0
75-00-3	Chloroethane	0.25	U	0.25	0.25	2.0
67-66-3	Chloroform	0.25	U	0.25	0.25	2.0
74-87-3	Chloromethane	0.25	U	0.25	0.25	2.0
10061-01-5	cis-1,3-Dichloropropene	0.25	U	0.25	0.25	2.0
110-82-7	Cyclohexane	0.25	U	0.25	0.25	2.0
124-48-1	Dibromochloromethane	0.25	U	0.25	0.25	2.0
74-95-3	Dibromomethane	0.25	U	0.25	0.25	2.0
75-71-8	Dichlorodifluoromethane	0.25	U	0.25	0.25	2.0
108-20-3	Diisopropyl ether	0.50	U	0.50	0.50	2.0
64-17-5	Ethanol	2.5	~~U~~ R	2.5	2.5	10
100-41-4	Ethylbenzene	0.25	U	0.25	0.25	2.0
76-14-2	Freon-114	0.25	U	0.25	0.25	2.0
87-68-3	Hexachlorobutadiene	0.25	U	0.25	0.25	2.0
98-82-8	Isopropylbenzene	0.25	U	0.25	0.25	2.0
179601-23-1	m,p-Xylene	0.50	U	0.50	0.50	4.0
79-20-9	Methyl Acetate	0.25	U	0.25	0.25	2.0
1634-04-4	Methyl tert-butyl ether	0.25	U	0.25	0.25	2.0
75-09-2	Methylene chloride	2.8	~~B~~ U	0.25	0.25	2.0
104-51-8	n-Butylbenzene	0.25	U	0.25	0.25	2.0
103-65-1	n-Propylbenzene	0.25	U	0.25	0.25	2.0
91-20-3	Naphthalene	0.25	U	0.25	0.25	2.0
95-47-6	o-Xylene	0.25	U	0.25	0.25	2.0
105-05-5	p-Diethylbenzene	0.25	U	0.25	0.25	2.0

SW8260C

9/9/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

MW-6A

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908001

Matrix: Liquid Lab Sample ID: 1908001-004A

Sample wt/vol: 5mL Lab File ID: V1-0014.D

Level: (low/med) LOW Date Collected: 7/31/2019 10:30 AM

% Moisture: N/A Date Received: 8/1/2019 9:00 AM

Extract Volume: 5000(µl) Date Prepped: 8/8/2019 11:06 AM

Seq Number: 810389 Date Analyzed: 8/8/2019 7:32 PM

GC Column: V1 06/10/2019 SN#1629116 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 22944/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
622-96-8	p-Ethyltoluene	0.25	~~U~~ UJ	0.25	0.25	2.0
135-98-8	sec-Butylbenzene	0.25	U	0.25	0.25	2.0
100-42-5	Styrene	0.25	U	0.25	0.25	2.0
75-65-0	t-Butyl alcohol	2.5	U	2.5	2.5	10
98-06-6	tert-Butylbenzene	0.25	U	0.25	0.25	2.0
108-88-3	Toluene	0.36	~~BJ~~ U	0.25	0.25	2.0
156-60-5	trans-1,2-Dichloroethene	25		0.25	0.25	2.0
10061-02-6	trans-1,3-Dichloropropene	0.25	U	0.25	0.25	2.0
75-69-4	Trichlorofluoromethane	0.25	U	0.25	0.25	2.0
108-05-4	Vinyl acetate	0.25	U	0.25	0.25	2.0
75-01-4	Vinyl chloride	5.0		0.25	0.25	2.0
1330-20-7	Xylenes, Total	0.75	U	0.75	0.75	6.0
108-87-2	Methylcyclohexane	0.25	U	0.25	0.25	2.0
107-02-8	Acrolein	1.0	~~U~~ R	1.0	1.0	10
107-13-1	Acrylonitrile	0.25	U	0.25	0.25	2.0

SW8260C

9/9/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

MW-6A

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908001

Matrix: Liquid Lab Sample ID: 1908001-004A

Sample wt/vol: 5mL Lab File ID: V1-0013.D

Level: (low/med) LOW Date Collected: 7/31/2019 10:30 AM

% Moisture: N/A Date Received: 8/1/2019 9:00 AM

Extract Volume: 5000(µl) Date Prepped: 8/9/2019 8:02 AM

Seq Number: 811569 Date Analyzed: 8/9/2019 3:24 PM

GC Column: V1 06/10/2019 SN#1629116 Dilution Factor: 100.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 22956/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
156-59-2	cis-1,2-Dichloroethene	2600	D	25	25	200
127-18-4	Tetrachloroethene	5200	D	25	25	200
79-01-6	Trichloroethene	1400	D	25	25	200

SW8260C

8/9/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

MW-7

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908001

Matrix: Liquid Lab Sample ID: 1908001-005A

Sample wt/vol: 5mL Lab File ID: V1-0015.D

Level: (low/med) LOW Date Collected: 7/31/2019 11:00 AM

% Moisture: N/A Date Received: 8/1/2019 9:00 AM

Extract Volume: 5000(µl) Date Prepped: 8/8/2019 11:06 AM

Seq Number: 810390 Date Analyzed: 8/8/2019 8:03 PM

GC Column: V1 06/10/2019 SN#1629116 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 22944/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
630-20-6	1,1,1,2-Tetrachloroethane	0.25	U	0.25	0.25	2.0
71-55-6	1,1,1-Trichloroethane	0.25	U	0.25	0.25	2.0
79-34-5	1,1,2,2-Tetrachloroethane	0.25	U	0.25	0.25	2.0
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.25	U	0.25	0.25	2.0
79-00-5	1,1,2-Trichloroethane	0.25	U	0.25	0.25	2.0
75-34-3	1,1-Dichloroethane	0.25	U	0.25	0.25	2.0
75-35-4	1,1-Dichloroethene	1.0	J	0.25	0.25	2.0
563-58-6	1,1-Dichloropropene	0.25	U	0.25	0.25	2.0
87-61-6	1,2,3-Trichlorobenzene	0.25	U	0.25	0.25	2.0
96-18-4	1,2,3-Trichloropropane	0.25	U	0.25	0.25	2.0
95-93-2	1,2,4,5-Tetramethylbenzene	0.25	U	0.25	0.25	2.0
120-82-1	1,2,4-Trichlorobenzene	0.25	U	0.25	0.25	2.0
95-63-6	1,2,4-Trimethylbenzene	0.25	U	0.25	0.25	2.0
96-12-8	1,2-Dibromo-3-chloropropane	0.25	U	0.25	0.25	2.0
106-93-4	1,2-Dibromoethane	0.25	U	0.25	0.25	2.0
95-50-1	1,2-Dichlorobenzene	0.25	U	0.25	0.25	2.0
107-06-2	1,2-Dichloroethane	0.25	U	0.25	0.25	2.0
78-87-5	1,2-Dichloropropane	0.25	U	0.25	0.25	2.0
108-67-8	1,3,5-Trimethylbenzene	0.25	U	0.25	0.25	2.0
541-73-1	1,3-Dichlorobenzene	0.25	U	0.25	0.25	2.0
142-28-9	1,3-dichloropropane	0.25	U	0.25	0.25	2.0
106-46-7	1,4-Dichlorobenzene	0.25	U	0.25	0.25	2.0
123-91-1	1,4-Dioxane	0.25	U	0.25	0.25	1.0
594-20-7	2,2-Dichloropropane	0.25	U	0.25	0.25	2.0
78-93-3	2-Butanone	0.50	U	0.50	0.50	4.0
110-75-8	2-Chloroethyl vinyl ether	10	R U	10	10	20
95-49-8	2-Chlorotoluene	0.25	U	0.25	0.25	2.0
591-78-6	2-Hexanone	0.50	U	0.50	0.50	4.0
67-63-0	2-Propanol	0.25	U	0.25	0.25	2.0
106-43-4	4-Chlorotoluene	0.25	U	0.25	0.25	2.0
99-87-6	4-Isopropyltoluene	0.25	U	0.25	0.25	2.0
108-10-1	4-Methyl-2-pentanone	0.50	U	0.50	0.50	4.0
67-64-1	Acetone	23	~~B~~ U,T	5.0	5.0	10

SW8260C

8/19/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

MW-7

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908001

Matrix: Liquid Lab Sample ID: 1908001-005A

Sample wt/vol: 5mL Lab File ID: V1-0015.D

Level: (low/med) LOW Date Collected: 7/31/2019 11:00 AM

% Moisture: N/A Date Received: 8/1/2019 9:00 AM

Extract Volume: 5000(µl) Date Prepped: 8/8/2019 11:06 AM

Seq Number: 810390 Date Analyzed: 8/8/2019 8:03 PM

GC Column: V1 06/10/2019 SN#1629116 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 22944/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
71-43-2	Benzene	0.25	U	0.25	0.25	2.0
108-86-1	Bromobenzene	0.25	U	0.25	0.25	2.0
74-97-5	Bromochloromethane	0.25	U	0.25	0.25	2.0
75-27-4	Bromodichloromethane	0.25	U	0.25	0.25	2.0
75-25-2	Bromoform	0.25	U	0.25	0.25	2.0
74-83-9	Bromomethane	0.25	U	0.25	0.25	2.0
75-15-0	Carbon disulfide	0.25	U	0.25	0.25	2.0
56-23-5	Carbon tetrachloride	0.25	U	0.25	0.25	2.0
108-90-7	Chlorobenzene	0.25	U	0.25	0.25	2.0
75-45-6	Chlorodifluoromethane	0.25	U	0.25	0.25	2.0
75-00-3	Chloroethane	0.25	U	0.25	0.25	2.0
67-66-3	Chloroform	0.25	U	0.25	0.25	2.0
74-87-3	Chloromethane	0.25	U	0.25	0.25	2.0
10061-01-5	cis-1,3-Dichloropropene	0.25	U	0.25	0.25	2.0
110-82-7	Cyclohexane	0.25	U	0.25	0.25	2.0
124-48-1	Dibromochloromethane	0.25	U	0.25	0.25	2.0
74-95-3	Dibromomethane	0.25	U	0.25	0.25	2.0
75-71-8	Dichlorodifluoromethane	0.25	U	0.25	0.25	2.0
108-20-3	Diisopropyl ether	0.50	U	0.50	0.50	2.0
64-17-5	Ethanol	2.5	~~U~~ R	2.5	2.5	10
100-41-4	Ethylbenzene	0.25	U	0.25	0.25	2.0
76-14-2	Freon-114	0.25	U	0.25	0.25	2.0
87-68-3	Hexachlorobutadiene	0.25	U	0.25	0.25	2.0
98-82-8	Isopropylbenzene	0.25	U	0.25	0.25	2.0
179601-23-1	m,p-Xylene	0.50	U	0.50	0.50	4.0
79-20-9	Methyl Acetate	0.25	U	0.25	0.25	2.0
1634-04-4	Methyl tert-butyl ether	0.25	U	0.25	0.25	2.0
75-09-2	Methylene chloride	2.7	~~B~~ U	0.25	0.25	2.0
104-51-8	n-Butylbenzene	0.25	U	0.25	0.25	2.0
103-65-1	n-Propylbenzene	0.25	U	0.25	0.25	2.0
91-20-3	Naphthalene	0.25	U	0.25	0.25	2.0
95-47-6	o-Xylene	0.25	U	0.25	0.25	2.0
105-05-5	p-Diethylbenzene	0.25	U	0.25	0.25	2.0

SW8260C

9/9/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

MW-7

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908001

Matrix: Liquid Lab Sample ID: 1908001-005A

Sample wt/vol: 5mL Lab File ID: V1-0015.D

Level: (low/med) LOW Date Collected: 7/31/2019 11:00 AM

% Moisture: N/A Date Received: 8/1/2019 9:00 AM

Extract Volume: 5000(µl) Date Prepped: 8/8/2019 11:06 AM

Seq Number: 810390 Date Analyzed: 8/8/2019 8:03 PM

GC Column: V1 06/10/2019 SN#1629116 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 22944/PT

CAS NO.	COMPOUND	CONC.	UNITS: µg/L	Q	DL	LOD	LOQ
622-96-8	p-Ethyltoluene	0.25		~~U~~ UJ	0.25	0.25	2.0
135-98-8	sec-Butylbenzene	0.25		U	0.25	0.25	2.0
100-42-5	Styrene	0.25		U	0.25	0.25	2.0
75-65-0	t-Butyl alcohol	2.5		U	2.5	2.5	10
98-06-6	tert-Butylbenzene	0.25		U	0.25	0.25	2.0
108-88-3	Toluene	0.25		U	0.25	0.25	2.0
156-60-5	trans-1,2-Dichloroethene	23			0.25	0.25	2.0
10061-02-6	trans-1,3-Dichloropropene	0.25		U	0.25	0.25	2.0
75-69-4	Trichlorofluoromethane	0.25		U	0.25	0.25	2.0
108-05-4	Vinyl acetate	0.25		U	0.25	0.25	2.0
75-01-4	Vinyl chloride	23			0.25	0.25	2.0
1330-20-7	Xylenes, Total	0.75		U	0.75	0.75	6.0
108-87-2	Methylcyclohexane	0.25		U	0.25	0.25	2.0
107-02-8	Acrolein	1.0		~~U~~ R	1.0	1.0	10
107-13-1	Acrylonitrile	0.25		U	0.25	0.25	2.0

SW8260C

10/3/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

MW-7

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908001

Matrix: Liquid Lab Sample ID: 1908001-005A

Sample wt/vol: 5mL Lab File ID: V1-0014.D

Level: (low/med) LOW Date Collected: 7/31/2019 11:00 AM

% Moisture: N/A Date Received: 8/1/2019 9:00 AM

Extract Volume: 5000(µl) Date Prepped: 8/9/2019 8:02 AM

Seq Number: 811570 Date Analyzed: 8/9/2019 3:55 PM

GC Column: V1 06/10/2019 SN#1629116 Dilution Factor: 100.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 22956/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
156-59-2	cis-1,2-Dichloroethene	1800	D	25	25	200
127-18-4	Tetrachloroethene	11000	D	25	25	200
79-01-6	Trichloroethene	1300	D	25	25	200

SW8260C

8/7/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

MW-8

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908001

Matrix: Liquid Lab Sample ID: 1908001-006A

Sample wt/vol: 5mL Lab File ID: V1-0016.D

Level: (low/med) LOW Date Collected: 7/31/2019 11:30 AM

% Moisture: N/A Date Received: 8/1/2019 9:00 AM

Extract Volume: 5000(µl) Date Prepped: 8/8/2019 11:06 AM

Seq Number: 810391 Date Analyzed: 8/8/2019 8:34 PM

GC Column: V1 06/10/2019 SN#1629116 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 22944/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
630-20-6	1,1,1,2-Tetrachloroethane	0.25	U	0.25	0.25	2.0
71-55-6	1,1,1-Trichloroethane	0.25	U	0.25	0.25	2.0
79-34-5	1,1,2,2-Tetrachloroethane	0.25	U	0.25	0.25	2.0
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.25	U	0.25	0.25	2.0
79-00-5	1,1,2-Trichloroethane	0.25	U	0.25	0.25	2.0
75-34-3	1,1-Dichloroethane	0.25	U	0.25	0.25	2.0
75-35-4	1,1-Dichloroethene	1.1	J	0.25	0.25	2.0
563-58-6	1,1-Dichloropropene	0.25	U	0.25	0.25	2.0
87-61-6	1,2,3-Trichlorobenzene	0.25	U	0.25	0.25	2.0
96-18-4	1,2,3-Trichloropropane	0.25	U	0.25	0.25	2.0
95-93-2	1,2,4,5-Tetramethylbenzene	0.25	U	0.25	0.25	2.0
120-82-1	1,2,4-Trichlorobenzene	0.25	U	0.25	0.25	2.0
95-63-6	1,2,4-Trimethylbenzene	0.25	U	0.25	0.25	2.0
96-12-8	1,2-Dibromo-3-chloropropane	0.25	U	0.25	0.25	2.0
106-93-4	1,2-Dibromoethane	0.25	U	0.25	0.25	2.0
95-50-1	1,2-Dichlorobenzene	0.25	U	0.25	0.25	2.0
107-06-2	1,2-Dichloroethane	0.25	U	0.25	0.25	2.0
78-87-5	1,2-Dichloropropane	0.25	U	0.25	0.25	2.0
108-67-8	1,3,5-Trimethylbenzene	0.25	U	0.25	0.25	2.0
541-73-1	1,3-Dichlorobenzene	0.25	U	0.25	0.25	2.0
142-28-9	1,3-dichloropropane	0.25	U	0.25	0.25	2.0
106-46-7	1,4-Dichlorobenzene	0.25	U	0.25	0.25	2.0
123-91-1	1,4-Dioxane	0.25	U	0.25	0.25	1.0
594-20-7	2,2-Dichloropropane	0.25	U	0.25	0.25	2.0
78-93-3	2-Butanone	0.50	U	0.50	0.50	4.0
110-75-8	2-Chloroethyl vinyl ether	10	R U	10	10	20
95-49-8	2-Chlorotoluene	0.25	U	0.25	0.25	2.0
591-78-6	2-Hexanone	0.50	U	0.50	0.50	4.0
67-63-0	2-Propanol	0.25	U	0.25	0.25	2.0
106-43-4	4-Chlorotoluene	0.25	U	0.25	0.25	2.0
99-87-6	4-Isopropyltoluene	0.25	U	0.25	0.25	2.0
108-10-1	4-Methyl-2-pentanone	0.50	U	0.50	0.50	4.0
67-64-1	Acetone	23	~~B~~ UJ	5.0	5.0	10

SW8260C

for 9/19/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

MW-8

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908001

Matrix: Liquid Lab Sample ID: 1908001-006A

Sample wt/vol: 5mL Lab File ID: V1-0016.D

Level: (low/med) LOW Date Collected: 7/31/2019 11:30 AM

% Moisture: N/A Date Received: 8/1/2019 9:00 AM

Extract Volume: 5000(µl) Date Prepped: 8/8/2019 11:06 AM

Seq Number: 810391 Date Analyzed: 8/8/2019 8:34 PM

GC Column: V1 06/10/2019 SN#1629116 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 22944/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
71-43-2	Benzene	0.25	U	0.25	0.25	2.0
108-86-1	Bromobenzene	0.25	U	0.25	0.25	2.0
74-97-5	Bromochloromethane	0.25	U	0.25	0.25	2.0
75-27-4	Bromodichloromethane	0.44	J	0.25	0.25	2.0
75-25-2	Bromoform	0.25	U	0.25	0.25	2.0
74-83-9	Bromomethane	0.25	U	0.25	0.25	2.0
75-15-0	Carbon disulfide	0.25	U	0.25	0.25	2.0
56-23-5	Carbon tetrachloride	0.25	U	0.25	0.25	2.0
108-90-7	Chlorobenzene	0.25	U	0.25	0.25	2.0
75-45-6	Chlorodifluoromethane	0.25	U	0.25	0.25	2.0
75-00-3	Chloroethane	0.25	U	0.25	0.25	2.0
67-66-3	Chloroform	0.29	J	0.25	0.25	2.0
74-87-3	Chloromethane	0.25	U	0.25	0.25	2.0
10061-01-5	cis-1,3-Dichloropropene	0.25	U	0.25	0.25	2.0
110-82-7	Cyclohexane	0.25	U	0.25	0.25	2.0
124-48-1	Dibromochloromethane	0.25	U	0.25	0.25	2.0
74-95-3	Dibromomethane	0.25	U	0.25	0.25	2.0
75-71-8	Dichlorodifluoromethane	0.25	U	0.25	0.25	2.0
108-20-3	Diisopropyl ether	0.50	U	0.50	0.50	2.0
64-17-5	Ethanol	2.5	~~U~~ R	2.5	2.5	10
100-41-4	Ethylbenzene	0.25	U	0.25	0.25	2.0
76-14-2	Freon-114	0.25	U	0.25	0.25	2.0
87-68-3	Hexachlorobutadiene	0.25	U	0.25	0.25	2.0
98-82-8	Isopropylbenzene	0.25	U	0.25	0.25	2.0
179601-23-1	m,p-Xylene	0.50	U	0.50	0.50	4.0
79-20-9	Methyl Acetate	0.25	U	0.25	0.25	2.0
1634-04-4	Methyl tert-butyl ether	0.25	U	0.25	0.25	2.0
75-09-2	Methylene chloride	2.9	~~B~~ U	0.25	0.25	2.0
104-51-8	n-Butylbenzene	0.25	U	0.25	0.25	2.0
103-65-1	n-Propylbenzene	0.25	U	0.25	0.25	2.0
91-20-3	Naphthalene	0.25	U	0.25	0.25	2.0
95-47-6	o-Xylene	0.25	U	0.25	0.25	2.0
105-05-5	p-Diethylbenzene	0.25	U	0.25	0.25	2.0

SW8260C

for 9/9/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

MW-8

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908001

Matrix: Liquid Lab Sample ID: 1908001-006A

Sample wt/vol: 5mL Lab File ID: V1-0016.D

Level: (low/med) LOW Date Collected: 7/31/2019 11:30 AM

% Moisture: N/A Date Received: 8/1/2019 9:00 AM

Extract Volume: 5000(µl) Date Prepped: 8/8/2019 11:06 AM

Seq Number: 810391 Date Analyzed: 8/8/2019 8:34 PM

GC Column: V1 06/10/2019 SN#1629116 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 22944/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
622-96-8	p-Ethyltoluene	0.25	~~U~~ UJ	0.25	0.25	2.0
135-98-8	sec-Butylbenzene	0.25	U	0.25	0.25	2.0
100-42-5	Styrene	0.25	U	0.25	0.25	2.0
75-65-0	t-Butyl alcohol	2.5	U	2.5	2.5	10
98-06-6	tert-Butylbenzene	0.25	U	0.25	0.25	2.0
108-88-3	Toluene	0.25	U	0.25	0.25	2.0
156-60-5	trans-1,2-Dichloroethene	120		0.25	0.25	2.0
10061-02-6	trans-1,3-Dichloropropene	0.25	U	0.25	0.25	2.0
79-01-6	Trichloroethene	110		0.25	0.25	2.0
75-69-4	Trichlorofluoromethane	0.25	U	0.25	0.25	2.0
108-05-4	Vinyl acetate	0.25	U	0.25	0.25	2.0
75-01-4	Vinyl chloride	120		0.25	0.25	2.0
1330-20-7	Xylenes, Total	0.75	U	0.75	0.75	6.0
108-87-2	Methylcyclohexane	0.25	U	0.25	0.25	2.0
107-02-8	Acrolein	1.0	~~U~~ R	1.0	1.0	10
107-13-1	Acrylonitrile	0.25	U	0.25	0.25	2.0

SW8260C

10/3/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

MW-8

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908001

Matrix: Liquid Lab Sample ID: 1908001-006A

Sample wt/vol: 5mL Lab File ID: V1-0015.D

Level: (low/med) LOW Date Collected: 7/31/2019 11:30 AM

% Moisture: N/A Date Received: 8/1/2019 9:00 AM

Extract Volume: 5000(µl) Date Prepped: 8/9/2019 8:02 AM

Seq Number: 811571 Date Analyzed: 8/9/2019 4:25 PM

GC Column: V1 06/10/2019 SN#1629116 Dilution Factor: 100.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 22956/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
156-59-2	cis-1,2-Dichloroethene	5500	D	25	25	200
127-18-4	Tetrachloroethene	270	D	25	25	200

SW8260C

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

MW-N

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908001

Matrix: Liquid Lab Sample ID: 1908001-007A

Sample wt/vol: 5mL Lab File ID: V1-0017.D

Level: (low/med) LOW Date Collected: 7/31/2019 12:00 PM

% Moisture: N/A Date Received: 8/1/2019 9:00 AM

Extract Volume: 5000(µl) Date Prepped: 8/8/2019 11:06 AM

Seq Number: 810392 Date Analyzed: 8/8/2019 9:04 PM

GC Column: V1 06/10/2019 SN#1629116 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 22944/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
630-20-6	1,1,1,2-Tetrachloroethane	0.25	U	0.25	0.25	2.0
71-55-6	1,1,1-Trichloroethane	0.25	U	0.25	0.25	2.0
79-34-5	1,1,2,2-Tetrachloroethane	0.25	U	0.25	0.25	2.0
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.25	U	0.25	0.25	2.0
79-00-5	1,1,2-Trichloroethane	0.25	U	0.25	0.25	2.0
75-34-3	1,1-Dichloroethane	0.25	U	0.25	0.25	2.0
75-35-4	1,1-Dichloroethene	0.25	U	0.25	0.25	2.0
563-58-6	1,1-Dichloropropene	0.25	U	0.25	0.25	2.0
87-61-6	1,2,3-Trichlorobenzene	0.25	U	0.25	0.25	2.0
96-18-4	1,2,3-Trichloropropane	0.25	U	0.25	0.25	2.0
95-93-2	1,2,4,5-Tetramethylbenzene	0.25	U	0.25	0.25	2.0
120-82-1	1,2,4-Trichlorobenzene	0.25	U	0.25	0.25	2.0
95-63-6	1,2,4-Trimethylbenzene	0.25	U	0.25	0.25	2.0
96-12-8	1,2-Dibromo-3-chloropropane	0.25	U	0.25	0.25	2.0
106-93-4	1,2-Dibromoethane	0.25	U	0.25	0.25	2.0
95-50-1	1,2-Dichlorobenzene	0.25	U	0.25	0.25	2.0
107-06-2	1,2-Dichloroethane	0.25	U	0.25	0.25	2.0
78-87-5	1,2-Dichloropropane	0.25	U	0.25	0.25	2.0
108-67-8	1,3,5-Trimethylbenzene	0.25	U	0.25	0.25	2.0
541-73-1	1,3-Dichlorobenzene	0.25	U	0.25	0.25	2.0
142-28-9	1,3-dichloropropane	0.25	U	0.25	0.25	2.0
106-46-7	1,4-Dichlorobenzene	0.25	U	0.25	0.25	2.0
123-91-1	1,4-Dioxane	0.25	U	0.25	0.25	1.0
594-20-7	2,2-Dichloropropane	0.25	U	0.25	0.25	2.0
78-93-3	2-Butanone	0.50	U	0.50	0.50	4.0
110-75-8	2-Chloroethyl vinyl ether	10	R U	10	10	20
95-49-8	2-Chlorotoluene	0.25	U	0.25	0.25	2.0
591-78-6	2-Hexanone	0.50	U	0.50	0.50	4.0
67-63-0	2-Propanol	0.25	U	0.25	0.25	2.0
106-43-4	4-Chlorotoluene	0.25	U	0.25	0.25	2.0
99-87-6	4-Isopropyltoluene	0.25	U	0.25	0.25	2.0
108-10-1	4-Methyl-2-pentanone	0.50	U	0.50	0.50	4.0
67-64-1	Acetone	18	~~B~~ UJ	5.0	5.0	10

SW8260C

for 9/19/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

MW-N

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908001

Matrix: Liquid Lab Sample ID: 1908001-007A

Sample wt/vol: 5mL Lab File ID: V1-0017.D

Level: (low/med) LOW Date Collected: 7/31/2019 12:00 PM

% Moisture: N/A Date Received: 8/1/2019 9:00 AM

Extract Volume: 5000(µl) Date Prepped: 8/8/2019 11:06 AM

Seq Number: 810392 Date Analyzed: 8/8/2019 9:04 PM

GC Column: V1 06/10/2019 SN#1629116 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 22944/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
71-43-2	Benzene	0.25	U	0.25	0.25	2.0
108-86-1	Bromobenzene	0.25	U	0.25	0.25	2.0
74-97-5	Bromochloromethane	0.25	U	0.25	0.25	2.0
75-27-4	Bromodichloromethane	0.25	U	0.25	0.25	2.0
75-25-2	Bromoform	0.25	U	0.25	0.25	2.0
74-83-9	Bromomethane	0.25	U	0.25	0.25	2.0
75-15-0	Carbon disulfide	0.25	U	0.25	0.25	2.0
56-23-5	Carbon tetrachloride	0.25	U	0.25	0.25	2.0
108-90-7	Chlorobenzene	0.25	U	0.25	0.25	2.0
75-45-6	Chlorodifluoromethane	0.25	U	0.25	0.25	2.0
75-00-3	Chloroethane	0.25	U	0.25	0.25	2.0
67-66-3	Chloroform	0.25	U	0.25	0.25	2.0
74-87-3	Chloromethane	0.25	U	0.25	0.25	2.0
156-59-2	cis-1,2-Dichloroethene	17		0.25	0.25	2.0
10061-01-5	cis-1,3-Dichloropropene	0.25	U	0.25	0.25	2.0
110-82-7	Cyclohexane	0.25	U	0.25	0.25	2.0
124-48-1	Dibromochloromethane	0.25	U	0.25	0.25	2.0
74-95-3	Dibromomethane	0.25	U	0.25	0.25	2.0
75-71-8	Dichlorodifluoromethane	0.25	U	0.25	0.25	2.0
108-20-3	Diisopropyl ether	0.50	U	0.50	0.50	2.0
64-17-5	Ethanol	2.5	~~U~~ R	2.5	2.5	10
100-41-4	Ethylbenzene	0.25	U	0.25	0.25	2.0
76-14-2	Freon-114	0.25	U	0.25	0.25	2.0
87-68-3	Hexachlorobutadiene	0.25	U	0.25	0.25	2.0
98-82-8	Isopropylbenzene	0.25	U	0.25	0.25	2.0
179601-23-1	m,p-Xylene	0.50	U	0.50	0.50	4.0
79-20-9	Methyl Acetate	0.25	U	0.25	0.25	2.0
1634-04-4	Methyl tert-butyl ether	0.25	U	0.25	0.25	2.0
75-09-2	Methylene chloride	2.8	~~B~~ U	0.25	0.25	2.0
104-51-8	n-Butylbenzene	0.25	U	0.25	0.25	2.0
103-65-1	n-Propylbenzene	0.25	U	0.25	0.25	2.0
91-20-3	Naphthalene	0.25	U	0.25	0.25	2.0
95-47-6	o-Xylene	0.25	U	0.25	0.25	2.0

SW8260C

8/19/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

MW-N

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908001

Matrix: Liquid Lab Sample ID: 1908001-007A

Sample wt/vol: 5mL Lab File ID: V1-0017.D

Level: (low/med) LOW Date Collected: 7/31/2019 12:00 PM

% Moisture: N/A Date Received: 8/1/2019 9:00 AM

Extract Volume: 5000(µl) Date Prepped: 8/8/2019 11:06 AM

Seq Number: 810392 Date Analyzed: 8/8/2019 9:04 PM

GC Column: V1 06/10/2019 SN#1629116 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 22944/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
105-05-5	p-Diethylbenzene	0.25	U	0.25	0.25	2.0
622-96-8	p-Ethyltoluene	0.25	~~U~~ UJ	0.25	0.25	2.0
135-98-8	sec-Butylbenzene	0.25	U	0.25	0.25	2.0
100-42-5	Styrene	0.25	U	0.25	0.25	2.0
75-65-0	t-Butyl alcohol	2.5	U	2.5	2.5	10
98-06-6	tert-Butylbenzene	0.25	U	0.25	0.25	2.0
108-88-3	Toluene	0.31	~~BJ~~ U	0.25	0.25	2.0
156-60-5	trans-1,2-Dichloroethene	0.25	U	0.25	0.25	2.0
10061-02-6	trans-1,3-Dichloropropene	0.25	U	0.25	0.25	2.0
79-01-6	Trichloroethene	13		0.25	0.25	2.0
75-69-4	Trichlorofluoromethane	0.25	U	0.25	0.25	2.0
108-05-4	Vinyl acetate	0.25	U	0.25	0.25	2.0
75-01-4	Vinyl chloride	0.25	U	0.25	0.25	2.0
1330-20-7	Xylenes, Total	0.75	U	0.75	0.75	6.0
108-87-2	Methylcyclohexane	0.25	U	0.25	0.25	2.0
107-02-8	Acrolein	1.0	~~U~~ R	1.0	1.0	10
107-13-1	Acrylonitrile	0.25	U	0.25	0.25	2.0

SW8260C

SDT 9/9/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

MW-N

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908001

Matrix: Liquid Lab Sample ID: 1908001-007A

Sample wt/vol: 5mL Lab File ID: V1-0016.D

Level: (low/med) LOW Date Collected: 7/31/2019 12:00 PM

% Moisture: N/A Date Received: 8/1/2019 9:00 AM

Extract Volume: 5000(µl) Date Prepped: 8/9/2019 8:02 AM

Seq Number: 811572 Date Analyzed: 8/9/2019 4:56 PM

GC Column: V1 06/10/2019 SN#1629116 Dilution Factor: 100.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 22956/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
127-18-4	Tetrachloroethene	1600	D	25	25	200

SW8260C

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

Trip Blank

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908001

Matrix: Liquid Lab Sample ID: 1908001-008A

Sample wt/vol: 5mL Lab File ID: V1-0007.D

Level: (low/med) LOW Date Collected: 7/31/2019 12:00 AM

% Moisture: N/A Date Received: 8/1/2019 9:00 AM

Extract Volume: 5000(µl) Date Prepped: 8/8/2019 11:06 AM

Seq Number: 810382 Date Analyzed: 8/8/2019 3:57 PM

GC Column: V1 06/10/2019 SN#1629116 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 22944/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
630-20-6	1,1,1,2-Tetrachloroethane	0.25	U	0.25	0.25	2.0
71-55-6	1,1,1-Trichloroethane	0.25	U	0.25	0.25	2.0
79-34-5	1,1,2,2-Tetrachloroethane	0.25	U	0.25	0.25	2.0
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.25	U	0.25	0.25	2.0
79-00-5	1,1,2-Trichloroethane	0.25	U	0.25	0.25	2.0
75-34-3	1,1-Dichloroethane	0.25	U	0.25	0.25	2.0
75-35-4	1,1-Dichloroethene	0.25	U	0.25	0.25	2.0
563-58-6	1,1-Dichloropropene	0.25	U	0.25	0.25	2.0
87-61-6	1,2,3-Trichlorobenzene	0.48	~~BJ~~ V	0.25	0.25	2.0
96-18-4	1,2,3-Trichloropropane	0.25	U	0.25	0.25	2.0
95-93-2	1,2,4,5-Tetramethylbenzene	0.25	U	0.25	0.25	2.0
120-82-1	1,2,4-Trichlorobenzene	0.25	U	0.25	0.25	2.0
95-63-6	1,2,4-Trimethylbenzene	0.25	U	0.25	0.25	2.0
96-12-8	1,2-Dibromo-3-chloropropane	0.25	U	0.25	0.25	2.0
106-93-4	1,2-Dibromoethane	0.25	U	0.25	0.25	2.0
95-50-1	1,2-Dichlorobenzene	0.25	U	0.25	0.25	2.0
107-06-2	1,2-Dichloroethane	0.25	U	0.25	0.25	2.0
78-87-5	1,2-Dichloropropane	0.25	U	0.25	0.25	2.0
108-67-8	1,3,5-Trimethylbenzene	0.25	U	0.25	0.25	2.0
541-73-1	1,3-Dichlorobenzene	0.25	U	0.25	0.25	2.0
142-28-9	1,3-dichloropropane	0.25	U	0.25	0.25	2.0
106-46-7	1,4-Dichlorobenzene	0.25	U	0.25	0.25	2.0
123-91-1	1,4-Dioxane	0.25	U	0.25	0.25	1.0
594-20-7	2,2-Dichloropropane	0.25	U	0.25	0.25	2.0
78-93-3	2-Butanone	0.50	U	0.50	0.50	4.0
110-75-8	2-Chloroethyl vinyl ether	10	R ~~U~~	10	10	20
95-49-8	2-Chlorotoluene	0.25	U	0.25	0.25	2.0
591-78-6	2-Hexanone	0.50	U	0.50	0.50	4.0
67-63-0	2-Propanol	0.25	U	0.25	0.25	2.0
106-43-4	4-Chlorotoluene	0.25	U	0.25	0.25	2.0
99-87-6	4-Isopropyltoluene	0.25	U	0.25	0.25	2.0
108-10-1	4-Methyl-2-pentanone	0.50	U	0.50	0.50	4.0
67-64-1	Acetone	8.8	~~BJ~~ UJ	5.0	5.0	10

SW8260C

for 9/19/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

Trip Blank

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908001

Matrix: Liquid Lab Sample ID: 1908001-008A

Sample wt/vol: 5mL Lab File ID: V1-0007.D

Level: (low/med) LOW Date Collected: 7/31/2019 12:00 AM

% Moisture: N/A Date Received: 8/1/2019 9:00 AM

Extract Volume: 5000(ul) Date Prepped: 8/8/2019 11:06 AM

Seq Number: 810382 Date Analyzed: 8/8/2019 3:57 PM

GC Column: V1 06/10/2019 SN#1629116 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 22944/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
71-43-2	Benzene	0.25	U	0.25	0.25	2.0
108-86-1	Bromobenzene	0.25	U	0.25	0.25	2.0
74-97-5	Bromochloromethane	0.25	U	0.25	0.25	2.0
75-27-4	Bromodichloromethane	0.25	U	0.25	0.25	2.0
75-25-2	Bromoform	0.25	U	0.25	0.25	2.0
74-83-9	Bromomethane	0.25	U	0.25	0.25	2.0
75-15-0	Carbon disulfide	0.25	U	0.25	0.25	2.0
56-23-5	Carbon tetrachloride	0.25	U	0.25	0.25	2.0
108-90-7	Chlorobenzene	0.25	U	0.25	0.25	2.0
75-45-6	Chlorodifluoromethane	0.25	U	0.25	0.25	2.0
75-00-3	Chloroethane	0.25	U	0.25	0.25	2.0
67-66-3	Chloroform	0.25	U	0.25	0.25	2.0
74-87-3	Chloromethane	0.25	U	0.25	0.25	2.0
156-59-2	cis-1,2-Dichloroethene	0.25	U	0.25	0.25	2.0
10061-01-5	cis-1,3-Dichloropropene	0.25	U	0.25	0.25	2.0
110-82-7	Cyclohexane	0.25	U	0.25	0.25	2.0
124-48-1	Dibromochloromethane	0.25	U	0.25	0.25	2.0
74-95-3	Dibromomethane	0.25	U	0.25	0.25	2.0
75-71-8	Dichlorodifluoromethane	0.25	U	0.25	0.25	2.0
108-20-3	Diisopropyl ether	0.50	U	0.50	0.50	2.0
64-17-5	Ethanol	2.5	~~U~~ K	2.5	2.5	10
100-41-4	Ethylbenzene	0.25	U	0.25	0.25	2.0
76-14-2	Freon-114	0.25	U	0.25	0.25	2.0
87-68-3	Hexachlorobutadiene	0.25	U	0.25	0.25	2.0
98-82-8	Isopropylbenzene	0.25	U	0.25	0.25	2.0
179601-23-1	m,p-Xylene	0.50	U	0.50	0.50	4.0
79-20-9	Methyl Acetate	0.25	U	0.25	0.25	2.0
1634-04-4	Methyl tert-butyl ether	0.25	U	0.25	0.25	2.0
75-09-2	Methylene chloride	3.5	~~B~~ U	0.25	0.25	2.0
104-51-8	n-Butylbenzene	0.25	U	0.25	0.25	2.0
103-65-1	n-Propylbenzene	0.25	U	0.25	0.25	2.0
91-20-3	Naphthalene	0.25	U	0.25	0.25	2.0
95-47-6	o-Xylene	0.25	U	0.25	0.25	2.0

SW8260C

8/29/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

Trip Blank

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908001

Matrix: Liquid Lab Sample ID: 1908001-008A

Sample wt/vol: 5mL Lab File ID: V1-0007.D

Level: (low/med) LOW Date Collected: 7/31/2019 12:00 AM

% Moisture: N/A Date Received: 8/1/2019 9:00 AM

Extract Volume: 5000(µl) Date Prepped: 8/8/2019 11:06 AM

Seq Number: 810382 Date Analyzed: 8/8/2019 3:57 PM

GC Column: V1 06/10/2019 SN#1629116 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 22944/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
105-05-5	p-Diethylbenzene	0.25	U	0.25	0.25	2.0
622-96-8	p-Ethyltoluene	0.25	~~U~~ UJ	0.25	0.25	2.0
135-98-8	sec-Butylbenzene	0.25	U	0.25	0.25	2.0
100-42-5	Styrene	0.25	U	0.25	0.25	2.0
75-65-0	t-Butyl alcohol	2.5	U	2.5	2.5	10
98-06-6	tert-Butylbenzene	0.25	U	0.25	0.25	2.0
127-18-4	Tetrachloroethene	0.25	U	0.25	0.25	2.0
108-88-3	Toluene	0.25	U	0.25	0.25	2.0
156-60-5	trans-1,2-Dichloroethene	0.25	U	0.25	0.25	2.0
10061-02-6	trans-1,3-Dichloropropene	0.25	U	0.25	0.25	2.0
79-01-6	Trichloroethene	0.25	U	0.25	0.25	2.0
75-69-4	Trichlorofluoromethane	0.25	U	0.25	0.25	2.0
108-05-4	Vinyl acetate	0.25	U	0.25	0.25	2.0
75-01-4	Vinyl chloride	0.25	U	0.25	0.25	2.0
1330-20-7	Xylenes, Total	0.75	U	0.75	0.75	6.0
108-87-2	Methylcyclohexane	0.25	U	0.25	0.25	2.0
107-02-8	Acrolein	1.0	~~U~~ R	1.0	1.0	10
107-13-1	Acrylonitrile	0.25	U	0.25	0.25	2.0

SW8260C

10/3/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

Field Blank

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908001

Matrix: Liquid Lab Sample ID: 1908001-009A

Sample wt/vol: 5mL Lab File ID: V1-0008.D

Level: (low/med) LOW Date Collected: 7/31/2019 12:00 AM

% Moisture: N/A Date Received: 8/1/2019 9:00 AM

Extract Volume: 5000(µl) Date Prepped: 8/8/2019 11:06 AM

Seq Number: 810383 Date Analyzed: 8/8/2019 4:28 PM

GC Column: V1 06/10/2019 SN#1629116 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 22944/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
630-20-6	1,1,1,2-Tetrachloroethane	0.25	U	0.25	0.25	2.0
71-55-6	1,1,1-Trichloroethane	0.25	U	0.25	0.25	2.0
79-34-5	1,1,2,2-Tetrachloroethane	0.25	U	0.25	0.25	2.0
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.25	U	0.25	0.25	2.0
79-00-5	1,1,2-Trichloroethane	0.25	U	0.25	0.25	2.0
75-34-3	1,1-Dichloroethane	0.25	U	0.25	0.25	2.0
75-35-4	1,1-Dichloroethene	0.25	U	0.25	0.25	2.0
563-58-6	1,1-Dichloropropene	0.25	U	0.25	0.25	2.0
87-61-6	1,2,3-Trichlorobenzene	0.25	U	0.25	0.25	2.0
96-18-4	1,2,3-Trichloropropane	0.25	U	0.25	0.25	2.0
95-93-2	1,2,4,5-Tetramethylbenzene	0.25	U	0.25	0.25	2.0
120-82-1	1,2,4-Trichlorobenzene	0.25	U	0.25	0.25	2.0
95-63-6	1,2,4-Trimethylbenzene	0.25	U	0.25	0.25	2.0
96-12-8	1,2-Dibromo-3-chloropropane	0.25	U	0.25	0.25	2.0
106-93-4	1,2-Dibromoethane	0.25	U	0.25	0.25	2.0
95-50-1	1,2-Dichlorobenzene	0.25	U	0.25	0.25	2.0
107-06-2	1,2-Dichloroethane	0.25	U	0.25	0.25	2.0
78-87-5	1,2-Dichloropropane	0.25	U	0.25	0.25	2.0
108-67-8	1,3,5-Trimethylbenzene	0.25	U	0.25	0.25	2.0
541-73-1	1,3-Dichlorobenzene	0.25	U	0.25	0.25	2.0
142-28-9	1,3-dichloropropane	0.25	U	0.25	0.25	2.0
106-46-7	1,4-Dichlorobenzene	0.25	U	0.25	0.25	2.0
123-91-1	1,4-Dioxane	0.25	U	0.25	0.25	1.0
594-20-7	2,2-Dichloropropane	0.25	U	0.25	0.25	2.0
78-93-3	2-Butanone	0.50	U	0.50	0.50	4.0
110-75-8	2-Chloroethyl vinyl ether	10	R U	10	10	20
95-49-8	2-Chlorotoluene	0.25	U	0.25	0.25	2.0
591-78-6	2-Hexanone	0.50	U	0.50	0.50	4.0
67-63-0	2-Propanol	0.25	U	0.25	0.25	2.0
106-43-4	4-Chlorotoluene	0.25	U	0.25	0.25	2.0
99-87-6	4-Isopropyltoluene	0.25	U	0.25	0.25	2.0
108-10-1	4-Methyl-2-pentanone	0.50	U	0.50	0.50	4.0
71-43-2	Benzene	0.25	U	0.25	0.25	2.0

SW8260C

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

Field Blank

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908001

Matrix: Liquid Lab Sample ID: 1908001-009A

Sample wt/vol: 5mL Lab File ID: V1-0008.D

Level: (low/med) LOW Date Collected: 7/31/2019 12:00 AM

% Moisture: N/A Date Received: 8/1/2019 9:00 AM

Extract Volume: 5000(µl) Date Prepped: 8/8/2019 11:06 AM

Seq Number: 810383 Date Analyzed: 8/8/2019 4:28 PM

GC Column: V1 06/10/2019 SN#1629116 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 22944/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
108-86-1	Bromobenzene	0.25	U	0.25	0.25	2.0
74-97-5	Bromochloromethane	0.25	U	0.25	0.25	2.0
75-27-4	Bromodichloromethane	0.25	U	0.25	0.25	2.0
75-25-2	Bromoform	0.25	U	0.25	0.25	2.0
74-83-9	Bromomethane	0.25	U	0.25	0.25	2.0
75-15-0	Carbon disulfide	0.25	U	0.25	0.25	2.0
56-23-5	Carbon tetrachloride	0.25	U	0.25	0.25	2.0
108-90-7	Chlorobenzene	0.25	U	0.25	0.25	2.0
75-45-6	Chlorodifluoromethane	0.25	U	0.25	0.25	2.0
75-00-3	Chloroethane	0.25	U	0.25	0.25	2.0
67-66-3	Chloroform	0.25	U	0.25	0.25	2.0
74-87-3	Chloromethane	0.25	U	0.25	0.25	2.0
156-59-2	cis-1,2-Dichloroethene	0.25	U	0.25	0.25	2.0
10061-01-5	cis-1,3-Dichloropropene	0.25	U	0.25	0.25	2.0
110-82-7	Cyclohexane	0.25	U	0.25	0.25	2.0
124-48-1	Dibromochloromethane	0.25	U	0.25	0.25	2.0
74-95-3	Dibromomethane	0.25	U	0.25	0.25	2.0
75-71-8	Dichlorodifluoromethane	0.25	U	0.25	0.25	2.0
108-20-3	Diisopropyl ether	0.50	U	0.50	0.50	2.0
64-17-5	Ethanol	2.5	~~U~~ R	2.5	2.5	10
100-41-4	Ethylbenzene	0.33	J	0.25	0.25	2.0
76-14-2	Freon-114	0.25	U	0.25	0.25	2.0
87-68-3	Hexachlorobutadiene	0.25	U	0.25	0.25	2.0
98-82-8	Isopropylbenzene	0.25	U	0.25	0.25	2.0
179601-23-1	m,p-Xylene	1.2	J	0.50	0.50	4.0
79-20-9	Methyl Acetate	0.25	U	0.25	0.25	2.0
1634-04-4	Methyl tert-butyl ether	0.25	U	0.25	0.25	2.0
75-09-2	Methylene chloride	3.0	~~B~~ U	0.25	0.25	2.0
104-51-8	n-Butylbenzene	0.25	U	0.25	0.25	2.0
103-65-1	n-Propylbenzene	0.25	U	0.25	0.25	2.0
91-20-3	Naphthalene	0.25	U	0.25	0.25	2.0
95-47-6	o-Xylene	0.50	J	0.25	0.25	2.0
105-05-5	p-Diethylbenzene	0.25	U	0.25	0.25	2.0

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

Field Blank

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908001

Matrix: Liquid Lab Sample ID: 1908001-009A

Sample wt/vol: 5mL Lab File ID: V1-0008.D

Level: (low/med) LOW Date Collected: 7/31/2019 12:00 AM

% Moisture: N/A Date Received: 8/1/2019 9:00 AM

Extract Volume: 5000(µl) Date Prepped: 8/8/2019 11:06 AM

Seq Number: 810383 Date Analyzed: 8/8/2019 4:28 PM

GC Column: V1 06/10/2019 SN#1629116 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 22944/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
622-96-8	p-Ethyltoluene	0.25	~~U~~ UJ	0.25	0.25	2.0
135-98-8	sec-Butylbenzene	0.25	U	0.25	0.25	2.0
100-42-5	Styrene	0.25	U	0.25	0.25	2.0
75-65-0	t-Butyl alcohol	2.5	U	2.5	2.5	10
98-06-6	tert-Butylbenzene	0.25	U	0.25	0.25	2.0
127-18-4	Tetrachloroethene	0.25	U	0.25	0.25	2.0
108-88-3	Toluene	0.25	U	0.25	0.25	2.0
156-60-5	trans-1,2-Dichloroethene	0.25	U	0.25	0.25	2.0
10061-02-6	trans-1,3-Dichloropropene	0.25	U	0.25	0.25	2.0
79-01-6	Trichloroethene	0.25	U	0.25	0.25	2.0
75-69-4	Trichlorofluoromethane	0.25	U	0.25	0.25	2.0
108-05-4	Vinyl acetate	0.25	U	0.25	0.25	2.0
75-01-4	Vinyl chloride	0.25	U	0.25	0.25	2.0
1330-20-7	Xylenes, Total	1.7	J	0.75	0.75	6.0
108-87-2	Methylcyclohexane	0.25	U	0.25	0.25	2.0
107-02-8	Acrolein	1.0	~~U~~ R	1.0	1.0	10
107-13-1	Acrylonitrile	0.25	U	0.25	0.25	2.0

SW8260C

8/13/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

Field Blank

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908001

Matrix: Liquid Lab Sample ID: 1908001-009A

Sample wt/vol: 5mL Lab File ID: V1-0007.D

Level: (low/med) LOW Date Collected: 7/31/2019 12:00 AM

% Moisture: N/A Date Received: 8/1/2019 9:00 AM

Extract Volume: 5000(µl) Date Prepped: 8/9/2019 8:02 AM

Seq Number: 811563 Date Analyzed: 8/9/2019 12:20 PM

GC Column: V1 06/10/2019 SN#1629116 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 22956/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
67-64-1	Acetone	46	B	5.0	5.0	10

SW8260C

9/9/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

GW-4 @ 5-9'

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908134

Matrix: Liquid Lab Sample ID: 1908134-001A

Sample wt/vol: 5mL Lab File ID: V2-0066.D

Level: (low/med) LOW Date Collected: 8/15/2019 8:00 AM

% Moisture: N/A Date Received: 8/15/2019 4:20 PM

Extract Volume: 5000(µl) Date Prepped: 8/23/2019 1:50 PM

Seq Number: 822057 Date Analyzed: 8/24/2019 9:04 PM

GC Column: V2 08-01-19 SN#1629117 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 23128/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
630-20-6	1,1,1,2-Tetrachloroethane	0.25	U	0.25	0.25	2.0
71-55-6	1,1,1-Trichloroethane	0.25	U	0.25	0.25	2.0
79-34-5	1,1,2,2-Tetrachloroethane	0.25	U	0.25	0.25	2.0
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.25	U	0.25	0.25	2.0
79-00-5	1,1,2-Trichloroethane	0.25	U	0.25	0.25	2.0
75-34-3	1,1-Dichloroethane	0.25	U	0.25	0.25	2.0
75-35-4	1,1-Dichloroethene	2.1		0.25	0.25	2.0
563-58-6	1,1-Dichloropropene	0.25	U	0.25	0.25	2.0
87-61-6	1,2,3-Trichlorobenzene	0.25	U	0.25	0.25	2.0
96-18-4	1,2,3-Trichloropropane	0.25	U	0.25	0.25	2.0
95-93-2	1,2,4,5-Tetramethylbenzene	0.25	U	0.25	0.25	2.0
120-82-1	1,2,4-Trichlorobenzene	0.25	U	0.25	0.25	2.0
95-63-6	1,2,4-Trimethylbenzene	0.25	U	0.25	0.25	2.0
96-12-8	1,2-Dibromo-3-chloropropane	0.25	U	0.25	0.25	2.0
106-93-4	1,2-Dibromoethane	0.25	U	0.25	0.25	2.0
95-50-1	1,2-Dichlorobenzene	0.25	U	0.25	0.25	2.0
107-06-2	1,2-Dichloroethane	0.25	U	0.25	0.25	2.0
78-87-5	1,2-Dichloropropane	0.25	U	0.25	0.25	2.0
108-67-8	1,3,5-Trimethylbenzene	0.25	U	0.25	0.25	2.0
541-73-1	1,3-Dichlorobenzene	0.25	U	0.25	0.25	2.0
142-28-9	1,3-dichloropropane	0.25	U	0.25	0.25	2.0
106-46-7	1,4-Dichlorobenzene	0.25	U	0.25	0.25	2.0
123-91-1	1,4-Dioxane	0.25	U	0.25	0.25	1.0
594-20-7	2,2-Dichloropropane	0.25	U	0.25	0.25	2.0
78-93-3	2-Butanone	0.50	U	0.50	0.50	4.0
110-75-8	2-Chloroethyl vinyl ether	10	R U	10	10	20
95-49-8	2-Chlorotoluene	0.25	U	0.25	0.25	2.0
591-78-6	2-Hexanone	0.50	U	0.50	0.50	4.0
67-63-0	2-Propanol	0.25	U	0.25	0.25	2.0
106-43-4	4-Chlorotoluene	0.25	U	0.25	0.25	2.0
99-87-6	4-Isopropyltoluene	0.25	U	0.25	0.25	2.0
108-10-1	4-Methyl-2-pentanone	0.50	U	0.50	0.50	4.0
67-64-1	Acetone	17	~~B~~ U	5.0	5.0	10

SW8260C

Jo 9/9/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

GW-4 @ 5-9'

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908134

Matrix: Liquid Lab Sample ID: 1908134-001A

Sample wt/vol: 5mL Lab File ID: V2-0066.D

Level: (low/med) LOW Date Collected: 8/15/2019 8:00 AM

% Moisture: N/A Date Received: 8/15/2019 4:20 PM

Extract Volume: 5000(µl) Date Prepped: 8/23/2019 1:50 PM

Seq Number: 822057 Date Analyzed: 8/24/2019 9:04 PM

GC Column: V2 08-01-19 SN#1629117 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 23128/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
71-43-2	Benzene	0.25	U	0.25	0.25	2.0
108-86-1	Bromobenzene	0.25	U	0.25	0.25	2.0
74-97-5	Bromochloromethane	0.25	U	0.25	0.25	2.0
75-27-4	Bromodichloromethane	0.25	U	0.25	0.25	2.0
75-25-2	Bromoform	0.25	U	0.25	0.25	2.0
74-83-9	Bromomethane	0.25	U	0.25	0.25	2.0
75-15-0	Carbon disulfide	0.25	U	0.25	0.25	2.0
56-23-5	Carbon tetrachloride	0.25	U	0.25	0.25	2.0
108-90-7	Chlorobenzene	0.25	U	0.25	0.25	2.0
75-45-6	Chlorodifluoromethane	0.25	U	0.25	0.25	2.0
75-00-3	Chloroethane	0.25	U	0.25	0.25	2.0
67-66-3	Chloroform	0.25	U	0.25	0.25	2.0
74-87-3	Chloromethane	0.25	U	0.25	0.25	2.0
10061-01-5	cis-1,3-Dichloropropene	0.25	U	0.25	0.25	2.0
110-82-7	Cyclohexane	0.25	U	0.25	0.25	2.0
124-48-1	Dibromochloromethane	0.25	U	0.25	0.25	2.0
74-95-3	Dibromomethane	0.25	U	0.25	0.25	2.0
75-71-8	Dichlorodifluoromethane	0.25	U	0.25	0.25	2.0
108-20-3	Diisopropyl ether	0.50	U	0.50	0.50	2.0
64-17-5	Ethanol	2.5	~~U~~ R	2.5	2.5	10
100-41-4	Ethylbenzene	0.25	U	0.25	0.25	2.0
76-14-2	Freon-114	0.25	U	0.25	0.25	2.0
87-68-3	Hexachlorobutadiene	0.25	U	0.25	0.25	2.0
98-82-8	Isopropylbenzene	0.25	U	0.25	0.25	2.0
179601-23-1	m,p-Xylene	0.50	U	0.50	0.50	4.0
79-20-9	Methyl Acetate	0.25	U	0.25	0.25	2.0
1634-04-4	Methyl tert-butyl ether	0.25	U	0.25	0.25	2.0
75-09-2	Methylene chloride	6.4	~~B~~ U	0.25	0.25	2.0
104-51-8	n-Butylbenzene	0.25	U	0.25	0.25	2.0
103-65-1	n-Propylbenzene	0.25	U	0.25	0.25	2.0
91-20-3	Naphthalene	0.25	U	0.25	0.25	2.0
95-47-6	o-Xylene	0.25	U	0.25	0.25	2.0
105-05-5	p-Diethylbenzene	0.25	U	0.25	0.25	2.0

SW8260C

9/19/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

GW-4 @ 5-9'

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908134

Matrix: Liquid Lab Sample ID: 1908134-001A

Sample wt/vol: 5mL Lab File ID: V2-0066.D

Level: (low/med) LOW Date Collected: 8/15/2019 8:00 AM

% Moisture: N/A Date Received: 8/15/2019 4:20 PM

Extract Volume: 5000(ul) Date Prepped: 8/23/2019 1:50 PM

Seq Number: 822057 Date Analyzed: 8/24/2019 9:04 PM

GC Column: V2 08-01-19 SN#1629117 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 23128/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
622-96-8	p-Ethyltoluene	0.25	U	0.25	0.25	2.0
135-98-8	sec-Butylbenzene	0.25	U	0.25	0.25	2.0
100-42-5	Styrene	0.25	U	0.25	0.25	2.0
75-65-0	t-Butyl alcohol	2.5	U	2.5	2.5	10
98-06-6	tert-Butylbenzene	0.25	U	0.25	0.25	2.0
108-88-3	Toluene	0.25	U	0.25	0.25	2.0
156-60-5	trans-1,2-Dichloroethene	6.7		0.25	0.25	2.0
10061-02-6	trans-1,3-Dichloropropene	0.25	U	0.25	0.25	2.0
79-01-6	Trichloroethene	100		0.25	0.25	2.0
75-69-4	Trichlorofluoromethane	0.25	U	0.25	0.25	2.0
108-05-4	Vinyl acetate	0.25	U	0.25	0.25	2.0
75-01-4	Vinyl chloride	0.25	U	0.25	0.25	2.0
1330-20-7	Xylenes, Total	0.75	U	0.75	0.75	6.0
108-87-2	Methylcyclohexane	0.25	U	0.25	0.25	2.0
107-02-8	Acrolein	1.0	~~U~~ R	1.0	1.0	10
107-13-1	Acrylonitrile	0.25	~~U~~ UJ	0.25	0.25	2.0

SW8260C

10/3/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

GW-4 @ 5-9'

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908134

Matrix: Liquid Lab Sample ID: 1908134-001A

Sample wt/vol: 5mL Lab File ID: V2-0027.D

Level: (low/med) LOW Date Collected: 8/15/2019 8:00 AM

% Moisture: N/A Date Received: 8/15/2019 4:20 PM

Extract Volume: 5000(µl) Date Prepped: 8/27/2019 9:59 AM

Seq Number: 821910 Date Analyzed: 8/27/2019 11:47 PM

GC Column: V2 08-01-19 SN#1629117 Dilution Factor: 20.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 23161/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
156-59-2	cis-1,2-Dichloroethene	330	D	5.0	5.0	40
127-18-4	Tetrachloroethene	150	D	5.0	5.0	40

SW8260C

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

GW-4 @ 15-19'

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908134

Matrix: Liquid Lab Sample ID: 1908134-002A

Sample wt/vol: 5mL Lab File ID: V2-0067.D

Level: (low/med) LOW Date Collected: 8/15/2019 8:30 AM

% Moisture: N/A Date Received: 8/15/2019 4:20 PM

Extract Volume: 5000(µl) Date Prepped: 8/23/2019 1:50 PM

Seq Number: 822058 Date Analyzed: 8/24/2019 9:34 PM

GC Column: V2 08-01-19 SN#1629117 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 23128/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
630-20-6	1,1,1,2-Tetrachloroethane	0.25	U	0.25	0.25	2.0
71-55-6	1,1,1-Trichloroethane	0.25	U	0.25	0.25	2.0
79-34-5	1,1,2,2-Tetrachloroethane	0.25	U	0.25	0.25	2.0
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.25	U	0.25	0.25	2.0
79-00-5	1,1,2-Trichloroethane	0.25	U	0.25	0.25	2.0
75-34-3	1,1-Dichloroethane	0.25	U	0.25	0.25	2.0
75-35-4	1,1-Dichloroethene	99		0.25	0.25	2.0
563-58-6	1,1-Dichloropropene	0.25	U	0.25	0.25	2.0
87-61-6	1,2,3-Trichlorobenzene	0.25	U	0.25	0.25	2.0
96-18-4	1,2,3-Trichloropropane	0.25	U	0.25	0.25	2.0
95-93-2	1,2,4,5-Tetramethylbenzene	0.25	U	0.25	0.25	2.0
120-82-1	1,2,4-Trichlorobenzene	0.25	U	0.25	0.25	2.0
95-63-6	1,2,4-Trimethylbenzene	0.25	U	0.25	0.25	2.0
96-12-8	1,2-Dibromo-3-chloropropane	0.25	U	0.25	0.25	2.0
106-93-4	1,2-Dibromoethane	0.25	U	0.25	0.25	2.0
95-50-1	1,2-Dichlorobenzene	0.25	U	0.25	0.25	2.0
107-06-2	1,2-Dichloroethane	0.25	U	0.25	0.25	2.0
78-87-5	1,2-Dichloropropane	0.25	U	0.25	0.25	2.0
108-67-8	1,3,5-Trimethylbenzene	0.25	U	0.25	0.25	2.0
541-73-1	1,3-Dichlorobenzene	0.25	U	0.25	0.25	2.0
142-28-9	1,3-dichloropropane	0.25	U	0.25	0.25	2.0
106-46-7	1,4-Dichlorobenzene	0.25	U	0.25	0.25	2.0
123-91-1	1,4-Dioxane	0.25	U	0.25	0.25	1.0
594-20-7	2,2-Dichloropropane	0.25	U	0.25	0.25	2.0
78-93-3	2-Butanone	0.50	U	0.50	0.50	4.0
110-75-8	2-Chloroethyl vinyl ether	10	R U	10	10	20
95-49-8	2-Chlorotoluene	0.25	U	0.25	0.25	2.0
591-78-6	2-Hexanone	0.50	U	0.50	0.50	4.0
67-63-0	2-Propanol	0.25	U	0.25	0.25	2.0
106-43-4	4-Chlorotoluene	0.25	U	0.25	0.25	2.0
99-87-6	4-Isopropyltoluene	0.25	U	0.25	0.25	2.0
108-10-1	4-Methyl-2-pentanone	0.50	U	0.50	0.50	4.0
67-64-1	Acetone	13	B U	5.0	5.0	10

SW8260C

for 9/19/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

GW-4 @ 15-19'

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908134

Matrix: Liquid Lab Sample ID: 1908134-002A

Sample wt/vol: 5mL Lab File ID: V2-0067.D

Level: (low/med) LOW Date Collected: 8/15/2019 8:30 AM

% Moisture: N/A Date Received: 8/15/2019 4:20 PM

Extract Volume: 5000(µl) Date Prepped: 8/23/2019 1:50 PM

Seq Number: 822058 Date Analyzed: 8/24/2019 9:34 PM

GC Column: V2 08-01-19 SN#1629117 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 23128/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
71-43-2	Benzene	0.25	U	0.25	0.25	2.0
108-86-1	Bromobenzene	0.25	U	0.25	0.25	2.0
74-97-5	Bromochloromethane	0.25	U	0.25	0.25	2.0
75-27-4	Bromodichloromethane	0.25	U	0.25	0.25	2.0
75-25-2	Bromoform	0.25	U	0.25	0.25	2.0
74-83-9	Bromomethane	0.25	U	0.25	0.25	2.0
75-15-0	Carbon disulfide	0.25	U	0.25	0.25	2.0
56-23-5	Carbon tetrachloride	0.25	U	0.25	0.25	2.0
108-90-7	Chlorobenzene	0.25	U	0.25	0.25	2.0
75-45-6	Chlorodifluoromethane	0.25	U	0.25	0.25	2.0
75-00-3	Chloroethane	0.25	U	0.25	0.25	2.0
67-66-3	Chloroform	0.25	U	0.25	0.25	2.0
74-87-3	Chloromethane	0.25	U	0.25	0.25	2.0
10061-01-5	cis-1,3-Dichloropropene	0.25	U	0.25	0.25	2.0
110-82-7	Cyclohexane	0.25	U	0.25	0.25	2.0
124-48-1	Dibromochloromethane	0.25	U	0.25	0.25	2.0
74-95-3	Dibromomethane	0.25	U	0.25	0.25	2.0
75-71-8	Dichlorodifluoromethane	0.25	U	0.25	0.25	2.0
108-20-3	Diisopropyl ether	0.50	U	0.50	0.50	2.0
64-17-5	Ethanol	2.5	~~U~~ R	2.5	2.5	10
100-41-4	Ethylbenzene	0.25	U	0.25	0.25	2.0
76-14-2	Freon-114	0.25	U	0.25	0.25	2.0
87-68-3	Hexachlorobutadiene	0.25	U	0.25	0.25	2.0
98-82-8	Isopropylbenzene	0.25	U	0.25	0.25	2.0
179601-23-1	m,p-Xylene	0.50	U	0.50	0.50	4.0
79-20-9	Methyl Acetate	0.25	U	0.25	0.25	2.0
1634-04-4	Methyl tert-butyl ether	0.54	J	0.25	0.25	2.0
75-09-2	Methylene chloride	6.2	~~B~~ U	0.25	0.25	2.0
104-51-8	n-Butylbenzene	0.25	U	0.25	0.25	2.0
103-65-1	n-Propylbenzene	0.25	U	0.25	0.25	2.0
91-20-3	Naphthalene	0.25	U	0.25	0.25	2.0
95-47-6	o-Xylene	0.25	U	0.25	0.25	2.0
105-05-5	p-Diethylbenzene	0.25	U	0.25	0.25	2.0

SW8260C

for 9/19/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

GW-4 @ 15-19'

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908134

Matrix: Liquid Lab Sample ID: 1908134-002A

Sample wt/vol: 5mL Lab File ID: V2-0067.D

Level: (low/med) LOW Date Collected: 8/15/2019 8:30 AM

% Moisture: N/A Date Received: 8/15/2019 4:20 PM

Extract Volume: 5000(µl) Date Prepped: 8/23/2019 1:50 PM

Seq Number: 822058 Date Analyzed: 8/24/2019 9:34 PM

GC Column: V2 08-01-19 SN#1629117 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 23128/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
622-96-8	p-Ethyltoluene	0.25	U	0.25	0.25	2.0
135-98-8	sec-Butylbenzene	0.25	U	0.25	0.25	2.0
100-42-5	Styrene	0.25	U	0.25	0.25	2.0
75-65-0	t-Butyl alcohol	2.5	U	2.5	2.5	10
98-06-6	tert-Butylbenzene	0.25	U	0.25	0.25	2.0
127-18-4	Tetrachloroethene	0.78	J	0.25	0.25	2.0
108-88-3	Toluene	0.68	J	0.25	0.25	2.0
156-60-5	trans-1,2-Dichloroethene	190		0.25	0.25	2.0
10061-02-6	trans-1,3-Dichloropropene	0.25	U	0.25	0.25	2.0
75-69-4	Trichlorofluoromethane	0.25	U	0.25	0.25	2.0
108-05-4	Vinyl acetate	0.25	U	0.25	0.25	2.0
75-01-4	Vinyl chloride	24		0.25	0.25	2.0
1330-20-7	Xylenes, Total	0.75	U	0.75	0.75	6.0
108-87-2	Methylcyclohexane	0.25	U	0.25	0.25	2.0
107-02-8	Acrolein	1.0	~~U~~ R	1.0	1.0	10
107-13-1	Acrylonitrile	0.25	~~U~~ UJ	0.25	0.25	2.0

SW8260C

for 10/3/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

GW-4 @ 15-19'

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908134

Matrix: Liquid Lab Sample ID: 1908134-002A

Sample wt/vol: 5mL Lab File ID: V2-0029.D

Level: (low/med) LOW Date Collected: 8/15/2019 8:30 AM

% Moisture: N/A Date Received: 8/15/2019 4:20 PM

Extract Volume: 5000(µl) Date Prepped: 8/27/2019 9:59 AM

Seq Number: 821912 Date Analyzed: 8/28/2019 12:47 AM

GC Column: V2 08-01-19 SN#1629117 Dilution Factor: 500.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 23161/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
156-59-2	cis-1,2-Dichloroethene	35000	D	130	130	1000

SW8260C

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

GW-4 @ 15-19'

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908134

Matrix: Liquid Lab Sample ID: 1908134-002A

Sample wt/vol: 5mL Lab File ID: V2-0028.D

Level: (low/med) LOW Date Collected: 8/15/2019 8:30 AM

% Moisture: N/A Date Received: 8/15/2019 4:20 PM

Extract Volume: 5000(µl) Date Prepped: 8/27/2019 9:59 AM

Seq Number: 821911 Date Analyzed: 8/28/2019 12:17 AM

GC Column: V2 08-01-19 SN#1629117 Dilution Factor: 100.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 23161/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
79-01-6	Trichloroethene	1300	D	25	25	200

SW8260C

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

GW-4 @ 26-30'

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908134

Matrix: Liquid Lab Sample ID: 1908134-003A

Sample wt/vol: 5mL Lab File ID: V2-0068.D

Level: (low/med) LOW Date Collected: 8/15/2019 9:00 AM

% Moisture: N/A Date Received: 8/15/2019 4:20 PM

Extract Volume: 5000(µl) Date Prepped: 8/23/2019 1:50 PM

Seq Number: 822059 Date Analyzed: 8/24/2019 10:04 PM

GC Column: V2 08-01-19 SN#1629117 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 23128/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
630-20-6	1,1,1,2-Tetrachloroethane	0.25	U	0.25	0.25	2.0
71-55-6	1,1,1-Trichloroethane	0.25	U	0.25	0.25	2.0
79-34-5	1,1,2,2-Tetrachloroethane	0.25	U	0.25	0.25	2.0
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.25	U	0.25	0.25	2.0
79-00-5	1,1,2-Trichloroethane	0.25	U	0.25	0.25	2.0
75-34-3	1,1-Dichloroethane	0.25	U	0.25	0.25	2.0
75-35-4	1,1-Dichloroethene	0.25	U	0.25	0.25	2.0
563-58-6	1,1-Dichloropropene	0.25	U	0.25	0.25	2.0
87-61-6	1,2,3-Trichlorobenzene	0.25	U	0.25	0.25	2.0
96-18-4	1,2,3-Trichloropropane	0.25	U	0.25	0.25	2.0
95-93-2	1,2,4,5-Tetramethylbenzene	0.25	U	0.25	0.25	2.0
120-82-1	1,2,4-Trichlorobenzene	0.25	U	0.25	0.25	2.0
95-63-6	1,2,4-Trimethylbenzene	0.25	U	0.25	0.25	2.0
96-12-8	1,2-Dibromo-3-chloropropane	0.25	U	0.25	0.25	2.0
106-93-4	1,2-Dibromoethane	0.25	U	0.25	0.25	2.0
95-50-1	1,2-Dichlorobenzene	0.25	U	0.25	0.25	2.0
107-06-2	1,2-Dichloroethane	0.25	U	0.25	0.25	2.0
78-87-5	1,2-Dichloropropane	0.25	U	0.25	0.25	2.0
108-67-8	1,3,5-Trimethylbenzene	0.25	U	0.25	0.25	2.0
541-73-1	1,3-Dichlorobenzene	0.25	U	0.25	0.25	2.0
142-28-9	1,3-dichloropropane	0.25	U	0.25	0.25	2.0
106-46-7	1,4-Dichlorobenzene	0.25	U	0.25	0.25	2.0
123-91-1	1,4-Dioxane	0.25	U	0.25	0.25	1.0
594-20-7	2,2-Dichloropropane	0.25	U	0.25	0.25	2.0
78-93-3	2-Butanone	0.50	U	0.50	0.50	4.0
110-75-8	2-Chloroethyl vinyl ether	10	R U	10	10	20
95-49-8	2-Chlorotoluene	0.25	U	0.25	0.25	2.0
591-78-6	2-Hexanone	0.50	U	0.50	0.50	4.0
67-63-0	2-Propanol	0.25	U	0.25	0.25	2.0
106-43-4	4-Chlorotoluene	0.25	U	0.25	0.25	2.0
99-87-6	4-Isopropyltoluene	0.25	U	0.25	0.25	2.0
108-10-1	4-Methyl-2-pentanone	0.50	U	0.50	0.50	4.0
67-64-1	Acetone	11	~~B~~ U	5.0	5.0	10

SW8260C

for 9/4/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

GW-4 @ 26-30'

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908134

Matrix: Liquid Lab Sample ID: 1908134-003A

Sample wt/vol: 5mL Lab File ID: V2-0068.D

Level: (low/med) LOW Date Collected: 8/15/2019 9:00 AM

% Moisture: N/A Date Received: 8/15/2019 4:20 PM

Extract Volume: 5000(ul) Date Prepped: 8/23/2019 1:50 PM

Seq Number: 822059 Date Analyzed: 8/24/2019 10:04 PM

GC Column: V2 08-01-19 SN#1629117 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 23128/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
71-43-2	Benzene	0.25	U	0.25	0.25	2.0
108-86-1	Bromobenzene	0.25	U	0.25	0.25	2.0
74-97-5	Bromochloromethane	0.25	U	0.25	0.25	2.0
75-27-4	Bromodichloromethane	0.25	U	0.25	0.25	2.0
75-25-2	Bromoform	0.25	U	0.25	0.25	2.0
74-83-9	Bromomethane	0.25	U	0.25	0.25	2.0
75-15-0	Carbon disulfide	0.25	U	0.25	0.25	2.0
56-23-5	Carbon tetrachloride	0.25	U	0.25	0.25	2.0
108-90-7	Chlorobenzene	0.25	U	0.25	0.25	2.0
75-45-6	Chlorodifluoromethane	0.25	U	0.25	0.25	2.0
75-00-3	Chloroethane	0.25	U	0.25	0.25	2.0
67-66-3	Chloroform	0.25	U	0.25	0.25	2.0
74-87-3	Chloromethane	0.25	U	0.25	0.25	2.0
156-59-2	cis-1,2-Dichloroethene	59		0.25	0.25	2.0
10061-01-5	cis-1,3-Dichloropropene	0.25	U	0.25	0.25	2.0
110-82-7	Cyclohexane	0.25	U	0.25	0.25	2.0
124-48-1	Dibromochloromethane	0.25	U	0.25	0.25	2.0
74-95-3	Dibromomethane	0.25	U	0.25	0.25	2.0
75-71-8	Dichlorodifluoromethane	0.25	U	0.25	0.25	2.0
108-20-3	Diisopropyl ether	0.50	U	0.50	0.50	2.0
64-17-5	Ethanol	2.5	~~U~~ R	2.5	2.5	10
100-41-4	Ethylbenzene	0.25	U	0.25	0.25	2.0
76-14-2	Freon-114	0.25	U	0.25	0.25	2.0
87-68-3	Hexachlorobutadiene	0.25	U	0.25	0.25	2.0
98-82-8	Isopropylbenzene	0.25	U	0.25	0.25	2.0
179601-23-1	m,p-Xylene	0.50	U	0.50	0.50	4.0
79-20-9	Methyl Acetate	0.25	U	0.25	0.25	2.0
1634-04-4	Methyl tert-butyl ether	0.25	U	0.25	0.25	2.0
75-09-2	Methylene chloride	6.3	~~B~~ U	0.25	0.25	2.0
104-51-8	n-Butylbenzene	0.25	U	0.25	0.25	2.0
103-65-1	n-Propylbenzene	0.25	U	0.25	0.25	2.0
91-20-3	Naphthalene	0.25	U	0.25	0.25	2.0
95-47-6	o-Xylene	0.25	U	0.25	0.25	2.0

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

GW-4 @ 26-30'

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908134

Matrix: Liquid Lab Sample ID: 1908134-003A

Sample wt/vol: 5mL Lab File ID: V2-0068.D

Level: (low/med) LOW Date Collected: 8/15/2019 9:00 AM

% Moisture: N/A Date Received: 8/15/2019 4:20 PM

Extract Volume: 5000(µl) Date Prepped: 8/23/2019 1:50 PM

Seq Number: 822059 Date Analyzed: 8/24/2019 10:04 PM

GC Column: V2 08-01-19 SN#1629117 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 23128/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
105-05-5	p-Diethylbenzene	0.25	U	0.25	0.25	2.0
622-96-8	p-Ethyltoluene	0.25	U	0.25	0.25	2.0
135-98-8	sec-Butylbenzene	0.25	U	0.25	0.25	2.0
100-42-5	Styrene	0.25	U	0.25	0.25	2.0
75-65-0	t-Butyl alcohol	2.5	U	2.5	2.5	10
98-06-6	tert-Butylbenzene	0.25	U	0.25	0.25	2.0
127-18-4	Tetrachloroethene	0.79	J	0.25	0.25	2.0
108-88-3	Toluene	0.25	U	0.25	0.25	2.0
156-60-5	trans-1,2-Dichloroethene	0.49	J	0.25	0.25	2.0
10061-02-6	trans-1,3-Dichloropropene	0.25	U	0.25	0.25	2.0
79-01-6	Trichloroethene	0.25	U	0.25	0.25	2.0
75-69-4	Trichlorofluoromethane	0.25	U	0.25	0.25	2.0
108-05-4	Vinyl acetate	0.25	U	0.25	0.25	2.0
75-01-4	Vinyl chloride	0.25	U	0.25	0.25	2.0
1330-20-7	Xylenes, Total	0.75	U	0.75	0.75	6.0
108-87-2	Methylcyclohexane	0.25	U	0.25	0.25	2.0
107-02-8	Acrolein	1.0	~~U~~ R	1.0	1.0	10
107-13-1	Acrylonitrile	0.25	~~U~~ UJ	0.25	0.25	2.0

SW8260C

for 10/3/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

GW-5 @ 5-9'

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908134

Matrix: Liquid Lab Sample ID: 1908134-004A

Sample wt/vol: 5mL Lab File ID: V2-0069.D

Level: (low/med) LOW Date Collected: 8/15/2019 9:30 AM

% Moisture: N/A Date Received: 8/15/2019 4:20 PM

Extract Volume: 5000(µl) Date Prepped: 8/23/2019 1:50 PM

Seq Number: 822060 Date Analyzed: 8/24/2019 10:34 PM

GC Column: V2 08-01-19 SN#1629117 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 23128/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
630-20-6	1,1,1,2-Tetrachloroethane	0.25	U	0.25	0.25	2.0
71-55-6	1,1,1-Trichloroethane	0.25	U	0.25	0.25	2.0
79-34-5	1,1,2,2-Tetrachloroethane	0.25	U	0.25	0.25	2.0
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.25	U	0.25	0.25	2.0
79-00-5	1,1,2-Trichloroethane	0.25	U	0.25	0.25	2.0
75-34-3	1,1-Dichloroethane	0.25	U	0.25	0.25	2.0
75-35-4	1,1-Dichloroethene	0.25	U	0.25	0.25	2.0
563-58-6	1,1-Dichloropropene	0.25	U	0.25	0.25	2.0
87-61-6	1,2,3-Trichlorobenzene	0.25	U	0.25	0.25	2.0
96-18-4	1,2,3-Trichloropropane	0.25	U	0.25	0.25	2.0
95-93-2	1,2,4,5-Tetramethylbenzene	0.25	U	0.25	0.25	2.0
120-82-1	1,2,4-Trichlorobenzene	0.25	U	0.25	0.25	2.0
95-63-6	1,2,4-Trimethylbenzene	0.25	U	0.25	0.25	2.0
96-12-8	1,2-Dibromo-3-chloropropane	0.25	U	0.25	0.25	2.0
106-93-4	1,2-Dibromoethane	0.25	U	0.25	0.25	2.0
95-50-1	1,2-Dichlorobenzene	0.25	U	0.25	0.25	2.0
107-06-2	1,2-Dichloroethane	0.25	U	0.25	0.25	2.0
78-87-5	1,2-Dichloropropane	0.25	U	0.25	0.25	2.0
108-67-8	1,3,5-Trimethylbenzene	0.25	U	0.25	0.25	2.0
541-73-1	1,3-Dichlorobenzene	0.25	U	0.25	0.25	2.0
142-28-9	1,3-dichloropropane	0.25	U	0.25	0.25	2.0
106-46-7	1,4-Dichlorobenzene	0.25	U	0.25	0.25	2.0
123-91-1	1,4-Dioxane	0.25	U	0.25	0.25	1.0
594-20-7	2,2-Dichloropropane	0.25	U	0.25	0.25	2.0
78-93-3	2-Butanone	0.50	U	0.50	0.50	4.0
110-75-8	2-Chloroethyl vinyl ether	10	R U	10	10	20
95-49-8	2-Chlorotoluene	0.25	U	0.25	0.25	2.0
591-78-6	2-Hexanone	0.50	U	0.50	0.50	4.0
67-63-0	2-Propanol	0.25	U	0.25	0.25	2.0
106-43-4	4-Chlorotoluene	0.25	U	0.25	0.25	2.0
99-87-6	4-Isopropyltoluene	0.25	U	0.25	0.25	2.0
108-10-1	4-Methyl-2-pentanone	0.50	U	0.50	0.50	4.0
67-64-1	Acetone	19	B U	5.0	5.0	10

SW8260C

9/19/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

GW-5 @ 5-9'

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908134

Matrix: Liquid Lab Sample ID: 1908134-004A

Sample wt/vol: 5mL Lab File ID: V2-0069.D

Level: (low/med) LOW Date Collected: 8/15/2019 9:30 AM

% Moisture: N/A Date Received: 8/15/2019 4:20 PM

Extract Volume: 5000(ul) Date Prepped: 8/23/2019 1:50 PM

Seq Number: 822060 Date Analyzed: 8/24/2019 10:34 PM

GC Column: V2 08-01-19 SN#1629117 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 23128/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
71-43-2	Benzene	0.25	U	0.25	0.25	2.0
108-86-1	Bromobenzene	0.25	U	0.25	0.25	2.0
74-97-5	Bromochloromethane	0.25	U	0.25	0.25	2.0
75-27-4	Bromodichloromethane	0.25	U	0.25	0.25	2.0
75-25-2	Bromoform	0.25	U	0.25	0.25	2.0
74-83-9	Bromomethane	0.25	U	0.25	0.25	2.0
75-15-0	Carbon disulfide	0.25	U	0.25	0.25	2.0
56-23-5	Carbon tetrachloride	0.25	U	0.25	0.25	2.0
108-90-7	Chlorobenzene	0.25	U	0.25	0.25	2.0
75-45-6	Chlorodifluoromethane	0.25	U	0.25	0.25	2.0
75-00-3	Chloroethane	0.25	U	0.25	0.25	2.0
67-66-3	Chloroform	0.25	U	0.25	0.25	2.0
74-87-3	Chloromethane	0.25	U	0.25	0.25	2.0
10061-01-5	cis-1,3-Dichloropropene	0.25	U	0.25	0.25	2.0
110-82-7	Cyclohexane	0.25	U	0.25	0.25	2.0
124-48-1	Dibromochloromethane	0.25	U	0.25	0.25	2.0
74-95-3	Dibromomethane	0.25	U	0.25	0.25	2.0
75-71-8	Dichlorodifluoromethane	0.25	U	0.25	0.25	2.0
108-20-3	Diisopropyl ether	0.50	U	0.50	0.50	2.0
64-17-5	Ethanol	2.5	~~U~~ R	2.5	2.5	10
100-41-4	Ethylbenzene	0.25	U	0.25	0.25	2.0
76-14-2	Freon-114	0.25	U	0.25	0.25	2.0
87-68-3	Hexachlorobutadiene	0.25	U	0.25	0.25	2.0
98-82-8	Isopropylbenzene	0.25	U	0.25	0.25	2.0
179601-23-1	m,p-Xylene	0.50	U	0.50	0.50	4.0
79-20-9	Methyl Acetate	0.25	U	0.25	0.25	2.0
1634-04-4	Methyl tert-butyl ether	0.25	U	0.25	0.25	2.0
75-09-2	Methylene chloride	6.2	~~B~~ U	0.25	0.25	2.0
104-51-8	n-Butylbenzene	0.25	U	0.25	0.25	2.0
103-65-1	n-Propylbenzene	0.25	U	0.25	0.25	2.0
91-20-3	Naphthalene	0.25	U	0.25	0.25	2.0
95-47-6	o-Xylene	0.25	U	0.25	0.25	2.0
105-05-5	p-Diethylbenzene	0.25	U	0.25	0.25	2.0

SW8260C

10/9/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

GW-5 @ 5-9'

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908134

Matrix: Liquid Lab Sample ID: 1908134-004A

Sample wt/vol: 5mL Lab File ID: V2-0069.D

Level: (low/med) LOW Date Collected: 8/15/2019 9:30 AM

% Moisture: N/A Date Received: 8/15/2019 4:20 PM

Extract Volume: 5000(µl) Date Prepped: 8/23/2019 1:50 PM

Seq Number: 822060 Date Analyzed: 8/24/2019 10:34 PM

GC Column: V2 08-01-19 SN#1629117 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 23128/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
622-96-8	p-Ethyltoluene	0.25	U	0.25	0.25	2.0
135-98-8	sec-Butylbenzene	0.25	U	0.25	0.25	2.0
100-42-5	Styrene	0.25	U	0.25	0.25	2.0
75-65-0	t-Butyl alcohol	2.5	U	2.5	2.5	10
98-06-6	tert-Butylbenzene	0.25	U	0.25	0.25	2.0
127-18-4	Tetrachloroethene	33		0.25	0.25	2.0
108-88-3	Toluene	0.25	U	0.25	0.25	2.0
156-60-5	trans-1,2-Dichloroethene	1.5	J	0.25	0.25	2.0
10061-02-6	trans-1,3-Dichloropropene	0.25	U	0.25	0.25	2.0
79-01-6	Trichloroethene	46		0.25	0.25	2.0
75-69-4	Trichlorofluoromethane	0.25	U	0.25	0.25	2.0
108-05-4	Vinyl acetate	0.25	U	0.25	0.25	2.0
75-01-4	Vinyl chloride	0.25	U	0.25	0.25	2.0
1330-20-7	Xylenes, Total	0.75	U	0.75	0.75	6.0
108-87-2	Methylcyclohexane	0.25	U	0.25	0.25	2.0
107-02-8	Acrolein	1.0	~~U~~ R	1.0	1.0	10
107-13-1	Acrylonitrile	0.25	~~U~~ UJ	0.25	0.25	2.0

SW8260C

10/3/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

GW-5 @ 5-9'

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908134

Matrix: Liquid Lab Sample ID: 1908134-004A

Sample wt/vol: 5mL Lab File ID: V2-0031.D

Level: (low/med) LOW Date Collected: 8/15/2019 9:30 AM

% Moisture: N/A Date Received: 8/15/2019 4:20 PM

Extract Volume: 5000(µl) Date Prepped: 8/27/2019 9:59 AM

Seq Number: 821914 Date Analyzed: 8/28/2019 1:47 AM

GC Column: V2 08-01-19 SN#1629117 Dilution Factor: 5.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 23161/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
156-59-2	cis-1,2-Dichloroethene	260	D	1.3	1.3	10

SW8260C

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

GW-5 @ 15-19"

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908134

Matrix: Liquid Lab Sample ID: 1908134-005A

Sample wt/vol: 5mL Lab File ID: V2-0070.D

Level: (low/med) LOW Date Collected: 8/15/2019 10:00 AM

% Moisture: N/A Date Received: 8/15/2019 4:20 PM

Extract Volume: 5000(µl) Date Prepped: 8/23/2019 1:50 PM

Seq Number: 822061 Date Analyzed: 8/24/2019 11:04 PM

GC Column: V2 08-01-19 SN#1629117 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 23128/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
630-20-6	1,1,1,2-Tetrachloroethane	0.25	U	0.25	0.25	2.0
71-55-6	1,1,1-Trichloroethane	0.25	U	0.25	0.25	2.0
79-34-5	1,1,2,2-Tetrachloroethane	0.25	U	0.25	0.25	2.0
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.25	U	0.25	0.25	2.0
79-00-5	1,1,2-Trichloroethane	0.25	U	0.25	0.25	2.0
75-34-3	1,1-Dichloroethane	0.25	U	0.25	0.25	2.0
75-35-4	1,1-Dichloroethene	30		0.25	0.25	2.0
563-58-6	1,1-Dichloropropene	0.25	U	0.25	0.25	2.0
87-61-6	1,2,3-Trichlorobenzene	0.25	U	0.25	0.25	2.0
96-18-4	1,2,3-Trichloropropane	0.25	U	0.25	0.25	2.0
95-93-2	1,2,4,5-Tetramethylbenzene	0.25	U	0.25	0.25	2.0
120-82-1	1,2,4-Trichlorobenzene	0.25	U	0.25	0.25	2.0
95-63-6	1,2,4-Trimethylbenzene	0.25	U	0.25	0.25	2.0
96-12-8	1,2-Dibromo-3-chloropropane	0.25	U	0.25	0.25	2.0
106-93-4	1,2-Dibromoethane	0.25	U	0.25	0.25	2.0
95-50-1	1,2-Dichlorobenzene	0.25	U	0.25	0.25	2.0
107-06-2	1,2-Dichloroethane	0.25	U	0.25	0.25	2.0
78-87-5	1,2-Dichloropropane	0.25	U	0.25	0.25	2.0
108-67-8	1,3,5-Trimethylbenzene	0.25	U	0.25	0.25	2.0
541-73-1	1,3-Dichlorobenzene	0.25	U	0.25	0.25	2.0
142-28-9	1,3-dichloropropane	0.25	U	0.25	0.25	2.0
106-46-7	1,4-Dichlorobenzene	0.25	U	0.25	0.25	2.0
123-91-1	1,4-Dioxane	0.25	U	0.25	0.25	1.0
594-20-7	2,2-Dichloropropane	0.25	U	0.25	0.25	2.0
78-93-3	2-Butanone	0.50	U	0.50	0.50	4.0
110-75-8	2-Chloroethyl vinyl ether	10	R U	10	10	20
95-49-8	2-Chlorotoluene	0.25	U	0.25	0.25	2.0
591-78-6	2-Hexanone	0.50	U	0.50	0.50	4.0
67-63-0	2-Propanol	0.25	U	0.25	0.25	2.0
106-43-4	4-Chlorotoluene	0.25	U	0.25	0.25	2.0
99-87-6	4-Isopropyltoluene	0.25	U	0.25	0.25	2.0
108-10-1	4-Methyl-2-pentanone	0.50	U	0.50	0.50	4.0
67-64-1	Acetone	13	~~B~~ U	5.0	5.0	10

SW8260C

9/19/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

GW-5 @ 15-19"

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908134

Matrix: Liquid Lab Sample ID: 1908134-005A

Sample wt/vol: 5mL Lab File ID: V2-0070.D

Level: (low/med) LOW Date Collected: 8/15/2019 10:00 AM

% Moisture: N/A Date Received: 8/15/2019 4:20 PM

Extract Volume: 5000(µl) Date Prepped: 8/23/2019 1:50 PM

Seq Number: 822061 Date Analyzed: 8/24/2019 11:04 PM

GC Column: V2 08-01-19 SN#1629117 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 23128/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
71-43-2	Benzene	0.25	U	0.25	0.25	2.0
108-86-1	Bromobenzene	0.25	U	0.25	0.25	2.0
74-97-5	Bromochloromethane	0.25	U	0.25	0.25	2.0
75-27-4	Bromodichloromethane	0.25	U	0.25	0.25	2.0
75-25-2	Bromoform	0.25	U	0.25	0.25	2.0
74-83-9	Bromomethane	0.25	U	0.25	0.25	2.0
75-15-0	Carbon disulfide	0.25	U	0.25	0.25	2.0
56-23-5	Carbon tetrachloride	0.25	U	0.25	0.25	2.0
108-90-7	Chlorobenzene	0.25	U	0.25	0.25	2.0
75-45-6	Chlorodifluoromethane	0.25	U	0.25	0.25	2.0
75-00-3	Chloroethane	0.25	U	0.25	0.25	2.0
67-66-3	Chloroform	0.25	U	0.25	0.25	2.0
74-87-3	Chloromethane	0.25	U	0.25	0.25	2.0
10061-01-5	cis-1,3-Dichloropropene	0.25	U	0.25	0.25	2.0
110-82-7	Cyclohexane	0.25	U	0.25	0.25	2.0
124-48-1	Dibromochloromethane	0.25	U	0.25	0.25	2.0
74-95-3	Dibromomethane	0.25	U	0.25	0.25	2.0
75-71-8	Dichlorodifluoromethane	0.25	U	0.25	0.25	2.0
108-20-3	Diisopropyl ether	0.50	U	0.50	0.50	2.0
64-17-5	Ethanol	2.5	~~U~~ R	2.5	2.5	10
100-41-4	Ethylbenzene	0.25	U	0.25	0.25	2.0
76-14-2	Freon-114	0.25	U	0.25	0.25	2.0
87-68-3	Hexachlorobutadiene	0.25	U	0.25	0.25	2.0
98-82-8	Isopropylbenzene	0.25	U	0.25	0.25	2.0
179601-23-1	m,p-Xylene	0.50	U	0.50	0.50	4.0
79-20-9	Methyl Acetate	0.25	U	0.25	0.25	2.0
1634-04-4	Methyl tert-butyl ether	0.27	J	0.25	0.25	2.0
75-09-2	Methylene chloride	5.2	~~B~~ U	0.25	0.25	2.0
104-51-8	n-Butylbenzene	0.25	U	0.25	0.25	2.0
103-65-1	n-Propylbenzene	0.25	U	0.25	0.25	2.0
91-20-3	Naphthalene	0.25	U	0.25	0.25	2.0
95-47-6	o-Xylene	0.25	U	0.25	0.25	2.0
105-05-5	p-Diethylbenzene	0.25	U	0.25	0.25	2.0

SW8260C

9/9/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

GW-5 @ 15-19"

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908134

Matrix: Liquid Lab Sample ID: 1908134-005A

Sample wt/vol: 5mL Lab File ID: V2-0070.D

Level: (low/med) LOW Date Collected: 8/15/2019 10:00 AM

% Moisture: N/A Date Received: 8/15/2019 4:20 PM

Extract Volume: 5000(µl) Date Prepped: 8/23/2019 1:50 PM

Seq Number: 822061 Date Analyzed: 8/24/2019 11:04 PM

GC Column: V2 08-01-19 SN#1629117 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 23128/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
622-96-8	p-Ethyltoluene	0.25	U	0.25	0.25	2.0
135-98-8	sec-Butylbenzene	0.25	U	0.25	0.25	2.0
100-42-5	Styrene	0.25	U	0.25	0.25	2.0
75-65-0	t-Butyl alcohol	2.5	U	2.5	2.5	10
98-06-6	tert-Butylbenzene	0.25	U	0.25	0.25	2.0
127-18-4	Tetrachloroethene	47		0.25	0.25	2.0
108-88-3	Toluene	0.28	J	0.25	0.25	2.0
156-60-5	trans-1,2-Dichloroethene	63		0.25	0.25	2.0
10061-02-6	trans-1,3-Dichloropropene	0.25	U	0.25	0.25	2.0
75-69-4	Trichlorofluoromethane	0.25	U	0.25	0.25	2.0
108-05-4	Vinyl acetate	0.25	U	0.25	0.25	2.0
75-01-4	Vinyl chloride	12		0.25	0.25	2.0
1330-20-7	Xylenes, Total	0.75	U	0.75	0.75	6.0
108-87-2	Methylcyclohexane	0.25	U	0.25	0.25	2.0
107-02-8	Acrolein	1.0	~~U~~ R	1.0	1.0	10
107-13-1	Acrylonitrile	0.25	~~U~~ UJ	0.25	0.25	2.0

SW8260C

10/3119

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

GW-5 @ 15-19"

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908134

Matrix: Liquid Lab Sample ID: 1908134-005A

Sample wt/vol: 5mL Lab File ID: V2-0032.D

Level: (low/med) LOW Date Collected: 8/15/2019 10:00 AM

% Moisture: N/A Date Received: 8/15/2019 4:20 PM

Extract Volume: 5000(µl) Date Prepped: 8/27/2019 9:59 AM

Seq Number: 821915 Date Analyzed: 8/28/2019 2:17 AM

GC Column: V2 08-01-19 SN#1629117 Dilution Factor: 100.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 23161/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
156-59-2	cis-1,2-Dichloroethene	10000	D	25	25	200
79-01-6	Trichloroethene	1700	D	25	25	200

SW8260C

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

GW-5 @ 26-30'

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908134

Matrix: Liquid Lab Sample ID: 1908134-006A

Sample wt/vol: 5mL Lab File ID: V2-0071.D

Level: (low/med) LOW Date Collected: 8/15/2019 10:15 AM

% Moisture: N/A Date Received: 8/15/2019 4:20 PM

Extract Volume: 5000(µl) Date Prepped: 8/23/2019 1:50 PM

Seq Number: 822062 Date Analyzed: 8/24/2019 11:34 PM

GC Column: V2 08-01-19 SN#1629117 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 23128/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
630-20-6	1,1,1,2-Tetrachloroethane	0.25	U	0.25	0.25	2.0
71-55-6	1,1,1-Trichloroethane	0.25	U	0.25	0.25	2.0
79-34-5	1,1,2,2-Tetrachloroethane	0.25	U	0.25	0.25	2.0
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.25	U	0.25	0.25	2.0
79-00-5	1,1,2-Trichloroethane	0.25	U	0.25	0.25	2.0
75-34-3	1,1-Dichloroethane	0.25	U	0.25	0.25	2.0
75-35-4	1,1-Dichloroethene	12		0.25	0.25	2.0
563-58-6	1,1-Dichloropropene	0.25	U	0.25	0.25	2.0
87-61-6	1,2,3-Trichlorobenzene	0.25	U	0.25	0.25	2.0
96-18-4	1,2,3-Trichloropropane	0.25	U	0.25	0.25	2.0
95-93-2	1,2,4,5-Tetramethylbenzene	0.25	U	0.25	0.25	2.0
120-82-1	1,2,4-Trichlorobenzene	0.25	U	0.25	0.25	2.0
95-63-6	1,2,4-Trimethylbenzene	0.25	U	0.25	0.25	2.0
96-12-8	1,2-Dibromo-3-chloropropane	0.25	U	0.25	0.25	2.0
106-93-4	1,2-Dibromoethane	0.25	U	0.25	0.25	2.0
95-50-1	1,2-Dichlorobenzene	0.25	U	0.25	0.25	2.0
107-06-2	1,2-Dichloroethane	0.25	U	0.25	0.25	2.0
78-87-5	1,2-Dichloropropane	0.25	U	0.25	0.25	2.0
108-67-8	1,3,5-Trimethylbenzene	0.25	U	0.25	0.25	2.0
541-73-1	1,3-Dichlorobenzene	0.25	U	0.25	0.25	2.0
142-28-9	1,3-dichloropropane	0.25	U	0.25	0.25	2.0
106-46-7	1,4-Dichlorobenzene	0.25	U	0.25	0.25	2.0
123-91-1	1,4-Dioxane	0.25	U	0.25	0.25	1.0
594-20-7	2,2-Dichloropropane	0.25	U	0.25	0.25	2.0
78-93-3	2-Butanone	0.50	U	0.50	0.50	4.0
110-75-8	2-Chloroethyl vinyl ether	10	R U	10	10	20
95-49-8	2-Chlorotoluene	0.25	U	0.25	0.25	2.0
591-78-6	2-Hexanone	0.50	U	0.50	0.50	4.0
67-63-0	2-Propanol	0.25	U	0.25	0.25	2.0
106-43-4	4-Chlorotoluene	0.25	U	0.25	0.25	2.0
99-87-6	4-Isopropyltoluene	0.25	U	0.25	0.25	2.0
108-10-1	4-Methyl-2-pentanone	0.50	U	0.50	0.50	4.0
67-64-1	Acetone	30	~~B~~ U	5.0	5.0	10

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

GW-5 @ 26-30'

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908134

Matrix: Liquid Lab Sample ID: 1908134-006A

Sample wt/vol: 5mL Lab File ID: V2-0071.D

Level: (low/med) LOW Date Collected: 8/15/2019 10:15 AM

% Moisture: N/A Date Received: 8/15/2019 4:20 PM

Extract Volume: 5000(µl) Date Prepped: 8/23/2019 1:50 PM

Seq Number: 822062 Date Analyzed: 8/24/2019 11:34 PM

GC Column: V2 08-01-19 SN#1629117 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 23128/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
71-43-2	Benzene	0.25	U	0.25	0.25	2.0
108-86-1	Bromobenzene	0.25	U	0.25	0.25	2.0
74-97-5	Bromochloromethane	0.25	U	0.25	0.25	2.0
75-27-4	Bromodichloromethane	0.25	U	0.25	0.25	2.0
75-25-2	Bromoform	0.25	U	0.25	0.25	2.0
74-83-9	Bromomethane	0.25	U	0.25	0.25	2.0
75-15-0	Carbon disulfide	0.25	U	0.25	0.25	2.0
56-23-5	Carbon tetrachloride	0.25	U	0.25	0.25	2.0
108-90-7	Chlorobenzene	0.25	U	0.25	0.25	2.0
75-45-6	Chlorodifluoromethane	0.25	U	0.25	0.25	2.0
75-00-3	Chloroethane	0.25	U	0.25	0.25	2.0
67-66-3	Chloroform	0.25	U	0.25	0.25	2.0
74-87-3	Chloromethane	0.25	U	0.25	0.25	2.0
10061-01-5	cis-1,3-Dichloropropene	0.25	U	0.25	0.25	2.0
110-82-7	Cyclohexane	0.25	U	0.25	0.25	2.0
124-48-1	Dibromochloromethane	0.25	U	0.25	0.25	2.0
74-95-3	Dibromomethane	0.25	U	0.25	0.25	2.0
75-71-8	Dichlorodifluoromethane	0.25	U	0.25	0.25	2.0
108-20-3	Diisopropyl ether	0.50	U	0.50	0.50	2.0
64-17-5	Ethanol	2.5	~~U~~ R	2.5	2.5	10
100-41-4	Ethylbenzene	0.25	U	0.25	0.25	2.0
76-14-2	Freon-114	0.25	U	0.25	0.25	2.0
87-68-3	Hexachlorobutadiene	0.25	U	0.25	0.25	2.0
98-82-8	Isopropylbenzene	0.25	U	0.25	0.25	2.0
179601-23-1	m,p-Xylene	0.50	U	0.50	0.50	4.0
79-20-9	Methyl Acetate	0.25	U	0.25	0.25	2.0
1634-04-4	Methyl tert-butyl ether	0.25	U	0.25	0.25	2.0
75-09-2	Methylene chloride	5.5	~~B~~ U	0.25	0.25	2.0
104-51-8	n-Butylbenzene	0.25	U	0.25	0.25	2.0
103-65-1	n-Propylbenzene	0.25	U	0.25	0.25	2.0
91-20-3	Naphthalene	0.25	U	0.25	0.25	2.0
95-47-6	o-Xylene	0.25	U	0.25	0.25	2.0
105-05-5	p-Diethylbenzene	0.25	U	0.25	0.25	2.0

SW8260C

9/9/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

GW-5 @ 26-30'

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908134

Matrix: Liquid Lab Sample ID: 1908134-006A

Sample wt/vol: 5mL Lab File ID: V2-0071.D

Level: (low/med) LOW Date Collected: 8/15/2019 10:15 AM

% Moisture: N/A Date Received: 8/15/2019 4:20 PM

Extract Volume: 5000(µl) Date Prepped: 8/23/2019 1:50 PM

Seq Number: 822062 Date Analyzed: 8/24/2019 11:34 PM

GC Column: V2 08-01-19 SN#1629117 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 23128/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
622-96-8	p-Ethyltoluene	0.25	U	0.25	0.25	2.0
135-98-8	sec-Butylbenzene	0.25	U	0.25	0.25	2.0
100-42-5	Styrene	0.25	U	0.25	0.25	2.0
75-65-0	t-Butyl alcohol	2.5	U	2.5	2.5	10
98-06-6	tert-Butylbenzene	0.25	U	0.25	0.25	2.0
127-18-4	Tetrachloroethene	9.6		0.25	0.25	2.0
108-88-3	Toluene	0.25	U	0.25	0.25	2.0
156-60-5	trans-1,2-Dichloroethene	2.7		0.25	0.25	2.0
10061-02-6	trans-1,3-Dichloropropene	0.25	U	0.25	0.25	2.0
79-01-6	Trichloroethene	300		0.25	0.25	2.0
75-69-4	Trichlorofluoromethane	0.25	U	0.25	0.25	2.0
108-05-4	Vinyl acetate	0.25	U	0.25	0.25	2.0
75-01-4	Vinyl chloride	8.9		0.25	0.25	2.0
1330-20-7	Xylenes, Total	0.75	U	0.75	0.75	6.0
108-87-2	Methylcyclohexane	0.25	U	0.25	0.25	2.0
107-02-8	Acrolein	1.0	~~U~~ R	1.0	1.0	10
107-13-1	Acrylonitrile	0.25	~~U~~ UJ	0.25	0.25	2.0

SW8260C

10/3/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

GW-5 @ 26-30'

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908134

Matrix: Liquid Lab Sample ID: 1908134-006A

Sample wt/vol: 5mL Lab File ID: V2-0033.D

Level: (low/med) LOW Date Collected: 8/15/2019 10:15 AM

% Moisture: N/A Date Received: 8/15/2019 4:20 PM

Extract Volume: 5000(µl) Date Prepped: 8/27/2019 9:59 AM

Seq Number: 821916 Date Analyzed: 8/28/2019 2:47 AM

GC Column: V2 08-01-19 SN#1629117 Dilution Factor: 50.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 23161/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
156-59-2	cis-1,2-Dichloroethene	570	D	13	13	100

SW8260C

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

GW-6 @ 5-9'

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908134

Matrix: Liquid Lab Sample ID: 1908134-007A

Sample wt/vol: 5mL Lab File ID: V2-0074.D

Level: (low/med) LOW Date Collected: 8/15/2019 12:00 PM

% Moisture: N/A Date Received: 8/15/2019 4:20 PM

Extract Volume: 5000(µl) Date Prepped: 8/23/2019 1:50 PM

Seq Number: 822065 Date Analyzed: 8/25/2019 1:05 AM

GC Column: V2 08-01-19 SN#1629117 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 23128/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
630-20-6	1,1,1,2-Tetrachloroethane	0.25	U	0.25	0.25	2.0
71-55-6	1,1,1-Trichloroethane	0.25	U	0.25	0.25	2.0
79-34-5	1,1,2,2-Tetrachloroethane	0.25	U	0.25	0.25	2.0
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.25	U	0.25	0.25	2.0
79-00-5	1,1,2-Trichloroethane	0.25	U	0.25	0.25	2.0
75-34-3	1,1-Dichloroethane	0.25	U	0.25	0.25	2.0
75-35-4	1,1-Dichloroethene	0.25	U	0.25	0.25	2.0
563-58-6	1,1-Dichloropropene	0.25	U	0.25	0.25	2.0
87-61-6	1,2,3-Trichlorobenzene	0.25	U	0.25	0.25	2.0
96-18-4	1,2,3-Trichloropropane	0.25	U	0.25	0.25	2.0
95-93-2	1,2,4,5-Tetramethylbenzene	0.25	U	0.25	0.25	2.0
120-82-1	1,2,4-Trichlorobenzene	0.25	U	0.25	0.25	2.0
95-63-6	1,2,4-Trimethylbenzene	0.25	U	0.25	0.25	2.0
96-12-8	1,2-Dibromo-3-chloropropane	0.25	U	0.25	0.25	2.0
106-93-4	1,2-Dibromoethane	0.25	U	0.25	0.25	2.0
95-50-1	1,2-Dichlorobenzene	0.25	U	0.25	0.25	2.0
107-06-2	1,2-Dichloroethane	0.25	U	0.25	0.25	2.0
78-87-5	1,2-Dichloropropane	0.25	U	0.25	0.25	2.0
108-67-8	1,3,5-Trimethylbenzene	0.25	U	0.25	0.25	2.0
541-73-1	1,3-Dichlorobenzene	0.25	U	0.25	0.25	2.0
142-28-9	1,3-dichloropropane	0.25	U	0.25	0.25	2.0
106-46-7	1,4-Dichlorobenzene	0.25	U	0.25	0.25	2.0
123-91-1	1,4-Dioxane	0.25	U	0.25	0.25	1.0
594-20-7	2,2-Dichloropropane	0.25	U	0.25	0.25	2.0
78-93-3	2-Butanone	0.50	U	0.50	0.50	4.0
110-75-8	2-Chloroethyl vinyl ether	10	R U	10	10	20
95-49-8	2-Chlorotoluene	0.25	U	0.25	0.25	2.0
591-78-6	2-Hexanone	0.50	U	0.50	0.50	4.0
67-63-0	2-Propanol	0.25	U	0.25	0.25	2.0
106-43-4	4-Chlorotoluene	0.25	U	0.25	0.25	2.0
99-87-6	4-Isopropyltoluene	0.25	U	0.25	0.25	2.0
108-10-1	4-Methyl-2-pentanone	0.50	U	0.50	0.50	4.0
67-64-1	Acetone	16	B U	5.0	5.0	10

SW8260C

9/19/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

GW-6 @ 5-9'

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908134

Matrix: Liquid Lab Sample ID: 1908134-007A

Sample wt/vol: 5mL Lab File ID: V2-0074.D

Level: (low/med) LOW Date Collected: 8/15/2019 12:00 PM

% Moisture: N/A Date Received: 8/15/2019 4:20 PM

Extract Volume: 5000(µl) Date Prepped: 8/23/2019 1:50 PM

Seq Number: 822065 Date Analyzed: 8/25/2019 1:05 AM

GC Column: V2 08-01-19 SN#1629117 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 23128/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
71-43-2	Benzene	0.25	U	0.25	0.25	2.0
108-86-1	Bromobenzene	0.25	U	0.25	0.25	2.0
74-97-5	Bromochloromethane	0.25	U	0.25	0.25	2.0
75-27-4	Bromodichloromethane	0.25	U	0.25	0.25	2.0
75-25-2	Bromoform	0.25	U	0.25	0.25	2.0
74-83-9	Bromomethane	0.25	U	0.25	0.25	2.0
75-15-0	Carbon disulfide	0.25	U	0.25	0.25	2.0
56-23-5	Carbon tetrachloride	0.25	U	0.25	0.25	2.0
108-90-7	Chlorobenzene	0.25	U	0.25	0.25	2.0
75-45-6	Chlorodifluoromethane	0.25	U	0.25	0.25	2.0
75-00-3	Chloroethane	0.25	U	0.25	0.25	2.0
67-66-3	Chloroform	0.25	U	0.25	0.25	2.0
74-87-3	Chloromethane	0.25	U	0.25	0.25	2.0
156-59-2	cis-1,2-Dichloroethene	6.8		0.25	0.25	2.0
10061-01-5	cis-1,3-Dichloropropene	0.25	U	0.25	0.25	2.0
110-82-7	Cyclohexane	0.25	U	0.25	0.25	2.0
124-48-1	Dibromochloromethane	0.25	U	0.25	0.25	2.0
74-95-3	Dibromomethane	0.25	U	0.25	0.25	2.0
75-71-8	Dichlorodifluoromethane	0.25	U	0.25	0.25	2.0
108-20-3	Diisopropyl ether	0.50	U	0.50	0.50	2.0
64-17-5	Ethanol	2.5	~~U~~ R	2.5	2.5	10
100-41-4	Ethylbenzene	0.25	U	0.25	0.25	2.0
76-14-2	Freon-114	0.25	U	0.25	0.25	2.0
87-68-3	Hexachlorobutadiene	0.25	U	0.25	0.25	2.0
98-82-8	Isopropylbenzene	0.25	U	0.25	0.25	2.0
179601-23-1	m,p-Xylene	0.50	U	0.50	0.50	4.0
79-20-9	Methyl Acetate	0.25	U	0.25	0.25	2.0
1634-04-4	Methyl tert-butyl ether	0.25	U	0.25	0.25	2.0
75-09-2	Methylene chloride	5.8	~~B~~ U	0.25	0.25	2.0
104-51-8	n-Butylbenzene	0.25	U	0.25	0.25	2.0
103-65-1	n-Propylbenzene	0.25	U	0.25	0.25	2.0
91-20-3	Naphthalene	0.25	U	0.25	0.25	2.0
95-47-6	o-Xylene	0.25	U	0.25	0.25	2.0

SW8260C 9/9/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

GW-6 @ 5-9'

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908134

Matrix: Liquid Lab Sample ID: 1908134-007A

Sample wt/vol: 5mL Lab File ID: V2-0074.D

Level: (low/med) LOW Date Collected: 8/15/2019 12:00 PM

% Moisture: N/A Date Received: 8/15/2019 4:20 PM

Extract Volume: 5000(µl) Date Prepped: 8/23/2019 1:50 PM

Seq Number: 822065 Date Analyzed: 8/25/2019 1:05 AM

GC Column: V2 08-01-19 SN#1629117 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 23128/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
105-05-5	p-Diethylbenzene	0.25	U	0.25	0.25	2.0
622-96-8	p-Ethyltoluene	0.25	U	0.25	0.25	2.0
135-98-8	sec-Butylbenzene	0.25	U	0.25	0.25	2.0
100-42-5	Styrene	0.25	U	0.25	0.25	2.0
75-65-0	t-Butyl alcohol	2.5	U	2.5	2.5	10
98-06-6	tert-Butylbenzene	0.25	U	0.25	0.25	2.0
127-18-4	Tetrachloroethene	0.25	U	0.25	0.25	2.0
108-88-3	Toluene	0.25	U	0.25	0.25	2.0
156-60-5	trans-1,2-Dichloroethene	0.25	U	0.25	0.25	2.0
10061-02-6	trans-1,3-Dichloropropene	0.25	U	0.25	0.25	2.0
79-01-6	Trichloroethene	0.25	U	0.25	0.25	2.0
75-69-4	Trichlorofluoromethane	0.25	U	0.25	0.25	2.0
108-05-4	Vinyl acetate	0.25	U	0.25	0.25	2.0
75-01-4	Vinyl chloride	0.25	U	0.25	0.25	2.0
1330-20-7	Xylenes, Total	0.75	U	0.75	0.75	6.0
108-87-2	Methylcyclohexane	0.25	U	0.25	0.25	2.0
107-02-8	Acrolein	1.0	~~U~~ RJ	1.0	1.0	10
107-13-1	Acrylonitrile	0.25	~~U~~ UJ	0.25	0.25	2.0

SW8260C

10/3/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

GW-6 @ 15-19'

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908134

Matrix: Liquid Lab Sample ID: 1908134-008A

Sample wt/vol: 5mL Lab File ID: V2-0072.D

Level: (low/med) LOW Date Collected: 8/15/2019 11:45 AM

% Moisture: N/A Date Received: 8/15/2019 4:20 PM

Extract Volume: 5000(µl) Date Prepped: 8/23/2019 1:50 PM

Seq Number: 822063 Date Analyzed: 8/25/2019 12:05 AM

GC Column: V2 08-01-19 SN#1629117 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 23128/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
630-20-6	1,1,1,2-Tetrachloroethane	0.25	U	0.25	0.25	2.0
71-55-6	1,1,1-Trichloroethane	0.25	U	0.25	0.25	2.0
79-34-5	1,1,2,2-Tetrachloroethane	0.25	U	0.25	0.25	2.0
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.25	U	0.25	0.25	2.0
79-00-5	1,1,2-Trichloroethane	0.25	U	0.25	0.25	2.0
75-34-3	1,1-Dichloroethane	0.25	U	0.25	0.25	2.0
75-35-4	1,1-Dichloroethene	0.51	J	0.25	0.25	2.0
563-58-6	1,1-Dichloropropene	0.25	U	0.25	0.25	2.0
87-61-6	1,2,3-Trichlorobenzene	0.25	U	0.25	0.25	2.0
96-18-4	1,2,3-Trichloropropane	0.25	U	0.25	0.25	2.0
95-93-2	1,2,4,5-Tetramethylbenzene	0.25	U	0.25	0.25	2.0
120-82-1	1,2,4-Trichlorobenzene	0.25	U	0.25	0.25	2.0
95-63-6	1,2,4-Trimethylbenzene	0.25	U	0.25	0.25	2.0
96-12-8	1,2-Dibromo-3-chloropropane	0.25	U	0.25	0.25	2.0
106-93-4	1,2-Dibromoethane	0.25	U	0.25	0.25	2.0
95-50-1	1,2-Dichlorobenzene	0.25	U	0.25	0.25	2.0
107-06-2	1,2-Dichloroethane	0.25	U	0.25	0.25	2.0
78-87-5	1,2-Dichloropropane	0.25	U	0.25	0.25	2.0
108-67-8	1,3,5-Trimethylbenzene	0.25	U	0.25	0.25	2.0
541-73-1	1,3-Dichlorobenzene	0.25	U	0.25	0.25	2.0
142-28-9	1,3-dichloropropane	0.25	U	0.25	0.25	2.0
106-46-7	1,4-Dichlorobenzene	0.25	U	0.25	0.25	2.0
123-91-1	1,4-Dioxane	0.25	U	0.25	0.25	1.0
594-20-7	2,2-Dichloropropane	0.25	U	0.25	0.25	2.0
78-93-3	2-Butanone	0.50	U	0.50	0.50	4.0
110-75-8	2-Chloroethyl vinyl ether	10	R U	10	10	20
95-49-8	2-Chlorotoluene	0.25	U	0.25	0.25	2.0
591-78-6	2-Hexanone	0.50	U	0.50	0.50	4.0
67-63-0	2-Propanol	0.25	U	0.25	0.25	2.0
106-43-4	4-Chlorotoluene	0.25	U	0.25	0.25	2.0
99-87-6	4-Isopropyltoluene	0.25	U	0.25	0.25	2.0
108-10-1	4-Methyl-2-pentanone	0.50	U	0.50	0.50	4.0
67-64-1	Acetone	24	~~B~~ U	5.0	5.0	10

SW8260C for 9/19/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

GW-6 @ 15-19'

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908134

Matrix: Liquid Lab Sample ID: 1908134-008A

Sample wt/vol: 5mL Lab File ID: V2-0072.D

Level: (low/med) LOW Date Collected: 8/15/2019 11:45 AM

% Moisture: N/A Date Received: 8/15/2019 4:20 PM

Extract Volume: 5000(µl) Date Prepped: 8/23/2019 1:50 PM

Seq Number: 822063 Date Analyzed: 8/25/2019 12:05 AM

GC Column: V2 08-01-19 SN#1629117 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 23128/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
71-43-2	Benzene	0.25	U	0.25	0.25	2.0
108-86-1	Bromobenzene	0.25	U	0.25	0.25	2.0
74-97-5	Bromochloromethane	0.25	U	0.25	0.25	2.0
75-27-4	Bromodichloromethane	0.25	U	0.25	0.25	2.0
75-25-2	Bromoform	0.25	U	0.25	0.25	2.0
74-83-9	Bromomethane	0.25	U	0.25	0.25	2.0
75-15-0	Carbon disulfide	0.25	U	0.25	0.25	2.0
56-23-5	Carbon tetrachloride	0.25	U	0.25	0.25	2.0
108-90-7	Chlorobenzene	0.25	U	0.25	0.25	2.0
75-45-6	Chlorodifluoromethane	0.25	U	0.25	0.25	2.0
75-00-3	Chloroethane	0.25	U	0.25	0.25	2.0
67-66-3	Chloroform	0.25	U	0.25	0.25	2.0
74-87-3	Chloromethane	0.25	U	0.25	0.25	2.0
156-59-2	cis-1,2-Dichloroethene	110		0.25	0.25	2.0
10061-01-5	cis-1,3-Dichloropropene	0.25	U	0.25	0.25	2.0
110-82-7	Cyclohexane	0.25	U	0.25	0.25	2.0
124-48-1	Dibromochloromethane	0.25	U	0.25	0.25	2.0
74-95-3	Dibromomethane	0.25	U	0.25	0.25	2.0
75-71-8	Dichlorodifluoromethane	0.25	U	0.25	0.25	2.0
108-20-3	Diisopropyl ether	0.50	U	0.50	0.50	2.0
64-17-5	Ethanol	2.5	~~U~~ R	2.5	2.5	10
100-41-4	Ethylbenzene	0.25	U	0.25	0.25	2.0
76-14-2	Freon-114	0.25	U	0.25	0.25	2.0
87-68-3	Hexachlorobutadiene	0.25	U	0.25	0.25	2.0
98-82-8	Isopropylbenzene	0.25	U	0.25	0.25	2.0
179601-23-1	m,p-Xylene	0.50	U	0.50	0.50	4.0
79-20-9	Methyl Acetate	0.25	U	0.25	0.25	2.0
1634-04-4	Methyl tert-butyl ether	0.60	J	0.25	0.25	2.0
75-09-2	Methylene chloride	5.6	~~B~~ U	0.25	0.25	2.0
104-51-8	n-Butylbenzene	0.25	U	0.25	0.25	2.0
103-65-1	n-Propylbenzene	0.25	U	0.25	0.25	2.0
91-20-3	Naphthalene	0.25	U	0.25	0.25	2.0
95-47-6	o-Xylene	0.25	U	0.25	0.25	2.0

SW8260C

for 9/19/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

GW-6 @ 15-19'

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908134

Matrix: Liquid Lab Sample ID: 1908134-008A

Sample wt/vol: 5mL Lab File ID: V2-0072.D

Level: (low/med) LOW Date Collected: 8/15/2019 11:45 AM

% Moisture: N/A Date Received: 8/15/2019 4:20 PM

Extract Volume: 5000(µl) Date Prepped: 8/23/2019 1:50 PM

Seq Number: 822063 Date Analyzed: 8/25/2019 12:05 AM

GC Column: V2 08-01-19 SN#1629117 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 23128/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
105-05-5	p-Diethylbenzene	0.25	U	0.25	0.25	2.0
622-96-8	p-Ethyltoluene	0.25	U	0.25	0.25	2.0
135-98-8	sec-Butylbenzene	0.25	U	0.25	0.25	2.0
100-42-5	Styrene	0.25	U	0.25	0.25	2.0
75-65-0	t-Butyl alcohol	2.5	U	2.5	2.5	10
98-06-6	tert-Butylbenzene	0.25	U	0.25	0.25	2.0
127-18-4	Tetrachloroethene	0.25	U	0.25	0.25	2.0
108-88-3	Toluene	0.25	U	0.25	0.25	2.0
156-60-5	trans-1,2-Dichloroethene	0.93	J	0.25	0.25	2.0
10061-02-6	trans-1,3-Dichloropropene	0.25	U	0.25	0.25	2.0
79-01-6	Trichloroethene	12		0.25	0.25	2.0
75-69-4	Trichlorofluoromethane	0.25	U	0.25	0.25	2.0
108-05-4	Vinyl acetate	0.25	U	0.25	0.25	2.0
75-01-4	Vinyl chloride	0.25	U	0.25	0.25	2.0
1330-20-7	Xylenes, Total	0.75	U	0.75	0.75	6.0
108-87-2	Methylcyclohexane	0.25	U	0.25	0.25	2.0
107-02-8	Acrolein	1.0	~~U~~ R	1.0	1.0	10
107-13-1	Acrylonitrile	0.25	~~U~~ UJ	0.25	0.25	2.0

SW8260C

for 10/31/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

GW-6 @ 26-30'

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908134

Matrix: Liquid Lab Sample ID: 1908134-009A

Sample wt/vol: 5mL Lab File ID: V2-0034.D

Level: (low/med) LOW Date Collected: 8/15/2019 11:30 AM

% Moisture: N/A Date Received: 8/15/2019 4:20 PM

Extract Volume: 5000(µl) Date Prepped: 8/27/2019 9:59 AM

Seq Number: 821917 Date Analyzed: 8/28/2019 3:17 AM

GC Column: V2 08-01-19 SN#1629117 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 23161/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
630-20-6	1,1,1,2-Tetrachloroethane	0.25	U	0.25	0.25	2.0
71-55-6	1,1,1-Trichloroethane	0.25	U	0.25	0.25	2.0
79-34-5	1,1,2,2-Tetrachloroethane	0.25	U	0.25	0.25	2.0
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.25	U	0.25	0.25	2.0
79-00-5	1,1,2-Trichloroethane	0.25	U	0.25	0.25	2.0
75-34-3	1,1-Dichloroethane	0.25	U	0.25	0.25	2.0
75-35-4	1,1-Dichloroethene	0.25	U	0.25	0.25	2.0
563-58-6	1,1-Dichloropropene	0.25	U	0.25	0.25	2.0
87-61-6	1,2,3-Trichlorobenzene	0.25	U	0.25	0.25	2.0
96-18-4	1,2,3-Trichloropropane	0.25	U	0.25	0.25	2.0
95-93-2	1,2,4,5-Tetramethylbenzene	0.25	U	0.25	0.25	2.0
120-82-1	1,2,4-Trichlorobenzene	0.25	U	0.25	0.25	2.0
95-63-6	1,2,4-Trimethylbenzene	0.25	U	0.25	0.25	2.0
96-12-8	1,2-Dibromo-3-chloropropane	0.25	U	0.25	0.25	2.0
106-93-4	1,2-Dibromoethane	0.25	U	0.25	0.25	2.0
95-50-1	1,2-Dichlorobenzene	0.25	U	0.25	0.25	2.0
107-06-2	1,2-Dichloroethane	0.25	U	0.25	0.25	2.0
78-87-5	1,2-Dichloropropane	0.25	U	0.25	0.25	2.0
108-67-8	1,3,5-Trimethylbenzene	0.25	U	0.25	0.25	2.0
541-73-1	1,3-Dichlorobenzene	0.25	U	0.25	0.25	2.0
142-28-9	1,3-dichloropropane	0.25	U	0.25	0.25	2.0
106-46-7	1,4-Dichlorobenzene	0.25	U	0.25	0.25	2.0
123-91-1	1,4-Dioxane	0.25	U	0.25	0.25	1.0
594-20-7	2,2-Dichloropropane	0.25	U	0.25	0.25	2.0
78-93-3	2-Butanone	0.50	U	0.50	0.50	4.0
110-75-8	2-Chloroethyl vinyl ether	10	R U	10	10	20
95-49-8	2-Chlorotoluene	0.25	U	0.25	0.25	2.0
591-78-6	2-Hexanone	0.50	U	0.50	0.50	4.0
67-63-0	2-Propanol	0.25	U	0.25	0.25	2.0
106-43-4	4-Chlorotoluene	0.25	U	0.25	0.25	2.0
99-87-6	4-Isopropyltoluene	0.25	U	0.25	0.25	2.0
108-10-1	4-Methyl-2-pentanone	0.50	U	0.50	0.50	4.0
67-64-1	Acetone	18	~~B~~ U	5.0	5.0	10

SW8260C

9/9/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

GW-6 @ 26-30'

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908134

Matrix: Liquid Lab Sample ID: 1908134-009A

Sample wt/vol: 5mL Lab File ID: V2-0034.D

Level: (low/med) LOW Date Collected: 8/15/2019 11:30 AM

% Moisture: N/A Date Received: 8/15/2019 4:20 PM

Extract Volume: 5000(µl) Date Prepped: 8/27/2019 9:59 AM

Seq Number: 821917 Date Analyzed: 8/28/2019 3:17 AM

GC Column: V2 08-01-19 SN#1629117 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 23161/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
71-43-2	Benzene	0.25	U	0.25	0.25	2.0
108-86-1	Bromobenzene	0.25	U	0.25	0.25	2.0
74-97-5	Bromochloromethane	0.25	U	0.25	0.25	2.0
75-27-4	Bromodichloromethane	0.25	U	0.25	0.25	2.0
75-25-2	Bromoform	0.25	U	0.25	0.25	2.0
74-83-9	Bromomethane	0.25	U	0.25	0.25	2.0
75-15-0	Carbon disulfide	0.25	U	0.25	0.25	2.0
56-23-5	Carbon tetrachloride	0.25	U	0.25	0.25	2.0
108-90-7	Chlorobenzene	0.25	U	0.25	0.25	2.0
75-45-6	Chlorodifluoromethane	0.25	U	0.25	0.25	2.0
75-00-3	Chloroethane	0.25	U	0.25	0.25	2.0
67-66-3	Chloroform	0.25	U	0.25	0.25	2.0
74-87-3	Chloromethane	0.25	U	0.25	0.25	2.0
156-59-2	cis-1,2-Dichloroethene	0.25	U	0.25	0.25	2.0
10061-01-5	cis-1,3-Dichloropropene	0.25	U	0.25	0.25	2.0
110-82-7	Cyclohexane	0.25	U	0.25	0.25	2.0
124-48-1	Dibromochloromethane	0.25	U	0.25	0.25	2.0
74-95-3	Dibromomethane	0.25	U	0.25	0.25	2.0
75-71-8	Dichlorodifluoromethane	0.25	U	0.25	0.25	2.0
108-20-3	Diisopropyl ether	0.50	U	0.50	0.50	2.0
64-17-5	Ethanol	2.5	~~U~~ R	2.5	2.5	10
100-41-4	Ethylbenzene	0.25	U	0.25	0.25	2.0
76-14-2	Freon-114	0.25	U	0.25	0.25	2.0
87-68-3	Hexachlorobutadiene	0.25	U	0.25	0.25	2.0
98-82-8	Isopropylbenzene	0.25	U	0.25	0.25	2.0
179601-23-1	m,p-Xylene	0.50	U	0.50	0.50	4.0
79-20-9	Methyl Acetate	0.25	U	0.25	0.25	2.0
1634-04-4	Methyl tert-butyl ether	0.25	U	0.25	0.25	2.0
75-09-2	Methylene chloride	6.9	~~B~~ U	0.25	0.25	2.0
104-51-8	n-Butylbenzene	0.25	U	0.25	0.25	2.0
103-65-1	n-Propylbenzene	0.25	U	0.25	0.25	2.0
91-20-3	Naphthalene	0.25	U	0.25	0.25	2.0
95-47-6	o-Xylene	0.25	U	0.25	0.25	2.0

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

GW-6 @ 26-30'

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908134

Matrix: Liquid Lab Sample ID: 1908134-009A

Sample wt/vol: 5mL Lab File ID: V2-0034.D

Level: (low/med) LOW Date Collected: 8/15/2019 11:30 AM

% Moisture: N/A Date Received: 8/15/2019 4:20 PM

Extract Volume: 5000(µl) Date Prepped: 8/27/2019 9:59 AM

Seq Number: 821917 Date Analyzed: 8/28/2019 3:17 AM

GC Column: V2 08-01-19 SN#1629117 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 23161/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
105-05-5	p-Diethylbenzene	0.25	U	0.25	0.25	2.0
622-96-8	p-Ethyltoluene	0.25	U	0.25	0.25	2.0
135-98-8	sec-Butylbenzene	0.25	U	0.25	0.25	2.0
100-42-5	Styrene	0.25	U	0.25	0.25	2.0
75-65-0	t-Butyl alcohol	2.5	U	2.5	2.5	10
98-06-6	tert-Butylbenzene	0.25	U	0.25	0.25	2.0
127-18-4	Tetrachloroethene	0.25	U	0.25	0.25	2.0
108-88-3	Toluene	0.25	U	0.25	0.25	2.0
156-60-5	trans-1,2-Dichloroethene	0.25	U	0.25	0.25	2.0
10061-02-6	trans-1,3-Dichloropropene	0.25	U	0.25	0.25	2.0
79-01-6	Trichloroethene	0.25	U	0.25	0.25	2.0
75-69-4	Trichlorofluoromethane	0.25	U	0.25	0.25	2.0
108-05-4	Vinyl acetate	0.25	U	0.25	0.25	2.0
75-01-4	Vinyl chloride	0.25	U	0.25	0.25	2.0
1330-20-7	Xylenes, Total	0.75	U	0.75	0.75	6.0
108-87-2	Methylcyclohexane	0.25	U	0.25	0.25	2.0
107-02-8	Acrolein	1.0	~~U~~ R	1.0	1.0	10
107-13-1	Acrylonitrile	0.25	~~U~~ UJ	0.25	0.25	2.0

SW8260C

for 10/31/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

Field Blank

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908134

Matrix: Liquid Lab Sample ID: 1908134-010A

Sample wt/vol: 5mL Lab File ID: V2-0060.D

Level: (low/med) LOW Date Collected: 8/15/2019 12:30 PM

% Moisture: N/A Date Received: 8/15/2019 4:20 PM

Extract Volume: 5000(µl) Date Prepped: 8/23/2019 1:50 PM

Seq Number: 822051 Date Analyzed: 8/24/2019 6:04 PM

GC Column: V2 08-01-19 SN#1629117 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 23128/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
630-20-6	1,1,1,2-Tetrachloroethane	0.25	U	0.25	0.25	2.0
71-55-6	1,1,1-Trichloroethane	0.25	U	0.25	0.25	2.0
79-34-5	1,1,2,2-Tetrachloroethane	0.25	U	0.25	0.25	2.0
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.25	U	0.25	0.25	2.0
79-00-5	1,1,2-Trichloroethane	0.25	U	0.25	0.25	2.0
75-34-3	1,1-Dichloroethane	0.25	U	0.25	0.25	2.0
75-35-4	1,1-Dichloroethene	0.25	U	0.25	0.25	2.0
563-58-6	1,1-Dichloropropene	0.25	U	0.25	0.25	2.0
87-61-6	1,2,3-Trichlorobenzene	0.25	U	0.25	0.25	2.0
96-18-4	1,2,3-Trichloropropane	0.25	U	0.25	0.25	2.0
95-93-2	1,2,4,5-Tetramethylbenzene	0.25	U	0.25	0.25	2.0
120-82-1	1,2,4-Trichlorobenzene	0.25	U	0.25	0.25	2.0
95-63-6	1,2,4-Trimethylbenzene	0.25	U	0.25	0.25	2.0
96-12-8	1,2-Dibromo-3-chloropropane	0.25	U	0.25	0.25	2.0
106-93-4	1,2-Dibromoethane	0.25	U	0.25	0.25	2.0
95-50-1	1,2-Dichlorobenzene	0.25	U	0.25	0.25	2.0
107-06-2	1,2-Dichloroethane	0.25	U	0.25	0.25	2.0
78-87-5	1,2-Dichloropropane	0.25	U	0.25	0.25	2.0
108-67-8	1,3,5-Trimethylbenzene	0.25	U	0.25	0.25	2.0
541-73-1	1,3-Dichlorobenzene	0.25	U	0.25	0.25	2.0
142-28-9	1,3-dichloropropane	0.25	U	0.25	0.25	2.0
106-46-7	1,4-Dichlorobenzene	0.25	U	0.25	0.25	2.0
123-91-1	1,4-Dioxane	0.25	U	0.25	0.25	1.0
594-20-7	2,2-Dichloropropane	0.25	U	0.25	0.25	2.0
78-93-3	2-Butanone	0.50	U	0.50	0.50	4.0
110-75-8	2-Chloroethyl vinyl ether	10	R→U	10	10	20
95-49-8	2-Chlorotoluene	0.25	U	0.25	0.25	2.0
591-78-6	2-Hexanone	0.50	U	0.50	0.50	4.0
67-63-0	2-Propanol	0.25	U	0.25	0.25	2.0
106-43-4	4-Chlorotoluene	0.25	U	0.25	0.25	2.0
99-87-6	4-Isopropyltoluene	0.25	U	0.25	0.25	2.0
108-10-1	4-Methyl-2-pentanone	0.74	J	0.50	0.50	4.0
67-64-1	Acetone	23	~~B~~ U	5.0	5.0	10

SW8260C 9/9/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

Field Blank

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908134

Matrix: Liquid Lab Sample ID: 1908134-010A

Sample wt/vol: 5mL Lab File ID: V2-0060.D

Level: (low/med) LOW Date Collected: 8/15/2019 12:30 PM

% Moisture: N/A Date Received: 8/15/2019 4:20 PM

Extract Volume: 5000(µl) Date Prepped: 8/23/2019 1:50 PM

Seq Number: 822051 Date Analyzed: 8/24/2019 6:04 PM

GC Column: V2 08-01-19 SN#1629117 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 23128/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
71-43-2	Benzene	0.25	U	0.25	0.25	2.0
108-86-1	Bromobenzene	0.25	U	0.25	0.25	2.0
74-97-5	Bromochloromethane	0.25	U	0.25	0.25	2.0
75-27-4	Bromodichloromethane	0.25	U	0.25	0.25	2.0
75-25-2	Bromoform	0.25	U	0.25	0.25	2.0
74-83-9	Bromomethane	0.25	U	0.25	0.25	2.0
75-15-0	Carbon disulfide	0.25	U	0.25	0.25	2.0
56-23-5	Carbon tetrachloride	0.25	U	0.25	0.25	2.0
108-90-7	Chlorobenzene	0.25	U	0.25	0.25	2.0
75-45-6	Chlorodifluoromethane	0.25	U	0.25	0.25	2.0
75-00-3	Chloroethane	0.25	U	0.25	0.25	2.0
67-66-3	Chloroform	0.25	U	0.25	0.25	2.0
74-87-3	Chloromethane	0.25	U	0.25	0.25	2.0
156-59-2	cis-1,2-Dichloroethene	0.25	U	0.25	0.25	2.0
10061-01-5	cis-1,3-Dichloropropene	0.25	U	0.25	0.25	2.0
110-82-7	Cyclohexane	0.25	U	0.25	0.25	2.0
124-48-1	Dibromochloromethane	0.25	U	0.25	0.25	2.0
74-95-3	Dibromomethane	0.25	U	0.25	0.25	2.0
75-71-8	Dichlorodifluoromethane	0.25	U	0.25	0.25	2.0
108-20-3	Diisopropyl ether	0.50	U	0.50	0.50	2.0
64-17-5	Ethanol	2.5	~~U~~ R	2.5	2.5	10
100-41-4	Ethylbenzene	0.25	U	0.25	0.25	2.0
76-14-2	Freon-114	0.25	U	0.25	0.25	2.0
87-68-3	Hexachlorobutadiene	0.25	U	0.25	0.25	2.0
98-82-8	Isopropylbenzene	0.25	U	0.25	0.25	2.0
179601-23-1	m,p-Xylene	0.50	U	0.50	0.50	4.0
79-20-9	Methyl Acetate	0.25	U	0.25	0.25	2.0
1634-04-4	Methyl tert-butyl ether	0.25	U	0.25	0.25	2.0
75-09-2	Methylene chloride	4.8	~~B~~ U	0.25	0.25	2.0
104-51-8	n-Butylbenzene	0.25	U	0.25	0.25	2.0
103-65-1	n-Propylbenzene	0.25	U	0.25	0.25	2.0
91-20-3	Naphthalene	0.25	U	0.25	0.25	2.0
95-47-6	o-Xylene	0.25	U	0.25	0.25	2.0

SW8260C

8/26/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

Field Blank

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908134

Matrix: Liquid Lab Sample ID: 1908134-010A

Sample wt/vol: 5mL Lab File ID: V2-0060.D

Level: (low/med) LOW Date Collected: 8/15/2019 12:30 PM

% Moisture: N/A Date Received: 8/15/2019 4:20 PM

Extract Volume: 5000(µl) Date Prepped: 8/23/2019 1:50 PM

Seq Number: 822051 Date Analyzed: 8/24/2019 6:04 PM

GC Column: V2 08-01-19 SN#1629117 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 23128/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
105-05-5	p-Diethylbenzene	0.25	U	0.25	0.25	2.0
622-96-8	p-Ethyltoluene	0.25	U	0.25	0.25	2.0
135-98-8	sec-Butylbenzene	0.25	U	0.25	0.25	2.0
100-42-5	Styrene	0.25	U	0.25	0.25	2.0
75-65-0	t-Butyl alcohol	2.5	U	2.5	2.5	10
98-06-6	tert-Butylbenzene	0.25	U	0.25	0.25	2.0
127-18-4	Tetrachloroethene	0.25	U	0.25	0.25	2.0
108-88-3	Toluene	0.30	J	0.25	0.25	2.0
156-60-5	trans-1,2-Dichloroethene	0.25	U	0.25	0.25	2.0
10061-02-6	trans-1,3-Dichloropropene	0.25	U	0.25	0.25	2.0
79-01-6	Trichloroethene	0.25	U	0.25	0.25	2.0
75-69-4	Trichlorofluoromethane	0.25	U	0.25	0.25	2.0
108-05-4	Vinyl acetate	0.25	U	0.25	0.25	2.0
75-01-4	Vinyl chloride	0.25	U	0.25	0.25	2.0
1330-20-7	Xylenes, Total	0.75	U	0.75	0.75	6.0
108-87-2	Methylcyclohexane	0.25	U	0.25	0.25	2.0
107-02-8	Acrolein	1.0	~~U~~ R UJ	1.0	1.0	10
107-13-1	Acrylonitrile	0.25	~~U~~ UJ	0.25	0.25	2.0

SW8260C

9/5/19

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

Trip Blank

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908134

Matrix: Liquid Lab Sample ID: 1908134-011A

Sample wt/vol: 5mL Lab File ID: V2-0061.D

Level: (low/med) LOW Date Collected: 8/15/2019 12:00 AM

% Moisture: N/A Date Received: 8/15/2019 4:20 PM

Extract Volume: 5000(µl) Date Prepped: 8/23/2019 1:50 PM

Seq Number: 822052 Date Analyzed: 8/24/2019 6:34 PM

GC Column: V2 08-01-19 SN#1629117 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 23128/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
630-20-6	1,1,1,2-Tetrachloroethane	0.25	U	0.25	0.25	2.0
71-55-6	1,1,1-Trichloroethane	0.25	U	0.25	0.25	2.0
79-34-5	1,1,2,2-Tetrachloroethane	0.25	U	0.25	0.25	2.0
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.25	U	0.25	0.25	2.0
79-00-5	1,1,2-Trichloroethane	0.25	U	0.25	0.25	2.0
75-34-3	1,1-Dichloroethane	0.25	U	0.25	0.25	2.0
75-35-4	1,1-Dichloroethene	0.25	U	0.25	0.25	2.0
563-58-6	1,1-Dichloropropene	0.25	U	0.25	0.25	2.0
87-61-6	1,2,3-Trichlorobenzene	0.25	U	0.25	0.25	2.0
96-18-4	1,2,3-Trichloropropane	0.25	U	0.25	0.25	2.0
95-93-2	1,2,4,5-Tetramethylbenzene	0.25	U	0.25	0.25	2.0
120-82-1	1,2,4-Trichlorobenzene	0.25	U	0.25	0.25	2.0
95-63-6	1,2,4-Trimethylbenzene	0.25	U	0.25	0.25	2.0
96-12-8	1,2-Dibromo-3-chloropropane	0.25	U	0.25	0.25	2.0
106-93-4	1,2-Dibromoethane	0.25	U	0.25	0.25	2.0
95-50-1	1,2-Dichlorobenzene	0.25	U	0.25	0.25	2.0
107-06-2	1,2-Dichloroethane	0.25	U	0.25	0.25	2.0
78-87-5	1,2-Dichloropropane	0.25	U	0.25	0.25	2.0
108-67-8	1,3,5-Trimethylbenzene	0.25	U	0.25	0.25	2.0
541-73-1	1,3-Dichlorobenzene	0.25	U	0.25	0.25	2.0
142-28-9	1,3-dichloropropane	0.25	U	0.25	0.25	2.0
106-46-7	1,4-Dichlorobenzene	0.25	U	0.25	0.25	2.0
123-91-1	1,4-Dioxane	0.25	U	0.25	0.25	1.0
594-20-7	2,2-Dichloropropane	0.25	U	0.25	0.25	2.0
78-93-3	2-Butanone	0.50	U	0.50	0.50	4.0
110-75-8	2-Chloroethyl vinyl ether	10	R U	10	10	20
95-49-8	2-Chlorotoluene	0.25	U	0.25	0.25	2.0
591-78-6	2-Hexanone	0.50	U	0.50	0.50	4.0
67-63-0	2-Propanol	0.25	U	0.25	0.25	2.0
106-43-4	4-Chlorotoluene	0.25	U	0.25	0.25	2.0
99-87-6	4-Isopropyltoluene	0.25	U	0.25	0.25	2.0
108-10-1	4-Methyl-2-pentanone	0.50	U	0.50	0.50	4.0
67-64-1	Acetone	29	~~B~~ U	5.0	5.0	10

SW8260C

8/24/2019

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

Trip Blank

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908134

Matrix: Liquid Lab Sample ID: 1908134-011A

Sample wt/vol: 5mL Lab File ID: V2-0061.D

Level: (low/med) LOW Date Collected: 8/15/2019 12:00 AM

% Moisture: N/A Date Received: 8/15/2019 4:20 PM

Extract Volume: 5000(µl) Date Prepped: 8/23/2019 1:50 PM

Seq Number: 822052 Date Analyzed: 8/24/2019 6:34 PM

GC Column: V2 08-01-19 SN#1629117 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 23128/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
71-43-2	Benzene	0.25	U	0.25	0.25	2.0
108-86-1	Bromobenzene	0.25	U	0.25	0.25	2.0
74-97-5	Bromochloromethane	0.25	U	0.25	0.25	2.0
75-27-4	Bromodichloromethane	0.25	U	0.25	0.25	2.0
75-25-2	Bromoform	0.25	U	0.25	0.25	2.0
74-83-9	Bromomethane	0.25	U	0.25	0.25	2.0
75-15-0	Carbon disulfide	0.25	U	0.25	0.25	2.0
56-23-5	Carbon tetrachloride	0.25	U	0.25	0.25	2.0
108-90-7	Chlorobenzene	0.25	U	0.25	0.25	2.0
75-45-6	Chlorodifluoromethane	0.25	U	0.25	0.25	2.0
75-00-3	Chloroethane	0.25	U	0.25	0.25	2.0
67-66-3	Chloroform	0.25	U	0.25	0.25	2.0
74-87-3	Chloromethane	0.25	U	0.25	0.25	2.0
156-59-2	cis-1,2-Dichloroethene	0.25	U	0.25	0.25	2.0
10061-01-5	cis-1,3-Dichloropropene	0.25	U	0.25	0.25	2.0
110-82-7	Cyclohexane	0.25	U	0.25	0.25	2.0
124-48-1	Dibromochloromethane	0.25	U	0.25	0.25	2.0
74-95-3	Dibromomethane	0.25	U	0.25	0.25	2.0
75-71-8	Dichlorodifluoromethane	0.25	U	0.25	0.25	2.0
108-20-3	Diisopropyl ether	0.50	U	0.50	0.50	2.0
64-17-5	Ethanol	2.5	~~U~~ R	2.5	2.5	10
100-41-4	Ethylbenzene	0.25	U	0.25	0.25	2.0
76-14-2	Freon-114	0.25	U	0.25	0.25	2.0
87-68-3	Hexachlorobutadiene	0.25	U	0.25	0.25	2.0
98-82-8	Isopropylbenzene	0.25	U	0.25	0.25	2.0
179601-23-1	m,p-Xylene	0.50	U	0.50	0.50	4.0
79-20-9	Methyl Acetate	0.25	U	0.25	0.25	2.0
1634-04-4	Methyl tert-butyl ether	0.25	U	0.25	0.25	2.0
75-09-2	Methylene chloride	5.7	~~B~~ U	0.25	0.25	2.0
104-51-8	n-Butylbenzene	0.25	U	0.25	0.25	2.0
103-65-1	n-Propylbenzene	0.25	U	0.25	0.25	2.0
91-20-3	Naphthalene	0.25	U	0.25	0.25	2.0
95-47-6	o-Xylene	0.25	U	0.25	0.25	2.0

Form I

VOLATILE SW-846 METHOD 8260

CLIENT SAMPLE NO.

Trip Blank

Lab Name: American Analytical Laboratories, LLC. Contract:

Lab Code: AAL ClientID: Berninger SAS No.: SDG No.: 1908134

Matrix: Liquid Lab Sample ID: 1908134-011A

Sample wt/vol: 5mL Lab File ID: V2-0061.D

Level: (low/med) LOW Date Collected: 8/15/2019 12:00 AM

% Moisture: N/A Date Received: 8/15/2019 4:20 PM

Extract Volume: 5000(µl) Date Prepped: 8/23/2019 1:50 PM

Seq Number: 822052 Date Analyzed: 8/24/2019 6:34 PM

GC Column: V2 08-01-19 SN#1629117 Dilution Factor: 1.00

Column ID: 0.18(mm) Batch ID/ Ext Mthd: 23128/PT

CAS NO.	COMPOUND	CONC. UNITS: µg/L	Q	DL	LOD	LOQ
105-05-5	p-Diethylbenzene	0.25	U	0.25	0.25	2.0
622-96-8	p-Ethyltoluene	0.25	U	0.25	0.25	2.0
135-98-8	sec-Butylbenzene	0.25	U	0.25	0.25	2.0
100-42-5	Styrene	0.25	U	0.25	0.25	2.0
75-65-0	t-Butyl alcohol	2.5	U	2.5	2.5	10
98-06-6	tert-Butylbenzene	0.25	U	0.25	0.25	2.0
127-18-4	Tetrachloroethene	0.25	U	0.25	0.25	2.0
108-88-3	Toluene	0.25	U	0.25	0.25	2.0
156-60-5	trans-1,2-Dichloroethene	0.25	U	0.25	0.25	2.0
10061-02-6	trans-1,3-Dichloropropene	0.25	U	0.25	0.25	2.0
79-01-6	Trichloroethene	0.25	U	0.25	0.25	2.0
75-69-4	Trichlorofluoromethane	0.25	U	0.25	0.25	2.0
108-05-4	Vinyl acetate	0.25	U	0.25	0.25	2.0
75-01-4	Vinyl chloride	0.25	U	0.25	0.25	2.0
1330-20-7	Xylenes, Total	0.75	U	0.75	0.75	6.0
108-87-2	Methylcyclohexane	0.25	U	0.25	0.25	2.0
107-02-8	Acrolein	1.0	~~U~~ R UJ	1.0	1.0	10
107-13-1	Acrylonitrile	0.25	~~U~~ UJ	0.25	0.25	2.0

SW8260C

10/3/19

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Edison Job No.: 460-188226-1

SDG No.:

Client Sample ID: MW-1 Lab Sample ID: 460-188226-1

Matrix: Water Lab File ID: U68044.D

Analysis Method: 8270D SIM Date Collected: 07/31/2019 09:00

Extract. Method: 3510C Date Extracted: 08/06/2019 08:33

Sample wt/vol: 250(mL) Date Analyzed: 08/08/2019 01:20

Con. Extract Vol.: 2(mL) Dilution Factor: 1

Injection Volume: 5(uL) Level: (low/med) Low

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 630393 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	0.17	U F1	0.17	0.17

CAS NO.	SURROGATE	%REC	Q	LIMITS
4165-60-0	Nitrobenzene-d5	71		38-125

9/7/19

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Edison | Job No.: 460-188226-1

SDG No.:

Client Sample ID: MW-1DUP | Lab Sample ID: 460-188226-2

Matrix: Water | Lab File ID: h2383264.D

Analysis Method: 8270D SIM | Date Collected: 07/31/2019 09:00

Extract. Method: 3510C | Date Extracted: 08/06/2019 11:40

Sample wt/vol: 250(mL) | Date Analyzed: 08/07/2019 09:38

Con. Extract Vol.: 2(mL) | Dilution Factor: 1

Injection Volume: 5(uL) | Level: (low/med) Low

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 630104 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	0.17	U* ~~U~~ R	0.17	0.17

CAS NO.	SURROGATE	%REC	Q	LIMITS
4165-60-0	Nitrobenzene-d5	78		38-125

8/9/2019

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Edison Job No.: 460-188226-1

SDG No.:

Client Sample ID: MW-3 Lab Sample ID: 460-188226-3

Matrix: Water Lab File ID: U68028.D

Analysis Method: 8270D SIM Date Collected: 07/31/2019 11:00

Extract. Method: 3510C Date Extracted: 08/06/2019 08:33

Sample wt/vol: 250(mL) Date Analyzed: 08/07/2019 09:05

Con. Extract Vol.: 2(mL) Dilution Factor: 1

Injection Volume: 5(uL) Level: (low/med) Low

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 630106 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	0.17	~~U~~ J	0.17	0.17

CAS NO.	SURROGATE	%REC	Q	LIMITS
4165-60-0	Nitrobenzene-d5	83		38-125

8/9/2019

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Edison Job No.: 460-188226-1

SDG No.:

Client Sample ID: MW-6A Lab Sample ID: 460-188226-4

Matrix: Water Lab File ID: U68029.D

Analysis Method: 8270D SIM Date Collected: 07/31/2019 12:00

Extract. Method: 3510C Date Extracted: 08/06/2019 08:33

Sample wt/vol: 250(mL) Date Analyzed: 08/07/2019 09:26

Con. Extract Vol.: 2(mL) Dilution Factor: 1

Injection Volume: 5(uL) Level: (low/med) Low

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 630106 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	0.17	~~U~~ UJ	0.17	0.17

CAS NO.	SURROGATE	%REC	Q	LIMITS
4165-60-0	Nitrobenzene-d5	74		38-125

8/9/2019

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Edison Job No.: 460-188226-1

SDG No.:

Client Sample ID: Field Blanks(F.B) Lab Sample ID: 460-188226-5

Matrix: Water Lab File ID: h2383259.D

Analysis Method: 8270D SIM Date Collected: 07/31/2019 00:00

Extract. Method: 3510C Date Extracted: 08/06/2019 08:33

Sample wt/vol: 250(mL) Date Analyzed: 08/07/2019 07:52

Con. Extract Vol.: 2(mL) Dilution Factor: 1

Injection Volume: 5(uL) Level: (low/med) Low

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 630104 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	0.17	U	0.17	0.17

CAS NO.	SURROGATE	%REC	Q	LIMITS
4165-60-0	Nitrobenzene-d5	80		38-125

for 9/11/19

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 460-188226-1

SDG No.:

Client Sample ID: MW-1 Lab Sample ID: 460-188226-1

Matrix: Water Lab File ID: 2019.08.08LLC_058.d

Analysis Method: 537 (modified) Date Collected: 07/31/2019 09:00

Extraction Method: 3535 Date Extracted: 08/08/2019 06:01

Sample wt/vol: 280.2(mL) Date Analyzed: 08/09/2019 08:26

Con. Extract Vol.: 10.0(mL) Dilution Factor: 1

Injection Volume: 20(uL) GC Column: Acquity ID: 2.1(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 313696 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2706-90-3	Perfluoropentanoic acid (PFPeA)	16.2		1.78	0.44
307-24-4	Perfluorohexanoic acid (PFHxA)	25.9		1.78	0.52
375-85-9	Perfluoroheptanoic acid (PFHpA)	29.0		1.78	0.22
335-67-1	Perfluorooctanoic acid (PFOA)	181		1.78	0.76
375-95-1	Perfluorononanoic acid (PFNA)	17.5		1.78	0.24
335-76-2	Perfluorodecanoic acid (PFDA)	17.1		1.78	0.28
2058-94-8	Perfluoroundecanoic acid (PFUnA)	1.45	J	1.78	0.98
307-55-1	Perfluorododecanoic acid (PFDoA)	0.49	U	1.78	0.49
72629-94-8	Perfluorotridecanoic acid (PFTriA)	1.16	U	1.78	1.16
376-06-7	Perfluorotetradecanoic acid (PFTeA)	0.26	U	1.78	0.26
375-73-5	Perfluorobutanesulfonic acid (PFBS)	11.8		1.78	0.18
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	49.3	B	1.78	0.15
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	27.1		1.78	0.17
335-77-3	Perfluorodecanesulfonic acid (PFDS)	0.29	U	1.78	0.29
754-91-6	Perfluorooctanesulfonamide (FOSA)	18.9	B	1.78	0.31
2355-31-9	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	322		17.8	2.77
2991-50-6	N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	22.9		17.8	1.70
27619-97-2	6:2 FTS	1.78	U	17.8	1.78
39108-34-4	8:2 FTS	1.78	U	17.8	1.78

for 9/5/19

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 460-188226-1

SDG No.:

Client Sample ID: MW-1 DL Lab Sample ID: 460-188226-1 DL

Matrix: Water Lab File ID: 2019.08.10LLAA_032.d

Analysis Method: 537 (modified) Date Collected: 07/31/2019 09:00

Extraction Method: 3535 Date Extracted: 08/08/2019 06:01

Sample wt/vol: 280.2(mL) Date Analyzed: 08/10/2019 20:59

Con. Extract Vol.: 10.0(mL) Dilution Factor: 10

Injection Volume: 20(uL) GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 314174 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-22-4	Perfluorobutanoic acid (PFBA)	12.4	~~J D~~ JD -	17.8	3.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00992	13C4 PFBA	65		25-150

for 9/17/19

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 460-188226-1

SDG No.:

Client Sample ID: MW-1 DL2 Lab Sample ID: 460-188226-1 DL2

Matrix: Water Lab File ID: 2019.08.13 LLA_008.d

Analysis Method: 537 (modified) Date Collected: 07/31/2019 09:00

Extraction Method: 3535 Date Extracted: 08/08/2019 06:01

Sample wt/vol: 280.2(mL) Date Analyzed: 08/13/2019 10:07

Con. Extract Vol.: 10.0(mL) Dilution Factor: 20

Injection Volume: 20(uL) GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 314779 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	3530	~~D~~ ~~P~~ JD-	35.7	9.64

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00991	13C4 PFOS	75		25-150

for 9/17/19

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 460-188226-1

SDG No.:

Client Sample ID: MW-1DUP Lab Sample ID: 460-188226-2

Matrix: Water Lab File ID: 2019.08.08LLC_063.d

Analysis Method: 537 (modified) Date Collected: 07/31/2019 09:00

Extraction Method: 3535 Date Extracted: 08/08/2019 06:01

Sample wt/vol: 289.7(mL) Date Analyzed: 08/09/2019 09:06

Con. Extract Vol.: 10.0(mL) Dilution Factor: 1

Injection Volume: 20(uL) GC Column: Acquity ID: 2.1(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 313696 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2706-90-3	Perfluoropentanoic acid (PFPeA)	14.9		1.73	0.42
307-24-4	Perfluorohexanoic acid (PFHxA)	26.7		1.73	0.50
375-85-9	Perfluoroheptanoic acid (PFHpA)	30.7		1.73	0.22
335-67-1	Perfluorooctanoic acid (PFOA)	186		1.73	0.73
375-95-1	Perfluorononanoic acid (PFNA)	20.9		1.73	0.23
335-76-2	Perfluorodecanoic acid (PFDA)	18.1		1.73	0.27
2058-94-8	Perfluoroundecanoic acid (PFUnA)	1.37	J	1.73	0.95
307-55-1	Perfluorododecanoic acid (PFDoA)	0.47	U	1.73	0.47
72629-94-8	Perfluorotridecanoic acid (PFTriA)	1.12	U	1.73	1.12
376-06-7	Perfluorotetradecanoic acid (PFTeA)	0.25	U	1.73	0.25
375-73-5	Perfluorobutanesulfonic acid (PFBS)	12.1		1.73	0.17
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	48.0	B	1.73	0.15
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	26.5		1.73	0.16
335-77-3	Perfluorodecanesulfonic acid (PFDS)	0.28	U	1.73	0.28
754-91-6	Perfluorooctanesulfonamide (FOSA)	16.8	B	1.73	0.30
2355-31-9	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	341		17.3	2.68
2991-50-6	N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	21.1		17.3	1.64
27619-97-2	6:2 FTS	1.73	U	17.3	1.73
39108-34-4	8:2 FTS	1.73	U	17.3	1.73

8/9/2019

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 460-188226-1

SDG No.:

Client Sample ID: MW-1DUP DL Lab Sample ID: 460-188226-2 DL

Matrix: Water Lab File ID: 2019.08.10LLAA_037.d

Analysis Method: 537 (modified) Date Collected: 07/31/2019 09:00

Extraction Method: 3535 Date Extracted: 08/08/2019 06:01

Sample wt/vol: 289.7(mL) Date Analyzed: 08/10/2019 21:39

Con. Extract Vol.: 10.0(mL) Dilution Factor: 20

Injection Volume: 20(uL) GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 314174 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-22-4	Perfluorobutanoic acid (PFBA)	10.8	J D	34.5	6.04
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	3620	D	34.5	9.32

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00992	13C4 PFBA	57		25-150
STL00991	13C4 PFOS	61		25-150

8/9/19

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 460-188226-1

SDG No.:

Client Sample ID: MW-3 Lab Sample ID: 460-188226-3

Matrix: Water Lab File ID: 2019.08.08LLC_064.d

Analysis Method: 537 (modified) Date Collected: 07/31/2019 11:00

Extraction Method: 3535 Date Extracted: 08/08/2019 06:01

Sample wt/vol: 290.1(mL) Date Analyzed: 08/09/2019 09:14

Con. Extract Vol.: 10.0(mL) Dilution Factor: 1

Injection Volume: 20(uL) GC Column: Acquity ID: 2.1(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 313696 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-22-4	Perfluorobutanoic acid (PFBA)	5.77		1.72	0.30
2706-90-3	Perfluoropentanoic acid (PFPeA)	7.36		1.72	0.42
307-24-4	Perfluorohexanoic acid (PFHxA)	10.3		1.72	0.50
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.20		1.72	0.22
335-67-1	Perfluorooctanoic acid (PFOA)	40.3		1.72	0.73
375-95-1	Perfluorononanoic acid (PFNA)	6.72		1.72	0.23
335-76-2	Perfluorodecanoic acid (PFDA)	2.94		1.72	0.27
2058-94-8	Perfluoroundecanoic acid (PFUnA)	0.95	U	1.72	0.95
307-55-1	Perfluorododecanoic acid (PFDoA)	0.47	U	1.72	0.47
72629-94-8	Perfluorotridecanoic acid (PFTriA)	1.12	U	1.72	1.12
376-06-7	Perfluorotetradecanoic acid (PFTeA)	0.35	J	1.72	0.25
375-73-5	Perfluorobutanesulfonic acid (PFBS)	8.11		1.72	0.17
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	8.88	~~B~~	1.72	0.15
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	2.51		1.72	0.16
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	235	B	1.72	0.47
335-77-3	Perfluorodecanesulfonic acid (PFDS)	0.28	U	1.72	0.28
754-91-6	Perfluorooctanesulfonamide (FOSA)	0.35	~~J B~~ U	1.72	0.30
2355-31-9	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.67	U	17.2	2.67
2991-50-6	N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	1.64	U	17.2	1.64
27619-97-2	6:2 FTS	1.72	U	17.2	1.72
39108-34-4	8:2 FTS	1.72	U	17.2	1.72

8/19/19

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 460-188226-1

SDG No.:

Client Sample ID: MW-6A Lab Sample ID: 460-188226-4

Matrix: Water Lab File ID: 2019.08.08LLC_065.d

Analysis Method: 537 (modified) Date Collected: 07/31/2019 12:00

Extraction Method: 3535 Date Extracted: 08/08/2019 06:01

Sample wt/vol: 280.9(mL) Date Analyzed: 08/09/2019 09:22

Con. Extract Vol.: 10.0(mL) Dilution Factor: 1

Injection Volume: 20(uL) GC Column: Acquity ID: 2.1(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 313696 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-22-4	Perfluorobutanoic acid (PFBA)	4.83		1.78	0.31
2706-90-3	Perfluoropentanoic acid (PFPeA)	13.2		1.78	0.44
307-24-4	Perfluorohexanoic acid (PFHxA)	18.8		1.78	0.52
375-85-9	Perfluoroheptanoic acid (PFHpA)	21.2		1.78	0.22
335-67-1	Perfluorooctanoic acid (PFOA)	121		1.78	0.76
375-95-1	Perfluorononanoic acid (PFNA)	12.1		1.78	0.24
335-76-2	Perfluorodecanoic acid (PFDA)	6.97		1.78	0.28
2058-94-8	Perfluoroundecanoic acid (PFUnA)	1.96		1.78	0.98
307-55-1	Perfluorododecanoic acid (PFDoA)	1.22	J	1.78	0.49
72629-94-8	Perfluorotridecanoic acid (PFTriA)	1.16	U	1.78	1.16
376-06-7	Perfluorotetradecanoic acid (PFTeA)	0.42	J	1.78	0.26
375-73-5	Perfluorobutanesulfonic acid (PFBS)	14.2		1.78	0.18
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	111	~~B~~	1.78	0.15
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	55.4		1.78	0.17
335-77-3	Perfluorodecanesulfonic acid (PFDS)	0.28	U	1.78	0.28
754-91-6	Perfluorooctanesulfonamide (FOSA)	139	~~B~~	1.78	0.31
2355-31-9	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	229		17.8	2.76
2991-50-6	N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	3.07	J	17.8	1.69
27619-97-2	6:2 FTS	1.78	U	17.8	1.78
39108-34-4	8:2 FTS	1.78	U	17.8	1.78

8/9/2019

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 460-188226-1

SDG No.:

Client Sample ID: MW-6A DL Lab Sample ID: 460-188226-4 DL

Matrix: Water Lab File ID: 2019.08.10LLAA_038.d

Analysis Method: 537 (modified) Date Collected: 07/31/2019 12:00

Extraction Method: 3535 Date Extracted: 08/08/2019 06:01

Sample wt/vol: 280.9(mL) Date Analyzed: 08/10/2019 21:47

Con. Extract Vol.: 10.0(mL) Dilution Factor: 10

Injection Volume: 20(uL) GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 314174 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2380	~~D~~ JD	17.8	4.81

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00991	13C4 PFOS	51		25-150

8/19/19

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Sacramento Job No.: 460-188226-1

SDG No.:

Client Sample ID: Field Blanks(F.B) Lab Sample ID: 460-188226-5

Matrix: Water Lab File ID: 2019.08.10LLAA_030.d

Analysis Method: 537 (modified) Date Collected: 07/31/2019 00:00

Extraction Method: 3535 Date Extracted: 08/08/2019 06:01

Sample wt/vol: 286.7(mL) Date Analyzed: 08/10/2019 20:43

Con. Extract Vol.: 10.0(mL) Dilution Factor: 1

Injection Volume: 20(uL) GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 314174 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-22-4	Perfluorobutanoic acid (PFBA)	0.31	U	1.74	0.31
2706-90-3	Perfluoropentanoic acid (PFPeA)	0.43	U	1.74	0.43
307-24-4	Perfluorohexanoic acid (PFHxA)	0.51	U	1.74	0.51
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.22	U	1.74	0.22
335-67-1	Perfluorooctanoic acid (PFOA)	0.74	U	1.74	0.74
375-95-1	Perfluorononanoic acid (PFNA)	0.24	U	1.74	0.24
335-76-2	Perfluorodecanoic acid (PFDA)	0.27	U	1.74	0.27
2058-94-8	Perfluoroundecanoic acid (PFUnA)	0.96	U	1.74	0.96
307-55-1	Perfluorododecanoic acid (PFDoA)	0.48	U	1.74	0.48
72629-94-8	Perfluorotridecanoic acid (PFTriA)	1.13	U	1.74	1.13
376-06-7	Perfluorotetradecanoic acid (PFTeA)	0.25	U	1.74	0.25
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.17	U	1.74	0.17
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	0.28	J	1.74	0.15
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	0.17	U	1.74	0.17
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.47	U	1.74	0.47
335-77-3	Perfluorodecanesulfonic acid (PFDS)	0.28	U	1.74	0.28
754-91-6	Perfluorooctanesulfonamide (FOSA)	0.31	U	1.74	0.31
2355-31-9	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.70	U	17.4	2.70
2991-50-6	N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	1.66	U	17.4	1.66
27619-97-2	6:2 FTS	1.74	U	17.4	1.74
39108-34-4	8:2 FTS	1.74	U	17.4	1.74

for 9/17/19

Appendix-D

Validated SVI Data

L.A.B. Validation Corp. 14 West Point Drive, East Northport, N.Y. 11731

DATA USABILITY SUMMARY REPORT – DUSR
DATA VALIDATION SUMMARY

ORGANIC ANALYSIS

EPA Compendium Method TO-15
VOLATILES BY GC/MS

For Soil Vapor and Outside Air Samples Collected
July 31, 2019
From 1345 Peninsula Boulevard, Hewlett, New York
American Drive-In Cleaners
Project #11391
Collected by WRS d.b.a. Berninger Environmental.

SAMPLE DELIVERY GROUP NUMBER: L1934510
Alpha Analytical (ELAP #11148)

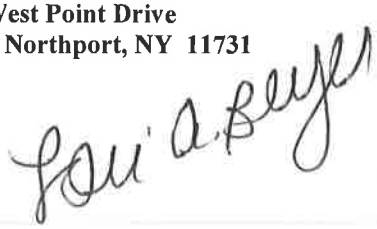
SUBMITTED TO:

Mr. Justin Halpin
WRS d.b.a. Berninger Environmental
17 Old Dock Road
Yaphank, NY 11980

October 02, 2019

PREPARED BY:

Lori A. Beyer/President
L.A.B. Validation Corp.
14 West Point Drive
East Northport, NY 11731



Phone (516) 523-7891 email LABValidation@aol.com

American Drive-In Cleaners
1345 Peninsula Boulevard, Hewlett, New York; July 2019.
Data Validation Report: Volatile Organics by EPA Method TO15

Table of Contents:

Introduction
Data Qualifier Definitions
Sample Receipt

1.0 Volatile Organics by GC/MS EPA Compendium Method TO-15
- 1.1 Holding Time
- 1.2 Surrogate Standards
- 1.3 Matrix Spikes (MS), Matrix Spike Duplicates (MSD), Laboratory Duplicate, Field Duplicate Analysis
- 1.4 Laboratory Control Sample
- 1.5 Blank Contamination
- 1.6 GC/MS Instrument Performance Check
- 1.7 Initial and Continuing Calibrations
- 1.8 Internal Standards
- 1.9 Target Compound List Identification
- 1.10 Tentatively Identified Compounds
- 1.11 Compound Quantification and Reported Detection Limits
- 1.12 Overall System Performance

APPENDICES:
A. Chain of Custody Document and Sample Receipt Checklist
B. Case Narrative
C. Data Summary Form I's with Qualifications

Introduction:

A validation was performed on five (5) soil vapor and one (1) outside air samples for Volatile Organic analysis collected by WRS d.b.a. Berninger Environmental and submitted to Alpha Analytical for subsequent analysis under chain of custody documentation. This report contains the laboratory and validation results for the field samples itemized below. The samples were collected on July 31, 2019

The samples were analyzed by Alpha Analytical utilizing EPA Method TO-15 and in accordance with NYSDEC Analytical Services Protocol (2005) and submitted under NYSDEC ASP Category B equivalent deliverable requirements for the associated analytical methodology employed. The analytical testing consisted of the TO-15 Compound List.

The data was evaluated in accordance with the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (Publication 9240.1-05), EPA SOP #HW31 (Revision 6-Updated September 2016) and in conjunction with the analytical methodology for which the samples were analyzed, where applicable and relevant.

The data validation report pertains to the following field air samples:

Sample Identification	Laboratory Identification	Sample Matrix (Air Type)	Collection Date
SV-1	L1934510-01	Soil Vapor	07/31/2019
SV-2	L1934510-02	Soil Vapor	07/31/2019
SV-3	L1934510-03	Soil Vapor	07/31/2019
SV-4	L1934510-04	Soil Vapor	07/31/2019
SV-5	L1934510-05	Soil Vapor	07/31/2019
OA-1	L1934510-06	Outside Air	07/31/2019

Data Qualifier Definitions:

The following definitions provide brief explanations of the qualifiers assigned to results in the data review process.

U - The analyte was analyzed for but was not detected above the reported sample quantitation limit.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

J+ - The result is an estimated quantity, but the result may be biased high. (Equis qualified, JK)

J- - The result is an estimated quantity, but the result may be biased low. (Equis qualified, JL)

NJ - The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ - The analyte was analyzed for but not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

R - The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.

D - Analyte concentration was obtained from diluted analysis.

Sample Receipt:

The Chain of Custody document from 7/31/2019 indicates that the air samples were received on 08/02/19 via laboratory courier following completion of the sampling event. Sample login notes and the chain of custody indicate that at the Validated Time of Sample Receipt (VTSR) at the laboratory no unresolved discrepancies were notated and therefore the integrity of the summa canister samples is assumed to be good.

Summa Canisters were leak tested prior to collection of each sample. Initial pressure gauge is recorded on the chain of custody and is required to be approximately 30 psi with zero air. Acceptable canister pressure was observed for these samples. All canisters pass the leak check requirements.

The data summary Form I's included in Appendix C includes all usable (qualified) and unusable (rejected) results for the samples identified above and summarize the detailed narrative section of the report. All data validation qualifications have been reported on the Form I's for ease of review and verification.

NOTE:
L.A.B. Validation Corp. believes it is appropriate to note that the data validation criteria utilized for data evaluation is different than the method requirements utilized by the laboratory. Qualified data does not necessarily mean that the laboratory was non-compliant in the analysis that was performed.

Volatile Organics by EPA Compendium Method TO-15

The following method criteria were reviewed: holding times, surrogate standards, LCS, Blanks, Laboratory Duplicate, Tunes, Calibrations, Internal Standards, Target Component Identification and Quantitation, Reported Quantitation Limits and Overall System Performance. The volatile results are valid and useable as noted on the data summary table in Appendix C and within the following text:

1.1 Holding Time

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the technical holding time is exceeded, the data may not be considered valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimates, "J". The non-detects (sample quantitation limits) are required to be flagged as estimated, "J", or unusable, "R", if the holding times are grossly exceeded.

Air samples pertaining to this SDG were performed within the method and technical required holding times of thirty (30) days from sample collection for analysis. No qualifications were required based upon holding time criteria.

1.2 Surrogate Standards

All samples are spiked with surrogate compounds prior to sample analysis to evaluate overall laboratory performance and efficiency of the analytical technique. If the measure of surrogate concentrations is outside contract specifications, qualifications are required to be applied to associated samples and analytes.

Samples were not spiked with surrogate standards. Method TO15 does not mandate the addition of surrogate standards.

1.3 Matrix Spikes (MS)/ Matrix Spike Duplicates (MSD)/Laboratory Duplicate /Field Duplicate Analysis

The MS/MSD data are generated to determine the long-term precision and accuracy of the analytical method in various matrices.

Matrix Spike/Matrix Spike Duplicate analysis was not performed on samples pertaining to this SDG.

Batch Laboratory duplicate analysis was submitted in the data package. Acceptable precision (RPD) was observed (<25%) for all detected

compounds. Validation criteria uses <50% is used as a guidance for qualifying data.

Field Duplicate analysis was not required for this sampling event. Acceptable precision for air samples is 25%. The following criteria are utilized for Field/Lab Duplicate analysis when performed:

Criteria	Detected Compounds	Non-Detected Compounds
The RPD is within the limits of 0 and 25%	No qualification	No qualification
The RPD >25%	J in the parent and duplicate samples	Not applicable
The RPD could not be calculated since the compound was only detected in either the parent of duplicate sample. However, the detected concentration was </=2x the reporting limit	No qualification	No qualification
The RPD could not be calculated since the compound was only detected in either the parent or duplicate sample However, the detected concentration was >2x the reporting limit.	J in the parent and duplicate sample	UJ in the parent of duplicate sample

No qualifications to the data were applied based on MS/MSD/Laboratory Duplicate and Field Duplicate analysis.

1.4 Laboratory Control Sample

The LCS data for laboratory control samples (LCS) are generated to provide information on the accuracy of the analytical method and on the laboratory performance.

The following table summarizes the LCS criteria and the data qualification guidelines for all associated field samples.

LCS	NOT QUALIFIED	J	R
% Recovery:			
Detects	70-130%	<70%, >130%	
Non-Detects	>/=130%	50-69%	<50%
Absolute RT of LCS Compounds:			
LCS Compounds in samples RT: (min)	+/-0 .33		>/=0.33

Acceptable LCS was analyzed with this SDG pertaining to this sampling event. Recovery values for all spiked and reported compounds was determined to be >70%-<130% for all reported analytes except for 1,2,4-Trichlorobenzene (138%). This target analyte was not detected in any of the field samples. High recovery does not support any potential loss of detection and/or result bias for non-detects. No qualifications are required based on this outlier.

1.5 Blank Contamination

Quality assurance (QA) blanks; i.e. method, trip and field blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field blanks measure cross-contamination of samples during field operations. Storage blanks measure cross-contamination during sample storage of the field samples and are not required for TO15 analysis. Canister blanks measure cross-contamination from the sampling media.

The following table was utilized to qualify target analyte results due to method blank contamination. The largest value from all the associated blanks is required to be utilized. The largest value from all the associated blanks is required to be utilized:

Blank Type	Blank Result	Sample Result	Action for Samples
Method, Storage, field, Trip, Instrument	Detects	Not Detected	No qualification required
	<CRQL*	<CRQL*	Report CRQL value with a U
		>/= CRQL* and <2x the CRQL**	No qualification required
	>CRQL*	</= CRQL*	Report CRQL value with a U
		>/=CRQL* and </= blank concentration	Report blank value for sample concentration with a U
		>/= CRQL* and > blank concentration	No qualification required
	=CRQL*	</= CRQL*	Report CRQL value with a U
		>CRQL*	No qualification required
	Gross Contamination**	Detects	Report blank value for sample concentration with a U

*2x the CRQL for methylene chloride, 2-butanone and acetone.
**4x the CRQL for methylene chloride, 2-butanone, and acetone
***Qualifications based on instrument blank results affect only the sample analyzed immediately after the sample that has target compounds that exceed the calibration range or non-target compounds that exceed 100 ug/L.
Below is a summary of the compounds in the sample and the associated qualifications that have been applied:

The table below is utilized to qualify samples with target compound results also present in certification blanks:

Certification Contamination	Sample Result	Action for Sample
>/=detect limit	>5x certification contamination	No qualification required
>/=detect limit	<detect limit	Detection limit "U"
>/=detect limit	>/=detect limit and </= 5x certification contamination level	5x certification contamination "U"

<detect limit	</=detection limit and >/= detection limit	No qualification

Below is a summary of the compounds in the sample and the associated qualifications that have been applied:

A) **Method Blank Contamination:**
Method and Canister blanks were determined to be free of any contamination.

Acetone, Methylene Chloride and/or 2-Butanone was detected in the samples. The end user should proceed with caution when making decisions based on these detections since these are common solvents and/or laboratory contaminants utilized in the organic extraction laboratory. Laboratory reported concentrations could not be negated due to lack of presence in the corresponding method/canister blanks.

B) **Field Blank Contamination:**
Field Blank analysis was not required.

C) **Trip Blank Contamination:**
Trip Blank analysis was not required.

1.6 GC/MS Instrument Performance Check

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The Tuning standard for volatile organics is Bromofluorobenzene (BFB).

Instrument performance was generated within acceptable limits and frequency (24 hours) for Bromofluorobenzene (BFB) for all analyses conducted for this SDG.

1.7 Initial and Continuing Calibrations

Satisfactory instrument calibration is established to ensure that the instrument can produce acceptable quantitative data. An initial calibration demonstrates that the instrument can give acceptable performance at the beginning of an experimental sequence.

The continuing calibration checks document that the instrument is giving satisfactory daily performance.

A) Response Factor GC/MS:
The response factor measures the instrument's response to specific chemical compounds. The response factor for all compounds must be >/= 0.05 in both initial and continuing calibrations. A value <0.05 indicates a serious detection and quantitation problem (poor sensitivity). Analytes detected in the sample will be qualified as estimated, "J". All non-detects for that compound in the corresponding samples will be rejected, "R".

The following compounds can be >0.01 without qualification:
2-Butanone
Carbon Disulfide
Chloroethane
Chloromethane
1,2-Dibromoethane
1,2-Dichloropropane
1,4-Dioxane
1,2-Dibromo-3-chloropropane
Methylene Chloride

All the response factors for the target analytes reported were found to be within acceptable limits (>/=0.05) [or >/=0.01 for the 9 compounds above] and remaining analytes, for the initial and continuing calibrations.

B) Percent Relative Standard Deviation (%RSD) and Percent Difference (%D):
Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentrations. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be <30% and %D must be <30%. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J" and non-detects are flagged "UJ". If %RSD and %D grossly exceed QC criteria (>90%), non-detect data may be qualified, "R", unusable. Additionally, in cases where the %RSD is >30% and eliminating

either the high or the low point of the curve does not restore the %RSD to less than or equal to 30% then positive results are qualified, "J". In cases where removal of either the low or high point restores the linearity, then only low or high-level results will be qualified, "J" in the portion of the curve where non-linearity exists. Acceptable ICV was analyzed.

Initial Calibrations: The initial calibrations provided and the %RSD was within acceptable limits (30%) and (40%) for poor responders for all requested target compounds except for Isopropyl Alcohol (30.18%). Results in all samples have been qualified, "J/UJ." Initial calibration verification standard also met QC requirements.

Continuing Calibrations: The continuing calibrations provided and the %D was within acceptable limits (30%) and (40%) for poor responders for all reported compounds except for 1,2,4-Trichlorobenzene (32.6%). Non-detects have been qualified, "UJ."

1.8 Internal Standards

Internal Standards (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of 2 (-40% to +40%) from the associated continuing calibration standard. The retention time of the internal standard must not vary more than +/- 20 seconds from the associated continuing calibration standard. If the area count is outside the (-40% to +40%) range of the associated standard, all positive results for compounds quantitated using that IS are qualified as estimated, "J", and all non-detects as "UJ", or "R" if there is a severe loss of sensitivity.

If an internal standard retention time varies by more than 20 seconds, professional judgment will be used to determine either partial or total rejection of the data for that sample fraction.

Internal Standard area responses met QC requirements for all analysis pertaining to this data set as compared to the continuing calibration.

1.9 Target Compound List Identification

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and by comparison to the ion spectra obtained from known standards. For the results to be a positive hit, the sample peak must be within =/- 0.06RRT units of the standard

compound and have an ion spectrum which has a ratio of the primary and secondary m/e intensities within 20% of that in the standard compound.

GC/MS spectra met the qualitative criteria for identification. All retention times were within required specifications.

1.10 Tentatively Identified Compounds (TICs)

TICs were not required for this project. When submitted, the identification must be considered tentative (both quantitative and qualitative) due to the lack of required compound specific response factors. Consequently, all concentrations should be considered estimated, "J" and because of the qualitative uncertainty should be qualified, "N" where an identification has been made.

TICs were not required with this data set.

1.11 Compound Quantification and Reported Detection Limits

GC/MS quantitative analysis are acceptable. Correct internal standards and response factors and air volumes were used to calculate final concentrations.

Sample results have been presented in ug/m3 as well as ppbv on the laboratory reporting forms.

Samples were analyzed undiluted at 250mls as notated on the Form I's. The laboratory reported air volumes were verified with raw data and instrument run logs.

1.12 Overall System Performance

GC/MS analytical methodology was acceptable for this analysis. The data reported agrees with the raw data provided in the final report. The laboratory provided a complete data package and reported all data using acceptable protocols and laboratory qualifiers as defined in the report package.

Reviewer's Signature Lou A. Bellyn **Date** 10/02/2019

Appendix A
Chain of Custody Document
And Sample Receipt Checklist

AIR ANALYSIS

PAGE 1 OF 1

ALPHA ANALYTICAL — CHAIN OF CUSTODY

320 Forbes Blvd, Mansfield, MA 02048
TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd In Lab: 8/3/19

ALPHA Job #: L1934510

Client Information

Client: BEI / LRS
Address: 17 Old Dock Rd. Yaphank, NY 11980
Phone: 631-589-6521
Fax: —
Email: jhall@LRSES.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: American Drive-In
Project Location: Cheektowaga 1245 Kenmore Blvd. Hewlett, NY
Project #: 1091
Project Manager: JH
ALPHA Quote #: —

Turn-Around Time

☑ Standard ☐ RUSH (only confirmed if pre-approved)

Date Due: Time:

Report Information - Data Deliverables

☐ FAX
☐ ADEx
Criteria Checker: (Default based on Regulatory Criteria Indicated)
Other Formats:
☑ EMAIL (standard pdf report)
☑ Additional Deliverables: ASP-CAT-B deliv. (NYS)
Report to: (if different than Project Manager)

Billing Information

☑ Same as Client info PO #: 29109

Regulatory Requirements/Report Limits

State/Fed	Program	Res / Comm

Other Project Specific Requirements/Comments:

Project-Specific Target Compound List: ☐

ANALYSIS

TO-15 | TO-15 SIM | APH (Ethanol Interference) ☐ | Fixed Gases | Sulfides & Mercaptans by TO-15

ASP-CAT-B (NYS)

All Columns Below Must Be Filled Out

ALPHA Lab ID (Lab Use Only)	Sample ID	COLLECTION End Date	Start Time	End Time	Initial Vacuum	Final Vacuum	Sample Matrix*	Sampler's Initials	Can Size	ID Can	ID - Flow Controller	TO-15	TO-15 SIM	APH	Fixed Gases	Sulfides & Mercaptans by TO-15	Sample Comments (i.e. PID)
1934510-01	SV-1	7/31/19	10:00	12	-30	-1	SV	JH	6L	6614	954	X					
-02	SV-2		10:00	12	-30	-1	SV	JH	6L	2627	1016	X					
-03	SV-3		12:30	14:30	-30	-1	SV	JH	6L	941	1007	X					
-04	SV-4		12:30	14:10	-30	-1	SV	JH	6L	2899	1132	X					
-05	SV-5		12:30	14:20	-30	-1	SV	JH	6L	653	778	X					
-06	OA-1		11:30	13:30	-30	-1	AA	JH	6L	1668	1082	X					

*SAMPLE MATRIX CODES

AA = Ambient Air (Indoor/Outdoor)
SV = Soil Vapor/Landfill Gas/SVE
Other = Please Specify

Container Type

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

Relinquished By:	Date/Time	Received By:	Date/Time:
	8/2/19		8/2/19 12:13
	08/02/19 16:15		8/4/19 22:15
FAL	8/3/19 0328		8/3/19 03:08

Form No. 101-02 Rev. (25-Sep-15)

Sample Delivery Group Summary

Alpha Job Number : L1934510

Account Name : WRS Environmental Services, Inc.
Project Number : 11391
Project Name : AMERICAN DRIVE-INN CLEANERS

Received : 02-AUG-2019
Reviewer : Dylan Snook

Delivery Information

Samples Delivered By : Alpha Courier

Chain of Custody : Present

Cooler Information

Cooler	Seal/Seal#	Preservation	Temperature(°C)	Additional Information
NA	Absent/			

Condition Information

1) All samples on COC received?	**YES**
2) Extra samples received?	**NO**
3) Are there any sample container discrepancies?	**NO**
4) Are there any discrepancies between sample labels & COC?	**NO**
5) Are samples in appropriate containers for requested analysis?	**YES**
6) Are samples properly preserved for requested analysis?	**YES**
7) Are samples within holding time for requested analysis?	**YES**
8) All sampling equipment returned?	**YES**

Volatile Organics/VPH

1) Reagent Water Vials Frozen by Client?	**NA**

Appendix B
Case Narrative

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Case Narrative (continued)

Volatile Organics in Air

Canisters were released from the laboratory on July 22, 2019. The canister certification results are provided as an addendum.

Sample Receipt

L1934510-02: The sample identified as "SV-2" on the chain of custody was identified as "(Blank)" on the container label. At the client's request, the sample is reported as "SV-2".

Volatile Organics in Air

Not applicable.

The WG1270244-3 LCS recovery for dodecane (c12) (138%) and 1,2,4-trichlorobenzene (138%) is above the upper 130% acceptance limit. All samples associated with this LCS do not have reportable amounts of this analyte.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Report Date: 08/09/19

Title: Technical Director/Representative

10/11/19

Appendix C
Data Summary Form I's
with Qualifications

Results Summary
Form 1
Volatile Organics in Air

Client	: WRS Environmental Services, Inc.	Lab Number	: L1934510
Project Name	: AMERICAN DRIVE-INN CLEANERS	Project Number	: 11391
Lab ID	: L1934510-01	Date Collected	: 07/31/19 12:00
Client ID	: SV-1	Date Received	: 08/02/19
Sample Location	: 1345 PENINSULA BLVD. HEWLETT, NY	Date Analyzed	: 08/08/19 22:04
Sample Matrix	: SOIL_VAPOR	Dilution Factor	: 1
Analytical Method	: 48,TO-15	Analyst	: TS
Lab File ID	: R167923	Instrument ID	: AIRPIANO1
Sample Amount	: 250 ml	GC Column	: RTX-1

		ppbV			ug/m3			
CAS NO.	Parameter	Results	RL	MDL	Results	RL	MDL	Qualifier
75-71-8	Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--	U
74-87-3	Chloromethane	0.582	0.200	--	1.20	0.413	--	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethan	ND	0.200	--	ND	1.40	--	U
75-01-4	Vinyl chloride	0.876	0.200	--	2.24	0.511	--	
106-99-0	1,3-Butadiene	5.12	0.200	--	11.3	0.442	--	
74-83-9	Bromomethane	ND	0.200	--	ND	0.777	--	U
75-00-3	Chloroethane	0.641	0.200	--	1.69	0.528	--	
64-17-5	Ethyl Alcohol	5.10	5.00	--	9.61	9.42	--	
593-60-2	Vinyl bromide	ND	0.200	--	ND	0.874	--	U
67-64-1	Acetone	102	1.00	--	242	2.38	--	
75-69-4	Trichlorofluoromethane	0.558	0.200	--	3.14	1.12	--	
67-63-0	iso-Propyl Alcohol	1.48	0.500	--	3.64	1.23	--	J
75-35-4	1,1-Dichloroethene	ND	0.200	--	ND	0.793	--	U
75-65-0	tert-Butyl Alcohol	4.33	0.500	--	13.1	1.52	--	
75-09-2	Methylene chloride	ND	0.500	--	ND	1.74	--	U
107-05-1	3-Chloropropene	ND	0.200	--	ND	0.626	--	U
75-15-0	Carbon disulfide	18.2	0.200	--	56.7	0.623	--	
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.200	--	ND	1.53	--	U
156-60-5	trans-1,2-Dichloroethene	4.81	0.200	--	19.1	0.793	--	
75-34-3	1,1-Dichloroethane	ND	0.200	--	ND	0.809	--	U
1634-04-4	Methyl tert butyl ether	ND	0.200	--	ND	0.721	--	U
78-93-3	2-Butanone	13.6	0.500	--	40.1	1.47	--	
156-59-2	cis-1,2-Dichloroethene	13.7	0.200	--	54.3	0.793	--	
141-78-6	Ethyl Acetate	ND	0.500	--	ND	1.80	--	U
67-66-3	Chloroform	1.02	0.200	--	4.98	0.977	--	
109-99-9	Tetrahydrofuran	ND	0.500	--	ND	1.47	--	U

10/21/19

Results Summary
Form 1
Volatile Organics in Air

Client	: WRS Environmental Services, Inc.	Lab Number	: L1934510
Project Name	: AMERICAN DRIVE-INN CLEANERS	Project Number	: 11391
Lab ID	: L1934510-01	Date Collected	: 07/31/19 12:00
Client ID	: SV-1	Date Received	: 08/02/19
Sample Location	: 1345 PENINSULA BLVD. HEWLETT, NY	Date Analyzed	: 08/08/19 22:04
Sample Matrix	: SOIL_VAPOR	Dilution Factor	: 1
Analytical Method	: 48,TO-15	Analyst	: TS
Lab File ID	: R167923	Instrument ID	: AIRPIANO1
Sample Amount	: 250 ml	GC Column	: RTX-1

		ppbV			ug/m3			
CAS NO.	Parameter	Results	RL	MDL	Results	RL	MDL	Qualifier
107-06-2	1,2-Dichloroethane	ND	0.200	--	ND	0.809	--	U
110-54-3	n-Hexane	63.9	0.200	--	225	0.705	--	
71-55-6	1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--	U
71-43-2	Benzene	12.0	0.200	--	38.3	0.639	--	
56-23-5	Carbon tetrachloride	ND	0.200	--	ND	1.26	--	U
110-82-7	Cyclohexane	11.3	0.200	--	38.9	0.688	--	
78-87-5	1,2-Dichloropropane	ND	0.200	--	ND	0.924	--	U
75-27-4	Bromodichloromethane	ND	0.200	--	ND	1.34	--	U
1330-20-7	Xylene (Total)	3.52	0.200	--	15.3	0.869	--	
123-91-1	1,4-Dioxane	ND	0.200	--	ND	0.721	--	U
79-01-6	Trichloroethene	5.13	0.200	--	27.6	1.07	--	
540-84-1	2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--	U
142-82-5	Heptane	15.9	0.200	--	65.2	0.820	--	
10061-01-5	cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--	U
108-10-1	4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--	U
10061-02-6	trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--	U
79-00-5	1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--	U
108-88-3	Toluene	7.06	0.200	--	26.6	0.754	--	
540-59-0	1,2-Dichloroethene (total)	18.5	0.200	--	73.3	0.793	--	
591-78-6	2-Hexanone	ND	0.200	--	ND	0.820	--	U
124-48-1	Dibromochloromethane	ND	0.200	--	ND	1.70	--	U
542-75-6	1,3-Dichloropropene, Total	ND	0.200	--	ND	0.908	--	U
106-93-4	1,2-Dibromoethane	ND	0.200	--	ND	1.54	--	U
127-18-4	Tetrachloroethene	2.34	0.200	--	15.9	1.36	--	
108-90-7	Chlorobenzene	ND	0.200	--	ND	0.921	--	U
100-41-4	Ethylbenzene	0.773	0.200	--	3.36	0.869	--	

Results Summary
Form 1
Volatile Organics in Air

Client	: WRS Environmental Services, Inc.	Lab Number	: L1934510
Project Name	: AMERICAN DRIVE-INN CLEANERS	Project Number	: 11391
Lab ID	: L1934510-01	Date Collected	: 07/31/19 12:00
Client ID	: SV-1	Date Received	: 08/02/19
Sample Location	: 1345 PENINSULA BLVD. HEWLETT, NY	Date Analyzed	: 08/08/19 22:04
Sample Matrix	: SOIL_VAPOR	Dilution Factor	: 1
Analytical Method	: 48,TO-15	Analyst	: TS
Lab File ID	: R167923	Instrument ID	: AIRPIANO1
Sample Amount	: 250 ml	GC Column	: RTX-1

		ppbV			ug/m3			
CAS NO.	Parameter	Results	RL	MDL	Results	RL	MDL	Qualifier
179601-23-1	p/m-Xylene	2.49	0.400	--	10.8	1.74	--	
75-25-2	Bromoform	ND	0.200	--	ND	2.07	--	U
100-42-5	Styrene	0.287	0.200	--	1.22	0.852	--	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--	U
95-47-6	o-Xylene	1.04	0.200	--	4.52	0.869	--	
622-96-8	4-Ethyltoluene	0.235	0.200	--	1.16	0.983	--	
108-67-8	1,3,5-Trimethylbenzene	0.318	0.200	--	1.56	0.983	--	
95-63-6	1,2,4-Trimethylbenzene	1.12	0.200	--	5.51	0.983	--	
100-44-7	Benzyl chloride	ND	0.200	--	ND	1.04	--	U
541-73-1	1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--	U
106-46-7	1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--	U
95-50-1	1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--	U
120-82-1	1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--	~~U~~ UJ
87-68-3	Hexachlorobutadiene	ND	0.200	--	ND	2.13	--	U

8/8/19

Results Summary
Form 1
Volatile Organics in Air

Client	: WRS Environmental Services, Inc.	Lab Number	: L1934510
Project Name	: AMERICAN DRIVE-INN CLEANERS	Project Number	: 11391
Lab ID	: L1934510-02	Date Collected	: 07/31/19 12:00
Client ID	: SV-2	Date Received	: 08/02/19
Sample Location	: 1345 PENINSULA BLVD. HEWLETT, NY	Date Analyzed	: 08/08/19 22:37
Sample Matrix	: SOIL_VAPOR	Dilution Factor	: 1
Analytical Method	: 48,TO-15	Analyst	: TS
Lab File ID	: R167924	Instrument ID	: AIRPIANO1
Sample Amount	: 250 ml	GC Column	: RTX-1

		ppbV			ug/m3			
CAS NO.	Parameter	Results	RL	MDL	Results	RL	MDL	Qualifier
75-71-8	Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--	U
74-87-3	Chloromethane	0.758	0.200	--	1.57	0.413	--	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethan	ND	0.200	--	ND	1.40	--	U
75-01-4	Vinyl chloride	ND	0.200	--	ND	0.511	--	U
106-99-0	1,3-Butadiene	0.260	0.200	--	0.575	0.442	--	
74-83-9	Bromomethane	ND	0.200	--	ND	0.777	--	U
75-00-3	Chloroethane	ND	0.200	--	ND	0.528	--	U
64-17-5	Ethyl Alcohol	32.7	5.00	--	61.6	9.42	--	
593-60-2	Vinyl bromide	ND	0.200	--	ND	0.874	--	U
67-64-1	Acetone	45.3	1.00	--	108	2.38	--	
75-69-4	Trichlorofluoromethane	1.08	0.200	--	6.07	1.12	--	
67-63-0	Iso-Propyl Alcohol	32.8	0.500	--	80.6	1.23	--	J
75-35-4	1,1-Dichloroethene	ND	0.200	--	ND	0.793	--	U
75-65-0	tert-Butyl Alcohol	20.1	0.500	--	60.9	1.52	--	
75-09-2	Methylene chloride	5.62	0.500	--	19.5	1.74	--	
107-05-1	3-Chloropropene	ND	0.200	--	ND	0.626	--	U
75-15-0	Carbon disulfide	1.88	0.200	--	5.85	0.623	--	
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.200	--	ND	1.53	--	U
156-60-5	trans-1,2-Dichloroethene	0.330	0.200	--	1.31	0.793	--	
75-34-3	1,1-Dichloroethane	ND	0.200	--	ND	0.809	--	U
1634-04-4	Methyl tert butyl ether	ND	0.200	--	ND	0.721	--	U
78-93-3	2-Butanone	5.03	0.500	--	14.8	1.47	--	
156-59-2	cis-1,2-Dichloroethene	1.58	0.200	--	6.26	0.793	--	
141-78-6	Ethyl Acetate	2.38	0.500	--	8.58	1.80	--	
67-66-3	Chloroform	0.254	0.200	--	1.24	0.977	--	
109-99-9	Tetrahydrofuran	1.52	0.500	--	4.48	1.47	--	

10/24/19

Results Summary
Form 1
Volatile Organics in Air

Client	: WRS Environmental Services, Inc.	Lab Number	: L1934510
Project Name	: AMERICAN DRIVE-INN CLEANERS	Project Number	: 11391
Lab ID	: L1934510-02	Date Collected	: 07/31/19 12:00
Client ID	: SV-2	Date Received	: 08/02/19
Sample Location	: 1345 PENINSULA BLVD. HEWLETT, NY	Date Analyzed	: 08/08/19 22:37
Sample Matrix	: SOIL_VAPOR	Dilution Factor	: 1
Analytical Method	: 48,TO-15	Analyst	: TS
Lab File ID	: R167924	Instrument ID	: AIRPIANO1
Sample Amount	: 250 ml	GC Column	: RTX-1

		ppbV			ug/m3			
CAS NO.	Parameter	Results	RL	MDL	Results	RL	MDL	Qualifier
107-06-2	1,2-Dichloroethane	ND	0.200	--	ND	0.809	--	U
110-54-3	n-Hexane	2.90	0.200	--	10.2	0.705	--	
71-55-6	1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--	U
71-43-2	Benzene	4.28	0.200	--	13.7	0.639	--	
56-23-5	Carbon tetrachloride	ND	0.200	--	ND	1.26	--	U
110-82-7	Cyclohexane	1.14	0.200	--	3.92	0.688	--	
78-87-5	1,2-Dichloropropane	ND	0.200	--	ND	0.924	--	U
75-27-4	Bromodichloromethane	ND	0.200	--	ND	1.34	--	U
1330-20-7	Xylene (Total)	6.11	0.200	--	26.5	0.869	--	
123-91-1	1,4-Dioxane	ND	0.200	--	ND	0.721	--	U
79-01-6	Trichloroethene	6.07	0.200	--	32.6	1.07	--	
540-84-1	2,2,4-Trimethylpentane	2.57	0.200	--	12.0	0.934	--	
142-82-5	Heptane	2.10	0.200	--	8.61	0.820	--	
10061-01-5	cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--	U
108-10-1	4-Methyl-2-pentanone	3.86	0.500	--	15.8	2.05	--	
10061-02-6	trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--	U
79-00-5	1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--	U
108-88-3	Toluene	69.1	0.200	--	260	0.754	--	
540-59-0	1,2-Dichloroethene (total)	1.91	0.200	--	7.57	0.793	--	
591-78-6	2-Hexanone	ND	0.200	--	ND	0.820	--	U
542-75-6	1,3-Dichloropropene, Total	ND	0.200	--	ND	0.908	--	U
124-48-1	Dibromochloromethane	ND	0.200	--	ND	1.70	--	U
106-93-4	1,2-Dibromoethane	ND	0.200	--	ND	1.54	--	U
127-18-4	Tetrachloroethene	3.21	0.200	--	21.8	1.36	--	
108-90-7	Chlorobenzene	ND	0.200	--	ND	0.921	--	U
100-41-4	Ethylbenzene	1.44	0.200	--	6.25	0.869	--	

Results Summary
Form 1
Volatile Organics in Air

Client	: WRS Environmental Services, Inc.	Lab Number	: L1934510
Project Name	: AMERICAN DRIVE-INN CLEANERS	Project Number	: 11391
Lab ID	: L1934510-02	Date Collected	: 07/31/19 12:00
Client ID	: SV-2	Date Received	: 08/02/19
Sample Location	: 1345 PENINSULA BLVD. HEWLETT, NY	Date Analyzed	: 08/08/19 22:37
Sample Matrix	: SOIL_VAPOR	Dilution Factor	: 1
Analytical Method	: 48,TO-15	Analyst	: TS
Lab File ID	: R167924	Instrument ID	: AIRPIANO1
Sample Amount	: 250 ml	GC Column	: RTX-1

		ppbV			ug/m3			
CAS NO.	Parameter	Results	RL	MDL	Results	RL	MDL	Qualifier
179601-23-1	p/m-Xylene	4.40	0.400	--	19.1	1.74	--	
75-25-2	Bromoform	ND	0.200	--	ND	2.07	--	U
100-42-5	Styrene	0.363	0.200	--	1.55	0.852	--	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--	U
95-47-6	o-Xylene	1.71	0.200	--	7.43	0.869	--	
622-96-8	4-Ethyltoluene	0.419	0.200	--	2.06	0.983	--	
108-67-8	1,3,5-Trimethylbenzene	0.548	0.200	--	2.69	0.983	--	
95-63-6	1,2,4-Trimethylbenzene	2.04	0.200	--	10.0	0.983	--	
100-44-7	Benzyl chloride	ND	0.200	--	ND	1.04	--	U
541-73-1	1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--	U
106-46-7	1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--	U
95-50-1	1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--	U
120-82-1	1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--	~~U~~ UJ
87-68-3	Hexachlorobutadiene	ND	0.200	--	ND	2.13	--	U

10/2/19

Results Summary
Form 1
Volatile Organics in Air

Client	: WRS Environmental Services, Inc.	Lab Number	: L1934510
Project Name	: AMERICAN DRIVE-INN CLEANERS	Project Number	: 11391
Lab ID	: L1934510-03	Date Collected	: 07/31/19 14:30
Client ID	: SV-3	Date Received	: 08/02/19
Sample Location	: 1345 PENINSULA BLVD. HEWLETT, NY	Date Analyzed	: 08/08/19 23:09
Sample Matrix	: SOIL_VAPOR	Dilution Factor	: 1
Analytical Method	: 48,TO-15	Analyst	: TS
Lab File ID	: R167925	Instrument ID	: AIRPIANO1
Sample Amount	: 250 ml	GC Column	: RTX-1

		ppbV			ug/m3			
CAS NO.	Parameter	Results	RL	MDL	Results	RL	MDL	Qualifier
75-71-8	Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--	U
74-87-3	Chloromethane	0.493	0.200	--	1.02	0.413	--	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethan	ND	0.200	--	ND	1.40	--	U
75-01-4	Vinyl chloride	0.627	0.200	--	1.60	0.511	--	
106-99-0	1,3-Butadiene	2.21	0.200	--	4.89	0.442	--	
74-83-9	Bromomethane	ND	0.200	--	ND	0.777	--	U
75-00-3	Chloroethane	ND	0.200	--	ND	0.528	--	U
64-17-5	Ethyl Alcohol	6.34	5.00	--	11.9	9.42	--	
593-60-2	Vinyl bromide	ND	0.200	--	ND	0.874	--	U
67-64-1	Acetone	27.5	1.00	--	65.3	2.38	--	
75-69-4	Trichlorofluoromethane	1.29	0.200	--	7.25	1.12	--	
67-63-0	Iso-Propyl Alcohol	ND	0.500	--	ND	1.23	--	~~U~~ UJ
75-35-4	1,1-Dichloroethene	ND	0.200	--	ND	0.793	--	U
75-65-0	tert-Butyl Alcohol	8.07	0.500	--	24.5	1.52	--	
75-09-2	Methylene chloride	ND	0.500	--	ND	1.74	--	U
107-05-1	3-Chloropropene	ND	0.200	--	ND	0.626	--	U
75-15-0	Carbon disulfide	2.45	0.200	--	7.63	0.623	--	
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.200	--	ND	1.53	--	U
156-60-5	trans-1,2-Dichloroethene	0.227	0.200	--	0.900	0.793	--	
75-34-3	1,1-Dichloroethane	ND	0.200	--	ND	0.809	--	U
1634-04-4	Methyl tert butyl ether	ND	0.200	--	ND	0.721	--	U
78-93-3	2-Butanone	5.14	0.500	--	15.2	1.47	--	
156-59-2	cis-1,2-Dichloroethene	2.89	0.200	--	11.5	0.793	--	
141-78-6	Ethyl Acetate	ND	0.500	--	ND	1.80	--	U
67-66-3	Chloroform	2.48	0.200	--	12.1	0.977	--	
109-99-9	Tetrahydrofuran	0.675	0.500	--	1.99	1.47	--	

10/2/19

Results Summary
Form 1
Volatile Organics in Air

Client	: WRS Environmental Services, Inc.	Lab Number	: L1934510
Project Name	: AMERICAN DRIVE-INN CLEANERS	Project Number	: 11391
Lab ID	: L1934510-03	Date Collected	: 07/31/19 14:30
Client ID	: SV-3	Date Received	: 08/02/19
Sample Location	: 1345 PENINSULA BLVD. HEWLETT, NY	Date Analyzed	: 08/08/19 23:09
Sample Matrix	: SOIL_VAPOR	Dilution Factor	: 1
Analytical Method	: 48,TO-15	Analyst	: TS
Lab File ID	: R167925	Instrument ID	: AIRPIANO1
Sample Amount	: 250 ml	GC Column	: RTX-1

		ppbV			ug/m3			
CAS NO.	Parameter	Results	RL	MDL	Results	RL	MDL	Qualifier
107-06-2	1,2-Dichloroethane	ND	0.200	--	ND	0.809	--	U
110-54-3	n-Hexane	2.04	0.200	--	7.19	0.705	--	
71-55-6	1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--	U
71-43-2	Benzene	2.50	0.200	--	7.99	0.639	--	
56-23-5	Carbon tetrachloride	ND	0.200	--	ND	1.26	--	U
110-82-7	Cyclohexane	0.585	0.200	--	2.01	0.688	--	
78-87-5	1,2-Dichloropropane	ND	0.200	--	ND	0.924	--	U
1330-20-7	Xylene (Total)	6.30	0.200	--	27.4	0.869	--	
75-27-4	Bromodichloromethane	ND	0.200	--	ND	1.34	--	U
123-91-1	1,4-Dioxane	ND	0.200	--	ND	0.721	--	U
79-01-6	Trichloroethene	11.1	0.200	--	59.7	1.07	--	
540-84-1	2,2,4-Trimethylpentane	0.769	0.200	--	3.59	0.934	--	
142-82-5	Heptane	1.33	0.200	--	5.45	0.820	--	
10061-01-5	cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--	U
108-10-1	4-Methyl-2-pentanone	1.70	0.500	--	6.97	2.05	--	
10061-02-6	trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--	U
79-00-5	1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--	U
108-88-3	Toluene	7.40	0.200	--	27.9	0.754	--	
540-59-0	1,2-Dichloroethene (total)	3.12	0.200	--	12.4	0.793	--	
591-78-6	2-Hexanone	ND	0.200	--	ND	0.820	--	U
124-48-1	Dibromochloromethane	ND	0.200	--	ND	1.70	--	U
542-75-6	1,3-Dichloropropene, Total	ND	0.200	--	ND	0.908	--	U
106-93-4	1,2-Dibromoethane	ND	0.200	--	ND	1.54	--	U
127-18-4	Tetrachloroethene	48.0	0.200	--	325	1.36	--	
108-90-7	Chlorobenzene	ND	0.200	--	ND	0.921	--	U
100-41-4	Ethylbenzene	1.32	0.200	--	5.73	0.869	--	

Results Summary
Form 1
Volatile Organics in Air

Client	: WRS Environmental Services, Inc.	Lab Number	: L1934510
Project Name	: AMERICAN DRIVE-INN CLEANERS	Project Number	: 11391
Lab ID	: L1934510-03	Date Collected	: 07/31/19 14:30
Client ID	: SV-3	Date Received	: 08/02/19
Sample Location	: 1345 PENINSULA BLVD. HEWLETT, NY	Date Analyzed	: 08/08/19 23:09
Sample Matrix	: SOIL_VAPOR	Dilution Factor	: 1
Analytical Method	: 48,TO-15	Analyst	: TS
Lab File ID	: R167925	Instrument ID	: AIRPIANO1
Sample Amount	: 250 ml	GC Column	: RTX-1

		ppbV			ug/m3			
CAS NO.	Parameter	Results	RL	MDL	Results	RL	MDL	Qualifier
179601-23-1	p/m-Xylene	4.56	0.400	--	19.8	1.74	--	
75-25-2	Bromoform	ND	0.200	--	ND	2.07	--	U
100-42-5	Styrene	0.758	0.200	--	3.23	0.852	--	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--	U
95-47-6	o-Xylene	1.74	0.200	--	7.56	0.869	--	
622-96-8	4-Ethyltoluene	0.397	0.200	--	1.95	0.983	--	
108-67-8	1,3,5-Trimethylbenzene	0.480	0.200	--	2.36	0.983	--	
95-63-6	1,2,4-Trimethylbenzene	1.76	0.200	--	8.65	0.983	--	
100-44-7	Benzyl chloride	ND	0.200	--	ND	1.04	--	U
541-73-1	1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--	U
106-46-7	1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--	U
95-50-1	1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--	U
120-82-1	1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--	~~U~~ UJ
87-68-3	Hexachlorobutadiene	ND	0.200	--	ND	2.13	--	U

10/2/19

Results Summary
Form 1
Volatile Organics in Air

Client	: WRS Environmental Services, Inc.	Lab Number	: L1934510
Project Name	: AMERICAN DRIVE-INN CLEANERS	Project Number	: 11391
Lab ID	: L1934510-04	Date Collected	: 07/31/19 14:30
Client ID	: SV-4	Date Received	: 08/02/19
Sample Location	: 1345 PENINSULA BLVD. HEWLETT, NY	Date Analyzed	: 08/08/19 23:41
Sample Matrix	: SOIL_VAPOR	Dilution Factor	: 1
Analytical Method	: 48,TO-15	Analyst	: TS
Lab File ID	: R167926	Instrument ID	: AIRPIANO1
Sample Amount	: 250 ml	GC Column	: RTX-1

		ppbV			ug/m3			
CAS NO.	Parameter	Results	RL	MDL	Results	RL	MDL	Qualifier
75-71-8	Dichlorodifluoromethane	0.204	0.200	--	1.01	0.989	--	
74-87-3	Chloromethane	0.393	0.200	--	0.812	0.413	--	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethan	ND	0.200	--	ND	1.40	--	U
75-01-4	Vinyl chloride	ND	0.200	--	ND	0.511	--	U
106-99-0	1,3-Butadiene	2.09	0.200	--	4.62	0.442	--	
74-83-9	Bromomethane	ND	0.200	--	ND	0.777	--	U
75-00-3	Chloroethane	ND	0.200	--	ND	0.528	--	U
64-17-5	Ethyl Alcohol	7.55	5.00	--	14.2	9.42	--	
593-60-2	Vinyl bromide	ND	0.200	--	ND	0.874	--	U
67-64-1	Acetone	42.2	1.00	--	100	2.38	--	
75-69-4	Trichlorofluoromethane	0.628	0.200	--	3.53	1.12	--	
67-63-0	iso-Propyl Alcohol	0.995	0.500	--	2.45	1.23	--	J
75-35-4	1,1-Dichloroethene	ND	0.200	--	ND	0.793	--	U
75-65-0	tert-Butyl Alcohol	8.42	0.500	--	25.5	1.52	--	
75-09-2	Methylene chloride	ND	0.500	--	ND	1.74	--	U
107-05-1	3-Chloropropene	ND	0.200	--	ND	0.626	--	U
75-15-0	Carbon disulfide	2.45	0.200	--	7.63	0.623	--	
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.200	--	ND	1.53	--	U
156-60-5	trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--	U
75-34-3	1,1-Dichloroethane	ND	0.200	--	ND	0.809	--	U
1634-04-4	Methyl tert butyl ether	ND	0.200	--	ND	0.721	--	U
78-93-3	2-Butanone	4.28	0.500	--	12.6	1.47	--	
156-59-2	cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--	U
141-78-6	Ethyl Acetate	ND	0.500	--	ND	1.80	--	U
67-66-3	Chloroform	ND	0.200	--	ND	0.977	--	U
109-99-9	Tetrahydrofuran	0.573	0.500	--	1.69	1.47	--	

10/24/19

Results Summary
Form 1
Volatile Organics in Air

Client	: WRS Environmental Services, Inc.	Lab Number	: L1934510
Project Name	: AMERICAN DRIVE-INN CLEANERS	Project Number	: 11391
Lab ID	: L1934510-04	Date Collected	: 07/31/19 14:30
Client ID	: SV-4	Date Received	: 08/02/19
Sample Location	: 1345 PENINSULA BLVD. HEWLETT, NY	Date Analyzed	: 08/08/19 23:41
Sample Matrix	: SOIL_VAPOR	Dilution Factor	: 1
Analytical Method	: 48,TO-15	Analyst	: TS
Lab File ID	: R167926	Instrument ID	: AIRPIANO1
Sample Amount	: 250 ml	GC Column	: RTX-1

		ppbV			ug/m3			
CAS NO.	Parameter	Results	RL	MDL	Results	RL	MDL	Qualifier
107-06-2	1,2-Dichloroethane	ND	0.200	--	ND	0.809	--	U
110-54-3	n-Hexane	1.60	0.200	--	5.64	0.705	--	
71-55-6	1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--	U
71-43-2	Benzene	2.93	0.200	--	9.36	0.639	--	
56-23-5	Carbon tetrachloride	ND	0.200	--	ND	1.26	--	U
110-82-7	Cyclohexane	0.763	0.200	--	2.63	0.688	--	
78-87-5	1,2-Dichloropropane	ND	0.200	--	ND	0.924	--	U
75-27-4	Bromodichloromethane	ND	0.200	--	ND	1.34	--	U
1330-20-7	Xylene (Total)	4.20	0.200	--	18.2	0.869	--	
123-91-1	1,4-Dioxane	ND	0.200	--	ND	0.721	--	U
79-01-6	Trichloroethene	ND	0.200	--	ND	1.07	--	U
540-84-1	2,2,4-Trimethylpentane	0.697	0.200	--	3.26	0.934	--	
142-82-5	Heptane	0.831	0.200	--	3.41	0.820	--	
10061-01-5	cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--	U
108-10-1	4-Methyl-2-pentanone	0.972	0.500	--	3.98	2.05	--	
10061-02-6	trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--	U
79-00-5	1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--	U
108-88-3	Toluene	5.46	0.200	--	20.6	0.754	--	
540-59-0	1,2-Dichloroethene (total)	ND	0.200	--	ND	0.793	--	U
591-78-6	2-Hexanone	ND	0.200	--	ND	0.820	--	U
542-75-6	1,3-Dichloropropene, Total	ND	0.200	--	ND	0.908	--	U
124-48-1	Dibromochloromethane	ND	0.200	--	ND	1.70	--	U
106-93-4	1,2-Dibromoethane	ND	0.200	--	ND	1.54	--	U
127-18-4	Tetrachloroethene	8.94	0.200	--	60.6	1.36	--	
108-90-7	Chlorobenzene	ND	0.200	--	ND	0.921	--	U
100-41-4	Ethylbenzene	0.931	0.200	--	4.04	0.869	--	

Results Summary
Form 1
Volatile Organics in Air

Client	: WRS Environmental Services, Inc.	Lab Number	: L1934510
Project Name	: AMERICAN DRIVE-INN CLEANERS	Project Number	: 11391
Lab ID	: L1934510-04	Date Collected	: 07/31/19 14:30
Client ID	: SV-4	Date Received	: 08/02/19
Sample Location	: 1345 PENINSULA BLVD. HEWLETT, NY	Date Analyzed	: 08/08/19 23:41
Sample Matrix	: SOIL_VAPOR	Dilution Factor	: 1
Analytical Method	: 48,TO-15	Analyst	: TS
Lab File ID	: R167926	Instrument ID	: AIRPIANO1
Sample Amount	: 250 ml	GC Column	: RTX-1

		ppbV			ug/m3			
CAS NO.	Parameter	Results	RL	MDL	Results	RL	MDL	Qualifier
179601-23-1	p/m-Xylene	3.00	0.400	--	13.0	1.74	--	
75-25-2	Bromoform	ND	0.200	--	ND	2.07	--	U
100-42-5	Styrene	0.426	0.200	--	1.81	0.852	--	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--	U
95-47-6	o-Xylene	1.20	0.200	--	5.21	0.869	--	
622-96-8	4-Ethyltoluene	0.265	0.200	--	1.30	0.983	--	
108-67-8	1,3,5-Trimethylbenzene	0.293	0.200	--	1.44	0.983	--	
95-63-6	1,2,4-Trimethylbenzene	1.16	0.200	--	5.70	0.983	--	
100-44-7	Benzyl chloride	ND	0.200	--	ND	1.04	--	U
541-73-1	1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--	U
106-46-7	1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--	U
95-50-1	1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--	U
120-82-1	1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--	~~U~~ UJ
87-68-3	Hexachlorobutadiene	ND	0.200	--	ND	2.13	--	U

8/8/19
10/24/19

Results Summary
Form 1
Volatile Organics in Air

Client	: WRS Environmental Services, Inc.	Lab Number	: L1934510
Project Name	: AMERICAN DRIVE-INN CLEANERS	Project Number	: 11391
Lab ID	: L1934510-05	Date Collected	: 07/31/19 14:30
Client ID	: SV-5	Date Received	: 08/02/19
Sample Location	: 1345 PENINSULA BLVD. HEWLETT, NY	Date Analyzed	: 08/09/19 00:14
Sample Matrix	: SOIL_VAPOR	Dilution Factor	: 1
Analytical Method	: 48,TO-15	Analyst	: TS
Lab File ID	: R167927	Instrument ID	: AIRPIANO1
Sample Amount	: 250 ml	GC Column	: RTX-1

		ppbV			ug/m3			
CAS NO.	Parameter	Results	RL	MDL	Results	RL	MDL	Qualifier
75-71-8	Dichlorodifluoromethane	0.239	0.200	--	1.18	0.989	--	
74-87-3	Chloromethane	0.389	0.200	--	0.803	0.413	--	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethan	ND	0.200	--	ND	1.40	--	U
75-01-4	Vinyl chloride	ND	0.200	--	ND	0.511	--	U
106-99-0	1,3-Butadiene	0.573	0.200	--	1.27	0.442	--	
74-83-9	Bromomethane	ND	0.200	--	ND	0.777	--	U
75-00-3	Chloroethane	ND	0.200	--	ND	0.528	--	U
64-17-5	Ethyl Alcohol	5.84	5.00	--	11.0	9.42	--	
593-60-2	Vinyl bromide	ND	0.200	--	ND	0.874	--	U
67-64-1	Acetone	14.6	1.00	--	34.7	2.38	--	
75-69-4	Trichlorofluoromethane	0.704	0.200	--	3.96	1.12	--	
67-63-0	iso-Propyl Alcohol	ND	0.500	--	ND	1.23	--	~~U~~ UJ
75-35-4	1,1-Dichloroethene	ND	0.200	--	ND	0.793	--	U
75-65-0	tert-Butyl Alcohol	6.31	0.500	--	19.1	1.52	--	
75-09-2	Methylene chloride	0.532	0.500	--	1.85	1.74	--	
107-05-1	3-Chloropropene	ND	0.200	--	ND	0.626	--	U
75-15-0	Carbon disulfide	2.24	0.200	--	6.98	0.623	--	
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.200	--	ND	1.53	--	U
156-60-5	trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--	U
75-34-3	1,1-Dichloroethane	ND	0.200	--	ND	0.809	--	U
1634-04-4	Methyl tert butyl ether	ND	0.200	--	ND	0.721	--	U
78-93-3	2-Butanone	1.55	0.500	--	4.57	1.47	--	
156-59-2	cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--	U
141-78-6	Ethyl Acetate	ND	0.500	--	ND	1.80	--	U
67-66-3	Chloroform	ND	0.200	--	ND	0.977	--	U
109-99-9	Tetrahydrofuran	0.528	0.500	--	1.56	1.47	--	

ALPHA ANALYTICAL

for 10/21/19

Results Summary
Form 1
Volatile Organics in Air

Client	: WRS Environmental Services, Inc.	Lab Number	: L1934510
Project Name	: AMERICAN DRIVE-INN CLEANERS	Project Number	: 11391
Lab ID	: L1934510-05	Date Collected	: 07/31/19 14:30
Client ID	: SV-5	Date Received	: 08/02/19
Sample Location	: 1345 PENINSULA BLVD. HEWLETT, NY	Date Analyzed	: 08/09/19 00:14
Sample Matrix	: SOIL_VAPOR	Dilution Factor	: 1
Analytical Method	: 48,TO-15	Analyst	: TS
Lab File ID	: R167927	Instrument ID	: AIRPIANO1
Sample Amount	: 250 ml	GC Column	: RTX-1

		ppbV			ug/m3			
CAS NO.	Parameter	Results	RL	MDL	Results	RL	MDL	Qualifier
107-06-2	1,2-Dichloroethane	ND	0.200	--	ND	0.809	--	U
110-54-3	n-Hexane	0.862	0.200	--	3.04	0.705	--	
71-55-6	1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--	U
71-43-2	Benzene	1.36	0.200	--	4.34	0.639	--	
56-23-5	Carbon tetrachloride	ND	0.200	--	ND	1.26	--	U
110-82-7	Cyclohexane	1.13	0.200	--	3.89	0.688	--	
78-87-5	1,2-Dichloropropane	ND	0.200	--	ND	0.924	--	U
1330-20-7	Xylene (Total)	3.02	0.200	--	13.1	0.869	--	
75-27-4	Bromodichloromethane	ND	0.200	--	ND	1.34	--	U
123-91-1	1,4-Dioxane	ND	0.200	--	ND	0.721	--	U
79-01-6	Trichloroethene	ND	0.200	--	ND	1.07	--	U
540-84-1	2,2,4-Trimethylpentane	0.560	0.200	--	2.62	0.934	--	
142-82-5	Heptane	0.541	0.200	--	2.22	0.820	--	
10061-01-5	cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--	U
108-10-1	4-Methyl-2-pentanone	1.21	0.500	--	4.96	2.05	--	
10061-02-6	trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--	U
79-00-5	1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--	U
108-88-3	Toluene	4.14	0.200	--	15.6	0.754	--	
540-59-0	1,2-Dichloroethene (total)	ND	0.200	--	ND	0.793	--	U
591-78-6	2-Hexanone	ND	0.200	--	ND	0.820	--	U
542-75-6	1,3-Dichloropropene, Total	ND	0.200	--	ND	0.908	--	U
124-48-1	Dibromochloromethane	ND	0.200	--	ND	1.70	--	U
106-93-4	1,2-Dibromoethane	ND	0.200	--	ND	1.54	--	U
127-18-4	Tetrachloroethene	4.28	0.200	--	29.0	1.36	--	
108-90-7	Chlorobenzene	ND	0.200	--	ND	0.921	--	U
100-41-4	Ethylbenzene	0.671	0.200	--	2.91	0.869	--	

Results Summary
Form 1
Volatile Organics in Air

Client	: WRS Environmental Services, Inc.	Lab Number	: L1934510
Project Name	: AMERICAN DRIVE-INN CLEANERS	Project Number	: 11391
Lab ID	: L1934510-05	Date Collected	: 07/31/19 14:30
Client ID	: SV-5	Date Received	: 08/02/19
Sample Location	: 1345 PENINSULA BLVD. HEWLETT, NY	Date Analyzed	: 08/09/19 00:14
Sample Matrix	: SOIL_VAPOR	Dilution Factor	: 1
Analytical Method	: 48,TO-15	Analyst	: TS
Lab File ID	: R167927	Instrument ID	: AIRPIANO1
Sample Amount	: 250 ml	GC Column	: RTX-1

		ppbV			ug/m3			
CAS NO.	Parameter	Results	RL	MDL	Results	RL	MDL	Qualifier
179601-23-1	p/m-Xylene	2.18	0.400	--	9.47	1.74	--	
75-25-2	Bromoform	ND	0.200	--	ND	2.07	--	U
100-42-5	Styrene	0.270	0.200	--	1.15	0.852	--	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--	U
95-47-6	o-Xylene	0.846	0.200	--	3.67	0.869	--	
622-96-8	4-Ethyltoluene	ND	0.200	--	ND	0.983	--	U
108-67-8	1,3,5-Trimethylbenzene	0.275	0.200	--	1.35	0.983	--	
95-63-6	1,2,4-Trimethylbenzene	0.997	0.200	--	4.90	0.983	--	
100-44-7	Benzyl chloride	ND	0.200	--	ND	1.04	--	U
541-73-1	1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--	U
106-46-7	1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--	U
95-50-1	1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--	U
120-82-1	1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--	~~U~~ UJ
87-68-3	Hexachlorobutadiene	ND	0.200	--	ND	2.13	--	U

8/7/19
10/2/19

Results Summary
Form 1
Volatile Organics in Air

Client	: WRS Environmental Services, Inc.	Lab Number	: L1934510
Project Name	: AMERICAN DRIVE-INN CLEANERS	Project Number	: 11391
Lab ID	: L1934510-06	Date Collected	: 07/31/19 13:30
Client ID	: OA-1	Date Received	: 08/02/19
Sample Location	: 1345 PENINSULA BLVD. HEWLETT, NY	Date Analyzed	: 08/08/19 18:49
Sample Matrix	: AIR	Dilution Factor	: 1
Analytical Method	: 48,TO-15	Analyst	: TS
Lab File ID	: R167917	Instrument ID	: AIRPIANO1
Sample Amount	: 250 ml	GC Column	: RTX-1

		ppbV			ug/m3			
CAS NO.	Parameter	Results	RL	MDL	Results	RL	MDL	Qualifier
75-71-8	Dichlorodifluoromethane	0.366	0.200	--	1.81	0.989	--	
74-87-3	Chloromethane	0.551	0.200	--	1.14	0.413	--	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethan	ND	0.200	--	ND	1.40	--	U
75-01-4	Vinyl chloride	ND	0.200	--	ND	0.511	--	U
106-99-0	1,3-Butadiene	ND	0.200	--	ND	0.442	--	U
74-83-9	Bromomethane	ND	0.200	--	ND	0.777	--	U
75-00-3	Chloroethane	ND	0.200	--	ND	0.528	--	U
64-17-5	Ethyl Alcohol	ND	5.00	--	ND	9.42	--	U
593-60-2	Vinyl bromide	ND	0.200	--	ND	0.874	--	U
67-64-1	Acetone	5.76	1.00	--	13.7	2.38	--	
75-69-4	Trichlorofluoromethane	0.294	0.200	--	1.65	1.12	--	
67-63-0	iso-Propyl Alcohol	ND	0.500	--	ND	1.23	--	~~U~~ UJ
75-35-4	1,1-Dichloroethene	ND	0.200	--	ND	0.793	--	U
75-65-0	tert-Butyl Alcohol	ND	0.500	--	ND	1.52	--	U
75-09-2	Methylene chloride	ND	0.500	--	ND	1.74	--	U
107-05-1	3-Chloropropene	ND	0.200	--	ND	0.626	--	U
75-15-0	Carbon disulfide	ND	0.200	--	ND	0.623	--	U
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.200	--	ND	1.53	--	U
156-60-5	trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--	U
75-34-3	1,1-Dichloroethane	ND	0.200	--	ND	0.809	--	U
1634-04-4	Methyl tert butyl ether	ND	0.200	--	ND	0.721	--	U
78-93-3	2-Butanone	ND	0.500	--	ND	1.47	--	U
156-59-2	cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--	U
141-78-6	Ethyl Acetate	ND	0.500	--	ND	1.80	--	U
67-66-3	Chloroform	ND	0.200	--	ND	0.977	--	U
109-99-9	Tetrahydrofuran	ND	0.500	--	ND	1.47	--	U

Results Summary
Form 1
Volatile Organics in Air

Client	: WRS Environmental Services, Inc.	Lab Number	: L1934510
Project Name	: AMERICAN DRIVE-INN CLEANERS	Project Number	: 11391
Lab ID	: L1934510-06	Date Collected	: 07/31/19 13:30
Client ID	: OA-1	Date Received	: 08/02/19
Sample Location	: 1345 PENINSULA BLVD. HEWLETT, NY	Date Analyzed	: 08/08/19 18:49
Sample Matrix	: AIR	Dilution Factor	: 1
Analytical Method	: 48,TO-15	Analyst	: TS
Lab File ID	: R167917	Instrument ID	: AIRPIANO1
Sample Amount	: 250 ml	GC Column	: RTX-1

		ppbV			ug/m3			
CAS NO.	Parameter	Results	RL	MDL	Results	RL	MDL	Qualifier
107-06-2	1,2-Dichloroethane	ND	0.200	--	ND	0.809	--	U
110-54-3	n-Hexane	0.692	0.200	--	2.44	0.705	--	
71-55-6	1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--	U
71-43-2	Benzene	0.279	0.200	--	0.891	0.639	--	
56-23-5	Carbon tetrachloride	ND	0.200	--	ND	1.26	--	U
110-82-7	Cyclohexane	ND	0.200	--	ND	0.688	--	U
78-87-5	1,2-Dichloropropane	ND	0.200	--	ND	0.924	--	U
75-27-4	Bromodichloromethane	ND	0.200	--	ND	1.34	--	U
1330-20-7	Xylene (Total)	ND	0.200	--	ND	0.869	--	U
123-91-1	1,4-Dioxane	ND	0.200	--	ND	0.721	--	U
79-01-6	Trichloroethene	ND	0.200	--	ND	1.07	--	U
540-84-1	2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--	U
142-82-5	Heptane	ND	0.200	--	ND	0.820	--	U
10061-01-5	cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--	U
108-10-1	4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--	U
10061-02-6	trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--	U
79-00-5	1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--	U
108-88-3	Toluene	0.731	0.200	--	2.75	0.754	--	
540-59-0	1,2-Dichloroethene (total)	ND	0.200	--	ND	0.793	--	U
591-78-6	2-Hexanone	ND	0.200	--	ND	0.820	--	U
542-75-6	1,3-Dichloropropene, Total	ND	0.200	--	ND	0.908	--	U
124-48-1	Dibromochloromethane	ND	0.200	--	ND	1.70	--	U
106-93-4	1,2-Dibromoethane	ND	0.200	--	ND	1.54	--	U
127-18-4	Tetrachloroethene	15.9	0.200	--	108	1.36	--	
108-90-7	Chlorobenzene	ND	0.200	--	ND	0.921	--	U
100-41-4	Ethylbenzene	ND	0.200	--	ND	0.869	--	U

Results Summary
Form 1
Volatile Organics in Air

Client	: WRS Environmental Services, Inc.	Lab Number	: L1934510
Project Name	: AMERICAN DRIVE-INN CLEANERS	Project Number	: 11391
Lab ID	: L1934510-06	Date Collected	: 07/31/19 13:30
Client ID	: OA-1	Date Received	: 08/02/19
Sample Location	: 1345 PENINSULA BLVD. HEWLETT, NY	Date Analyzed	: 08/08/19 18:49
Sample Matrix	: AIR	Dilution Factor	: 1
Analytical Method	: 48,TO-15	Analyst	: TS
Lab File ID	: R167917	Instrument ID	: AIRPIANO1
Sample Amount	: 250 ml	GC Column	: RTX-1

		ppbV			ug/m3			
CAS NO.	Parameter	Results	RL	MDL	Results	RL	MDL	Qualifier
179601-23-1	p/m-Xylene	ND	0.400	--	ND	1.74	--	U
75-25-2	Bromoform	ND	0.200	--	ND	2.07	--	U
100-42-5	Styrene	ND	0.200	--	ND	0.852	--	U
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--	U
95-47-6	o-Xylene	ND	0.200	--	ND	0.869	--	U
622-96-8	4-Ethyltoluene	ND	0.200	--	ND	0.983	--	U
108-67-8	1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--	U
95-63-6	1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--	U
100-44-7	Benzyl chloride	ND	0.200	--	ND	1.04	--	U
541-73-1	1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--	U
106-46-7	1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--	U
95-50-1	1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--	U
120-82-1	1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--	~~U~~ UJ
87-68-3	Hexachlorobutadiene	ND	0.200	--	ND	2.13	--	U

8/8/19

Appendix-E

CAMP Data

Instrument: MiniRAE 2000 (PGM7600) Serial Number: 009059
User ID: 00000001 Site ID: 00000202
Data Points: 360 Gas Name: Isobutylene Sample Period: 60 sec
Last Calibration Time: July 30, 2019 14:35

Measurement Type:	Min (ppm)	Avg (ppm)	Max (ppm)
High Alarm Levels:	100.0	100.0	100.0
Low Alarm Levels:	50.0	50.0	50.0

Line #	Date	Time	Min (ppm)	Avg (ppm)	Max (ppm)
1	07/31/19	7:48	- - - - -	0.0	0.1
2	07/31/19	7:49	- - - - -	0.0	0.1
3	07/31/19	7:50	- - - - -	0.0	0.0
4	07/31/19	7:51	- - - - -	0.0	0.1
5	07/31/19	7:52	- - - - -	0.0	0.1
6	07/31/19	7:53	- - - - -	0.0	0.1
7	07/31/19	7:54	- - - - -	0.0	0.1
8	07/31/19	7:55	- - - - -	0.0	0.0
9	07/31/19	7:56	- - - - -	0.0	0.1
10	07/31/19	7:57	- - - - -	0.0	0.1
11	07/31/19	7:58	- - - - -	0.0	0.1
12	07/31/19	07:59	- - - - -	0.0	0.1
13	07/31/19	08:00	- - - - -	0.0	0.1
14	07/31/19	08:01	- - - - -	0.0	0.0
15	07/31/19	08:02	- - - - -	0.0	0.1
16	07/31/19	08:03	- - - - -	0.0	0.1
17	07/31/19	08:04	- - - - -	0.0	0.1
18	07/31/19	08:05	- - - - -	0.0	0.1
19	07/31/19	08:06	- - - - -	0.0	0.1
20	07/31/19	08:07	- - - - -	0.0	0.1
21	07/31/19	08:08	- - - - -	0.0	0.1
22	07/31/19	08:09	- - - - -	0.0	0.1
23	07/31/19	08:10	- - - - -	0.0	0.1
24	07/31/19	08:11	- - - - -	0.0	0.1
25	07/31/19	08:12	- - - - -	0.0	0.1
26	07/31/19	08:13	- - - - -	0.0	0.1
27	07/31/19	08:14	- - - - -	0.0	0.1
28	07/31/19	08:15	- - - - -	0.0	0.1
29	07/31/19	08:16	- - - - -	0.0	0.1
30	07/31/19	08:17	- - - - -	0.0	0.1
31	07/31/19	08:18	- - - - -	0.0	0.1
32	07/31/19	08:19	- - - - -	0.0	0.1
33	07/31/19	08:20	- - - - -	0.0	0.1
34	07/31/19	08:21	- - - - -	0.0	0.1
35	07/31/19	08:22	- - - - -	0.0	0.1
36	07/31/19	08:23	- - - - -	0.0	0.1
37	07/31/19	08:24	- - - - -	0.0	0.1
38	07/31/19	08:25	- - - - -	0.0	0.1
39	07/31/19	08:26	- - - - -	0.0	0.1
40	07/31/19	08:27	- - - - -	0.0	0.1
41	07/31/19	08:28	- - - - -	0.0	0.1
42	07/31/19	08:29	- - - - -	0.0	0.1
43	07/31/19	08:30	- - - - -	0.0	0.1
44	07/31/19	08:31	- - - - -	0.0	0.1
45	07/31/19	08:32	- - - - -	0.0	0.1
46	07/31/19	08:33	- - - - -	0.0	0.1
47	07/31/19	08:34	- - - - -	0.0	0.1
48	07/31/19	08:35	- - - - -	0.0	0.1
49	07/31/19	08:36	- - - - -	0.0	0.1
50	07/31/19	08:37	- - - - -	0.0	0.1
51	07/31/19	08:38	- - - - -	0.0	0.1
52	07/31/19	08:39	- - - - -	0.0	0.1
53	07/31/19	08:40	- - - - -	0.0	0.1
54	07/31/19	08:41	- - - - -	0.0	0.1
55	07/31/19	08:42	- - - - -	0.0	0.0
56	07/31/19	08:43	- - - - -	0.0	0.1
57	07/31/19	08:44	- - - - -	0.0	0.1
58	07/31/19	08:45	- - - - -	0.0	0.1

59	07/31/19	08:46	- - - - -	0.0	0.1
60	07/31/19	08:47	- - - - -	0.0	0.1
61	07/31/19	08:48	- - - - -	0.0	0.1
62	07/31/19	08:49	- - - - -	0.0	0.1
63	07/31/19	08:50	- - - - -	0.0	0.1
64	07/31/19	08:51	- - - - -	0.0	0.1
65	07/31/19	08:52	- - - - -	0.0	0.1
66	07/31/19	08:53	- - - - -	0.0	0.1
67	07/31/19	08:54	- - - - -	0.0	0.1
68	07/31/19	08:55	- - - - -	0.0	0.1
69	07/31/19	08:56	- - - - -	0.0	0.1
70	07/31/19	08:57	- - - - -	0.0	0.1
71	07/31/19	08:58	- - - - -	0.0	0.1
72	07/31/19	08:59	- - - - -	0.0	0.1
73	07/31/19	09:00	- - - - -	0.0	0.0
74	07/31/19	09:01	- - - - -	0.0	0.0
75	07/31/19	09:02	- - - - -	0.0	0.0
76	07/31/19	09:03	- - - - -	0.0	0.1
77	07/31/19	09:04	- - - - -	0.0	0.1
78	07/31/19	09:05	- - - - -	0.0	0.1
79	07/31/19	09:06	- - - - -	0.0	0.0
80	07/31/19	09:07	- - - - -	0.0	0.0
81	07/31/19	09:08	- - - - -	0.0	0.0
82	07/31/19	09:09	- - - - -	0.0	0.0
83	07/31/19	09:10	- - - - -	0.0	0.0
84	07/31/19	09:11	- - - - -	0.0	0.0
85	07/31/19	09:12	- - - - -	0.0	0.0
86	07/31/19	09:13	- - - - -	0.0	0.0
87	07/31/19	09:14	- - - - -	0.0	0.0
88	07/31/19	09:15	- - - - -	0.0	0.0
89	07/31/19	09:16	- - - - -	0.0	0.0
90	07/31/19	09:17	- - - - -	0.0	0.0
91	07/31/19	09:18	- - - - -	0.0	0.0
92	07/31/19	09:19	- - - - -	0.0	0.0
93	07/31/19	09:20	- - - - -	0.0	0.0
94	07/31/19	09:21	- - - - -	0.0	0.0
95	07/31/19	09:22	- - - - -	0.0	0.0
96	07/31/19	09:23	- - - - -	0.0	0.0
97	07/31/19	09:24	- - - - -	0.0	0.0
98	07/31/19	09:25	- - - - -	0.0	0.0
99	07/31/19	09:26	- - - - -	0.0	0.0
100	07/31/19	09:27	- - - - -	0.0	0.0
101	07/31/19	09:28	- - - - -	0.0	0.0
102	07/31/19	09:29	- - - - -	0.0	0.0
103	07/31/19	09:30	- - - - -	0.0	0.0
104	07/31/19	09:31	- - - - -	0.0	0.1
105	07/31/19	09:32	- - - - -	0.0	0.0
106	07/31/19	09:33	- - - - -	0.0	0.0
107	07/31/19	09:34	- - - - -	0.0	0.0
108	07/31/19	09:35	- - - - -	0.0	0.0
109	07/31/19	09:36	- - - - -	0.0	0.0
110	07/31/19	09:37	- - - - -	0.0	0.0
111	07/31/19	09:38	- - - - -	0.0	0.0
112	07/31/19	09:39	- - - - -	0.0	0.0
113	07/31/19	09:40	- - - - -	0.0	0.0
114	07/31/19	09:41	- - - - -	0.0	0.0
115	07/31/19	09:42	- - - - -	0.0	0.0
116	07/31/19	09:43	- - - - -	0.0	0.0
117	07/31/19	09:44	- - - - -	0.0	0.0
118	07/31/19	09:45	- - - - -	0.0	0.1
119	07/31/19	09:46	- - - - -	0.0	0.1
120	07/31/19	09:47	- - - - -	0.0	0.0
121	07/31/19	09:48	- - - - -	0.0	0.0
122	07/31/19	09:49	- - - - -	0.0	0.0
123	07/31/19	09:50	- - - - -	0.0	0.0
124	07/31/19	09:51	- - - - -	0.0	0.0
125	07/31/19	09:52	- - - - -	0.0	0.0
126	07/31/19	09:53	- - - - -	0.0	0.0
127	07/31/19	09:54	- - - - -	0.0	0.0

128	07/31/19	09:55	-----	0.0	0.0
129	07/31/19	09:56	-----	0.0	0.0
130	07/31/19	09:57	-----	0.0	0.0
131	07/31/19	09:58	-----	0.0	0.0
132	07/31/19	09:59	-----	0.0	0.0
133	07/31/19	10:00	-----	0.0	0.0
134	07/31/19	10:01	-----	0.0	0.0
135	07/31/19	10:02	-----	0.0	0.1
136	07/31/19	10:03	-----	0.0	0.0
137	07/31/19	10:04	-----	0.0	0.0
138	07/31/19	10:05	-----	0.0	0.0
139	07/31/19	10:06	-----	0.0	0.0
140	07/31/19	10:07	-----	0.0	0.0
141	07/31/19	10:08	-----	0.0	0.0
142	07/31/19	10:09	-----	0.0	0.0
143	07/31/19	10:10	-----	0.0	0.0
144	07/31/19	10:11	-----	0.0	0.0
145	07/31/19	10:12	-----	0.0	0.0
146	07/31/19	10:13	-----	0.0	0.0
147	07/31/19	10:14	-----	0.0	0.1
148	07/31/19	10:15	-----	0.0	0.1
149	07/31/19	10:16	-----	0.0	0.1
150	07/31/19	10:17	-----	0.0	0.0
151	07/31/19	10:18	-----	0.0	0.0
152	07/31/19	10:19	-----	0.0	0.0
153	07/31/19	10:20	-----	0.0	0.0
154	07/31/19	10:21	-----	0.0	0.0
155	07/31/19	10:22	-----	0.0	0.0
156	07/31/19	10:23	-----	0.0	0.0
157	07/31/19	10:24	-----	0.0	0.0
158	07/31/19	10:25	-----	0.0	0.0
159	07/31/19	10:26	-----	0.0	0.0
160	07/31/19	10:27	-----	0.0	0.0
161	07/31/19	10:28	-----	0.0	0.0
162	07/31/19	10:29	-----	0.0	0.0
163	07/31/19	10:30	-----	0.0	0.0
164	07/31/19	10:31	-----	0.0	0.0
165	07/31/19	10:32	-----	0.0	0.0
166	07/31/19	10:33	-----	0.0	0.0
167	07/31/19	10:34	-----	0.0	0.0
168	07/31/19	10:35	-----	0.0	0.0
169	07/31/19	10:36	-----	0.0	0.0
170	07/31/19	10:37	-----	0.0	0.0
171	07/31/19	10:38	-----	0.0	0.0
172	07/31/19	10:39	-----	0.0	0.0
173	07/31/19	10:40	-----	0.0	0.0
174	07/31/19	10:41	-----	0.0	0.0
175	07/31/19	10:42	-----	0.0	0.0
176	07/31/19	10:43	-----	0.0	0.0
177	07/31/19	10:44	-----	0.0	0.0
178	07/31/19	10:45	-----	0.0	0.0
179	07/31/19	10:46	-----	0.0	0.0
180	07/31/19	10:47	-----	0.0	0.0
181	07/31/19	10:48	-----	0.0	0.0
182	07/31/19	10:49	-----	0.0	0.0
183	07/31/19	10:50	-----	0.0	0.0
184	07/31/19	10:51	-----	0.0	0.0
185	07/31/19	10:52	-----	0.0	0.1
186	07/31/19	10:53	-----	0.0	0.0
187	07/31/19	10:54	-----	0.0	0.0
188	07/31/19	10:55	-----	0.0	0.0
189	07/31/19	10:56	-----	0.0	0.0
190	07/31/19	10:57	-----	0.0	0.0
191	07/31/19	10:58	-----	0.0	0.0
192	07/31/19	10:59	-----	0.0	0.0
193	07/31/19	11:00	-----	0.0	0.0
194	07/31/19	11:01	-----	0.0	0.0
195	07/31/19	11:02	-----	0.0	0.0
196	07/31/19	11:03	-----	0.0	0.0

197	07/31/19	11:04	- - - - -	0.0	0.0
198	07/31/19	11:05	- - - - -	0.0	0.0
199	07/31/19	11:06	- - - - -	0.0	0.0
200	07/31/19	11:07	- - - - -	0.0	0.0
201	07/31/19	11:08	- - - - -	0.0	0.0
202	07/31/19	11:09	- - - - -	0.0	0.0
203	07/31/19	11:10	- - - - -	0.0	0.0
204	07/31/19	11:11	- - - - -	0.0	0.0
205	07/31/19	11:12	- - - - -	0.0	0.0
206	07/31/19	11:13	- - - - -	0.0	0.0
207	07/31/19	11:14	- - - - -	0.0	0.0
208	07/31/19	11:15	- - - - -	0.0	0.0
209	07/31/19	11:16	- - - - -	0.0	0.0
210	07/31/19	11:17	- - - - -	0.0	0.0
211	07/31/19	11:18	- - - - -	0.0	0.0
212	07/31/19	11:19	- - - - -	0.0	0.0
213	07/31/19	11:20	- - - - -	0.0	0.0
214	07/31/19	11:21	- - - - -	0.0	0.0
215	07/31/19	11:22	- - - - -	0.0	0.0
216	07/31/19	11:23	- - - - -	0.0	0.0
217	07/31/19	11:24	- - - - -	0.0	0.0
218	07/31/19	11:25	- - - - -	0.0	0.0
219	07/31/19	11:26	- - - - -	0.0	0.1
220	07/31/19	11:27	- - - - -	0.0	0.1
221	07/31/19	11:28	- - - - -	0.0	0.0
222	07/31/19	11:29	- - - - -	0.0	0.0
223	07/31/19	11:30	- - - - -	0.0	0.0
224	07/31/19	11:31	- - - - -	0.0	0.0
225	07/31/19	11:32	- - - - -	0.0	0.1
226	07/31/19	11:33	- - - - -	0.0	0.1
227	07/31/19	11:34	- - - - -	0.0	0.1
228	07/31/19	11:35	- - - - -	0.0	0.0
229	07/31/19	11:36	- - - - -	0.0	0.0
230	07/31/19	11:37	- - - - -	0.0	0.0
231	07/31/19	11:38	- - - - -	0.0	0.0
232	07/31/19	11:39	- - - - -	0.0	0.0
233	07/31/19	11:40	- - - - -	0.0	0.0
234	07/31/19	11:41	- - - - -	0.0	0.0
235	07/31/19	11:42	- - - - -	0.0	0.0
236	07/31/19	11:43	- - - - -	0.0	0.0
237	07/31/19	11:44	- - - - -	0.0	0.0
238	07/31/19	11:45	- - - - -	0.0	0.0
239	07/31/19	11:46	- - - - -	0.0	0.0
240	07/31/19	11:47	- - - - -	0.0	0.0
241	07/31/19	11:48	- - - - -	0.0	0.0
242	07/31/19	11:49	- - - - -	0.0	0.0
243	07/31/19	11:50	- - - - -	0.0	0.0
244	07/31/19	11:51	- - - - -	0.0	0.0
245	07/31/19	11:52	- - - - -	0.0	0.0
246	07/31/19	11:53	- - - - -	0.0	0.0
247	07/31/19	11:54	- - - - -	0.0	0.0
248	07/31/19	11:55	- - - - -	0.0	0.0
249	07/31/19	11:56	- - - - -	0.0	0.0
250	07/31/19	11:57	- - - - -	0.0	0.0
251	07/31/19	11:58	- - - - -	0.0	0.0
252	07/31/19	11:59	- - - - -	0.0	0.1
253	07/31/19	12:00	- - - - -	0.0	0.1
254	07/31/19	12:01	- - - - -	0.0	0.1
255	07/31/19	12:02	- - - - -	0.0	0.1
256	07/31/19	12:03	- - - - -	0.0	0.0
257	07/31/19	12:04	- - - - -	0.0	0.0
258	07/31/19	12:05	- - - - -	0.0	0.0
259	07/31/19	12:06	- - - - -	0.0	0.0
300	07/31/19	12:07	- - - - -	0.0	0.1
301	07/31/19	12:08	- - - - -	0.0	0.1
302	07/31/19	12:09	- - - - -	0.0	0.0
303	07/31/19	12:10	- - - - -	0.0	0.0
304	07/31/19	12:11	- - - - -	0.0	0.0
305	07/31/19	12:12	- - - - -	0.0	0.0

306	07/31/19	12:13	- - - - -	0.0	0.1
307	07/31/19	12:14	- - - - -	0.0	0.1
308	07/31/19	12:15	- - - - -	0.0	0.1
309	07/31/19	12:16	- - - - -	0.0	0.0
310	07/31/19	12:17	- - - - -	0.0	0.0
311	07/31/19	12:18	- - - - -	0.0	0.0
312	07/31/19	12:19	- - - - -	0.0	0.0
313	07/31/19	12:20	- - - - -	0.0	0.0
314	07/31/19	12:21	- - - - -	0.0	0.0
315	07/31/19	12:22	- - - - -	0.0	0.0
316	07/31/19	12:23	- - - - -	0.0	0.0
317	07/31/19	12:24	- - - - -	0.0	0.0
318	07/31/19	12:25	- - - - -	0.0	0.0
319	07/31/19	12:26	- - - - -	0.0	0.0
320	07/31/19	12:27	- - - - -	0.0	0.0
321	07/31/19	12:28	- - - - -	0.0	0.0
322	07/31/19	12:29	- - - - -	0.0	0.0
323	07/31/19	12:30	- - - - -	0.0	0.0
324	07/31/19	12:31	- - - - -	0.0	0.0
325	07/31/19	12:32	- - - - -	0.0	0.0
326	07/31/19	12:33	- - - - -	0.0	0.1
327	07/31/19	12:34	- - - - -	0.0	0.1
328	07/31/19	12:35	- - - - -	0.0	0.0
329	07/31/19	12:36	- - - - -	0.0	0.0
330	07/31/19	12:37	- - - - -	0.0	0.0
331	07/31/19	12:38	- - - - -	0.0	0.0
332	07/31/19	12:39	- - - - -	0.0	0.1
333	07/31/19	12:40	- - - - -	0.0	0.1
334	07/31/19	12:41	- - - - -	0.0	0.1
335	07/31/19	12:42	- - - - -	0.0	0.0
336	07/31/19	12:43	- - - - -	0.0	0.0
337	07/31/19	12:44	- - - - -	0.0	0.0
338	07/31/19	12:45	- - - - -	0.0	0.0
339	07/31/19	12:46	- - - - -	0.0	0.0
340	07/31/19	12:47	- - - - -	0.0	0.0
341	07/31/19	12:48	- - - - -	0.0	0.0
342	07/31/19	12:49	- - - - -	0.0	0.0
343	07/31/19	12:50	- - - - -	0.0	0.0
344	07/31/19	12:51	- - - - -	0.0	0.0
345	07/31/19	12:52	- - - - -	0.0	0.0
346	07/31/19	12:53	- - - - -	0.0	0.0
347	07/31/19	12:54	- - - - -	0.0	0.0
348	07/31/19	12:55	- - - - -	0.0	0.0
349	07/31/19	12:56	- - - - -	0.0	0.0
350	07/31/19	12:57	- - - - -	0.0	0.0
351	07/31/19	12:58	- - - - -	0.0	0.0
352	07/31/19	12:59	- - - - -	0.0	0.0
353	07/31/19	1:00	- - - - -	0.0	0.0
354	07/31/19	1:01	- - - - -	0.0	0.0
355	07/31/19	1:02	- - - - -	0.0	0.0
356	07/31/19	1:04	- - - - -	0.0	0.0
357	07/31/19	1:05	- - - - -	0.0	0.0
358	07/31/19	1:06	- - - - -	0.0	0.0
359	07/31/19	1:07	- - - - -	0.0	0.0
360	07/31/19	1:08	- - - - -	0.0	0.0

Instrument: MiniRAE 2000 (PGM7600) Serial Number: 009059
User ID: 00000001 Site ID: 00000202
Data Points: 188 Gas Name: Isobutylene Sample Period: 60 sec
Last Calibration Time: July 30, 2019 14:35

Measurement Type:	Min (ppm)	Avg (ppm)	Max (ppm)
High Alarm Levels:	100.0	100.0	100.0
Low Alarm Levels:	50.0	50.0	50.0

Line #	Date	Time	Min (ppm)	Avg (ppm)	Max (ppm)
1	08/15/19	09:28	- - - - -	0.0	0.0
2	08/15/19	09:29	- - - - -	0.0	0.0
3	08/15/19	09:30	- - - - -	0.0	0.0
4	08/15/19	09:31	- - - - -	0.0	0.1
5	08/15/19	09:32	- - - - -	0.0	0.0
6	08/15/19	09:33	- - - - -	0.0	0.0
7	08/15/19	09:34	- - - - -	0.0	0.0
8	08/15/19	09:35	- - - - -	0.0	0.0
9	08/15/19	09:36	- - - - -	0.0	0.2
10	08/15/19	09:37	- - - - -	0.0	0.0
11	08/15/19	09:38	- - - - -	0.0	0.0
12	08/15/19	09:39	- - - - -	0.0	0.0
13	08/15/19	09:40	- - - - -	0.0	0.0
14	08/15/19	09:41	- - - - -	0.0	0.0
15	08/15/19	09:42	- - - - -	0.0	0.0
16	08/15/19	09:43	- - - - -	0.0	0.0
17	08/15/19	09:44	- - - - -	0.0	0.0
18	08/15/19	09:45	- - - - -	0.0	0.1
19	08/15/19	09:46	- - - - -	0.0	0.1
20	08/15/19	09:47	- - - - -	0.0	0.0
21	08/15/19	09:48	- - - - -	0.0	0.0
22	08/15/19	09:49	- - - - -	0.0	0.0
23	08/15/19	09:50	- - - - -	0.0	0.0
24	08/15/19	09:51	- - - - -	0.0	0.0
25	08/15/19	09:52	- - - - -	0.0	0.0
26	08/15/19	09:53	- - - - -	0.0	0.0
27	08/15/19	09:54	- - - - -	0.0	0.0
28	08/15/19	09:55	- - - - -	0.0	0.0
29	08/15/19	09:56	- - - - -	0.0	0.0
30	08/15/19	09:57	- - - - -	0.0	0.0
31	08/15/19	09:58	- - - - -	0.0	0.0
32	08/15/19	09:59	- - - - -	0.0	0.0
33	08/15/19	10:00	- - - - -	0.0	0.0
34	08/15/19	10:01	- - - - -	0.0	0.0
35	08/15/19	10:02	- - - - -	0.0	0.1
36	08/15/19	10:03	- - - - -	0.0	0.0
37	08/15/19	10:04	- - - - -	0.0	0.0
38	08/15/19	10:05	- - - - -	0.0	0.0
39	08/15/19	10:06	- - - - -	0.0	0.0
40	08/15/19	10:07	- - - - -	0.0	0.0
41	08/15/19	10:08	- - - - -	0.0	0.0
42	08/15/19	10:09	- - - - -	0.0	0.0
43	08/15/19	10:10	- - - - -	0.0	0.0
44	08/15/19	10:11	- - - - -	0.0	0.0
45	08/15/19	10:12	- - - - -	0.0	0.0
46	08/15/19	10:13	- - - - -	0.0	0.0
47	08/15/19	10:14	- - - - -	0.0	0.1
48	08/15/19	10:15	- - - - -	0.0	0.1
49	08/15/19	10:16	- - - - -	0.0	0.1
50	08/15/19	10:17	- - - - -	0.0	0.0
51	08/15/19	10:18	- - - - -	0.0	0.0
52	08/15/19	10:19	- - - - -	0.0	0.0
53	08/15/19	10:20	- - - - -	0.0	0.0
54	08/15/19	10:21	- - - - -	0.0	0.0
55	08/15/19	10:22	- - - - -	0.0	0.0

56	08/15/19	10:23	- - - - -	0.0	0.0
57	08/15/19	10:24	- - - - -	0.0	0.0
58	08/15/19	10:25	- - - - -	0.0	0.0
59	08/15/19	10:26	- - - - -	0.0	0.0
60	08/15/19	10:27	- - - - -	0.0	0.0
61	08/15/19	10:28	- - - - -	0.0	0.0
62	08/15/19	10:29	- - - - -	0.0	0.0
63	08/15/19	10:30	- - - - -	0.0	0.0
64	08/15/19	10:31	- - - - -	0.0	0.0
65	08/15/19	10:32	- - - - -	0.0	0.0
66	08/15/19	10:33	- - - - -	0.0	0.0
67	08/15/19	10:34	- - - - -	0.0	0.0
68	08/15/19	10:35	- - - - -	0.0	0.0
69	08/15/19	10:36	- - - - -	0.0	0.0
70	08/15/19	10:37	- - - - -	0.0	0.2
71	08/15/19	10:38	- - - - -	0.0	0.0
72	08/15/19	10:39	- - - - -	0.0	0.0
73	08/15/19	10:40	- - - - -	0.0	0.0
74	08/15/19	10:41	- - - - -	0.0	0.0
75	08/15/19	10:42	- - - - -	0.0	0.0
76	08/15/19	10:43	- - - - -	0.0	0.0
77	08/15/19	10:44	- - - - -	0.0	0.0
78	08/15/19	10:45	- - - - -	0.0	0.0
79	08/15/19	10:46	- - - - -	0.0	0.0
80	08/15/19	10:47	- - - - -	0.0	0.0
81	08/15/19	10:48	- - - - -	0.0	0.0
82	08/15/19	10:49	- - - - -	0.0	0.0
83	08/15/19	10:50	- - - - -	0.0	0.0
84	08/15/19	10:51	- - - - -	0.0	0.0
85	08/15/19	10:52	- - - - -	0.0	0.1
86	08/15/19	10:53	- - - - -	0.0	0.0
87	08/15/19	10:54	- - - - -	0.0	0.0
88	08/15/19	10:55	- - - - -	0.0	0.0
89	08/15/19	10:56	- - - - -	0.0	0.0
90	08/15/19	10:57	- - - - -	0.0	0.0
91	08/15/19	10:58	- - - - -	0.0	0.0
92	08/15/19	10:59	- - - - -	0.0	0.0
93	08/15/19	11:00	- - - - -	0.0	0.0
94	08/15/19	11:01	- - - - -	0.0	0.0
95	08/15/19	11:02	- - - - -	0.0	0.0
96	08/15/19	11:03	- - - - -	0.0	0.0
97	08/15/19	11:04	- - - - -	0.0	0.0
98	08/15/19	11:05	- - - - -	0.0	0.0
99	08/15/19	11:06	- - - - -	0.0	0.0
100	08/15/19	11:07	- - - - -	0.0	0.0
101	08/15/19	11:08	- - - - -	0.0	0.0
102	08/15/19	11:09	- - - - -	0.0	0.0
103	08/15/19	11:10	- - - - -	0.0	0.1
104	08/15/19	11:11	- - - - -	0.0	0.0
105	08/15/19	11:12	- - - - -	0.0	0.0
106	08/15/19	11:13	- - - - -	0.0	0.0
107	08/15/19	11:14	- - - - -	0.0	0.0
108	08/15/19	11:15	- - - - -	0.0	0.0
109	08/15/19	11:16	- - - - -	0.0	0.0
110	08/15/19	11:17	- - - - -	0.0	0.0
111	08/15/19	11:18	- - - - -	0.0	0.0
112	08/15/19	11:19	- - - - -	0.0	0.0
113	08/15/19	11:20	- - - - -	0.0	0.0
114	08/15/19	11:21	- - - - -	0.0	0.0
115	08/15/19	11:22	- - - - -	0.0	0.0
116	08/15/19	11:23	- - - - -	0.0	0.0
117	08/15/19	11:24	- - - - -	0.0	0.0
118	08/15/19	11:25	- - - - -	0.0	0.0
119	08/15/19	11:26	- - - - -	0.0	0.1
120	08/15/19	11:27	- - - - -	0.0	0.1
121	08/15/19	11:28	- - - - -	0.0	0.0

122	08/15/19	11:29	- - - - -	0.0	0.0
123	08/15/19	11:30	- - - - -	0.0	0.0
124	08/15/19	11:31	- - - - -	0.0	0.2
125	08/15/19	11:32	- - - - -	0.0	0.1
126	08/15/19	11:33	- - - - -	0.0	0.1
127	08/15/19	11:34	- - - - -	0.0	0.1
128	08/15/19	11:35	- - - - -	0.0	0.0
129	08/15/19	11:36	- - - - -	0.0	0.0
130	08/15/19	11:37	- - - - -	0.0	0.0
131	08/15/19	11:38	- - - - -	0.0	0.0
132	08/15/19	11:39	- - - - -	0.0	0.0
133	08/15/19	11:40	- - - - -	0.0	0.0
134	08/15/19	11:41	- - - - -	0.0	0.1
135	08/15/19	11:42	- - - - -	0.0	0.0
136	08/15/19	11:43	- - - - -	0.0	0.2
137	08/15/19	11:44	- - - - -	0.0	0.0
138	08/15/19	11:45	- - - - -	0.0	0.1
139	08/15/19	11:46	- - - - -	0.0	0.1
140	08/15/19	11:47	- - - - -	0.0	0.0
141	08/15/19	11:48	- - - - -	0.0	0.0
142	08/15/19	11:49	- - - - -	0.0	0.0
143	08/15/19	11:50	- - - - -	0.0	0.0
144	08/15/19	11:51	- - - - -	0.0	0.0
145	08/15/19	11:52	- - - - -	0.0	0.0
146	08/15/19	11:53	- - - - -	0.0	0.0
147	08/15/19	11:54	- - - - -	0.0	0.0
148	08/15/19	11:55	- - - - -	0.0	0.0
149	08/15/19	11:56	- - - - -	0.0	0.0
150	08/15/19	11:57	- - - - -	0.0	0.0
151	08/15/19	11:58	- - - - -	0.0	0.0
152	08/15/19	11:59	- - - - -	0.0	0.1
153	08/15/19	12:00	- - - - -	0.0	0.1
154	08/15/19	12:01	- - - - -	0.0	0.1
155	08/15/19	12:02	- - - - -	0.0	0.1
156	08/15/19	12:03	- - - - -	0.0	0.0
157	08/15/19	12:04	- - - - -	0.0	0.0
158	08/15/19	12:05	- - - - -	0.0	0.0
159	08/15/19	12:06	- - - - -	0.0	0.0
160	08/15/19	12:07	- - - - -	0.0	0.1
161	08/15/19	12:08	- - - - -	0.0	0.1
162	08/15/19	12:09	- - - - -	0.0	0.0
163	08/15/19	12:10	- - - - -	0.0	0.0
164	08/15/19	12:11	- - - - -	0.0	0.0
165	08/15/19	12:12	- - - - -	0.0	0.0
166	08/15/19	12:13	- - - - -	0.0	0.1
167	08/15/19	12:14	- - - - -	0.0	0.1
168	08/15/19	12:15	- - - - -	0.0	0.1
169	08/15/19	12:16	- - - - -	0.0	0.0
170	08/15/19	12:17	- - - - -	0.0	0.0
171	08/15/19	12:18	- - - - -	0.0	0.0
172	08/15/19	12:19	- - - - -	0.0	0.0
173	08/15/19	12:20	- - - - -	0.0	0.0
174	08/15/19	12:21	- - - - -	0.0	0.0
175	08/15/19	12:22	- - - - -	0.0	0.0
176	08/15/19	12:23	- - - - -	0.0	0.0
177	08/15/19	12:24	- - - - -	0.0	0.0
178	08/15/19	12:25	- - - - -	0.0	0.0
179	08/15/19	12:26	- - - - -	0.0	0.0
180	08/15/19	12:27	- - - - -	0.0	0.0
181	08/15/19	12:28	- - - - -	0.0	0.0
182	08/15/19	12:29	- - - - -	0.0	0.1
183	08/15/19	12:30	- - - - -	0.0	0.0
184	08/15/19	12:31	- - - - -	0.0	0.0
185	08/15/19	12:32	- - - - -	0.0	0.0
186	08/15/19	12:33	- - - - -	0.0	0.1
187	08/15/19	12:34	- - - - -	0.0	0.1

pDR-1000 S/N: 00000
Tag Number: 16
Number of logged points: 344
Start time and date: 07:29:23 31-Jul
Elapsed time: 05:44:00
Logging period (sec): 60
Calibration Factor (%): 100
Max Display Concentration: 0.740 mg/m³
Time at maximum: 09:34:33 Jul 31
Max STEL Concentration: 0.008 mg/m³
Time at max STEL: 09:45:23 Jul 31
Overall Avg Conc: 0.000 mg/m³
Logged Data:

Point	Date	Time	Avg.(mg/m³)
1	31 Jul	07:30:23	0.008
2	31 Jul	07:31:23	0.000
3	31 Jul	07:32:23	0.003
4	31 Jul	07:33:23	0.000
5	31 Jul	07:34:23	0.000
6	31 Jul	07:35:23	0.003
7	31 Jul	07:36:23	0.000
8	31 Jul	07:37:23	0.001
9	31 Jul	07:38:23	0.002
10	31 Jul	07:39:23	0.005
11	31 Jul	07:40:23	0.001
12	31 Jul	07:41:23	0.006
13	31 Jul	07:42:23	0.010
14	31 Jul	07:43:23	0.002
15	31 Jul	07:44:23	0.007
16	31 Jul	07:45:23	0.001
17	31 Jul	07:46:23	0.001
18	31 Jul	07:47:23	0.014
19	31 Jul	07:48:23	0.000
20	31 Jul	07:49:23	0.000
21	31 Jul	07:50:23	0.000
22	31 Jul	07:51:23	0.000
23	31 Jul	07:52:23	0.007
24	31 Jul	07:53:23	0.001
25	31 Jul	07:54:23	0.005
26	31 Jul	07:55:23	0.000
27	31 Jul	07:56:23	0.000
28	31 Jul	07:57:23	0.000
29	31 Jul	07:58:23	0.009
30	31 Jul	07:59:23	0.006
31	31 Jul	08:00:23	0.017
32	31 Jul	08:01:23	0.001
33	31 Jul	08:02:23	0.001
34	31 Jul	08:03:23	0.001
35	31 Jul	08:04:23	0.000
36	31 Jul	08:05:23	0.000
37	31 Jul	08:06:23	0.001
38	31 Jul	08:07:23	0.004
39	31 Jul	08:08:23	0.002
40	31 Jul	08:09:23	0.000
41	31 Jul	08:10:23	0.003
42	31 Jul	08:11:23	0.002
43	31 Jul	08:12:23	0.001
44	31 Jul	08:13:23	0.001
45	31 Jul	08:14:23	0.000
46	31 Jul	08:15:23	0.000
47	31 Jul	08:16:23	0.003
48	31 Jul	08:17:23	0.000
49	31 Jul	08:18:23	0.009
50	31 Jul	08:19:23	0.003
51	31 Jul	08:20:23	0.001
52	31 Jul	08:21:23	0.007
53	31 Jul	08:22:23	0.000
54	31 Jul	08:23:23	0.004
55	31 Jul	08:24:23	0.002
56	31 Jul	08:25:23	0.002
57	31 Jul	08:26:23	0.000

58, 31 Jul, 08:27:23, 0.005
59, 31 Jul, 08:28:23, 0.000
60, 31 Jul, 08:29:23, 0.000
61, 31 Jul, 08:30:23, 0.000
62, 31 Jul, 08:31:23, 0.004
63, 31 Jul, 08:32:23, 0.000
64, 31 Jul, 08:33:23, 0.000
65, 31 Jul, 08:34:23, 0.000
66, 31 Jul, 08:35:23, 0.000
67, 31 Jul, 08:36:23, 0.006
68, 31 Jul, 08:37:23, 0.006
69, 31 Jul, 08:38:23, 0.000
70, 31 Jul, 08:39:23, 0.012
71, 31 Jul, 08:40:23, 0.001
72, 31 Jul, 08:41:23, 0.019
73, 31 Jul, 08:42:23, 0.004
74, 31 Jul, 08:43:23, 0.008
75, 31 Jul, 08:44:23, 0.000
76, 31 Jul, 08:45:23, 0.013
77, 31 Jul, 08:46:23, 0.001
78, 31 Jul, 08:47:23, 0.015
79, 31 Jul, 08:48:23, 0.003
80, 31 Jul, 08:49:23, 0.002
81, 31 Jul, 08:50:23, 0.001
82, 31 Jul, 08:51:23, 0.001
83, 31 Jul, 08:52:23, 0.000
84, 31 Jul, 08:53:23, 0.001
85, 31 Jul, 08:54:23, 0.001
86, 31 Jul, 08:55:23, 0.000
87, 31 Jul, 08:56:23, 0.003
88, 31 Jul, 08:57:23, 0.000
89, 31 Jul, 08:58:23, 0.003
90, 31 Jul, 08:59:23, 0.011
91, 31 Jul, 09:00:23, 0.003
92, 31 Jul, 09:01:23, 0.000
93, 31 Jul, 09:02:23, 0.002
94, 31 Jul, 09:03:23, 0.005
95, 31 Jul, 09:04:23, 0.000
96, 31 Jul, 09:05:23, 0.001
97, 31 Jul, 09:06:23, 0.007
98, 31 Jul, 09:07:23, 0.001
99, 31 Jul, 09:08:23, 0.002
100, 31 Jul, 09:09:23, 0.000
101, 31 Jul, 09:10:23, 0.000
102, 31 Jul, 09:11:23, 0.000
103, 31 Jul, 09:12:23, 0.000
104, 31 Jul, 09:13:23, 0.000
105, 31 Jul, 09:14:23, 0.001
106, 31 Jul, 09:15:23, 0.001
107, 31 Jul, 09:16:23, 0.000
108, 31 Jul, 09:17:23, 0.000
109, 31 Jul, 09:18:23, 0.000
110, 31 Jul, 09:19:23, 0.001
111, 31 Jul, 09:20:23, 0.005
112, 31 Jul, 09:21:23, 0.004
113, 31 Jul, 09:22:23, 0.002
114, 31 Jul, 09:23:23, 0.000
115, 31 Jul, 09:24:23, 0.000
116, 31 Jul, 09:25:23, 0.000
117, 31 Jul, 09:26:23, 0.002
118, 31 Jul, 09:27:23, 0.000
119, 31 Jul, 09:28:23, 0.001
120, 31 Jul, 09:29:23, 0.000
121, 31 Jul, 09:30:23, 0.000
122, 31 Jul, 09:31:23, 0.004
123, 31 Jul, 09:32:23, 0.000
124, 31 Jul, 09:33:23, 0.001
125, 31 Jul, 09:34:23, 0.019
126, 31 Jul, 09:35:23, 0.141
127, 31 Jul, 09:36:23, 0.001
128, 31 Jul, 09:37:23, 0.001

129, 31 Jul, 09:38:23, 0.022
130, 31 Jul, 09:39:23, 0.014
131, 31 Jul, 09:40:23, 0.001
132, 31 Jul, 09:41:23, 0.000
133, 31 Jul, 09:42:23, 0.000
134, 31 Jul, 09:43:23, 0.014
135, 31 Jul, 09:44:23, 0.005
136, 31 Jul, 09:45:23, 0.000
137, 31 Jul, 09:46:23, 0.000
138, 31 Jul, 09:47:23, 0.000
139, 31 Jul, 09:48:23, 0.005
140, 31 Jul, 09:49:23, 0.000
141, 31 Jul, 09:50:23, 0.000
142, 31 Jul, 09:51:23, 0.000
143, 31 Jul, 09:52:23, 0.000
144, 31 Jul, 09:53:23, 0.000
145, 31 Jul, 09:54:23, 0.000
146, 31 Jul, 09:55:23, 0.003
147, 31 Jul, 09:56:23, 0.001
148, 31 Jul, 09:57:23, 0.004
149, 31 Jul, 09:58:23, 0.000
150, 31 Jul, 09:59:23, 0.000
151, 31 Jul, 10:00:23, 0.002
152, 31 Jul, 10:01:23, 0.001
153, 31 Jul, 10:02:23, 0.000
154, 31 Jul, 10:03:23, 0.000
155, 31 Jul, 10:04:23, 0.000
156, 31 Jul, 10:05:23, 0.000
157, 31 Jul, 10:06:23, 0.000
158, 31 Jul, 10:07:23, 0.000
159, 31 Jul, 10:08:23, 0.000
160, 31 Jul, 10:09:23, 0.000
161, 31 Jul, 10:10:23, 0.001
162, 31 Jul, 10:11:23, 0.004
163, 31 Jul, 10:12:23, 0.006
164, 31 Jul, 10:13:23, 0.000
165, 31 Jul, 10:14:23, 0.000
166, 31 Jul, 10:15:23, 0.001
167, 31 Jul, 10:16:23, 0.000
168, 31 Jul, 10:17:23, 0.000
169, 31 Jul, 10:18:23, 0.000
170, 31 Jul, 10:19:23, 0.000
171, 31 Jul, 10:20:23, 0.000
172, 31 Jul, 10:21:23, 0.000
173, 31 Jul, 10:22:23, 0.000
174, 31 Jul, 10:23:23, 0.002
175, 31 Jul, 10:24:23, 0.000
176, 31 Jul, 10:25:23, 0.000
177, 31 Jul, 10:26:23, 0.001
178, 31 Jul, 10:27:23, 0.000
179, 31 Jul, 10:28:23, 0.001
180, 31 Jul, 10:29:23, 0.001
181, 31 Jul, 10:30:23, 0.000
182, 31 Jul, 10:31:23, 0.002
183, 31 Jul, 10:32:23, 0.001
184, 31 Jul, 10:33:23, 0.004
185, 31 Jul, 10:34:23, 0.004
186, 31 Jul, 10:35:23, 0.030
187, 31 Jul, 10:36:23, 0.002
188, 31 Jul, 10:37:23, 0.001
189, 31 Jul, 10:38:23, 0.000
190, 31 Jul, 10:39:23, 0.000
191, 31 Jul, 10:40:23, 0.001
192, 31 Jul, 10:41:23, 0.006
193, 31 Jul, 10:42:23, 0.001
194, 31 Jul, 10:43:23, 0.001
195, 31 Jul, 10:44:23, 0.001
196, 31 Jul, 10:45:23, 0.000
197, 31 Jul, 10:46:23, 0.000
198, 31 Jul, 10:47:23, 0.000
199, 31 Jul, 10:48:23, 0.000

200, 31 Jul, 10:49:23, 0.004
201, 31 Jul, 10:50:23, 0.000
202, 31 Jul, 10:51:23, 0.002
203, 31 Jul, 10:52:23, 0.001
204, 31 Jul, 10:53:23, 0.002
205, 31 Jul, 10:54:23, 0.001
206, 31 Jul, 10:55:23, 0.001
207, 31 Jul, 10:56:23, 0.000
208, 31 Jul, 10:57:23, 0.000
209, 31 Jul, 10:58:23, 0.000
210, 31 Jul, 10:59:23, 0.000
211, 31 Jul, 11:00:23, 0.001
212, 31 Jul, 11:01:23, 0.002
213, 31 Jul, 11:02:23, 0.000
214, 31 Jul, 11:03:23, 0.001
215, 31 Jul, 11:04:23, 0.002
216, 31 Jul, 11:05:23, 0.000
217, 31 Jul, 11:06:23, 0.000
218, 31 Jul, 11:07:23, 0.000
219, 31 Jul, 11:08:23, 0.000
220, 31 Jul, 11:09:23, 0.002
221, 31 Jul, 11:10:23, 0.000
222, 31 Jul, 11:11:23, 0.001
223, 31 Jul, 11:12:23, 0.002
224, 31 Jul, 11:13:23, 0.000
225, 31 Jul, 11:14:23, 0.000
226, 31 Jul, 11:15:23, 0.002
227, 31 Jul, 11:16:23, 0.000
228, 31 Jul, 11:17:23, 0.001
229, 31 Jul, 11:18:23, 0.000
230, 31 Jul, 11:19:23, 0.000
231, 31 Jul, 11:20:23, 0.005
232, 31 Jul, 11:21:23, 0.001
233, 31 Jul, 11:22:23, 0.000
234, 31 Jul, 11:23:23, 0.000
235, 31 Jul, 11:24:23, 0.000
236, 31 Jul, 11:25:23, 0.000
237, 31 Jul, 11:26:23, 0.000
238, 31 Jul, 11:27:23, 0.000
239, 31 Jul, 11:28:23, 0.000
240, 31 Jul, 11:29:23, 0.001
241, 31 Jul, 11:30:23, 0.000
242, 31 Jul, 11:31:23, 0.000
243, 31 Jul, 11:32:23, 0.001
244, 31 Jul, 11:33:23, 0.000
245, 31 Jul, 11:34:23, 0.003
246, 31 Jul, 11:35:23, 0.002
247, 31 Jul, 11:36:23, 0.000
248, 31 Jul, 11:37:23, 0.001
249, 31 Jul, 11:38:23, 0.001
250, 31 Jul, 11:39:23, 0.001
251, 31 Jul, 11:40:23, 0.000
252, 31 Jul, 11:41:23, 0.000
253, 31 Jul, 11:42:23, 0.000
254, 31 Jul, 11:43:23, 0.000
255, 31 Jul, 11:44:23, 0.002
256, 31 Jul, 11:45:23, 0.000
257, 31 Jul, 11:46:23, 0.001
258, 31 Jul, 11:47:23, 0.002
259, 31 Jul, 11:48:23, 0.003
260, 31 Jul, 11:49:23, 0.005
261, 31 Jul, 11:50:23, 0.002
262, 31 Jul, 11:51:23, 0.002
263, 31 Jul, 11:52:23, 0.004
264, 31 Jul, 11:53:23, 0.004
265, 31 Jul, 11:54:23, 0.008
266, 31 Jul, 11:55:23, 0.002
267, 31 Jul, 11:56:23, 0.000
268, 31 Jul, 11:57:23, 0.000
269, 31 Jul, 11:58:23, 0.001
270, 31 Jul, 11:59:23, 0.002

271, 31 Jul, 12:00:23, 0.002
272, 31 Jul, 12:01:23, 0.002
273, 31 Jul, 12:02:23, 0.001
274, 31 Jul, 12:03:23, 0.002
275, 31 Jul, 12:04:23, 0.025
276, 31 Jul, 12:05:23, 0.001
277, 31 Jul, 12:06:23, 0.012
278, 31 Jul, 12:07:23, 0.001
279, 31 Jul, 12:08:23, 0.001
280, 31 Jul, 12:09:23, 0.002
281, 31 Jul, 12:10:23, 0.000
282, 31 Jul, 12:11:23, 0.000
283, 31 Jul, 12:12:23, 0.000
284, 31 Jul, 12:13:23, 0.002
285, 31 Jul, 12:14:23, 0.000
286, 31 Jul, 12:15:23, 0.005
287, 31 Jul, 12:16:23, 0.002
288, 31 Jul, 12:17:23, 0.001
289, 31 Jul, 12:18:23, 0.001
290, 31 Jul, 12:19:23, 0.006
291, 31 Jul, 12:20:23, 0.002
292, 31 Jul, 12:21:23, 0.002
293, 31 Jul, 12:22:23, 0.002
294, 31 Jul, 12:23:23, 0.001
295, 31 Jul, 12:24:23, 0.001
296, 31 Jul, 12:25:23, 0.006
297, 31 Jul, 12:26:23, 0.015
298, 31 Jul, 12:27:23, 0.006
299, 31 Jul, 12:28:23, 0.001
300, 31 Jul, 12:29:23, 0.001
301, 31 Jul, 12:30:23, 0.001
302, 31 Jul, 12:31:23, 0.001
303, 31 Jul, 12:32:23, 0.002
304, 31 Jul, 12:33:23, 0.001
305, 31 Jul, 12:34:23, 0.001
306, 31 Jul, 12:35:23, 0.000
307, 31 Jul, 12:36:23, 0.001
308, 31 Jul, 12:37:23, 0.001
309, 31 Jul, 12:38:23, 0.001
310, 31 Jul, 12:39:23, 0.001
311, 31 Jul, 12:40:23, 0.001
312, 31 Jul, 12:41:23, 0.001
313, 31 Jul, 12:42:23, 0.000
314, 31 Jul, 12:43:23, 0.002
315, 31 Jul, 12:44:23, 0.001
316, 31 Jul, 12:45:23, 0.000
317, 31 Jul, 12:46:23, 0.001
318, 31 Jul, 12:47:23, 0.001
319, 31 Jul, 12:48:23, 0.000
320, 31 Jul, 12:49:23, 0.003
321, 31 Jul, 12:50:23, 0.000
322, 31 Jul, 12:51:23, 0.000
323, 31 Jul, 12:52:23, 0.000
324, 31 Jul, 12:53:23, 0.003
325, 31 Jul, 12:54:23, 0.001
326, 31 Jul, 12:55:23, 0.001
327, 31 Jul, 12:56:23, 0.003
328, 31 Jul, 12:57:23, 0.003
329, 31 Jul, 12:58:23, 0.004
330, 31 Jul, 12:59:23, 0.000
331, 31 Jul, 13:00:23, 0.000
332, 31 Jul, 13:01:23, 0.000
333, 31 Jul, 13:02:23, 0.001
334, 31 Jul, 13:03:23, 0.000
335, 31 Jul, 13:04:23, 0.003
336, 31 Jul, 13:05:23, 0.004
337, 31 Jul, 13:06:23, 0.002
338, 31 Jul, 13:07:23, 0.000
339, 31 Jul, 13:08:23, 0.001
340, 31 Jul, 13:09:23, 0.002
341, 31 Jul, 13:10:23, 0.000

342, 31 Jul, 13:11:23, 0.001
343, 31 Jul, 13:12:23, 0.003
344, 31 Jul, 13:13:23, 0.005

pDR-1000 S/N: 00000
Tag Number: 17
Number of logged points: 206
Start time and date: 09:31:58 15-Aug
Elapsed time: 03:26:00
Logging period (sec): 60
Calibration Factor (%): 100
Max Display Concentration: 0.145 mg/m³
Time at maximum: 12:30:00 Aug 15
Max STEL Concentration: 0.000 mg/m³
Time at max STEL: 09:31:58 Aug 15
Overall Avg Conc: 0.000 mg/m³
Logged Data:

Point	Date	Time	Avg.(mg/m³)
1	15 Aug	09:32:58	0.007
2	15 Aug	09:33:58	0.000
3	15 Aug	09:34:58	0.000
4	15 Aug	09:35:58	0.000
5	15 Aug	09:36:58	0.003
6	15 Aug	09:37:58	0.000
7	15 Aug	09:38:58	0.000
8	15 Aug	09:39:58	0.013
9	15 Aug	09:40:58	0.000
10	15 Aug	09:41:58	0.001
11	15 Aug	09:42:58	0.000
12	15 Aug	09:43:58	0.004
13	15 Aug	09:44:58	0.013
14	15 Aug	09:45:58	0.000
15	15 Aug	09:46:58	0.002
16	15 Aug	09:47:58	0.002
17	15 Aug	09:48:58	0.000
18	15 Aug	09:49:58	0.008
19	15 Aug	09:50:58	0.000
20	15 Aug	09:51:58	0.002
21	15 Aug	09:52:58	0.000
22	15 Aug	09:53:58	0.003
23	15 Aug	09:54:58	0.000
24	15 Aug	09:55:58	0.000
25	15 Aug	09:56:58	0.000
26	15 Aug	09:57:58	0.000
27	15 Aug	09:58:58	0.001
28	15 Aug	09:59:58	0.000
29	15 Aug	10:00:58	0.001
30	15 Aug	10:01:58	0.005
31	15 Aug	10:02:58	0.000
32	15 Aug	10:03:58	0.000
33	15 Aug	10:04:58	0.001
34	15 Aug	10:05:58	0.000
35	15 Aug	10:06:58	0.001
36	15 Aug	10:07:58	0.005
37	15 Aug	10:08:58	0.001
38	15 Aug	10:09:58	0.000
39	15 Aug	10:10:58	0.000
40	15 Aug	10:11:58	0.000
41	15 Aug	10:12:58	0.000
42	15 Aug	10:13:58	0.000
43	15 Aug	10:14:58	0.000
44	15 Aug	10:15:58	0.001
45	15 Aug	10:16:58	0.002
46	15 Aug	10:17:58	0.000
47	15 Aug	10:18:58	0.000
48	15 Aug	10:19:58	0.002
49	15 Aug	10:20:58	0.001
50	15 Aug	10:21:58	0.000
51	15 Aug	10:22:58	0.000
52	15 Aug	10:23:58	0.006
53	15 Aug	10:24:58	0.002
54	15 Aug	10:25:58	0.000
55	15 Aug	10:26:58	0.000
56	15 Aug	10:27:58	0.000
57	15 Aug	10:28:58	0.001

58,	15 Aug,	10:29:58,	0.000
59,	15 Aug,	10:30:58,	0.000
60,	15 Aug,	10:31:58,	0.000
61,	15 Aug,	10:32:58,	0.000
62,	15 Aug,	10:33:58,	0.000
63,	15 Aug,	10:34:58,	0.000
64,	15 Aug,	10:35:58,	0.003
65,	15 Aug,	10:36:58,	0.001
66,	15 Aug,	10:37:58,	0.000
67,	15 Aug,	10:38:58,	0.000
68,	15 Aug,	10:39:58,	0.000
69,	15 Aug,	10:40:58,	0.004
70,	15 Aug,	10:41:58,	0.002
71,	15 Aug,	10:42:58,	0.000
72,	15 Aug,	10:43:58,	0.004
73,	15 Aug,	10:44:58,	0.002
74,	15 Aug,	10:45:58,	0.000
75,	15 Aug,	10:46:58,	0.003
76,	15 Aug,	10:47:58,	0.000
77,	15 Aug,	10:48:58,	0.000
78,	15 Aug,	10:49:58,	0.002
79,	15 Aug,	10:50:58,	0.000
80,	15 Aug,	10:51:58,	0.000
81,	15 Aug,	10:52:58,	0.000
82,	15 Aug,	10:53:58,	0.000
83,	15 Aug,	10:54:58,	0.000
84,	15 Aug,	10:55:58,	0.000
85,	15 Aug,	10:56:58,	0.000
86,	15 Aug,	10:57:58,	0.000
87,	15 Aug,	10:58:58,	0.000
88,	15 Aug,	10:59:58,	0.002
89,	15 Aug,	11:00:58,	0.000
90,	15 Aug,	11:01:58,	0.000
91,	15 Aug,	11:02:58,	0.000
92,	15 Aug,	11:03:58,	0.000
93,	15 Aug,	11:04:58,	0.000
94,	15 Aug,	11:05:58,	0.000
95,	15 Aug,	11:06:58,	0.000
96,	15 Aug,	11:07:58,	0.001
97,	15 Aug,	11:08:58,	0.001
98,	15 Aug,	11:09:58,	0.000
99,	15 Aug,	11:10:58,	0.003
100,	15 Aug,	11:11:58,	0.001
101,	15 Aug,	11:12:58,	0.002
102,	15 Aug,	11:13:58,	0.000
103,	15 Aug,	11:14:58,	0.001
104,	15 Aug,	11:15:58,	0.000
105,	15 Aug,	11:16:58,	0.000
106,	15 Aug,	11:17:58,	0.000
107,	15 Aug,	11:18:58,	0.002
108,	15 Aug,	11:19:58,	0.000
109,	15 Aug,	11:20:58,	0.000
110,	15 Aug,	11:21:58,	0.000
111,	15 Aug,	11:22:58,	0.005
112,	15 Aug,	11:23:58,	0.001
113,	15 Aug,	11:24:58,	0.004
114,	15 Aug,	11:25:58,	0.003
115,	15 Aug,	11:26:58,	0.002
116,	15 Aug,	11:27:58,	0.003
117,	15 Aug,	11:28:58,	0.000
118,	15 Aug,	11:29:58,	0.000
119,	15 Aug,	11:30:58,	0.000
120,	15 Aug,	11:31:58,	0.000
121,	15 Aug,	11:32:58,	0.000
122,	15 Aug,	11:33:58,	0.000
123,	15 Aug,	11:34:58,	0.000
124,	15 Aug,	11:35:58,	0.000
125,	15 Aug,	11:36:58,	0.000
126,	15 Aug,	11:37:58,	0.004
127,	15 Aug,	11:38:58,	0.000
128,	15 Aug,	11:39:58,	0.000

129, 15 Aug, 11:40:58, 0.000
130, 15 Aug, 11:41:58, 0.000
131, 15 Aug, 11:42:58, 0.001
132, 15 Aug, 11:43:58, 0.000
133, 15 Aug, 11:44:58, 0.001
134, 15 Aug, 11:45:58, 0.000
135, 15 Aug, 11:46:58, 0.000
136, 15 Aug, 11:47:58, 0.001
137, 15 Aug, 11:48:58, 0.003
138, 15 Aug, 11:49:58, 0.001
139, 15 Aug, 11:50:58, 0.000
140, 15 Aug, 11:51:58, 0.000
141, 15 Aug, 11:52:58, 0.001
142, 15 Aug, 11:53:58, 0.000
143, 15 Aug, 11:54:58, 0.000
144, 15 Aug, 11:55:58, 0.000
145, 15 Aug, 11:56:58, 0.000
146, 15 Aug, 11:57:58, 0.000
147, 15 Aug, 11:58:58, 0.000
148, 15 Aug, 11:59:58, 0.007
149, 15 Aug, 12:00:58, 0.002
150, 15 Aug, 12:01:58, 0.000
151, 15 Aug, 12:02:58, 0.000
152, 15 Aug, 12:03:58, 0.000
153, 15 Aug, 12:04:58, 0.002
154, 15 Aug, 12:05:58, 0.000
155, 15 Aug, 12:06:58, 0.000
156, 15 Aug, 12:07:58, 0.000
157, 15 Aug, 12:08:58, 0.005
158, 15 Aug, 12:09:58, 0.000
159, 15 Aug, 12:10:58, 0.000
160, 15 Aug, 12:11:58, 0.000
161, 15 Aug, 12:12:58, 0.000
162, 15 Aug, 12:13:58, 0.000
163, 15 Aug, 12:14:58, 0.000
164, 15 Aug, 12:15:58, 0.000
165, 15 Aug, 12:16:58, 0.001
166, 15 Aug, 12:17:58, 0.000
167, 15 Aug, 12:18:58, 0.000
168, 15 Aug, 12:19:58, 0.000
169, 15 Aug, 12:20:58, 0.000
170, 15 Aug, 12:21:58, 0.000
171, 15 Aug, 12:22:58, 0.001
172, 15 Aug, 12:23:58, 0.001
173, 15 Aug, 12:24:58, 0.000
174, 15 Aug, 12:25:58, 0.005
175, 15 Aug, 12:26:58, 0.008
176, 15 Aug, 12:27:58, 0.000
177, 15 Aug, 12:28:58, 0.000
178, 15 Aug, 12:29:58, 0.024
179, 15 Aug, 12:30:58, 0.000
180, 15 Aug, 12:31:58, 0.001
181, 15 Aug, 12:32:58, 0.002
182, 15 Aug, 12:33:58, 0.000
183, 15 Aug, 12:34:58, 0.000
184, 15 Aug, 12:35:58, 0.000
185, 15 Aug, 12:36:58, 0.000
186, 15 Aug, 12:37:58, 0.000
187, 15 Aug, 12:38:58, 0.000
188, 15 Aug, 12:39:58, 0.000
189, 15 Aug, 12:40:58, 0.000
190, 15 Aug, 12:41:58, 0.001
191, 15 Aug, 12:42:58, 0.000
192, 15 Aug, 12:43:58, 0.000
193, 15 Aug, 12:44:58, 0.000
194, 15 Aug, 12:45:58, 0.001
195, 15 Aug, 12:46:58, 0.000
196, 15 Aug, 12:47:58, 0.000
197, 15 Aug, 12:48:58, 0.004
198, 15 Aug, 12:49:58, 0.001
199, 15 Aug, 12:50:58, 0.000

```
200, 15 Aug, 12:51:58,  0.000
201, 15 Aug, 12:52:58,  0.000
202, 15 Aug, 12:53:58,  0.000
203, 15 Aug, 12:54:58,  0.000
204, 15 Aug, 12:55:58,  0.001
205, 15 Aug, 12:56:58,  0.000
206, 15 Aug, 12:57:58,  0.000
```

APPENDIX B

Community Air Monitoring Plan (CAMP)

APPENDIX 1A

NYSDOH GENERIC CAMP

Appendix 1A
New York State Department of Health
Generic Community Air Monitoring Plan

Overview

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate DEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or

overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/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 must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

3. All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

December 2009

APPENDIX 1B

FUGITIVE DUST AND PARTICULATE MONITORING FROM DER-10 TECHNICAL GUIDANCE FOR SITE INVESTIGATIONS AND REMEDIATION

Appendix 1B
Fugitive Dust and Particulate Monitoring

A program for suppressing fugitive dust and particulate matter monitoring at hazardous waste sites is a responsibility on the remedial party performing the work. These procedures must be incorporated into appropriate intrusive work plans. The following fugitive dust suppression and particulate monitoring program should be employed at sites during construction and other intrusive activities which warrant its use:

1. Reasonable fugitive dust suppression techniques must be employed during all site activities which may generate fugitive dust.

2. Particulate monitoring must be employed during the handling of waste or contaminated soil or when activities on site may generate fugitive dust from exposed waste or contaminated soil. Remedial activities may also include the excavation, grading, or placement of clean fill. These control measures should not be considered necessary for these activities.

3. Particulate monitoring must be performed using real-time particulate monitors and shall monitor particulate matter less than ten microns (PM10) with the following minimum performance standards:

(a) Objects to be measured: Dust, mists or aerosols;
(b) Measurement Ranges: 0.001 to 400 mg/m3 (1 to 400,000 :ug/m3);
(c) Precision (2-sigma) at constant temperature: +/- 10 :g/m3 for one second averaging; and +/- 1.5 g/m3 for sixty second averaging;
(d) Accuracy: +/- 5% of reading +/- precision (Referred to gravimetric calibration with SAE fine test dust (mmd= 2 to 3 :m, g= 2.5, as aerosolized);
(e) Resolution: 0.1% of reading or 1g/m3, whichever is larger;
(f) Particle Size Range of Maximum Response: 0.1-10;
(g) Total Number of Data Points in Memory: 10,000;
(h) Logged Data: Each data point with average concentration, time/date and data point number
(i) Run Summary: overall average, maximum concentrations, time/date of maximum, total number of logged points, start time/date, total elapsed time (run duration), STEL concentration and time/date occurrence, averaging (logging) period, calibration factor, and tag number;
(j) Alarm Averaging Time (user selectable): real-time (1-60 seconds) or STEL (15 minutes), alarms required;
(k) Operating Time: 48 hours (fully charged NiCd battery); continuously with charger;
(l) Operating Temperature: -10 to 50° C (14 to 122° F);
(m) Particulate levels will be monitored upwind and immediately downwind at the working site and integrated over a period not to exceed 15 minutes.

4. In order to ensure the validity of the fugitive dust measurements performed, there must be appropriate Quality Assurance/Quality Control (QA/QC). It is the responsibility of the remedial party to adequately supplement QA/QC Plans to include the following critical features: periodic instrument calibration, operator training, daily instrument performance (span) checks, and a record keeping plan.

5. The action level will be established at 150 ug/m3 (15 minutes average). While conservative,

this short-term interval will provide a real-time assessment of on-site air quality to assure both health and safety. If particulate levels are detected in excess of 150 ug/m3, the upwind background level must be confirmed immediately. If the working site particulate measurement is greater than 100 ug/m3 above the background level, additional dust suppression techniques must be implemented to reduce the generation of fugitive dust and corrective action taken to protect site personnel and reduce the potential for contaminant migration. Corrective measures may include increasing the level of personal protection for on-site personnel and implementing additional dust suppression techniques (see paragraph 7). Should the action level of 150 ug/m3 continue to be exceeded work must stop and DER must be notified as provided in the site design or remedial work plan. The notification shall include a description of the control measures implemented to prevent further exceedances.

6. It must be recognized that the generation of dust from waste or contaminated soil that migrates off-site, has the potential for transporting contaminants off-site. There may be situations when dust is being generated and leaving the site and the monitoring equipment does not measure PM10 at or above the action level. Since this situation has the potential to allow for the migration of contaminants off-site, it is unacceptable. While it is not practical to quantify total suspended particulates on a real-time basis, it is appropriate to rely on visual observation. If dust is observed leaving the working site, additional dust suppression techniques must be employed. Activities that have a high dusting potential--such as solidification and treatment involving materials like kiln dust and lime--will require the need for special measures to be considered.

7. The following techniques have been shown to be effective for the controlling of the generation and migration of dust during construction activities:

(a) Applying water on haul roads;
(b) Wetting equipment and excavation faces;
(c) Spraying water on buckets during excavation and dumping;
(d) Hauling materials in properly tarped or watertight containers;
(e) Restricting vehicle speeds to 10 mph;
(f) Covering excavated areas and material after excavation activity ceases; and
(g) Reducing the excavation size and/or number of excavations.

Experience has shown that the chance of exceeding the 150ug/m3 action level is remote when the above-mentioned techniques are used. When techniques involving water application are used, care must be taken not to use excess water, which can result in unacceptably wet conditions. Using atomizing sprays will prevent overly wet conditions, conserve water, and provide an effective means of suppressing the fugitive dust.

8. The evaluation of weather conditions is necessary for proper fugitive dust control. When extreme wind conditions make dust control ineffective, as a last resort remedial actions may need to be suspended. There may be situations that require fugitive dust suppression and particulate monitoring requirements with action levels more stringent than those provided above. Under some circumstances, the contaminant concentration and/or toxicity may require additional monitoring to protect site personnel and the public. Additional integrated sampling and chemical analysis of the dust may also be in order. This must be evaluated when a health and safety plan is developed and when appropriate suppression and monitoring requirements are established for protection of health and the environment.

APPENDIX C

Health and Safety Plan
(HASP)

Site-Specific Health and Safety Plan (HASP)

Project Title:

American Drive-In Cleaners

Location:

1345 Peninsula Boulevard, Hewlett, NY 11557

Prepared For:

Harris Howard LLC

LaBella Project No. 2252644

Contact List		
Contact	**Name**	**Phone**
LaBella Project Manager	Richard Kampf	917-280-6364
LaBella Site Supervisor	Cynthia Chu	516-225-0396
Corporate Safety Manager	Catherine Monian	845-486-1557
Environmental Division Safety Program Manager	Tim Ruddy	315.440.5125
Site Safety Officer	Wilson Corella	929-340-716
Human Resources	Shameka McDuffie	518-439-8235
Emergency Personnel including Police and Fire Dept and Ambulance – Dial 911		
Hospital- *see Hospital Route Section below for directions*		
Poison Control		800-336-6997
NYSDEC Spill Response Hotline		800-457-7362

TABLE OF CONTENTS

0.0 HASP Acknowledgment 5

1.0 Introduction 6

2.0 Responsibilities 6

3.0 Daily Pre-Job Safety Meetings 6

4.0 Site Information 6

5.0 Scope of Work 7

6.0 Emergency Information 8

7.0 Potential Health and Safety Hazards and Controls 10

Physical Hazards 10

Biological and Environmental Hazards 16

Ergonomic Hazards 18

Chemical Hazards (General) 19

Individual Contaminant Hazards 23

8.0 Personal Protective Equipment (PPE) 10

9.0 Employee Training 29

10.0 Exposure Monitoring 29

11.0 Site Control 29

12.0 Recordkeeping 29

ATTACHMENTS

APPENDICES

APPENDIX A - Directions to Medical Facility

APPENDIX B - Task Hazard Analysis Forms

APPENDIX C - Safety Data Sheets

APPENDIX D - Daily Tailgate Safety Meeting Form

APPENDIX E - Silica Exposure Plan

0.0 HASP Acknowledgment

All LaBella project personnel, contractors, and subcontractors are required to sign the following agreement prior to conducting work:

1. I have read and fully understand the requirements of this site-specific HASP including my individual responsibilities listed above.

2. I agree to abide by the provisions of the HASP and participate in any health and safety meetings or modifications to the HASP criteria during the implementation of work.

Name	Company	Date

1.0 Introduction

The purpose of this Health and Safety Plan (HASP) is to provide guidelines for responding to potential health and safety issues that may be encountered at the project site, located at 1345 Peninsula Boulevard, Hewlett, NY 1557 This HASP only reflects the policies of LaBella Associates D.P.C. and its affiliated companies LaBella Environmental, LLC and Aztech Environmental Technologies, Inc., collectively referred to as "LaBella". The requirements of this HASP are applicable to all approved LaBella personnel, contractors and subcontractors at the work site. This document's project specifications are to be consulted for guidance in preventing and quickly abating any threat to human safety or the environment. The provisions of the HASP do not replace or supersede any federal, state or local regulatory requirements.

2.0 Responsibilities

This HASP presents guidelines to minimize the risk of injury to project personnel, and to provide rapid response in the event of injury. The HASP is applicable only to activities of approved LaBella personnel and their authorized visitors specific to this project. The Project Manager shall implement the provisions of this HASP for the duration of the project. It is the responsibility of LaBella employees to follow the requirements of this HASP, and all applicable company safety procedures.

3.0 Daily Pre-Job Safety Meetings

Prior to the beginning of work each day the Field Supervisor/Foreman or on-site Project Manager will review upcoming daily job requirements, anticipated hazards and hazard control measures with the project team members. At this meeting information such as personal protective equipment, site conditions, emergency procedures, and other applicable topics may be addressed. A copy of the **Daily Pre-Job Safety Tailgate/Toolbox Meeting Form** is attached to this HASP.

4.0 Site Information

Project Name:	American Drive-In Cleaners
LaBella Project No.:	2252644
Project Location:	1345 Peninsula Boulevard, Hewlett, NY 1557
Current Use of Project Location:	The Site is an active dry cleaner located in a commercial and residential area at 1345 Peninsula Boulevard in the Town of Hewlett, Nassau County, New York. The Site consists of approximately 0.66 acres

	and is developed with an approximately 10,000 square foot single-story on slab-on-grade building. The undeveloped portion of the Site consists of an asphalt parking lot.
Uses of Surrounding Areas (Res Vacant Land, Commercial, etc.):	The Site is bounded to the east by the Long Island Railroad (LIRR) right-of-way (ROW), to the north by Peninsula Boulevard and a commercial shopping center, to the west by a vacant parking lot and former bank, and to the south by residential houses.
Proposed Date(s) of Field Activity - Start:	2025-07-01
Proposed Date(s) of Field Activity - End:	2025-08-31

5.0 Scope of Work

The proposed field work covered under this HASP includes the following:

Geophysical Survey:
The geophysical survey will include the use of electro-magnetic (EM) equipment and ground-penetrating radar (GPR) to identify subsurface anomalies and/or utilities that would preclude drilling in planned locations. LaBella will use the findings of the geophysical survey to determine where soil borings can be advanced safely.

Sub-Slab Soil Vapor Investigation:
The objective of the sub-slab soil vapor investigation is to support the design of an IRM and to inform the location of soil sampling for the horizotal and vertical delineation of the source are in order to support the design of additional remedial measures, as necessary. The data from the sub-slab investigation would be to inform where supplemental soil sampling should be performed in order to identify and evaluate appropriate and feasible IRM and / or remedial alternatives.

Sub-Surface Soil Investigation:
The objective of the sub-surface soil investigation is to complete a horizontal and vertical delineation of the source area in order to support the design of an IRM and / or additional remedial measures, as necessary. Based on the results of the sub-slab soil vapor screening, LaBella will confirm the quantity and locations for a subsurface soil investigation. We assume that approximately 10 to 12 soil borings will be advanced to a depth of approximately 10 to 15 feet below ground surface (ft bgs).

The soil borings along the eastern side of the building will be manually advanced with hand tools. The soil borings in the asphalt parking lot will be advanced using a direct-push drill

rig. A LaBella environmental professional will characterize soils using the Unified Soil Classification System (USCS) and field screen samples for the presence of volatile organic compounds (VOCs) using a photoionization detector (PID) with a minimum of 9.8eV lamp. Soil boring depths may be increased to vertically delineate subsurface impact, if encountered.

Groundwater Investigation:
The objective of the groundwater investigation is to support the design of an IRM to mitigate the off-site migration of contaminated groundwater. A total of 3 off-site temporary groundwater monitoring wells (GW-11, GW-12, GW-13) will be installed downgradient of the property in the right-of-way on the southeastern side of Peninsula Blvd, as well as one temporary groundwater monitoring well (GW-10) upgradient of the source area at the southeastern end of the property. Groundwater samples will be analyzed for VOCs and indicators of monitored natural attenuation. Additionally, VOC samples will be collected from the existing / accessible on-site monitoring wells. In addition to the PDI wells (GW-10 through GW-13), the SRI wells (GW-7, GW-8, GW-9, and MW-9) will be installed per the previously approved 2023 SRI Work Plan, however we propose to install the PDI wells as well clusters with three separate 1-inch PVC screens as an alternative to the well construction details proposed in the 2023 SRI Work Plan.

The VES will consist of three 2-inch wells that were installed in 2015. The current conditions and the duration of operation of the VES are unknown.

6.0 Emergency Information

The personnel and emergency response contacts associated with the proposed scope of work are presented below and are to be posted onsite during all field activities. The Site Safety Officer (SSO) is the primary authority for directing site operations and relaying communications under emergency conditions. During the SSO's absence, the Project Manager or Site Supervisor will lead emergency operations.

Project Personnel		
Contact	**Name**	**Phone**
LaBella Project Manager		
LaBella Site Supervisor		
Corporate Safety Manager	Catherine Monian	845-486-1557
Environmental Division Safety Program Manager	Tim Ruddy	315.440.5125

Site Safety Officer		
Site Contact		
Human Resources		
Emergency Personnel including Police and Fire Dept and Ambulance – Dial 911		
Hospital- *see Hospital Route Section below for directions*		
Poison Control		800-336-6997
NYSDEC Spill Response Hotline		800-457-7362

First Aid

A First Aid Kit will be located as follows: The injured person may be transported to a trained medical center for further examination and treatment. The preferred transport method is a professional emergency transportation service; however, if this option is not readily available or would result in excessive delay, other transport is authorized.

Under no circumstances should an injured person transport themselves to a medical facility for treatment, no matter how minor the injury may appear.

Incident Reporting

Employees shall report all incidents and injuries to their supervisor as soon as possible, including those involving employees operating vehicles and other equipment. All reporting procedures contained in LaBella Safety Policy 1.22 must be followed.

During emergencies employees should seek medical care immediately. When contacting their Supervisor/Safety Manager/HR, employees should discuss medical care options. If an employee is asked by medical personnel for a worker's compensation number they should tell them that LaBella should be billed directly.

When emergency medical care is not imminent, employees shall immediately report events to their immediate Supervisor, the Safety Manager and Human Resources, and participate in the investigation process as well as the corrective action process, as needed. An Accident-Incident-Near Miss-Hazard Form must be submitted online or by e-mail to the Supervisor, Safety Manager and HR as soon as possible but no later than 24 hours after the event. The Form can be found on LaBella's intranet under "Operations".

7.0 Potential Health and Safety Hazards and Controls

This section lists potential health and safety hazards that project personnel may encounter at the project site and actions to be implemented by approved personnel to control and reduce the associated risk to health and safety. This is not intended to be a complete listing of any and all potential health and safety hazards. New or different hazards may be encountered as site environmental and site work conditions change. The suggested actions to be taken under this plan are not to be substituted for good judgment on the part of project personnel. At all times, the Site Safety Officer has responsibility for site safety and their instructions must be followed.

Physical Hazards		
Work Action or Condition	**Potential Safety Hazard**	**Controls (including PPE)**
Concrete Dust	Inhalation of respirable silica dust	• Use wet suppression systems to minimize dust. • Do not use compressed air to clean surfaces. • Wear appropriate PPE and refer to exposure control plan for silica.
Drilling Activities	Potential presence of underground or overhead utilities, rotating and moving parts, pinch point hazards, falling objects/debris, high noise levels, ergonomic issues related to lifting heavy drill tooling and supplies (e.g., augers, bags of sand or grout).	• Prior to initiating drilling activities conduct a utility stakeout via the state one call system (e.g., UDig NY). A private utility location service may be required if private utilities may be present. • Ensure safe distance from overhead utilities such as electric, telephone and fiber optic/cable lines. • Wear appropriate PPE and avoid loose clothing or jewelry. • Stay clear of moving parts and know the location of emergency shut-off switches. • Take particular caution when raising/lowering the mast and near rotating augers/drill rods. • Practice safe lifting techniques. • Where possible use winches/cables to lift heavy tooling. • Use team lifting where mechanical lifting is not practical.
Excavations and Trenches	Injury from fall into or cave-in of trench/excavation. Asphyxiation, engulfment, or explosion (if pipe bursts)	An open excavation or trench may be present during site activity, or could be present during demolition or remediation activities. No Labella employees should enter a trench or excavation unless authorized to by the designated Competent Person. During heavy precipitation, excessive runoff may create slippery surfaces

		and also weaken the excavation sidewalls making the excavation more susceptible to collapse. The following hazard control measures will be applied: • All materials must be placed greater than 2 feet from the edge of the trench and LaBella employees should remain at least 2-feet from the edge of any excavation or trench. • LaBella employees are not to enter excavations greater than 4-feet in depth unless they have received appropriate training, stabilization measures are in place and a competent person has determined that the conditions are safe. • Any samples must be collected from the equipment bucket or from the spoils pile.
Heavy Equipment - Working Near	Struck by, Caught in between, Causing an obstruction on existing roadway, Rollaway, and hearing damage.	Working near heavy equipment presents struck-by and caught-in or in-between risks. Heavy equipment can also rollaway or obstruct roadways, limiting visibility. The following hazard control measures will be applied: • Maintain 360 degrees of awareness of your surroundings. • Meet the Operator, discuss work operations, and stay in line of sight. • Wear high visibility clothing (outer layer), hard hat, safety glasses, work boots. • Stand in safe zone away from blind areas. Never walk behind or to the side of heavy equipment without the operator's knowledge. Have an escape plan. • Stay out of the swing zone of heavy equipment such as excavators or traditional auger rigs. The swing zone is defined as an entire 360 degree circle equipment may move within as measured from a central location point. • Only approach drill rig after auger has stopped rotating and the operator has given the OK for you to approach to collect a sample. • Wear hearing protection when working near heavy or moving equipment.
Hot Weather & Sun, Other Heat Hazards	Prickly Heat (Heat rash), Heat Cramps, Heat Exhaustion Heat Fatigue, Heat Collapse, Heat Stroke, Sunburn	Environmental heat hazards, whether indoors or outdoors, present physical injury risks. Exercise caution when working in hot temperatures or around hot tar or other materials, hot ovens or other equipment, heat absorbing surfaces such as roofs and roads, and reflective surfaces such as water or metal. The following hazard control

		measures will be applied: • Have sunscreen available for ultraviolet protection on sunny days. • Have water or electrolyte drinks for dehydration. • Check the weather and adjust work schedules if heat is excessive. Work early or later in day. • Perform work during cooler hours of the day or at night if adequate lighting can be provided. • Utilize shelter (air-conditioned, if possible) or shaded areas to protect personnel during rest periods. • Use cooling devices such as fans and water misters. • Allow workers to take breaks in air-conditioned vehicles.
Parking Vehicle	Struck by, caught in between, casing an obstruction on existing roadway. Fire from plants under hot exhaust	• Workers will park far enough off the edge of the road to stay well clear of traffic. • Put on hi-visibility vest before exiting parked car. • Leave Field Card on dashboard. • Use appropriate number of cones to mark for oncoming traffic as needed. • Do not park on/in flammable vegetation. • Keys stay on field person.
Power Tools	Injury from improper use Electrical shock and electrocution	• Unplug power tools when not in use. • Do not use a tool if you have not been trained. Inspect tool and cord before use and do not use damaged tools. • Maintain tools in good condition and follow manufacturers' instructions. • Wear gloves, safety glasses and and appropriate PPE /apparel, avoiding loose clothing; secure long hair. • Never remove a safety guard when a tool is being used. • Only plug electric tools into a grounded receptacle with a GFCI. Stop using tool if slight shock or tingling is felt. • Secure work with clamps to have both hands free to use the tool. • Keep power tool cords away from heat, oil and sharp edges. • Tag all damaged tools with "Do Not Use".
Railroad Tracks - Near/On	Getting struck by train	• Workers will not go into railroad ROW or onto railroad tracks unless they have specific railroad training and permission.

Roads/Traffic - Near/On	Getting struck by vehicle	• If working in or around traffic (including in parking lots), workers will wear an ANSI Level 2 high visibility clothing (vest). An ANSI Level 3 vest (with sleeves) is required when working near traffic exceeding 50 mph. Additional reflective gear is also required for night work. • Maintain 360 degrees of awareness of your surroundings. • Face traffic, stay in a safe zone, and have an escape route. • Do not wear a headset or talk on your cell phone. • DOT aproved Traffic Cones and all Traffic Cobtral Devices must be designed and placed according to Uniform Traffic Contral Devices (MUTCD) standards (See 3.13 WORK ZONE SAFETY in Labella's Safety Manual for more information) • If possible, close the entrance/exit to ensure the worker's safety, and use a spotter if the worker will not have the ability to keep their attention on vehicles maneuvering in the area. • Workers should NOT sit down or turn their back to traffic when working. If they must do either of these things to complete the work scope, use a spotter or consider alternate ways or tools to do the work.
Slip-Trip-Fall	Injury	• Reduce and avoid slippery (wet, icy, oily, muddy, etc.) surfaces. • Workers will watch where they step and wear proper footwear. • Keep work areas free of obstructions and debris.
Underground Utilities	Damage to utility infrastructure, Electrocution, Explosion	• Utility marking is needed for this project. • Prior to the commencement of ground intrusive activities, underground utilities will be located by a third-party locator. • Workers will not stand within 20-feet of any active excavations or boreholes if not actively working in those areas.
Uneven or Wet Terrain (Slopes, Leaves, Holes, etc.)	Slip, Trip, Fall	• Wear appropriate footwear for the site and conditions: steel toe or composite boots for construction sites, skid-resistant, hiking boots for other field work if indicated. • Use walking stick or other object for additional support/balance and to check for animal burrows/holes. • Watch for trip hazards such as uneven terrain,

		holes, ditches, puddles (if raining) stretched wires or ropes, or other materials or pieces of equipment in path.
Winds/Dust Storms	Particulates	• Wear goggles if dust/debris is visible. • Seek shelter in vehicle or another safe location during dangerously strong wind.
Working on Wet, Icy, and Slippery Surfaces	Bodily harm (e.g. high falls, impalement) Bodily injury (e.g. strain muscles, broken bones)	Administrative: • Report unsafe conditions. Help identify areas where accidents are likely to occur so we can take steps to keep sit safe. *Note: The routine application of salt on icy surface on a project is commonly cover in contract but not always utilized. Personal Protective Equipment and work practice: Wear slip-resistant footwear that has good traction. Avoid shoes with smooth soles. Take shorter steps at a slower pace on icy pavement. Hold onto the handrails when using stairs. Keep your hands free to catch yourself if you start to fall. Use a cart and take the elevator when carrying large items. Avoid walking while distracted; put away your mobile device. Use caution when stepping off curbs and walking up or down steep slopes. • Don't rush! Give yourself extra time to get to your destination. • Wipe your feet on a mat when you enter a building to remove excess water.
Flammable Liquids	Burns from ignited flammable liquids	• Do not keep flammable liquids in anything other than an approved safety can and properly bond or ground container during transfers. • Consult safety data sheet before use to understand hazards. • Wear appropriate PPE. • Maintain adequate ventilation while using and elminate all potential ignition sources, including static electricity.
Electrical Systems - Working Near	Electrical shock and electrocution	This project requires work in proximity to electrical systems, such as electric poles, service wires, switches, and other devices. The following hazard control measures will be applied: • Workers shall NOT work on electrical systems unless properly trained. • Do not touch any lock-tagged equipment unless you have received appropriate training. • Maintain appropriate clearance distances from overhead lines, utility mark outs, and safe digging/ hand digging around any buried

		utilities. • Observe contractor designated safety zones. • If trained for electrical work, identify all electrical hazards before beginning inspection and follow lock-out tag out procedures. Turn off main breaker before sampling electrical wiring. • Ensure that any electrical equipment requiring temporary power requires the use of a GFCI. • Always use grounded equipment; keep water from electrical items.
Electrical - Overhead Power Lines	Struck by injury, Electric shock and electrocution	Overhead power lines pose a danger of shock or electrocution if the power line is contacted during site operations. The following hazard control measures will be applied: • Equipment should not come within at least 10-feet of power lines to avoid arcing. • Prior to conducting work in areas where overhead lines could be impacted, the appropriate utility company will be notified and information will be obtained regarding the line voltage(s) and the minimum separation distance necessary to create a safe-work environment. • If work may come close to the minimum separation distance ask the utility company if the lines can be shut down for the duration of the work period. If this cannot be done, ask them if they can put a rubber cover over the line or if the minimum clearance distance can be reduced. • Use paint to mark a line on the ground underneath the overhead lines to help project staff stay aware of the hazard. • Use smaller equipment. • Use grounding cables. • Ensure equipment operators are properly trained on the equipment and know exactly where the overhead lines are. • Ensure all site staff are aware of the hazard and stay clear of the work zone (which should be demarcated as best as possible). Employees who are too close to equipment which becomes electrified can ALSO be electrocuted.
Blades and Sharp Objects	Injury	Blades and Sharp objects are likely to be present on site, presenting risk of physical injury. The following hazard control measures will be applied: • Only use tools designed for the task. Do not improvise.

		• Inspect the tool before sure; do not use dull or damaged blades. • Carry blades with tip sheathed or pointed down and away from the body. • Cut on a stable surface with sufficient lighting. • Wear appropriate PPE (gloves, safety glasses, etc.).
High Crime Area	Potential theft or risk of safety	Working in high crime areas requires vigilance to protect personnel and project assets. The following hazard control measures will be applied: • Workers will be accompanied by a site representative or another employee. • Workers should stay in well-lit areas and maintain awareness of their surroundings. • If significant risk is evident, vacate the area.
Hand Tools	Physical injury	• Do not use a tool if you have not been trained. Inspect tool before use and do not use damaged tools. • Maintain tools in good condition and follow manufacturers' instructions. • Wear gloves, safety glasses and and appropriate PPE /apparel, avoiding loose clothing; secure long hair. • When using a cutting tool hold its handly firmly and cut away from your body, never towards it. • If working on a ladder or scaffold raise and lower tools using a bucket and hand line; never carry tools in a way that prevents using both hands on a ladder (maintain three poits of contact)

Biological and Environmental Hazards		
Work Action or Condition	**Potential Safety Hazard**	**Controls (including PPE)**
Hazardous Insects	Injury from hazardous insects, including allergic reactions	Hazardous animals and insects may be encountered on a variety of properties, including rural sites. The following hazard control measures will be applied: • Apply bug repellant spray or lotion to exposed skin. • If you have been prescribed medication for stings, bring it with you. • Be cautious of walking path and foot

		placement to avoid places where snakes/spiders may be, (e.g., stepping over logs). • Stay on trails away from high grassy areas/bushes. Tuck pants into boots, wear tall boots if going through tall grass/bush. • For Ticks: Conduct daily tick check, wear long pants/long-sleeved shirts/hates/socks that are light in color, put hair up, carry tick removal kit. • For Spiders: Don't put unprotected hands inside items that might have spiders and be careful moving undisturbed piles of materials. • For Bears: Make noise and use bear spray. • For Snakes: Stay away - striking distance is 1/2 to 2/3 their body length.
Hazardous Plants	Injury from Hazardous Plants	Hazardous plants may be encountered on rural sites. The following hazard control measures will be applied: • Create a narrow path or route when possible. • Wear appropriate PPE for the vegetation (i.e. leather gloves, Carhart coveralls, and face shield for vegetation that could cause cuts/punctures and/or is higher than waist level) • Become familiar with and avoid poisonous plants, see Safety Manual section '3.05 Plants' • Separate clothes from normal laundry if you've been in contact with poisonous plants. • Use soap/water or Technu to wash poisonous plant oils from skin.
Droppings from Pigeons or Bats	Histoplasmosis Disease from Histoplasma Fungus	Exposure to pigeon and bat droppings present a biological health hazard. The following hazard control measures will be applied: • Prior to work where pigeons or bats may roost perform an inspection to determine if there is a build-up of droppings. • Control dust generation when removing bat or bird droppings by wetting material such as through careful spraying. • Wear appropriate PPE such as gloves, rubber boots, rain suit, goggles and disposable N95 mask. • Dispose of any waste material properly and safely in accordance with state and local requirements.
Allergens	Allergic reaction	Common workplace allergens like dust mites, mold, pollen, fungi, and metal can trigger a dangerous reaction. The following hazard control measures will be applied:

		• Take medication (i.e. anti-histamine) to minimize allergic reaction to pollen or other allergen as directed by your medical care practitioner, and bring it with you in the field. • Wear a dust mask, if necessary.
Hazardous Animals	Injury from Hazardous Animals	Hazardous animals and insects may be encountered on rural sites. The following hazard control measures will be applied: • Apply bug repellant spray or lotion to exposed skin. If you have been prescribed medication for stings bring it with you. • Be cautious of walking path and foot placement to avoid places where snakes/spiders my be, (e.g., stepping over logs). • Stay on trails away from high grassy areas/bushes. Tuck pants into boots, wear tall boots if going through tall grass/bush. • For Ticks: Conduct daily tick check, wear long pants/long-sleeved shirts/hates/socks that are light in color, put hair up, carry tick removal kit. • For Spiders: Don't put unprotected hands inside items that might have spiders and be careful moving undisturbed piles of materials. Bears: make noise and use bear spray. • For Snakes: Stay away - striking distance is 1/2 to 2/3 their body length.
Thunderstorms, Lightning	Lightning, Severe Thunderstorms, Tornados	• Check the weather and adjust work schedules. • Do not begin or continue work until lightning subsides for 20 minutes. • Take shelter immediately, 360 degrees of awareness. • Thunderstorms - do not stand under a tree, near water or in the middle of a field. • Tornado: lie flat on the ground, preferably a low shallow space (ditch)

Ergonomic Hazards		
Work Action or Condition	**Potential Safety Hazard**	**Controls (including PPE)**
Noise (Loud, Sustained)	Hearing Damage	• Ear protection will be worn at all times when personnel are within 20-feet of operating equipment or when noise level becomes consistently loud enough to have to raise voice to communicate with someone.

		• Hearing protection will also be worn in the vicinity of generators, concrete cutters, and any other high noise emitting equipment.
Lifting Heavy Objects	Injury from Improper Lifting/Lifting weights that are too heavy	• When lifting heavy objects, keep the load close to the body and use the leg muscles instead of the back muscles to perform lifting tasks. • Do not attempt to lift large, heavy (especially over 50-lbs), or awkwardly shaped objects without assistance from another employee or from a manual lifting devise.

Chemical Hazards (General)		
Work Action or Condition	**Potential Safety Hazard**	**Controls (including PPE)**
Chemical Exposure - Heavy Metals	*Contaminants identified in testing locations at the Site include low-level heavy metals, primarily associated with Site contamination. Heavy metal-impacted media including fill material may be encountered during subsurface activities at the project work site.*	The presence of heavy metals in site media may be difficult to ascertain in the field. Heavy metal concentrations at this site are not anticipated to exceed PELs. The following hazard control measures will be applied, however: • Workers shall wear appropriate PPE and follow listed decontamination procedures to prevent exposures. Refer to the relevant sections of this HASP for more detail regarding PPE and decontamination procedures.
Chemical Exposure - Pesticides	*Contaminants identified in testing locations at the Site include organochlorine pesticides. Pesticide-impacted media may be encountered during subsurface activities at the project work site.*	The presence of pesticides in site media may be difficult to ascertain in the field. Pesticide concentrations at this site are not anticipated to exceed PELs. The following hazard control measures will be applied, however: • Workers should be wearing appropriate PPE and following listed decontamination procedures to prevent exposures. Refer to the relevant sections of this HASP for more detail regarding PPE and decontamination procedures.

	Exposure to high concentrations of organochlorine pesticides over a short period may produce convulsions, headache, dizziness, nausea, vomiting, tremors, confusion, muscle weakness, slurred speech, salivation and sweating. Long-term exposure to organochlorine pesticides may damage the liver, kidney, central nervous system, thyroid and bladder. There is some evidence indicating that organochlorine pesticides may also cause cancer in humans. Relevant Safety Data Sheets are included as Appendix 1.	
Chemical Exposure - PFAS	*Contaminants identified in testing locations at the Site include PFAS. PFAS-impacted media may be encountered during subsurface activities at the project work site. Research is still ongoing regarding the health effects of PFAS, but studies have*	The presence of PFAS in site media may be difficult to ascertain in the field. PFAS concentrations at this site are not anticipated to exceed PELs. The following hazard control measures will be applied, however: • Workers should be wearing appropriate PPE and following listed decontamination procedures to prevent exposures. Refer to the relevant sections of this HASP for more detail regarding PPE and decontamination procedures.

	shown that exposures to certain levels of PFAS can increase one's risk of certain cancers and create reproductive, immunulogical or developmental effects.	
Chemical Exposure - Polychlorinated Biphenyls	*Contaminants identified in testing locations at the Site include PCBs. PCB-impacted media may be encountered during subsurface activities at the project work site. Potential human health effects of PCB exposure include cancer as well as neurological, immunological and reproductive effects. Relevant Safety Data Sheets are included as Appendix 1.*	The presence of PCBs in site media may be difficult to ascertain in the field. PCB concentrations at this site are not anticipated to exceed PELs. The following hazard control measures will be applied, however: • Workers should be wearing appropriate PPE and following listed decontamination procedures to prevent exposures. Refer to the relevant sections of this HASP for more detail regarding PPE and decontamination procedures.
Chemical Exposure - Volatile Organic Compounds (VOC)	*Contaminants identified in testing locations at the Site include various volatile organic compounds (VOCs), primarily VOCs associated with Site contamination. Volatile organic vapors may be encountered*	Volatile Organic Compound (VOC) gases may be emitted from a number of materials and products. The presence of organic vapors may be detected by their odor and by monitoring instrumentation and can lead to physical harm. VOC concentrations at this Site are not anticipated to exceed PELs. The following hazard control measures will be applied, however: • Workers should be wearing appropriate PPE, following listed decontamination procedures and be periodically screening the work zone to prevent against and evaluate for unexpected exposures. Refer to the relevant sections of this

	during subsurface activities at the project work site. Inhalation of high concentrations of volatile organic vapors can cause headache, stupor, drowsiness, confusion and other health effects. Skin contact can cause irritation, chemical burn, or dermatitis. Relevant Safety Data Sheets are included as Appendix 1.	HASP for more detail regarding PPE, decontamination procedures and work zone screening.
Chemical Exposure - Semi-Volatile Organic Compounds (SVOC)	*Contaminants identified in testing locations at the Site include SVOCs. SVOC-impacted media including fill material may be encountered during subsurface activities at the project work site.*	The presence of SVOCs in site media may be detected by their odor and monitoring instrumentation. SVOC concentrations at this Site are not anticipated to exceed PELs. The following hazard control measures will be applied, however: • Workers should be wearing appropriate PPE and following listed decontamination procedures to prevent exposures. Refer to the relevant sections of this HASP for more detail regarding PPE and decontamination procedures.
Landfill Work	*Exposure to explosive and toxic landfill gases, some of which are flammable*	Landfill work presents unique challenges related to air quality. The following hazard control measures will be applied: • Adequate outdoor ventilation is expected to minimize respiratory exposure, however explosive gas issues may arise. No smoking is permitted. • Reduced sparking tools should be used when hammering or digging any test holes. • Work should proceed slowly to minimize heat content and reduce friction that could generate sparks. • Periodic monitoring performed for explosive gases (LEL and H2S) with a 4-gas meter. Methane is colorless and odorless. • If action levels are reached activity should cease and personnel should immediately

		evacuate the site. These action levels are: >10% LEL for combustible gases, 1 ppm for hydrogen sulfide, LEL of 5% for methane, <19.5% or >23% (5,000 ppm) for oxygen. When work ceases employees will be directed away from the operations and the situation assessed with the Health and Safety Officer.
Sample Collection - Soil or Groundwater	*Exposure to contaminants. Hand injury from cutting, crushing, tool or glass breakage. Back strain from lifting cooler.*	• When collecting samples, workers will utilize nitrile gloves, safety glasses or goggles. If material being sampled potentially contains fill or other sharp material, use a stainless steel spoon (or similar) as a tool to collect the sample. Any such tools should be dedicated or properly decontaminated between samples. • When lifting sample coolers, workers will use proper lifting techniques and get assistance when possible, especially for containers heavier than 50 lbs.
Lead	*Injury, Illness*	• Lead exposure, which occurs most commonly by breathing in particles, can result in long term physical illness and disability (See 4.04 LEAD SAFETY POLICY in Labella's Safety Manual for information on Exposure Controls).

Individual Contaminant Hazards			
Chemical	**OSHA Permissible Exposure Limit (PEL)/ NIOSH Recommended Exposure Limit (REL) or Immediately dangerous to life or health air concentration values (IDLH)**	**Routes of Exposure**	**Symptoms of Overexposure**
1,2-Dichlorobenzene (SVOC)	**50 ppm (300 mg/m3) NIOSH REL/IDLH: REL: 50 ppm (300 mg/m3)** **IDLH: 200 ppm**	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation eyes, nose; liver, kidney damage; skin blisters

1,2-Dichloroethylene (VOC)	**TWA 200 ppm (790 mg/m3) NIOSH REL/IDLH: TWA 200 ppm (790 mg/m3)**	The substance can be absorbed into the body by inhalation of its vapour and by ingestion.	irritation eyes, respiratory system; central nervous system depression
1,3,5-Trimethylbenzene (VOC)	**TWA 10 ppm (60 mg/m3)**	inhalation, ingestion, skin and/or eye contact	irritation eyes, skin, nose, throat, respiratory system; bronchitis; hypochromic anemia; headache, drowsiness, lassitude (weakness, exhaustion), dizziness, nausea, incoordination; vomiting, confusion
Acetone (VOC)	**TWA 1000 ppm (2400 mg/m3) NIOSH REL/IDLH: TWA 250 ppm (590 mg/m3 IDLH: 2500 ppm**	The substance can be absorbed into the body by inhalation and through the skin.	irritation eyes, nose, throat; headache, dizziness, central nervous system depression; dermatitis
Anthracene (SVOC)	**NA**	The substance can be absorbed into the body by inhalation.	The substance slightly irritates the skin and the respiratory tract
Arsenic (Metal)	**TWA 0.010 mg/m3 NIOSH REL/IDLH: REL: Ca C 0.002 mg/m3 [15-minute]**	inhalation, skin absorption, skin and/or eye contact, ingestion	Ulceration of nasal septum, dermatitis, gastrointestinal disturbances, peripheral neuropathy, resp irritation, hyperpigmentation of skin
Benzene (VOC)	**PEL: 1ppm** **NIOSH REL: TWA 0.1 ppm IDLH: 500 ppm**	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation eyes, skin, nose, respiratory system; dizziness; headache, nausea
Benzo (b)(K) Fluoranthene (SVOC)	**NA**	The substance can be absorbed into the body by inhalation of its aerosol and through the skin.	Generally have a low degree of acute toxicity to humans. Some studies have shown noncarcinogenic effects that are based on PAH exposure dose
Benzo (g,h,i) Perylene (SVOC)	**TWA: 0.2 mg/m3**	The substance can be absorbed into the body by inhalation of its aerosol, through the skin and by ingestion.	PAHs generally have a low degree of acute toxicity to humans

Bromodichloromethane (VOC)	**TWA 200 ppm (1050 mg/m3) NIOSH REL/IDLH: REL: TWA 200 ppm (1050 mg/m3)** **IDLH: 2000 ppm**	The substance can be absorbed into the body by ingestion.	(Note* No Sort-Term Symptoms recorded) Long-Term: The substance may have effects on the kidneys and liver, by ingestion, resulting in impaired functions. This substance is possibly carcinogenic to humans.
Cadmium (Metal)	**TWA 0.005 mg/m3 NIOSH REL/IDLH: TWA 0.5 mg/m3**	inhalation, ingestion	Pulmonary edema, dyspnea (breathing difficulty), cough, chest tightness, substernal (occurring beneath the sternum) pain; headache; chills, muscle aches; nausea, vomiting, diarrhea; anosmia
Carbon Disulfide (VOC)	**TWA 20 ppm NIOSH REL/IDLH: REL: TWA 1 ppm (3 mg/m3) IDLH: 500 ppm**	The substance can be absorbed into the body by inhalation, through the skin and by ingestion.	Dizziness, headache, poor sleep, lassitude (weakness, exhaustion)
Chlorobenzene (VOC)	**TWA 75 ppm (350 mg/m3) NIOSH REL/IDLH: REL: TWA 75 ppm (350 mg/m3)** **IDLH: 1000 ppm**	The substance can be absorbed into the body by inhalation of its vapour, through the skin and by ingestion.	Irritation eyes, skin, nose; drowsiness, incoordination; central nervous system depression; In Animals: liver, lung, kidney injury
Ethylbenzene (VOC)	**TWA: 100 ppm TWA: 435 mg/m3** **REL: TWA 100 ppm (350 mg/m3)** **IDLH: 800 ppm**	The substance can be absorbed into the body by inhalation of its aerosol, through the skin and by ingestion.	irritation eyes, skin, nose, respiratory system; dizziness; headache, nausea
Chromium (Metal)	**TWA 1 mg/m3 NIOSH REL/IDLH: REL: TWA 0.5 mg/m3** **IDLH: 250 mg/m3**	inhalation, ingestion, skin and/or eye contact	irritation eyes, skin; lung fibrosis (histologic)

Chlorophenyl (PCB)	**TWA 1 mg/m3 [skin] NIOSH REL/IDLH: REL: TWA 0.001 mg/m3** **IDLH: Ca [5 mg/m3]**	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes; chloracne; liver damage; reproductive effects
Chloroform (VOC)	**TWA: 2 ppm TWA: 9.78 mg/m3 NIOSH REL/IDLH: IDLH: 500 ppm STEL: 2 ppm STEL: 9.78 mg/m3**	The substance can be absorbed into the body by inhalation, through the skin and by ingestion.	Irritation eyes, skin; headache, lassitude (weakness, exhaustion), central nervous system depression, poor equilibrium; dermatitis; cardiac arrhythmias; liver damage
Lead (Metal)	**TWA (8-hour) 0.050 mg/m3 NIOSH REL/IDLH: TWA 0.050 mg/m3** **IDLH: 100 mg/m3**	inhalation, ingestion, skin and/or eye contact	lassitude (weakness, exhaustion), insomnia; facial pallor; anorexia, weight loss, malnutrition; constipation, abdominal pain, colic; anemia; gingival lead line; tremor; paralysis wrist, ankles; encephalopathy; kidney disease; irritation eyes; hypertension
Mercury (Metal)	**OSHA PEL TWA 0.1 mg/m3 NIOSH REL/IDLH: REL: Hg Vapor: TWA 0.05 mg/m3 [skin] Other: C 0.1 mg/m3 [skin]** **IDLH: 10 mg/m3**	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation eyes, skin; cough, chest pain, dyspnea (breathing difficulty), bronchitis, pneumonitis; tremor, insomnia, irritability, indecision, headache, lassitude
Methylene Chloride (VOC)	**TWA 25 ppm NIOSH REL/IDLH: IDLH: Ca [2300 ppm]**	inhalation, skin absorption, ingestion, skin and/or eye contact	drowsiness, dizziness, numbness and tingling limbs, and nausea
Naphthalene (VOC)	**TWA: 10 ppm TWA: 50 mg/m3 NIOSH REL/IDLH: REL: TWA: 10**	The substance can be absorbed into the body by inhalation, through the skin and by ingestion.	irritation eyes, nose, throat; resp sensitization, cough, pulmonary secretions, chest pain, dyspnea (breathing difficulty); asthma

	ppm TWA: 50 mg/m3 **IDLH: 250 ppm**		
Pyrene (SVOC)	**TWA 0.2 mg/m3 (benzene-soluble fraction) NIOSH REL/IDLH: REL: Ca TWA 0.1 mg/m3 (cyclohexane-extractable fraction)** **IDLH: Ca [80 mg/m3]**	The substance can be absorbed into the body by inhalation , through the skin and by ingestion .	dermatitis, bronchitis,
Phenyl ether-biphenyl (PCB)	**TWA 1 ppm (7 mg/m3) NIOSH REL/IDLH: REL: TWA 1 ppm (7 mg/m3) IDLH: 10 ppm**	inhalation, skin and/or eye contact	irritation eyes, nose, skin; nausea
sec-Butylbenzene (SVOC)	**NIOSH REL**	inhalation, ingestion, skin and/or eye contact	irritation eyes, skin; dry nose, throat; headache; low blood pressure,
Selenium (Metal)	**TWA 0.2 mg/m3 [*Note: The PEL also applies to other selenium compounds (as Se) except Selenium hexafluoride.] NIOSH REL/IDLH: REL: TWA 0.2 mg/m3** **IDLH :1 mg/m3**	inhalation, ingestion, skin and/or eye contact	irritation eyes, skin, nose, throat; visual disturbance; headache; chills, fever; dyspnea (breathing difficulty), bronchitis; metallic taste, garlic breath, gastrointestinal disturbance; dermatitis; eye, skin burns; In Animals: anemia; liver necrosis, cirrhosis; kidney, spleen damage
Tetrachloroethane (VOC)	**REL: TWA 10 ppm (60 mg/m3) ST 20 ppm (120 mg/m3)**	inhalation, skin absorption, ingestion, skin and/or eye contact	nausea, vomiting, abdominal pain; tremor fingers

Toluene (VOC)	**TWA 200 ppm NIOSH REL/IDLH: REL: TWA 100 ppm (375 mg/m3) IDLH: 500 ppm**	The substance can be absorbed into the body by inhalation, through the skin and by ingestion.	irritation eyes, nose, throat; resp sensitization, cough, pulmonary secretions, chest pain, dyspnea (breathing difficulty); asthma
Trichloroethylene (VOC)	**TWA: 50 ppm 270 mg/m3 Ceiling: 200 ppm STEL: 200 ppm NIOSH REL/IDLH: IDLH: 1000 ppm**	The substance can be absorbed into the body by inhalation and by ingestion.	dizziness, headaches, sleepiness, confusion, nausea, unconsciousness
Vinyl Chloride (VOC)	**TWA: 1PPM carcinogen category: 1 NIOSH REL/IDLH: REL: 1 ppm = 2.56 mg/m3 IDLH - NA**	inhalation, skin and/or eye contact (liquid)	lassitude (weakness, exhaustion); abdominal pain, gastrointestinal bleeding; enlarged liver; pallor or cyanosis of extremities; liquid: frostbite
Xylenes (o,m,p) (VOC)	**TWA 100 ppm (435 mg/m3) NIOSH REL/IDLH: REL-TWA 100 ppm (435 mg/m3) IDLH: 900 ppm**	The substance can be absorbed into the body by inhalation, through the skin and by ingestion.	irritate the eyes, nose, skin, and throat. Xylene can also cause headaches, dizziness, confusion, loss of muscle coordination

8.0 Personal Protective Equipment (PPE)

All site workers will have appropriate training as identified in Section 7.0. Training includes the identification of PPE necessary for various tasks; how to don, doff, adjust, and wear PPE; limitations of PPE; and proper care, inspection, testing, maintenance, useful life, storage, and disposal of the PPE. PPE will be inspected on a regular basis.

Level D: A work uniform affording minimal protection, used for nuisance contamination, only.	• Coveralls or long-sleeves and pants • Gloves • Nitrile sampling gloves (as needed) • Boots/shoes, chemical-resistant steel toe and shank • Safety glasses or chemical splash goggles • Hard hat

9.0 Employee Training

All workers and other personnel shall receive appropriate training prior to engaging in site activities. All workers must recognize and understand the potential hazards to health and safety that are associated with the proposed scope of work and must be thoroughly familiar with programs and procedures contained in this Safety Plan.

The following training levels were determined to be needed:

- OSHA 40 Hour - HAZWOPER
- OSHA 30 Hour (Construction Industry)
- OSHA 10 Hour Safety (Construction Industry)

10.0 Exposure Monitoring

No - VOC Exposure Monitoring not required or applicable

11.0 Site Control

No - Contaminant Exclusion or Reduction zone not required or applicable at the site.

12.0 Recordkeeping

An electronic or hardcopy version of this HASP will be present at the Site during all field work activities. Copies of field logs, including daily pre-job safety meeting logs, will be filed by LaBella and available for the duration of the project.

Employees will be able to provide physical or electronic copies of required training certificates.

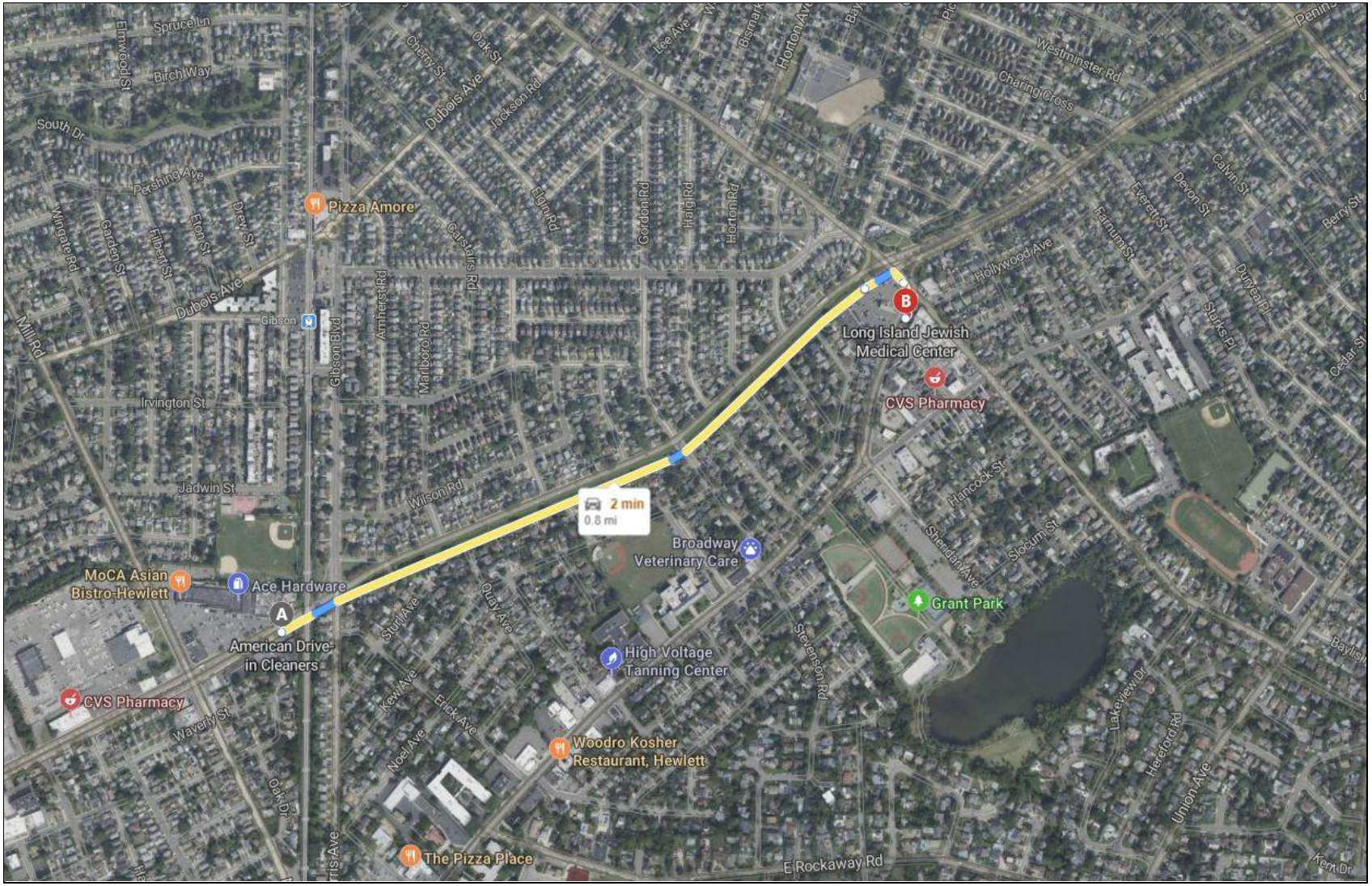
Incident reporting will be completed in accordance with LaBella policies.

APPENDIX A

Directions to Nearest Medical Facility

Hospital Route

Hospital Directions:
Take a right out of American Drive-In and head east towards Harris Ave.
Turn right and continue on Rockaway Ave.
Your destination will be on the left. atat



APPENDIX B

Task Hazard Analysis Forms

JOB SAFETY ANALYSIS

6.02 TASK HAZARD ANALYSIS (THA) FORM

THA Title or Work Activity:	Division:	Project #:	THA ID#:	Date:	Revised Date:
CONCRETE CUTTING & DRILLING	ENV	2252644	1	6/19/2025	

Person Preparing THA:	Position / Title:	Person Assisting with THA:	Position / Title:
Cynthia Chu	Project Manager	Phoebe Mack	Environmental Scientist

Reviewer w/ Relevant Task Experience	Position / Title:	Safety Manager Sign off for High Risk or Very High Risk THAs	Position / Title:
Richard Kampf	Project Principal		

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT

☑ HARD HAT	☐ AIR PURIFYING RESPIRATOR
☑ SAFETY GLASSES	☑ FACE SHIELD (WIRE MESH FOR DEBRIS, POLYCARBONATE IF MATERIAL REQUIRES SPASH PROTECTION)
☑ GLOVES	☑ HEARING PROTECTION
☑ SAFETY SHOES	☑ EYE WASH
☑ HIGH VIS CLOTHING	Other:

Materials, Equipment &Tools Needed

☐ Kevlar Chaps ☐ Kevlar Gloves ☐ Wire mesh face shield ☐ Back laced, steel protected boots

SEQUENCE OF STEPS	POTENTIAL HAZARDS	Recommended Control Measures/PPE/ Training
1. Set up equipment and work area	Risk of injury to bystanders	Clearly define work area with barricades and signs.
2. Locate utilities	Risk of hitting shallow burried utilties	Ensure that utility location has been completed.
3. Saw or corre drill use	Risk of injury from improper set up or operation	Inspect all connections, guards and controls on equipment prior to use
		Operators must be properly trained on use of equipment
		Minimum required PPE worn at all times
	Electrocution	Use GFCI on all electric equipment (e.g., vacuums, pumps, etc.)
	Respirable Crystaline Silica	Use integrated water delivery system to continuoulsy feed water to blade/bit.
		Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.
4. Clean up	Electrocution	Use GFCI on all electric equipment (e.g., vacuums, pumps, etc.)
	Respirable Crystaline Silica	Use integrated water delivery system to continuoulsy feed water to blade/bit.
		Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.
		No dry sweeping
On-site edits:		

RISK ASSESSMENT CODES

Likelihood of Harm (People, Environment, Facility)	Severity of Harm/Consequences (People, Environment, Facility, Supply Chain Disruption, Brand Impact)		
	Slight Harm	**Moderate Harm**	**Extreme Harm**
Very Unlikely	Very Low Risk	Very Low Risk	High Risk
Unlikely	Very Low Risk	Medium Risk	Very High Risk
Likely	Low Risk	Medium Risk	Very High Risk
Very Likely	Low Risk	High Risk	Very High Risk

Definitions

Likelihood of Harm Categories:
-Very Unlikely: Will not occur except in rare instances under certain conditions
-Unlikely: Typically would not occur
-Likely: May occur on a regular basis
-Very Likely: Will occur in most instances

Severity of Harm Categories:
-Slight harm: Only first aid required
-Moderate harm: Injury or illness resulting in inability to work for a short period of time
-Extreme harm: Death or serious injury or illness resulting in inability to work indefinitely

APPENDIX C

Safety Data Sheets

SAFETY DATA SHEET

Revision Date 20-Feb-2020 **Revision Number** 2

1. Identification

Product Name **Arsenic powder**

Cat No. : **10101**

CAS-No 7440-38-2
Synonyms No information available

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company
Alfa Aesar
Thermo Fisher Scientific Chemicals, Inc.
30 Bond Street
Ward Hill, MA 01835-8099
Tel: 800-343-0660
Fax: 800-322-4757
Email: tech@alfa.com
www.alfa.com

Emergency Telephone Number
During normal business hours (Monday-Friday, 8am-7pm EST), call (800) 343-0660.
After normal business hours, call Carechem 24 at (866) 928-0789.

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute oral toxicity	Category 3
Acute Inhalation Toxicity - Dusts and Mists	Category 3
Carcinogenicity	Category 1A

Label Elements

Signal Word
Danger

Hazard Statements
May cause cancer
Toxic 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
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Response
IF exposed or concerned: Get medical attention/advice
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician
Ingestion
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
Rinse mouth
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Very toxic to aquatic life with long lasting effects
WARNING. Cancer - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Arsenic	7440-38-2	<=100

4. First-aid measures

General Advice
Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Eye Contact
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Skin Contact
Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

Inhalation
Remove to fresh air. If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.

Ingestion
Do NOT induce vomiting. Call a physician or poison control center immediately.

Most important symptoms and effects	None reasonably foreseeable.
Notes to Physician	Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media	approved class D extinguishers. Do not use water or foam.
Unsuitable Extinguishing Media	No information available
Flash Point	No information available
Method -	No information available
Autoignition Temperature	No information available
Explosion Limits	
Upper	No data available
Lower	No data available
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical
Do not allow run-off from fire-fighting to enter drains or water courses.

Hazardous Combustion Products
arsenic oxides.
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health	Flammability	Instability	Physical hazards
3	0	0	-

6. Accidental release measures

Personal Precautions	Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas.
Environmental Precautions	Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained. Should not be released into the environment.
Methods for Containment and Clean Up	Sweep up and shovel into suitable containers for disposal. Avoid dust formation.

7. Handling and storage

Handling	Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Avoid dust formation. Use only under a chemical fume hood. Do not breathe (dust, vapor, mist, gas). Do not ingest. If swallowed then seek immediate medical assistance.
Storage	Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Arsenic	TWA: 0.01 mg/m³	(Vacated) TWA: 0.5 mg/m³	IDLH: 5 mg/m³ Ceiling: 0.002 mg/m³	TWA: 0.01 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 Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Solid
Appearance	No information available
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	817 °C / 1502.6 °F
Boiling Point/Range	614 °C / 1137.2 °F
Flash Point	No information available
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	0.01 hPa @ 267 °C
Vapor Density	Not applicable
Specific Gravity	5.778 g/cm3
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	Not applicable
Molecular Formula	As
Molecular Weight	74.92

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products.

Incompatible Materials Oxidizing agent

Hazardous Decomposition Products arsenic oxides

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
Arsenic	LD50 = 15 mg/kg (Rat) LD50 = 763 mg/kg (Rat)	Not listed	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Arsenic	7440-38-2	Group 1	Known	A1	X	A1

IARC (International Agency for Research on Cancer)

IARC (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2A - Probably Carcinogenic to Humans
Group 2B - Possibly Carcinogenic to Humans

NTP: (National Toxicity Program)

NTP: (National Toxicity Program)
Known - Known Carcinogen
Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

ACGIH: (American Conference of Governmental Industrial Hygienists)

A1 - Known Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Animal Carcinogen
ACGIH: (American Conference of Governmental Industrial Hygienists)

Mexico - Occupational Exposure Limits - Carcinogens

Mexico - Occupational Exposure Limits - Carcinogens
A1 - Confirmed Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Confirmed Animal Carcinogen
A4 - Not Classifiable as a Human Carcinogen
A5 - Not Suspected as a Human Carcinogen

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment. May cause long-term adverse effects in the environment. Do not allow material to contaminate ground water system.

Persistence and Degradability Insoluble in water May persist

Bioaccumulation/ Accumulation No information available.

Mobility Is not likely mobile in the environment due its low water solubility.

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	UN1558
Proper Shipping Name	ARSENIC
Hazard Class	6.1
Packing Group	II

TDG

UN-No	UN1558
Proper Shipping Name	ARSENIC
Hazard Class	6.1
Packing Group	II

IATA

UN-No	UN1558
Proper Shipping Name	ARSENIC
Hazard Class	6.1
Packing Group	II

IMDG/IMO

UN-No	UN1558
Proper Shipping Name	ARSENIC
Hazard Class	6.1
Packing Group	II

15. Regulatory information

United States of America Inventory

Component	CAS-No	TSCA	TSCA Inventory notification - Active/Inactive	TSCA - EPA Regulatory Flags
Arsenic	7440-38-2	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
Arsenic	7440-38-2	X	-	231-148-6	X	X	X	X	KE-01933

U.S. Federal Regulations

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Arsenic	7440-38-2	<=100	0.1

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Arsenic	-	-	X	X

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Arsenic	X		-

OSHA - Occupational Safety and Health Administration Not applicable

Component	Specifically Regulated Chemicals	Highly Hazardous Chemicals
Arsenic	10 µg/m³ TWA 5 µg/m³ Action Level	-

CERCLA Not applicable

Component	Hazardous Substances RQs	CERCLA EHS RQs
Arsenic	1 lb	-

California Proposition 65 This product contains the following Proposition 65 chemicals.

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Arsenic	7440-38-2	Carcinogen	0.06 µg/day 10 µg/day	Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Arsenic	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

16. Other information

Prepared By	Health, Safety and Environmental Department Email: tech@alfa.com www.alfa.com
Revision Date	20-Feb-2020
Print Date	20-Feb-2020
Revision Summary	SDS authoring systems update, replaces ChemGes SDS No. 7440-38-2/1.

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

Revision Date 24-Dec-2021 **Revision Number** 4

1. Identification

Product Name **Cadmium**

Cat No. : **C3-500**

CAS No 7440-43-9
Synonyms No information available

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company
Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable solids	Category 2
Acute oral toxicity	Category 4
Acute dermal toxicity	Category 4
Acute Inhalation Toxicity - Dusts and Mists	Category 2
Germ Cell Mutagenicity	Category 2
Carcinogenicity	Category 1A
Reproductive Toxicity	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system.	
Specific target organ toxicity - (repeated exposure)	Category 1
Target Organs - Kidney, Blood.	
Combustible dust	Yes

Label Elements

Signal Word

Danger

Hazard Statements
Flammable solid
May form combustible dust concentrations in air
Fatal if inhaled
Harmful if swallowed
Harmful in contact with skin
May cause respiratory irritation
Suspected of causing genetic defects
May cause cancer
Suspected of damaging fertility. Suspected of damaging the unborn child
Causes damage to organs through prolonged or repeated exposure



Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Do not breathe dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting equipment
Response
IF exposed or concerned: Get medical attention/advice
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Immediately call a POISON CENTER or doctor/physician
Skin
IF ON SKIN: Wash with plenty of soap and water
Wash contaminated clothing before reuse
Call a POISON CENTER or doctor/physician if you feel unwell
Ingestion
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth
Fire
Fight fire with normal precautions from a reasonable distance
Evacuate area
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Very toxic to aquatic life with long lasting effects
WARNING. Cancer and Reproductive Harm - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS No	Weight %
Cadmium	7440-43-9	100

4. First-aid measures

General Advice Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

Inhalation Remove to fresh air. If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.

Ingestion Do NOT induce vomiting. Call a physician or poison control center immediately.

Most important symptoms and effects None reasonably foreseeable. . Kidney disorders: May cause harm to the unborn child: Blood disorders

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature No information available

Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Thermal decomposition can lead to release of irritating gases and vapors. Fine dust dispersed in air may ignite. Dust can form an explosive mixture with air. Pyrophoric properties of solids and liquids. Do not allow run-off from fire-fighting to enter drains or water courses.

Hazardous Combustion Products
Toxic fumes.
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health	Flammability	Instability	Physical hazards
4	1	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust

formation. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas.

Environmental Precautions Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

Methods for Containment and Clean Up Sweep up and shovel into suitable containers for disposal. Avoid dust formation.

7. Handling and storage

Handling Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Avoid dust formation. Use only under a chemical fume hood. Do not breathe (dust, vapor, mist, gas). Do not ingest. If swallowed then seek immediate medical assistance.

Storage. Keep containers tightly closed in a dry, cool and well-ventilated place. Store under an inert atmosphere. Incompatible Materials. Strong oxidizing agents. Strong acids. Sulfur oxides.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Cadmium	TWA: 0.01 mg/m³ TWA: 0.002 mg/m³	Ceiling: 0.3 mg/m³ Ceiling: 0.6 mg/m³ (Vacated) STEL: 0.3 ppm TWA: 0.1 mg/m³ TWA: 0.2 mg/m³ TWA: 5 µg/m³	IDLH: 9 mg/m³	TWA: 0.01 mg/m³ TWA: 0.002 mg/m³

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures When using do not eat, drink or smoke. Provide regular cleaning of equipment, work area and clothing. Avoid contact with skin, eyes or clothing. Wash hands before breaks and immediately after handling the product. Keep away from food, drink and animal feeding stuffs.

9. Physical and chemical properties

Physical State Solid

Appearance	Silver
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	321 °C / 609.8 °F
Boiling Point/Range	765 °C / 1409 °F @ 760 mmHg
Flash Point	No information available
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	Not applicable
Specific Gravity	8.64 @ 25°C
Solubility	Insoluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	Not applicable
Molecular Formula	Cd
Molecular Weight	112.40

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under recommended storage conditions. Moisture sensitive. Air sensitive.

Conditions to Avoid Incompatible products. Excess heat. Avoid dust formation. Exposure to air or moisture over prolonged periods.

Incompatible Materials Strong oxidizing agents, Strong acids, Sulfur oxides

Hazardous Decomposition Products Toxic fumes

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Cadmium	LD50 = 2330 mg/kg (Rat)	Not listed	LC50 = 25 mg/m³ (Rat) 30 min

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Cadmium	7440-43-9	Group 1	Known	A2	X	A2

IARC (International Agency for Research on Cancer)	*IARC (International Agency for Research on Cancer)* *Group 1 - Carcinogenic to Humans* *Group 2A - Probably Carcinogenic to Humans* *Group 2B - Possibly Carcinogenic to Humans*
NTP: (National Toxicity Program)	*NTP: (National Toxicity Program)* *Known - Known Carcinogen* *Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen*
ACGIH: (American Conference of Governmental Industrial Hygienists)	*A1 - Known Human Carcinogen* *A2 - Suspected Human Carcinogen* *A3 - Animal Carcinogen* *ACGIH: (American Conference of Governmental Industrial Hygienists)*

Mutagenic Effects Possible risk of irreversible effects

Reproductive Effects Possible risk of impaired fertility. May cause harm to the unborn child.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Respiratory system
STOT - repeated exposure Kidney Blood

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Kidney disorders: May cause harm to the unborn child: Blood disorders

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information



Ecotoxicity

The product contains following substances which are hazardous for the environment. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Cadmium	Not listed	LC50: 0.0004 - 0.003 mg/L, 96h (Pimephales promelas) LC50: = 0.016 mg/L, 96h (Oryzias latipes) LC50: = 21.1 mg/L, 96h flow-through (Lepomis macrochirus) LC50: = 0.24 mg/L, 96h static (Cyprinus carpio) LC50: = 4.26 mg/L, 96h semi-static (Cyprinus carpio) LC50: = 0.002 mg/L, 96h	Not listed	EC50: = 0.0244 mg/L, 48h Static (Daphnia magna)

		(Cyprinus carpio) LC50: = 0.006 mg/L, 96h static (Oncorhynchus mykiss) LC50: = 0.003 mg/L, 96h flow-through (Oncorhynchus mykiss)		

Persistence and Degradability No information available

Bioaccumulation/ Accumulation No information available.

Mobility No information available.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No	UN2930
Proper Shipping Name	Toxic solid, flammable, organic, n.o.s.
Technical Name	Cadmium
Hazard Class	6.1
Subsidiary Hazard Class	4.1
Packing Group	I

TDG

UN-No	UN2930
Proper Shipping Name	Toxic solid, flammable, organic, n.o.s.
Hazard Class	6.1
Subsidiary Hazard Class	4.1
Packing Group	I

IATA

UN-No	UN2930
Proper Shipping Name	Toxic solid, flammable, organic, n.o.s.
Hazard Class	6.1
Subsidiary Hazard Class	4.1
Packing Group	I

IMDG/IMO

UN-No	UN2930
Proper Shipping Name	Toxic solid, flammable, organic, n.o.s.
Hazard Class	6.1
Subsidiary Hazard Class	4.1
Packing Group	I

15. Regulatory information

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
Cadmium	7440-43-9	X	ACTIVE	-

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Cadmium	7440-43-9	X	-	231-152-8	X	X		X	X	KE-04397

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313

Component	CAS No	Weight %	SARA 313 - Threshold Values %
Cadmium	7440-43-9	100	0.1

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Cadmium	-	-	X	X

Clean Air Act

OSHA - Occupational Safety and Health Administration Not applicable

Component	Specifically Regulated Chemicals	Highly Hazardous Chemicals
Cadmium	5 µg/m³ TWA 2.5 µg/m³ Action Level	-

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Cadmium	10 lb	-

California Proposition 65 This product contains the following Proposition 65 chemicals.

Component	CAS No	California Prop. 65	Prop 65 NSRL	Category
Cadmium	7440-43-9	Carcinogen Developmental Male Reproductive	0.05 µg/day	Developmental Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Cadmium	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Authorisation/Restrictions according to EU REACH

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Cadmium	-	Use restricted. See item 72. (see link for restriction details) Use restricted. See item 23. (see link for restriction details) Use restricted. See item 28. (see link for restriction details) Use restricted. See item 75. (see link for restriction details)	SVHC Candidate list - 231-152-8 - Carcinogenic, Article 57a;Specific target organ toxicity after repeated exposure, Article 57(f) - human health

After the sunset date the use of this substance requires either an authorization or can only be used for exempted uses, e.g. use in scientific research and development which includes routine analytics or use as intermediate.

https://echa.europa.eu/authorisation-list
https://echa.europa.eu/substances-restricted-under-reach
https://echa.europa.eu/candidate-list-table

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Cadmium	7440-43-9	Listed	Not applicable	Not applicable	0.01% (Max. Conc.)

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Cadmium	7440-43-9	Not applicable	Not applicable	Not applicable	Annex I - Y26

16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Revision Date 24-Dec-2021
Print Date 24-Dec-2021
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Creation Date 22-Sep-2009 **Revision Date** 13-Oct-2023 **Revision Number** 5

1. Identification

Product Name **Chromium, Reference Standard Solution, 1000ppm (Certified)**

Cat No. : **SC192-100; SC192-500**

Synonyms None

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)

Germ Cell Mutagenicity	Category 1B
Carcinogenicity	Category 1A
Reproductive Toxicity	Category 1B

Label Elements

Signal Word
Danger

Hazard Statements
May cause genetic defects
May cause cancer
May damage fertility or the unborn child



Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Response
IF exposed or concerned: Get medical attention/advice
Storage
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
None identified
WARNING. Cancer and Reproductive Harm - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS No	Weight %
Water	7732-18-5	99.8
Potassium dichromate	7778-50-9	0.2

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.

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Substance is nonflammable; use agent most appropriate to extinguish surrounding fire.

Unsuitable Extinguishing Media No information available

Flash Point Not applicable

Method -	No information available
Autoignition Temperature	No information available
Explosion Limits	
Upper	No data available
Lower	No data available
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical
Non-combustible. None reasonably foreseeable.

Hazardous Combustion Products
None known based on information supplied.
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	0	0	N/A

6. Accidental release measures

Personal Precautions	Use personal protective equipment as required. 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	Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling	Wear personal protective equipment/face protection. Ensure adequate ventilation. Avoid ingestion and inhalation. Do not get in eyes, on skin, or on clothing.
Storage.	Keep containers tightly closed in a dry, cool and well-ventilated place. Incompatible Materials. None known.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH	Mexico OEL (TWA)
Potassium dichromate	TWA: 0.0002 mg/m³ STEL: 0.0005 mg/m³ Skin	(Vacated) Ceiling: 0.1 mg/m³ Ceiling: 0.1 mg/m³	IDLH: 15 mg/m³ TWA: 0.0002 mg/m³	TWA: 0.05 mg/m³

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH: 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.

Personal Protective Equipment

Eye/face Protection	Wear appropriate protective eyeglasses or chemical safety goggles as described by

OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Recommended Filter type: Particulates filter conforming to EN 143.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Orange
Odor	Odorless
Odor Threshold	No information available
pH	~ 7
Melting Point/Range	0 °C / 32 °F
Boiling Point/Range	100 °C / 212 °F
Flash Point	Not applicable
Evaporation Rate	> 1 (ether = 1)
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	14 mmHg @ 20 °C
Vapor Density	0.7
Specific Gravity	1.0
Solubility	Soluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid None known.

Incompatible Materials None known

Hazardous Decomposition Products None known based on information supplied

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
Oral LD50	Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.
Dermal LD50	Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.

Vapor LC50 Based on ATE data, the classification criteria are not met. ATE > 20 mg/l.

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Water	-	-	-
Potassium dichromate	130 mg/kg (Rat)	1150 mg/kg (Rabbit)	0.09 mg/L/4h (Rat)

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Water	7732-18-5	Not listed	Not listed	Not listed	Not listed	Not listed
Potassium dichromate	7778-50-9	Group 1	Known	A1	X	A1

IARC (International Agency for Research on Cancer)

IARC (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2A - Probably Carcinogenic to Humans
Group 2B - Possibly Carcinogenic to Humans

NTP: (National Toxicity Program)

NTP: (National Toxicity Program)
Known - Known Carcinogen
Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

ACGIH: (American Conference of Governmental Industrial Hygienists)

A1 - Known Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Animal Carcinogen
ACGIH: (American Conference of Governmental Industrial Hygienists)

Mexico - Occupational Exposure Limits - Carcinogens

Mexico - Occupational Exposure Limits - Carcinogens
A1 - Confirmed Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Confirmed Animal Carcinogen
A4 - Not Classifiable as a Human Carcinogen
A5 - Not Suspected as a Human Carcinogen

Mutagenic Effects Mutagenic effects have occurred in experimental animals. Genetic mutations observed in bacterial and mammalian test systems

Reproductive Effects Contains material that may cause adverse reproductive effects.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

Do not empty into drains.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Potassium dichromate	Not listed	LC50: 14 - 20.9 mg/L, 96h static (Pimephales promelas) LC50: 24.81 - 34.55 mg/L, 96h semi-static (Poecilia reticulata) LC50: 23 - 41.2 mg/L, 96h static (Poecilia reticulata) LC50: 15.41 - 30.36 mg/L, 96h flow-through (Pimephales promelas) LC50: > 139 mg/L, 96h static (Cyprinus carpio) LC50: 113.6 - 155.7 mg/L, 96h flow-through (Lepomis macrochirus) LC50: = 320 mg/L, 96h (Lepomis macrochirus) LC50: 65.6 - 137.6 mg/L, 96h static (Lepomis macrochirus) LC50: = 12.3 mg/L, 96h semi-static (Oncorhynchus mykiss) LC50: 21.209 - 30.046 mg/L, 96h semi-static (Oryzias latipes)	Not listed	EC50: 1.4 mg/L 24h

Persistence and Degradability Soluble in water Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its water solubility.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT Not regulated
TDG Not regulated
IATA Not regulated
IMDG/IMO Not regulated

15. Regulatory information

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
Water	7732-18-5	X	ACTIVE	-
Potassium dichromate	7778-50-9	X	ACTIVE	R

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.

TSCA - Per 40 CFR 751, Regulation of Certain Chemical Not applicable

Substances & Mixtures, Under TSCA Section 6(h) (PBT)

TSCA 12(b) - Notices of Export

Component	CAS No	**TSCA 12(b)** - Notices of Export
Potassium dichromate	7778-50-9	Section 6

International Inventories

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Water	7732-18-5	X	-	231-791-2	X	X		X	X	KE-35400
Potassium dichromate	7778-50-9	X	-	231-906-6	X	X	X	X	X	KE-29094

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313

Component	CAS No	Weight %	SARA 313 - Threshold Values %
Potassium dichromate	7778-50-9	0.2	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
Potassium dichromate	X	10 lb	X	-

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Potassium dichromate	X		-

OSHA - Occupational Safety and Health Administration

Component	Specifically Regulated Chemicals	Highly Hazardous Chemicals
Potassium dichromate	5 µg/m³ TWA 2.5 µg/m³ Action Level	-

CERCLA

Component	Hazardous Substances RQs	CERCLA EHS RQs
Potassium dichromate	10 lb	-

California Proposition 65 This product contains the following Proposition 65 chemicals.

Component	CAS No	California Prop. 65	Prop 65 NSRL	Category
Potassium dichromate	7778-50-9	Carcinogen Developmental Female Reproductive Male Reproductive	-	Developmental Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Water	-	-	X	-	-
Potassium dichromate	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Authorisation/Restrictions according to EU REACH

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Water	7732-18-5	-	-	-
Potassium dichromate	7778-50-9	Carcinogenic Category 1B, Mutagenic Category 1B, Toxic for reproduction Category 1B Article 57 Application date: March 21, 2016 Sunset date: September 21, 2017 Exemption - None	Use restricted. See item 72. (see link for restriction details) Use restricted. See item 28. (see link for restriction details) Use restricted. See item 29. (see link for restriction details) Use restricted. See item 30. (see link for restriction details) Use restricted. See item 75. (see link for restriction details) Use restricted. See item 47. (see link for restriction details)	SVHC Candidate list - 231-906-6 - Carcinogenic, Article 57a; Mutagenic, Article 57b; Toxic for reproduction, Article 57c

After the sunset date the use of this substance requires either an authorization or can only be used for exempted uses, e.g. use in scientific research and development which includes routine analytics or use as intermediate.

REACH links
https://echa.europa.eu/authorisation-list
https://echa.europa.eu/substances-restricted-under-reach
https://echa.europa.eu/candidate-list-table

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Water	7732-18-5	Listed	Not applicable	Not applicable	Not applicable
Potassium dichromate	7778-50-9	Not applicable	Not applicable	Not applicable	Not applicable

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?
Not applicable

Other International Regulations

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Water	7732-18-5	Not applicable	Not applicable	Not applicable	Not applicable
Potassium dichromate	7778-50-9	Not applicable	Not applicable	Not applicable	Annex I - Y21

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 22-Sep-2009
Revision Date 13-Oct-2023
Print Date 13-Oct-2023
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-Apr-2012 **Revision Date** 24-Dec-2021 **Revision Number** 6

1. Identification

Product Name **Lead**

Cat No. : **AC198110000; AC198110010; AC198110050**

CAS No 7439-92-1
Synonyms Lead metal

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company

Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Carcinogenicity	Category 1B
Reproductive Toxicity	Category 1A
Effects on or via lactation	
Specific target organ toxicity - (repeated exposure)	Category 1
Target Organs - Kidney, Central nervous system (CNS), Blood.	

Label Elements

Signal Word
Danger

Hazard Statements
May damage fertility. May damage the unborn child

May cause harm to breast-fed children
Causes damage to organs through prolonged or repeated exposure
May cause cancer



Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Do not breathe dust/fume/gas/mist/vapors/spray
Avoid contact during pregnancy/while nursing
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Response
IF exposed or concerned: Get medical attention/advice
Storage
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Very toxic to aquatic life with long lasting effects
WARNING. Cancer and Reproductive Harm - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS No	Weight %
Lead powder	7439-92-1	>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. Get medical attention if symptoms occur.

Most important symptoms and effects None reasonably foreseeable.

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature Not applicable
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Do not allow run-off from fire-fighting to enter drains or water courses.

Hazardous Combustion Products
Lead. lead oxides.
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	0	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation.

Environmental Precautions Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

Methods for Containment and Clean Up Sweep up and shovel into suitable containers for disposal. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling Wear personal protective equipment/face protection. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Avoid dust formation.

Storage. Keep containers tightly closed in a dry, cool and well-ventilated place. Incompatible Materials. Strong acids. Ammonium nitrate: fertilizers capable of self-sustaining decomposition. Peroxides.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Lead powder	TWA: 0.05 mg/m³	TWA: 50 µg/m³	IDLH: 100 mg/m³ TWA: 0.050 mg/m³	TWA: 0.05 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 Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection	Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin and body protection	Wear appropriate protective gloves and clothing to prevent skin exposure.
Respiratory Protection	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Solid Powder
Appearance	Grey
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	327.4 °C / 621.3 °F
Boiling Point/Range	1740 °C / 3164 °F @ 760 mmHg
Flash Point	No information available
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	1.7 mmHg @ 1000 °C
Vapor Density	Not applicable
Specific Gravity	No information available
Solubility	Insoluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	Not applicable
Decomposition Temperature	No information available
Viscosity	Not applicable
Molecular Formula	Pb
Molecular Weight	207.19

10. Stability and reactivity

Reactive Hazard	None known, based on information available
Stability	Stable under normal conditions.
Conditions to Avoid	Incompatible products. Exposure to air.
Incompatible Materials	Strong acids, Ammonium nitrate: fertilizers capable of self-sustaining decomposition, Peroxides
Hazardous Decomposition Products	Lead, lead oxides
Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information
Component Information
Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization May cause sensitization by skin contact

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Lead powder	7439-92-1	Group 2A	Reasonably Anticipated	A3	X	A3

IARC (International Agency for Research on Cancer)
IARC (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2A - Probably Carcinogenic to Humans
Group 2B - Possibly Carcinogenic to Humans

NTP: (National Toxicity Program)
NTP: (National Toxicity Program)
Known - Known Carcinogen
Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

ACGIH: (American Conference of Governmental Industrial Hygienists)
A1 - Known Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Animal Carcinogen
ACGIH: (American Conference of Governmental Industrial Hygienists)

Mexico - Occupational Exposure Limits - Carcinogens
Mexico - Occupational Exposure Limits - Carcinogens
A1 - Confirmed Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Confirmed Animal Carcinogen
A4 - Not Classifiable as a Human Carcinogen
A5 - Not Suspected as a Human Carcinogen

Mutagenic Effects No information available

Reproductive Effects Contains a known or suspected reproductive toxin.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure Kidney Central nervous system (CNS) Blood

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, may cause long-term adverse effects in the aquatic environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Lead powder	Not listed	LC50: = 1.32 mg/L, 96h static (Oncorhynchus mykiss)	Not listed	EC50: = 600 µg/L, 48h (water flea)

		LC50: = 1.17 mg/L, 96h flow-through (Oncorhynchus mykiss) LC50: = 0.44 mg/L, 96h semi-static (Cyprinus carpio)		

Persistence and Degradability Insoluble in water

Bioaccumulation/ Accumulation No information available.

Mobility Is not likely mobile in the environment due its low 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 UN3077
Proper Shipping Name Environmentally hazardous substances, solid, n.o.s.
Technical Name Lead powder
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
Lead powder	7439-92-1	X	ACTIVE	-

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

Component	CAS No	**TSCA 12(b)** - Notices of Export
Lead powder	7439-92-1	Section 6

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea

(KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Lead powder	7439-92-1	X	-	231-100-4	X	X		X	X	KE-21887

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313

Component	CAS No	Weight %	SARA 313 - Threshold Values %
Lead powder	7439-92-1	>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
Lead powder	-	-	X	X

Clean Air Act

OSHA - Occupational Safety and Health Administration Not applicable

Component	Specifically Regulated Chemicals	Highly Hazardous Chemicals
Lead powder	30 µg/m³ Action Level 50 µg/m³ TWA	-

CERCLA Not applicable

Component	Hazardous Substances RQs	CERCLA EHS RQs
Lead powder	10 lb	-

California Proposition 65 This product contains the following Proposition 65 chemicals.

Component	CAS No	California Prop. 65	Prop 65 NSRL	Category
Lead powder	7439-92-1	Carcinogen Developmental Female Reproductive Male Reproductive	15 µg/day	Developmental Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Lead powder	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Authorisation/Restrictions according to EU REACH

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Lead powder	-	Use restricted. See item 72. (see link for restriction details) Use restricted. See item 30. (see link for restriction details) Use restricted. See item 63. (see link for restriction details) Use restricted. See item 75. (see link for restriction details)	SVHC Candidate list - 231-100-4 - Toxic for reproduction (Article 57c)

After the sunset date the use of this substance requires either an authorization or can only be used for exempted uses, e.g. use in scientific research and development which includes routine analytics or use as intermediate.

https://echa.europa.eu/authorisation-list
https://echa.europa.eu/substances-restricted-under-reach
https://echa.europa.eu/candidate-list-table

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Lead powder	7439-92-1	Listed	Not applicable	Not applicable	0.1% (Max. Conc.)

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Lead powder	7439-92-1	Not applicable	Not applicable	Not applicable	Annex I - Y31

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 03-Apr-2012
Revision Date 24-Dec-2021
Print Date 24-Dec-2021
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Creation Date 20-Aug-2014 **Revision Date** 24-Dec-2021 **Revision Number** 4

1. Identification

Product Name **Mercury (Certified ACS)**

Cat No. : **M141-1LB; M141-6LB**

Synonyms Colloidal mercury; Hydrargyrum; Metallic mercury

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)

Acute Inhalation Toxicity - Vapors	Category 2
Reproductive Toxicity	Category 1B
Specific target organ toxicity - (repeated exposure)	Category 1
Target Organs - Central nervous system (CNS), Kidney.	

Label Elements

Signal Word
Danger

Hazard Statements
Fatal if inhaled
May damage 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
Do not breathe dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Wear respiratory protection
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Response
IF exposed or concerned: Get medical attention/advice
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Immediately call a POISON CENTER or doctor/physician
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Very toxic to aquatic life with long lasting effects
WARNING. Reproductive Harm - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS No	Weight %
Mercury	7439-97-6	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 Remove to fresh air. If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.

Ingestion Do NOT induce vomiting. Call a physician or poison control center immediately.

Most important symptoms and effects None reasonably foreseeable.

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Substance is nonflammable; use agent most appropriate to extinguish surrounding fire. approved class D extinguishers.

Unsuitable Extinguishing Media Water may be ineffective

Flash Point Not applicable
Method - No information available

Autoignition Temperature No information available
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Very toxic. Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes. Keep product and empty container away from heat and sources of ignition. Do not allow run-off from fire-fighting to enter drains or water courses.

Hazardous Combustion Products
Mercury oxide. Toxic fumes.
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health	Flammability	Instability	Physical hazards
4	0	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment as required. No special precautions required. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas.

Environmental Precautions Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Should not be released into the environment. Local authorities should be advised if significant spillages cannot be contained.

Methods for Containment and Clean Up Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Pick up and transfer to properly labelled containers.

7. Handling and storage

Handling Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance.

Storage. Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area. Keep in a dry place. Keep away from acids. Incompatible Materials. Strong oxidizing agents. Ammonia. Metals. Halogens.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Mercury	TWA: 0.025 mg/m³ Skin	(Vacated) TWA: 0.05 mg/m³ Ceiling: 0.1 mg/m³ (Vacated) STEL: 0.03 mg/m³ Skin (Vacated) Ceiling: 0.1 mg/m³	IDLH: 10 mg/m³ TWA: 0.05 mg/m³ Ceiling: 0.1 mg/m³	TWA: 0.025 mg/m³

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures Use only under a chemical fume hood. Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. None under normal use conditions.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection No special protective equipment required.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Silver
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	-38.87 °C / -38 °F
Boiling Point/Range	356.72 °C / 674.1 °F
Flash Point	Not applicable
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	0.002 mmHg @ 25 °C
Vapor Density	7.0
Specific Gravity	13.59 (H2O=1)
Solubility	Insoluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	Hg
Molecular Weight	200.59

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products. Excess heat.

Incompatible Materials Strong oxidizing agents, Ammonia, Metals, Halogens

Hazardous Decomposition Products Mercury oxide, Toxic fumes

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Mercury	Not listed	Not listed	LC50 < 27 mg/m³ (Rat) 2 h

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Mercury	7439-97-6	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects May cause harm to the unborn child.

Teratogenicity No information available.

STOT - single exposure None known

STOT - repeated exposure Central nervous system (CNS) Kidney

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, may cause long-term adverse effects in the aquatic environment. May cause long-term adverse effects in the environment. Do not allow material to contaminate ground water system.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Mercury	Not listed	0.9 mg/L LC50 96h	Not listed	Not listed

		0.18 mg/L LC50 96h 0.16 mg/L LC50 96h 0.5 mg/L LC50 96h		

Persistence and Degradability Insoluble in water May persist

Bioaccumulation/ Accumulation No information available.

Mobility Is not likely mobile in the environment due its low water solubility.

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
Mercury - 7439-97-6	U151	-

14. Transport information

DOT

UN-No	UN2809
Proper Shipping Name	Mercury
Hazard Class	8
Subsidiary Hazard Class	6.1
Packing Group	III

TDG

UN-No	UN2809
Proper Shipping Name	Mercury
Hazard Class	8
Subsidiary Hazard Class	6.1
Packing Group	III

IATA

UN-No	UN2809
Proper Shipping Name	Mercury
Hazard Class	8
Subsidiary Hazard Class	6.1
Packing Group	III

IMDG/IMO

UN-No	UN2809
Proper Shipping Name	Mercury
Hazard Class	8
Packing Group	III

15. Regulatory information

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
Mercury	7439-97-6	X	ACTIVE	S;12C

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule.

TSCA 12(b) - Notices of Export

Component	CAS No	**TSCA 12(b)** - Notices of Export
Mercury	7439-97-6	Section 5

International Inventories

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Mercury	7439-97-6	X	-	231-106-7	X	X		X	X	KE-23117

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313

Component	CAS No	Weight %	SARA 313 - Threshold Values %
Mercury	7439-97-6	100	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
Mercury	-	-	X	X

Clean Air Act

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
Mercury	1 lb	-

California Proposition 65: This product contains the following Proposition 65 chemicals.

Component	CAS No	California Prop. 65	Prop 65 NSRL	Category
Mercury	7439-97-6	Developmental	-	Developmental

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Mercury	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security: This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade: No information available

Authorisation/Restrictions according to EU REACH

Component	REACH (1907/2006) - Annex XIV -	REACH (1907/2006) - Annex XVII -	REACH Regulation (EC

	Substances Subject to Authorization	Restrictions on Certain Dangerous Substances	1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Mercury	-	Use restricted. See item 18[a]. (see link for restriction details) Use restricted. See item 30. (see link for restriction details) Use restricted. See item 75. (see link for restriction details)	-

https://echa.europa.eu/substances-restricted-under-reach

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Mercury	7439-97-6	Listed	Not applicable	Not applicable	0.1% (Max. Conc.)

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Mercury	7439-97-6	Not applicable	Not applicable	X	Annex I - Y29

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 20-Aug-2014
Revision Date 24-Dec-2021
Print Date 24-Dec-2021
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Revision Date 26-Dec-2021 **Revision Number** 4

1. Identification

Product Name **Selenium**

Cat No. : **AC419270000; AC419271000; AC419275000**

CAS No 7782-49-2
Synonyms None

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company

Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute oral toxicity	Category 3
Acute Inhalation Toxicity - Dusts and Mists	Category 3
Specific target organ toxicity - (repeated exposure)	Category 2

Label Elements

Signal Word
Danger

Hazard Statements
May cause damage to organs through prolonged or repeated exposure
Toxic if swallowed or if inhaled



Precautionary Statements
Prevention
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
Do not breathe dust/fume/gas/mist/vapors/spray
Response
Get medical attention/advice if you feel unwell
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician
Ingestion
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
Rinse mouth
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
May cause long lasting harmful effects to aquatic life

3. Composition/Information on Ingredients

Component	CAS No	Weight %
Selenium	7782-49-2	> 99.5

4. First-aid measures

General Advice Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

Inhalation Remove to fresh air. If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.

Ingestion Do NOT induce vomiting. Call a physician or poison control center immediately.

Most important symptoms and effects None reasonably foreseeable.

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature Not applicable
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Dust can form an explosive mixture with air.

Hazardous Combustion Products
None known.
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health	Flammability	Instability	Physical hazards
3	0	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas.
Environmental Precautions Should not be released into the environment.

Methods for Containment and Clean Up Sweep up and shovel into suitable containers for disposal. Avoid dust formation.

7. Handling and storage

Handling Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Avoid dust formation. Use only under a chemical fume hood. Do not breathe (dust, vapor, mist, gas). Do not ingest. If swallowed then seek immediate medical assistance.

Storage. Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Keep under nitrogen. Incompatible Materials. Acids. Strong oxidizing agents. Fluorine. oxygen. Metals.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Selenium	TWA: 0.2 mg/m³	(Vacated) TWA: 0.2 mg/m³	IDLH: 1 mg/m³ TWA: 0.2 mg/m³	TWA: 0.2 mg/m³

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection A NIOSH/MSHA approved air purifying dust or mist respirator or European Standard EN 149.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Powder Solid Granules
Appearance	Dark grey
Odor	No information available
Odor Threshold	No information available
pH	No information available
Melting Point/Range	217 - 222 °C / 422.6 - 431.6 °F
Boiling Point/Range	685 °C / 1265 °F
Flash Point	No information available
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	1 mmHg @ 345 °C
Vapor Density	Not applicable
Specific Gravity	4.810
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	Not applicable
Decomposition Temperature	No information available
Viscosity	Not applicable
Molecular Formula	Se
Molecular Weight	78.96

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products.

Incompatible Materials Acids, Strong oxidizing agents, Fluorine, oxygen, Metals

Hazardous Decomposition Products None under normal use conditions

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Selenium	LD50 = 6700 mg/kg (Rat)	Not listed	>5.67 mg/l (Rat) 4hr

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Selenium	7782-49-2	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known

STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Selenium	Not listed	LC50: > 100 mg/L, 96h semi-static (Oncorhynchus mykiss)	Not listed	Not listed

Persistence and Degradability Insoluble in water

Bioaccumulation/ Accumulation No information available.

Mobility Is not likely mobile in the environment due its low 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	UN3283
Hazard Class	6.1
Packing Group	III

TDG

UN-No	UN3283
Hazard Class	6.1
Packing Group	III

IATA

UN-No	UN3283
Proper Shipping Name	SELENIUM COMPOUND, SOLID, N.O.S.
Hazard Class	6.1
Packing Group	III

IMDG/IMO

UN-No	UN3283
Proper Shipping Name	SELENIUM COMPOUND, SOLID, N.O.S.
Hazard Class	6.1
Packing Group	III

15. Regulatory information

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
Selenium	7782-49-2	X	ACTIVE	-

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Selenium	7782-49-2	X	-	231-957-4	X	X		X	X	KE-30924

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313

Component	CAS No	Weight %	SARA 313 - Threshold Values %
Selenium	7782-49-2	> 99.5	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
Selenium	-	-	X	X

Clean Air Act

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Selenium	100 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Selenium	X	X	X	X	X

U.S. Department of Transportation
Reportable Quantity (RQ): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Authorisation/Restrictions according to EU REACH

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Selenium	-	Use restricted. See item 75. (see link for restriction details)	-

https://echa.europa.eu/substances-restricted-under-reach

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Selenium	7782-49-2	Not applicable	Not applicable	Not applicable	Not applicable

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Selenium	7782-49-2	Not applicable	Not applicable	Not applicable	Annex I - Y25

16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Revision Date 26-Dec-2021
Print Date 26-Dec-2021

Revision Summary	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Creation Date 01-Feb-2005 **Revision Date** 24-Dec-2021 **Revision Number** 5

1. Identification

Product Name **1,2,4-Trimethylbenzene**

Cat No. : **AC140090000; AC140090010; AC140090025; AC140090100; AC140090250**

CAS No 95-63-6
Synonyms Pseudocumene

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company
Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 3
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
Warning

Hazard Statements

Flammable liquid and vapor
Causes skin irritation
Causes serious eye irritation
Harmful if inhaled
May cause respiratory irritation



Precautionary Statements
Prevention
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
Wear protective gloves/protective clothing/eye protection/face protection
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Keep cool
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell
Skin
If skin irritation occurs: Get medical advice/attention
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
Fire
In case of fire: Use CO2, dry chemical, or foam for extinction
Storage
Store in a well-ventilated place. Keep container tightly closed
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Toxic to aquatic life with long lasting effects

3. Composition/Information on Ingredients

Component	CAS No	Weight %
Benzene, 1,2,4-trimethyl-	95-63-6	> 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	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	Difficulty in breathing. 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	48 °C / 118.4 °F
Method -	No information available
Autoignition Temperature	500 °C / 932 °F

Explosion Limits

Upper	6.4%
Lower	0.9%
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).
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	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.
Methods for Containment and Clean Up	Keep in suitable, closed containers for disposal. Soak up with inert absorbent material. Remove all sources of ignition. Take precautionary measures against static discharges. Use spark-proof tools and explosion-proof equipment.

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. Use spark-proof tools and explosion-proof equipment. Take precautionary measures against static discharges.

Storage. Keep away from heat, sparks and flame. Flammables area. Keep container tightly closed in a dry and well-ventilated place. Incompatible Materials. Oxidizing agent.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Benzene, 1,2,4-trimethyl-			TWA: 25 ppm TWA: 125 mg/m^3	

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 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	-44 °C / -47.2 °F
Boiling Point/Range	168 °C / 334.4 °F @ 760 mmHg
Flash Point	48 °C / 118.4 °F
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	6.4%
Lower	0.9%
Vapor Pressure	7 mmHg @ 44.4 °C
Vapor Density	4.15 (Air = 1.0)
Specific Gravity	0.880
Solubility	Insoluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	500 °C / 932 °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 No information available.

Conditions to Avoid Keep away from open flames, hot surfaces and sources of ignition. Incompatible products.

Incompatible Materials Oxidizing agent

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Benzene, 1,2,4-trimethyl-	LD50 = 3280 mg/kg (Rat)	LD50 > 3160 mg/kg (Rabbit)	LC50 = 18 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
Benzene, 1,2,4-trimethyl-	95-63-6	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Respiratory system

STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed 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. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Benzene, 1,2,4-trimethyl-	Not listed	LC50: 7.19 - 8.28 mg/L, 96h flow-through (Pimephales promelas)	Not listed	EC50: = 6.14 mg/L, 48h (Daphnia magna)

Persistence and Degradability Persistence is unlikely

Bioaccumulation/ Accumulation No information available.

Mobility . Is not likely mobile in the environment due its low water solubility.

Component	log Pow
Benzene, 1,2,4-trimethyl-	3.63

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 UN1993
Proper Shipping Name Flammable liquid, n.o.s.
Technical Name Benzene, 1,2,4-trimethyl-
Hazard Class 3
Packing Group III

TDG

UN-No UN1993
Proper Shipping Name Flammable liquid, n.o.s.
Hazard Class 3
Packing Group III

IATA

UN-No UN1993
Proper Shipping Name Flammable liquid, n.o.s.
Hazard Class 3
Packing Group III

IMDG/IMO

UN-No UN1993
Proper Shipping Name Flammable liquid, n.o.s.
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
Benzene, 1,2,4-trimethyl-	95-63-6	X	ACTIVE	-

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed

'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Benzene, 1,2,4-trimethyl-	95-63-6	X	-	202-436-9	X	X	X	X	X	KE-34410

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313

Component	CAS No	Weight %	SARA 313 - Threshold Values %
Benzene, 1,2,4-trimethyl-	95-63-6	> 95	1.0

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
Benzene, 1,2,4-trimethyl-	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

Authorisation/Restrictions according to EU REACH

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Benzene, 1,2,4-trimethyl-	-	Use restricted. See item 75. (see link for restriction details)	-

https://echa.europa.eu/substances-restricted-under-reach

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Benzene, 1,2,4-trimethyl-	95-63-6	Listed	Not applicable	Not applicable	Not applicable

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Benzene, 1,2,4-trimethyl-	95-63-6	Not applicable	Not applicable	Not applicable	Not applicable

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 01-Feb-2005
Revision Date 24-Dec-2021
Print Date 24-Dec-2021
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Creation Date 01-Feb-2005 **Revision Date** 24-Dec-2021 **Revision Number** 5

1. Identification

Product Name **1,2,4-Trimethylbenzene**

Cat No. : **AC140090000; AC140090010; AC140090025; AC140090100; AC140090250**

CAS No 95-63-6
Synonyms Pseudocumene

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company
Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 3
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
Warning

Hazard Statements

Flammable liquid and vapor
Causes skin irritation
Causes serious eye irritation
Harmful if inhaled
May cause respiratory irritation



Precautionary Statements
Prevention
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
Wear protective gloves/protective clothing/eye protection/face protection
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Keep cool
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell
Skin
If skin irritation occurs: Get medical advice/attention
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
Fire
In case of fire: Use CO2, dry chemical, or foam for extinction
Storage
Store in a well-ventilated place. Keep container tightly closed
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Toxic to aquatic life with long lasting effects

3. Composition/Information on Ingredients

Component	CAS No	Weight %
Benzene, 1,2,4-trimethyl-	95-63-6	> 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	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	Difficulty in breathing. 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	48 °C / 118.4 °F
Method -	No information available
Autoignition Temperature	500 °C / 932 °F

Explosion Limits

Upper	6.4%
Lower	0.9%
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).
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	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.
Methods for Containment and Clean Up	Keep in suitable, closed containers for disposal. Soak up with inert absorbent material. Remove all sources of ignition. Take precautionary measures against static discharges. Use spark-proof tools and explosion-proof equipment.

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. Use spark-proof tools and explosion-proof equipment. Take precautionary measures against static discharges.

Storage. Keep away from heat, sparks and flame. Flammables area. Keep container tightly closed in a dry and well-ventilated place. Incompatible Materials. Oxidizing agent.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Benzene, 1,2,4-trimethyl-			TWA: 25 ppm TWA: 125 mg/m^3	

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 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	-44 °C / -47.2 °F
Boiling Point/Range	168 °C / 334.4 °F @ 760 mmHg
Flash Point	48 °C / 118.4 °F
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	6.4%
Lower	0.9%
Vapor Pressure	7 mmHg @ 44.4 °C
Vapor Density	4.15 (Air = 1.0)
Specific Gravity	0.880
Solubility	Insoluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	500 °C / 932 °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 No information available.

Conditions to Avoid Keep away from open flames, hot surfaces and sources of ignition. Incompatible products.

Incompatible Materials Oxidizing agent

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Benzene, 1,2,4-trimethyl-	LD50 = 3280 mg/kg (Rat)	LD50 > 3160 mg/kg (Rabbit)	LC50 = 18 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
Benzene, 1,2,4-trimethyl-	95-63-6	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Respiratory system

STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed 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. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Benzene, 1,2,4-trimethyl-	Not listed	LC50: 7.19 - 8.28 mg/L, 96h flow-through (Pimephales promelas)	Not listed	EC50: = 6.14 mg/L, 48h (Daphnia magna)

Persistence and Degradability Persistence is unlikely

Bioaccumulation/ Accumulation No information available.

Mobility . Is not likely mobile in the environment due its low water solubility.

Component	log Pow
Benzene, 1,2,4-trimethyl-	3.63

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 UN1993
Proper Shipping Name Flammable liquid, n.o.s.
Technical Name Benzene, 1,2,4-trimethyl-
Hazard Class 3
Packing Group III

TDG

UN-No UN1993
Proper Shipping Name Flammable liquid, n.o.s.
Hazard Class 3
Packing Group III

IATA

UN-No UN1993
Proper Shipping Name Flammable liquid, n.o.s.
Hazard Class 3
Packing Group III

IMDG/IMO

UN-No UN1993
Proper Shipping Name Flammable liquid, n.o.s.
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
Benzene, 1,2,4-trimethyl-	95-63-6	X	ACTIVE	-

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed

'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Benzene, 1,2,4-trimethyl-	95-63-6	X	-	202-436-9	X	X	X	X	X	KE-34410

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313

Component	CAS No	Weight %	SARA 313 - Threshold Values %
Benzene, 1,2,4-trimethyl-	95-63-6	> 95	1.0

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
Benzene, 1,2,4-trimethyl-	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

Authorisation/Restrictions according to EU REACH

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Benzene, 1,2,4-trimethyl-	-	Use restricted. See item 75. (see link for restriction details)	-

https://echa.europa.eu/substances-restricted-under-reach

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Benzene, 1,2,4-trimethyl-	95-63-6	Listed	Not applicable	Not applicable	Not applicable

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Benzene, 1,2,4-trimethyl-	95-63-6	Not applicable	Not applicable	Not applicable	Not applicable

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 01-Feb-2005
Revision Date 24-Dec-2021
Print Date 24-Dec-2021
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Creation Date 16-Nov-2010 **Revision Date** 24-Dec-2021 **Revision Number** 8

1. Identification

Product Name **1,2-Dichlorobenzene**

Cat No. : **AC113180000; AC113180010; AC113180025; AC113180050; AC113180250**

CAS No 95-50-1
Synonyms o-Dichlorobenzene

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company

Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 4
Acute oral toxicity	Category 4
Acute Inhalation Toxicity - Vapors	Category 4
Skin Corrosion/Irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Skin Sensitization	Category 1
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system.	

Label Elements

Signal Word
Warning

Hazard Statements
Combustible liquid
Causes skin irritation
Causes serious eye irritation
May cause an allergic skin reaction
May cause respiratory irritation
Harmful if swallowed or if inhaled



Precautionary Statements
Prevention
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
Wear protective gloves/protective clothing/eye protection/face protection
Contaminated work clothing should not be allowed out of the workplace
Do not breathe dust/fume/gas/mist/vapors/spray
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep cool
Response
Get medical attention/advice if you feel unwell
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell
Skin
IF ON SKIN: 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
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 container tightly closed
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Very toxic to aquatic life with long lasting effects

3. Composition/Information on Ingredients

Component	CAS No	Weight %
o-Dichlorobenzene	95-50-1	>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. 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: 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 67 °C / 152.6 °F

Method - CC (closed cup)

Autoignition Temperature 640 °C / 1184 °F

Explosion Limits

Upper	9.2 vol %
Lower	2.2 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. Thermal decomposition can lead to release of irritating gases and vapors. Do not allow run-off from fire-fighting to enter drains or water courses.

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	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 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 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. Do not get in eyes, on skin, or on clothing. Ensure adequate ventilation. 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. Incompatible Materials. Strong oxidizing agents. Metals.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
o-Dichlorobenzene	TWA: 25 ppm STEL: 50 ppm	Ceiling: 50 ppm Ceiling: 300 mg/m³ (Vacated) Ceiling: 50 ppm (Vacated) Ceiling: 300 mg/m³	IDLH: 200 ppm Ceiling: 50 ppm Ceiling: 300 mg/m³	TWA: 20 ppm STEL: 50 ppm

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof electrical/ventilating/lighting equipment. Use only under a chemical fume hood. Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Clear
Odor	No information available
Odor Threshold	No information available

pH	No information available
Melting Point/Range	-15 °C / 5 °F
Boiling Point/Range	179 - 180 °C / 354.2 - 356 °F
Flash Point	67 °C / 152.6 °F
Method -	CC (closed cup)
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	9.2 vol %
Lower	2.2 vol %
Vapor Pressure	1.3 mbar @ 20 °C
Vapor Density	No information available
Specific Gravity	1.3 g/cm3 @20°C
Solubility	slightly soluble
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	640 °C / 1184 °F
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C6 H4 Cl2
Molecular Weight	147

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products. Heat, flames and sparks. Keep away from open flames, hot surfaces and sources of ignition.

Incompatible Materials Strong oxidizing agents, Metals

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

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
o-Dichlorobenzene	LD50 = 1516 mg/kg (Rat)	LD50 > 10 g/kg (Rabbit)	14,04 mg/L/4h (Rat)

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 May cause sensitization by skin contact

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
o-Dichlorobenzene	95-50-1	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: 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: Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

Endocrine Disruptor Information No information available

Other Adverse Effects Tumorigenic effects have been reported in experimental animals.

12. Ecological information

Ecotoxicity

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
o-Dichlorobenzene	EC50: = 91.6 mg/L, 96h (Pseudokirchneriella subcapitata) EC50: 61.2 - 181 mg/L, 72h (Pseudokirchneriella subcapitata) EC50: = 2.2 mg/L, 96h static (Pseudokirchneriella subcapitata)	LC50: 4.8 - 6.6 mg/L, 96h static (Lepomis macrochirus) LC50: = 5.2 mg/L, 96h flow-through (Brachydanio rerio) LC50: 42.6 - 80.4 mg/L, 96h static (Pimephales promelas) LC50: 8.23 - 10.9 mg/L, 96h flow-through (Pimephales promelas) LC50: 1.44 - 1.73 mg/L, 96h flow-through (Oncorhynchus mykiss) LC50: = 5.8 mg/L, 96h static (Pimephales promelas)	EC50 = 4.76 mg/L 5 min EC50 = 4.98 mg/L 15 min EC50 = 5.99 mg/L 30 min	EC50: = 0.74 mg/L, 48h Static (Daphnia magna)

Persistence and Degradability May persist based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility . Is not likely mobile in the environment due its low water solubility.

Component	log Pow
o-Dichlorobenzene	3.43

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.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
o-Dichlorobenzene - 95-50-1	U070	-

14. Transport information

DOT

UN-No	UN1591
Proper Shipping Name	O-DICHLOROBENZENE
Hazard Class	6.1
Packing Group	III

TDG

UN-No	UN1591
Proper Shipping Name	O-DICHLOROBENZENE
Hazard Class	6.1
Packing Group	III

IATA

UN-No	UN1591
Proper Shipping Name	o-DICHLOROBENZENE
Hazard Class	6.1
Packing Group	III

IMDG/IMO

UN-No	UN1591
Proper Shipping Name	O-DICHLOROBENZENE
Hazard Class	6.1
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-Dichlorobenzene	95-50-1	X	ACTIVE	-

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

Component	CAS No	**TSCA 12(b)** - Notices of Export
o-Dichlorobenzene	95-50-1	Section 4

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
o-Dichlorobenzene	95-50-1	X	-	202-425-9	X	X	X	X	X	KE-10066

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313

Component	CAS No	Weight %	SARA 313 - Threshold Values %
o-Dichlorobenzene	95-50-1	>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-Dichlorobenzene	X	-	X	X

Clean Air Act Not applicable

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
o-Dichlorobenzene	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
o-Dichlorobenzene	X	X	X	-	X

U.S. Department of Transportation
Reportable Quantity (RQ): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Authorisation/Restrictions according to EU REACH

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
o-Dichlorobenzene	-	Use restricted. See item 75. (see link for restriction details)	-

https://echa.europa.eu/substances-restricted-under-reach

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
o-Dichlorobenzene	95-50-1	Listed	Not applicable	Not applicable	Not applicable

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
o-Dichlorobenzene	95-50-1	Not applicable	Not applicable	Not applicable	Annex I - Y45

16. Other information

Prepared By	Regulatory Affairs Thermo Fisher Scientific Email: EMSDS.RA@thermofisher.com
Creation Date	16-Nov-2010
Revision Date	24-Dec-2021
Print Date	24-Dec-2021
Revision Summary	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Creation Date 16-Sep-2014 **Revision Date** 26-Dec-2021 **Revision Number** 4

1. Identification

Product Name **trans-1,2-Dichloroethylene, stabilized**

Cat No. : **AC406840000; AC406840250; AC406842500**

CAS No 156-60-5
Synonyms trans-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 Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 2
Acute oral toxicity	Category 4
Acute Inhalation Toxicity - Vapors	Category 4

Label Elements

Signal Word
Danger

Hazard Statements
Highly flammable liquid and vapor
Harmful if swallowed or if inhaled



Precautionary Statements
Prevention
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Wear protective gloves/protective clothing/eye protection/face protection
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
Ingestion
Rinse mouth
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Fire
In case of fire: Use CO2, dry chemical, or foam for extinction
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
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 %
trans-1,2-Dichloroethylene	156-60-5	>95

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Get medical attention.

Inhalation Remove from exposure, lie down. Remove to fresh air. 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. 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. Chemical foam. Water mist may be used to cool closed containers. 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. Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
Carbon monoxide (CO). Carbon dioxide (CO_2). Phosgene. 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 Remove all sources of ignition. Take precautionary measures against static discharges. Use personal protective equipment as required. Ensure adequate ventilation.

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.

7. Handling and storage

Handling Wear personal protective equipment/face protection. Ensure adequate ventilation. Avoid contact with skin and eyes. Handle product only in closed system or provide appropriate exhaust ventilation. Use spark-proof tools and explosion-proof equipment. Use only non-sparking tools. 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. Take precautionary measures against static discharges.

Storage. Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Keep away

from heat, sparks and flame. Flammables area. Keep container tightly closed in a dry and well-ventilated place. Incompatible Materials. Bases. Strong acids. Strong oxidizing agents.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
trans-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.

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	6.5-7.2
Melting Point/Range	-50 °C / -58 °F
Boiling Point/Range	48 °C / 118.4 °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	331 mmHg @ 25 °C
Vapor Density	3.34 (Air = 1.0)
Specific Gravity	1.260
Solubility	Immiscible with water
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, Strong acids, Strong oxidizing agents

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2), Phosgene, 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

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
trans-1,2-Dichloroethylene	LD50 = 1235 mg/kg (Rat)	>5 g/kg (Rabbit)	LC50 = 24100 ppm (Rat) 4 h

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation 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
trans-1,2-Dichloroethylene	156-60-5	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known

STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed 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

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
trans-1,2-Dichloroethylene	Not listed	LC50: = 135 mg/L, 96h static (Lepomis macrochirus)	Not listed	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.

Component	log Pow
trans-1,2-Dichloroethylene	1.48

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
trans-1,2-Dichloroethylene - 156-60-5	U079	-

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
trans-1,2-Dichloroethylene	156-60-5	X	ACTIVE	-

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

Component	CAS No	**TSCA 12(b)** - Notices of Export

trans-1,2-Dichloroethylene	156-60-5	Section 4

International Inventories

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
trans-1,2-Dichloroethylene	156-60-5	X	-	205-860-2	X	X	X	X	X	KE-10123

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313 Not applicable

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
trans-1,2-Dichloroethylene	-	-	-	X

Clean Air Act Not applicable

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
trans-1,2-Dichloroethylene	1000 lb 1 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
trans-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

Authorisation/Restrictions according to EU REACH

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
trans-1,2-Dichloroethylene	156-60-5	Listed	Not applicable	Not applicable	Not applicable

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
trans-1,2-Dichloroethylene	156-60-5	Not applicable	Not applicable	Not applicable	Annex I - Y45

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 16-Sep-2014
Revision Date 26-Dec-2021
Print Date 26-Dec-2021
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Creation Date 30-Apr-2012 **Revision Date** 24-Dec-2021 **Revision Number** 4

1. Identification

Product Name **2,3-Benzanthracene**

Cat No. : **AC105260000; AC105260010; AC105260050; AC105265000**

CAS No 92-24-0
Synonyms Benz[b]anthracene; Tetracene; Naphthacene

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company

Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification

Classification under 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Label Elements

None required

Hazards not otherwise classified (HNOC)

Very toxic to aquatic life with long lasting effects

3. Composition/Information on Ingredients

Component	CAS No	Weight %
Naphthacene	92-24-0	>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 Get medical attention. Wash off immediately with plenty of water for at least 15 minutes.

Inhalation Remove to fresh air. Get medical attention. If not breathing, give artificial respiration.

Ingestion Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.

Most important symptoms and effects None reasonably foreseeable.

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray, carbon dioxide (CO2), dry chemical, alcohol-resistant foam.

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature Not applicable

Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Do not allow run-off from fire-fighting to enter drains or water courses.

Hazardous Combustion Products
Carbon monoxide (CO). Carbon dioxide (CO_2).
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
0	1	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation.

Environmental Precautions Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

Methods for Containment and Clean Up Sweep up and shovel into suitable containers for disposal. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling Wear personal protective equipment/face protection. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Avoid dust formation.

Storage. Keep containers tightly closed in a dry, cool and well-ventilated place. Incompatible Materials. Strong oxidizing agents.

8. Exposure controls / personal protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limitsestablished by the region specific regulatory bodies.

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Powder Solid
Appearance	Orange
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	> 300 °C / > 572 °F
Boiling Point/Range	No information available
Flash Point	No information available
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	Not applicable
Specific Gravity	No information available
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	Not applicable
Decomposition Temperature	No information available
Viscosity	Not applicable
Molecular Formula	C18 H12
Molecular Weight	228.29

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products. Excess heat. Avoid dust formation.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information No acute toxicity information is available for this product

Component Information

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Naphthacene	92-24-0	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known

STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Persistence and Degradability Insoluble in water

Bioaccumulation/ Accumulation No information available.

Mobility Is not likely mobile in the environment due its low water solubility.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT Not regulated
Technical Name Naphthacene
TDG Not regulated
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
Naphthacene	92-24-0	X	ACTIVE	-

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Naphthacene	92-24-0	-	X	202-138-9	-	-		X	-	-

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313 Not applicable

Component	CAS No	Weight %	SARA 313 - Threshold Values %
Naphthacene	92-24-0	>95	0.1

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

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

U.S. Department of Transportation
Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Authorisation/Restrictions according to EU REACH

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Naphthacene	92-24-0	Not applicable	Not applicable	Not applicable	Not applicable

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Naphthacene	92-24-0	Not applicable	Not applicable	Not applicable	Not applicable

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 30-Apr-2012
Revision Date 24-Dec-2021
Print Date 24-Dec-2021
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage,

transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Creation Date 28-Apr-2009 **Revision Date** 24-Dec-2021 **Revision Number** 8

1. Identification

Product Name **Acetone**

Cat No. : **AC177170000; AC177170010; AC177170025; AC177170050; AC177170100; AC177170250**

CAS No 67-64-1
Synonyms 2-Propanone

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company

Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Central nervous system (CNS).	
Specific target organ toxicity - (repeated exposure)	Category 2
Target Organs - Kidney, Liver, spleen, Blood.	

Label Elements

Signal Word
Danger

Hazard Statements

Highly flammable liquid and vapor
Causes serious eye irritation
May cause drowsiness or dizziness
May cause damage to organs through prolonged or repeated exposure



Precautionary Statements
Prevention
Wash face, hands and any exposed skin thoroughly after handling
Do not breathe dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Wear protective gloves/protective clothing/eye protection/face protection
Keep cool
Response
Get medical attention/advice if you feel unwell
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell
Skin
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
Fire
In case of fire: Use CO2, dry chemical, or foam for extinction
Storage
Store in a well-ventilated place. Keep container tightly closed
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Repeated exposure may cause skin dryness or cracking

3. Composition/Information on Ingredients

Component	CAS No	Weight %
Acetone	67-64-1	>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 . Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: May cause pulmonary edema

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 Water may be ineffective

Flash Point -20 °C / -4 °F

Method - CC (closed cup)

Autoignition Temperature 465 °C / 869 °F

Explosion Limits
Upper 12.8 vol %
Lower 2.5 vol %

Oxidizing Properties Not oxidising

Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Flammable. Risk of ignition. 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). Formaldehyde. Methanol.
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 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. Use spark-proof tools and explosion-proof equipment.

7. Handling and storage

Handling Do not get in eyes, on skin, or on clothing. Wear personal protective equipment/face protection. Ensure adequate ventilation. Avoid ingestion and inhalation. 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. Flammables area. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks and flame. Incompatible Materials. Strong oxidizing agents. Strong reducing agents. Strong bases. Peroxides. Halogenated compounds. Alkali metals. Amines.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Acetone	TWA: 250 ppm STEL: 500 ppm	(Vacated) TWA: 750 ppm (Vacated) TWA: 1800 mg/m^3 (Vacated) STEL: 2400 mg/m^3 (Vacated) STEL: 1000 ppm TWA: 1000 ppm TWA: 2400 mg/m^3	IDLH: 2500 ppm TWA: 250 ppm TWA: 590 mg/m^3	TWA: 500 ppm STEL: 750 ppm

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures Ensure adequate ventilation, especially in confined areas. 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	sweet
Odor Threshold	19.8 ppm
pH	7
Melting Point/Range	-95 °C / -139 °F
Boiling Point/Range	56 °C / 132.8 °F
Flash Point	-20 °C / -4 °F
Method -	CC (closed cup)
Evaporation Rate	5.6 (Butyl Acetate = 1.0)
Flammability (solid,gas)	Not applicable

Flammability or explosive limits	
Upper	12.8 vol %
Lower	2.5 vol %
Vapor Pressure	247 mbar @ 20 °C
Vapor Density	2.0
Specific Gravity	0.790
Solubility	Soluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	465 °C / 869 °F
Decomposition Temperature	> 4°C
Viscosity	0.32 mPa.s @ 20 °C
Molecular Formula	C3 H6 O
Molecular Weight	58.08
Refractive index	1.358 - 1.359

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Heat, flames and sparks. Incompatible products. Keep away from open flames, hot surfaces and sources of ignition.

Incompatible Materials Strong oxidizing agents, Strong reducing agents, Strong bases, Peroxides, Halogenated compounds, Alkali metals, Amines

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2), Formaldehyde, Methanol

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
Acetone	5800 mg/kg (Rat)	> 15800 mg/kg (rabbit) > 7400 mg/kg (rat)	76 mg/l, 4 h, (rat)

Toxicologically Synergistic Products Carbon tetrachloride; Chloroform; Trichloroethylene; Bromodichloromethane; Dibromochloromethane; N-nitrosodimethylamine; 1,1,2-Trichloroethane; Styrene; Acetonitrile, 2,5-Hexanedione; Ethanol; 1,2-Dichlorobenzene

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
Acetone	67-64-1	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Central nervous system (CNS)
STOT - repeated exposure Kidney Liver spleen Blood

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: May cause pulmonary edema

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
Acetone	NOEC = 430 mg/l (algae; 96 h)	Oncorhynchus mykiss: LC50 = 5540 mg/l 96h Alburnus alburnus: LC50 = 11000 mg/l 96h Leuciscus idus: LC50 = 11300 mg/L/48h Salmo gairdneri: LC50 = 6100 mg/L/24h	EC50 = 14500 mg/L/15 min	EC50 = 8800 mg/L/48h EC50 = 12700 mg/L/48h EC50 = 12600 mg/L/48h

Persistence and Degradability Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its volatility.

Component	log Pow
Acetone	-0.24

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
Acetone - 67-64-1	U002	-

14. Transport information

DOT

UN-No UN1090
Proper Shipping Name ACETONE
Hazard Class 3
Packing Group II

TDG

UN-No UN1090
Proper Shipping Name ACETONE
Hazard Class 3
Packing Group II

IATA

UN-No UN1090
Proper Shipping Name ACETONE
Hazard Class 3

Packing Group II

IMDG/IMO

UN-No UN1090
Proper Shipping Name ACETONE
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
Acetone	67-64-1	X	ACTIVE	-

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Acetone	67-64-1	X	-	200-662-2	X	X	X	X	X	KE-29367

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313 Not applicable

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act) Not applicable

Clean Air Act Not applicable

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Acetone	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
Acetone	X	X	X	-	X

U.S. Department of Transportation

Reportable Quantity (RQ):	Y
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade Serious risk, Grade 3

Authorisation/Restrictions according to EU REACH

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Acetone	-	Use restricted. See item 75. (see link for restriction details)	-

https://echa.europa.eu/substances-restricted-under-reach

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Acetone	67-64-1	Listed	Not applicable	Not applicable	Not applicable

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Acetone	67-64-1	Not applicable	Not applicable	Not applicable	Annex I - Y42

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 28-Apr-2009
Revision Date 24-Dec-2021
Print Date 24-Dec-2021
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Creation Date 03-May-2012 **Revision Date** 23-Aug-2023 **Revision Number** 8

1. Identification

Product Name **Anthracene**

Cat No. : **AC104860000; AC104860025; AC104860050; AC104860100; AC104861000; AC104865000**

CAS No 120-12-7
Synonyms Green oil; Paranaphtalene

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company
Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No. **US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin Corrosion/Irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Combustible dust	Yes

Label Elements

Signal Word
Warning

Hazard Statements
May form combustible dust concentrations in air
Causes skin irritation

Causes serious eye irritation



Precautionary Statements
Prevention
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
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
Hazards not otherwise classified (HNOC)
Very toxic to aquatic life with long lasting effects
WARNING. Cancer - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS No	Weight %
Anthracene	120-12-7	>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. Get medical attention if symptoms occur.

Most important symptoms and effects None reasonably foreseeable.

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray, carbon dioxide (CO2), dry chemical, alcohol-resistant foam.

Unsuitable Extinguishing Media No information available

Flash Point	121 °C / 249.8 °F
Method -	No information available
Autoignition Temperature	540 °C / 1004 °F

Explosion Limits

Upper	No data available
Lower	0.6 vol %
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical
Fine dust dispersed in air may ignite. Dust can form an explosive mixture with air. Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition. 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	1	N/A

6. Accidental release measures

Personal Precautions	Use personal protective equipment as required. Ensure adequate ventilation. Avoid dust formation.
Environmental Precautions	Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.
Methods for Containment and Clean Up	Sweep up and shovel into suitable containers for disposal. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling	Wear personal protective equipment/face protection. Ensure adequate ventilation. Avoid dust formation. Avoid ingestion and inhalation. Do not get in eyes, on skin, or on clothing.
Storage.	Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from direct sunlight. Incompatible Materials. Acids. Strong oxidizing agents. Fluorine.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH	Mexico OEL (TWA)
Anthracene		TWA: 0.2 mg/m³		

Legend

OSHA - Occupational Safety and Health Administration

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.
Recommended Filter type:	Particulates filter conforming to EN 143.
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Powder Solid
Appearance	Yellow
Odor	aromatic
Odor Threshold	No information available
pH	Not applicable
Melting Point/Range	215 - 218 °C / 419 - 424.4 °F
Boiling Point/Range	340 °C / 644 °F @ 760 mmHg
Flash Point	121 °C / 249.8 °F
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	0.6 vol %
Vapor Pressure	1.3 mbar @ 145 °C
Vapor Density	Not applicable
Specific Gravity	No information available
Solubility	insoluble
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	540 °C / 1004 °F
Decomposition Temperature	No information available
Viscosity	Not applicable
Molecular Formula	C14 H10
Molecular Weight	178.23

10. Stability and reactivity

Reactive Hazard	Yes
Stability	Stable under normal conditions. Sensitivity to light.
Conditions to Avoid	Avoid dust formation. Incompatible products. Excess heat. Exposure to light.
Incompatible Materials	Acids, Strong oxidizing agents, Fluorine
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
Anthracene	LD50 > 16 g/kg (Rat)	>1320 mg/kg (Rat)	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Irritating to eyes and skin

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Anthracene	120-12-7	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity
The product contains following substances which are hazardous for the environment. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Anthracene	Not listed	LC50: = 0.00278 mg/L, 96h static (Lepomis macrochirus) LC50: 0 - 0.00318 mg/L, 96h flow-through (Lepomis macrochirus)	Not listed	EC50: 0.081 - 0.112 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
Anthracene	4.65

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No UN3077
Proper Shipping Name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
Technical Name Anthracene
Hazard Class 9
Packing Group III

TDG

UN-No UN3077
Proper Shipping Name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
Hazard Class 9
Packing Group III

IATA

UN-No UN3077
Proper Shipping Name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
Hazard Class 9
Packing Group III

IMDG/IMO

UN-No UN3077
Proper Shipping Name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
Hazard Class 9
Packing Group III

15. Regulatory information

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
Anthracene	120-12-7	X	ACTIVE	-

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA - Per 40 CFR 751, Regulation of Certain Chemical Substances & Mixtures, Under TSCA Section 6(h) (PBT) Not applicable

TSCA 12(b) - Notices of Export Not applicable

International Inventories

China, X = listed, Australia, U.S.A. (TSCA), Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Australia (AICS), Korea (KECL), China (IECSC), Japan (ENCS), Philippines (PICCS), Taiwan (TCSI), Japan (ISHL), New Zealand (NZIoC), Japan (ISHL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Anthracene	120-12-7	X	-	204-371-1	X	X	X	X	X	KE-01825

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313

Component	CAS No	Weight %	SARA 313 - Threshold Values %
Anthracene	120-12-7	>95	1.0 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
Anthracene	-	-	-	X

Clean Air Act Not applicable

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Anthracene	5000 lb	-

California Proposition 65 This product contains the following Proposition 65 chemicals.

Component	CAS No	California Prop. 65	Prop 65 NSRL	Category
Anthracene	120-12-7	Carcinogen	-	

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Anthracene	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 Slight risk, Grade 1

Authorisation/Restrictions according to EU REACH

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Anthracene	120-12-7	-	Use restricted. See item 75. (see link for restriction details)	SVHC Candidate list - 204-371-1 - PBT, Article 57d

After the sunset date the use of this substance requires either an authorization or can only be used for exempted uses, e.g. use in scientific research and development which includes routine analytics or use as intermediate.

https://echa.europa.eu/authorisation-list
https://echa.europa.eu/substances-restricted-under-reach
https://echa.europa.eu/candidate-list-table

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Anthracene	120-12-7	Listed	Not applicable	Not applicable	Not applicable

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?
Not applicable

Other International Regulations

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Anthracene	120-12-7	Not applicable	Not applicable	Not applicable	Not applicable

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 03-May-2012
Revision Date 23-Aug-2023
Print Date 23-Aug-2023
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

Benzene

Section 1. Identification

GHS product identifier : Benzene

Chemical name : benzene

Other means of identification : benzene, purebenzol; cyclohexatriene; phenyl hydride; phene; coal naphtha; pyrobenzol

Product type : Liquid.

Product use : Synthetic/Analytical chemistry.

Synonym : benzene, purebenzol; cyclohexatriene; phenyl hydride; phene; coal naphtha; pyrobenzol

SDS # : 001062

Supplier's details : Airgas USA, LLC and its affiliates
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283
1-610-687-5253

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 LIQUIDS - Category 2
SKIN IRRITATION - Category 2
EYE IRRITATION - Category 2A
GERM CELL MUTAGENICITY - Category 1
CARCINOGENICITY - Category 1
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1

GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : Highly flammable liquid and vapor.
Causes skin irritation.
Causes serious eye irritation.
May cause genetic defects.
May cause cancer.
Causes damage to organs through prolonged or repeated exposure.
May form explosive mixtures with air.

Precautionary statements

General : Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand.

Prevention : Obtain special instructions before use. Wear protective gloves. Wear protective clothing. Wear eye or face protection. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use explosion-proof electrical, ventilating or lighting equipment. Use non-sparking tools. Take action to prevent static discharges. Keep container tightly closed. Do not breathe vapor. Do not eat, drink or smoke when using this product. Wash thoroughly after handling.

Section 2. Hazards identification

Response : IF exposed or concerned: Get medical advice or attention. Take off contaminated clothing and wash it 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 or attention.

Storage : Store locked up. Store in a well-ventilated place. Keep cool.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazards not otherwise classified : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Substance

Chemical name : benzene

Other means of identification : benzene, purebenzol; cyclohexatriene; phenyl hydride; phene; coal naphtha; pyrobenzol

Product code : 001062

CAS number/other identifiers

CAS number : 71-43-2

Ingredient name	%	CAS number
benzene	100	71-43-2

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. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Section 4. First aid measures

Eye contact : Causes serious eye irritation.

Inhalation : No known significant effects or critical hazards.

Skin contact : Causes skin irritation.

Frostbite : Try to warm up the frozen tissues and seek medical attention.

Ingestion : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:, pain or irritation, watering, redness

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:, irritation, redness

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use dry chemical, CO_2, water spray (fog) or foam.

Unsuitable extinguishing media : Do not use water jet.

Specific hazards arising from the chemical : Highly flammable liquid and vapor. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

Section 6. Accidental release measures

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). 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. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Do not ingest. Empty containers retain product residue and can be hazardous. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Do not reuse container. 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 vapor or mist. 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 in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Eliminate all ignition sources. Store locked up. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Section 8. Exposure controls/personal protection

Ingredient name	Exposure limits
benzene	**ACGIH TLV (United States, 3/2019).** **Absorbed through skin.** STEL: 8 mg/m³ 15 minutes. STEL: 2.5 ppm 15 minutes. TWA: 1.6 mg/m³ 8 hours. TWA: 0.5 ppm 8 hours. **NIOSH REL (United States, 10/2016).** STEL: 1 ppm 15 minutes. TWA: 0.1 ppm 10 hours. **OSHA PEL (United States, 5/2018).** STEL: 5 ppm 15 minutes. TWA: 1 ppm 8 hours. **OSHA PEL 1989 (United States, 3/1989).** STEL: 5 ppm 15 minutes. TWA: 1 ppm 8 hours. **OSHA PEL Z2 (United States, 2/2013).** AMP: 50 ppm 10 minutes. CEIL: 25 ppm TWA: 10 ppm 8 hours.

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Section 8. Exposure controls/personal protection

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Appearance

Physical state : Liquid. [Watery liquid.]

Color : Colorless. Yellowish.

Odor : Characteristic.

Odor threshold : Not available.

pH : Not available.

Melting point : 5.49°C (41.9°F)

Boiling point : 80.09°C (176.2°F)

Critical temperature : 288.95°C (552.1°F)

Flash point : Closed cup: -11°C (12.2°F)

Evaporation rate : 3.5 (butyl acetate = 1)

Flammability (solid, gas) : Not available.

Lower and upper explosive (flammable) limits : Lower: 1.2%
Upper: 7.8%

Vapor pressure : 10 kPa (75.01 mm Hg) [room temperature]

Vapor density : 2.7 (Air = 1)

Specific Volume (ft ^{3}/lb) : 1.1403

Gas Density (lb/ft ^{3}) : 0.877 (20°C / 68 to °F)

Relative density : 0.88

Solubility : Not available.

Solubility in water : 1.88 g/l

Partition coefficient: n-octanol/water : 2.13

Auto-ignition temperature : 498°C (928.4°F)

Decomposition temperature : Not available.

Viscosity : Dynamic (room temperature): 0.6 mPa·s (0.6 cP)

Flow time (ISO 2431) : Not available.

Molecular weight : 78.12 g/mole

Aerosol product

Heat of combustion : -40611960 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. Do not allow vapor to accumulate in low or confined areas.

Incompatible materials : Reactive or incompatible with the following materials:
oxidizing materials

Section 10. Stability and reactivity

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
benzene	LC50 Inhalation Gas. LD50 Oral	Rat Rat	10000 ppm 930 mg/kg	7 hours -

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
benzene	Eyes - Moderate irritant Eyes - Severe irritant Skin - Mild irritant Skin - Mild irritant Skin - Moderate irritant	Rabbit Rabbit Rat Rabbit Rabbit	- - - - -	88 mg 24 hours 2 mg 8 hours 60 Ul 24 hours 15 mg 24 hours 20 mg	- - - - -

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Classification

Product/ingredient name	OSHA	IARC	NTP
benzene	+	1	Known to be a human carcinogen.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
benzene	Category 1	-	-

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Section 11. Toxicological information

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : No known significant effects or critical hazards.

Skin contact : Causes skin irritation.

Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:, pain or irritation, watering, redness

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:, irritation, redness

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : Causes damage to organs through prolonged or repeated exposure.

Carcinogenicity : May cause cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity : May cause genetic defects.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
benzene	Acute EC50 29000 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 1600000 µg/l Fresh water	Algae - Selenastrum sp.	96 hours
	Acute EC50 9.23 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 21 mg/l Marine water	Crustaceans - Artemia salina	48 hours
	Acute LC50 5.28 ul/L Fresh water	Fish - Oncorhynchus gorbuscha - Fry	96 hours
	Chronic EC10 >1360 mg/l Fresh water	Algae - Scenedesmus subspicatus	96 hours
	Chronic NOEC 98 mg/l Fresh water	Daphnia - Daphnia magna	21 days
	Chronic NOEC 1.5 to 5.4 ul/L Marine water	Fish - Morone saxatilis - Juvenile (Fledgling, Hatchling, Weanling)	4 weeks

Section 12. Ecological information

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
benzene	2.13	11	low

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

United States - RCRA Toxic hazardous waste "U" List

Ingredient	CAS #	Status	Reference number
Benzene (I,T)	71-43-2	Listed	U019

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1114	UN1114	UN1114	UN1114	UN1114
UN proper shipping name	BENZENE	BENZENE	BENZENE	BENZENE	BENZENE
Transport hazard class(es)	3 	3 	3 	3 	3 
Packing group	II	II	II	II	II
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."

Section 14. Transport information

Additional information

DOT Classification : **Reportable quantity** 10 lbs / 4.54 kg [1.3675 gal / 5.1767 L]. Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.
Limited quantity Yes.
Quantity limitation Passenger aircraft/rail: 5 L. Cargo aircraft: 60 L.

TDG Classification : Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.18-2.19 (Class 3).
Explosive Limit and Limited Quantity Index 1
Passenger Carrying Road or Rail Index 5

IATA : **Quantity limitation** Passenger and Cargo Aircraft: 5 L. Cargo Aircraft Only: 60 L. Limited Quantities - Passenger Aircraft: 1 L.

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 IMO instruments : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined
Clean Water Act (CWA) 307: benzene
Clean Water Act (CWA) 311: benzene

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Refer to Section 2: Hazards Identification of this SDS for classification of substance.

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	benzene	71-43-2	100
Supplier notification	benzene	71-43-2	100

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Massachusetts : This material is listed.

Section 15. Regulatory information

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 Benzene, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Ingredient name	No significant risk level	Maximum acceptable dosage level
Benzene	Yes.	Yes.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

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.

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.

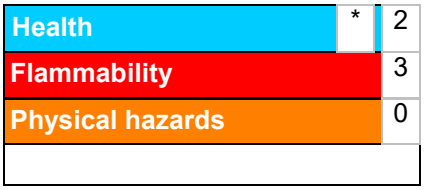
Turkey : This material is listed or exempted.

United States : This material is active or exempted.

Viet Nam : This material is listed or exempted.

Section 16. Other information

Hazardous Material Information System (U.S.A.)



Section 16. Other information

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

National Fire Protection Association (U.S.A.)



Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Procedure used to derive the classification

Classification	Justification
FLAMMABLE LIQUIDS - Category 2	Expert judgment
SKIN IRRITATION - Category 2	Expert judgment
EYE IRRITATION - Category 2A	Expert judgment
GERM CELL MUTAGENICITY - Category 1	Expert judgment
CARCINOGENICITY - Category 1	Expert judgment
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1	Expert judgment

History

Date of printing : 6/1/2020

Date of issue/Date of revision : 6/1/2020

Date of previous issue : No previous validation

Version : 1

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

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.

Benzene

Version 1.9 Revision Date 2016-01-08

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product information

Product Name : Benzene
Material : 1098293, 1059192, 1059060, 1037212, 1037213, 1037103, 1029170, 1037104, 1015526, 1016960

Company : Chevron Phillips Chemical Company LP
10001 Six Pines Drive
The Woodlands, TX 77380

Emergency telephone:

Health:
866.442.9628 (North America)
1.832.813.4984 (International)
Transport:
CHEMTREC 1.800.424.9300 (within USA and Canada) or 703.527.3887 (outside USA and Canada)
Asia: +800 CHEMCALL (+800 2436 2255) China:+86-21-22157316
EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600

Responsible Department : Product Safety and Toxicology Group
E-mail address : SDS@CPChem.com
Website : www.CPChem.com

SECTION 2: Hazards identification

Classification of the substance or mixture
This product has been classified in accordance with the hazard communication standard 29 CFR 1910.1200; the SDS and labels contain all the information as required by the standard.

Emergency Overview

Danger

Physical state: Liquid **Color**: Clear, Colorless **Odor**: sweet, distinct

OSHA Hazards : Flammable Liquid, Aspiration hazard, Carcinogen, Moderate skin irritant, Moderate eye irritant, Mutagen, Target Organ Effects

Classification

: Flammable liquids , Category 2
Skin irritation , Category 2
Eye irritation , Category 2A
Germ cell mutagenicity , Category 1B
Carcinogenicity , Category 1A
Specific target organ systemic toxicity - repeated exposure , Category 1 , Blood
Aspiration hazard , Category 1

Labeling

Symbol(s) :



Signal Word : Danger

Hazard Statements : H225: Highly flammable liquid and vapor.
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 (Blood) through prolonged or repeated exposure.

Precautionary Statements : **Prevention:**
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P260 Do not breathe dust/fume/gas/mist/vapor/spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/ eye protection/ face protection.
P281 Use personal protective equipment as required.
Response:
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P331 Do NOT induce vomiting.
P332 + P313 If skin irritation occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/

attention.
P362 Take off contaminated clothing and wash before reuse.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
Storage:
P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.
Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

Carcinogenicity:

IARC	Group 1: Carcinogenic to humans	
	Benzene	71-43-2
NTP	Known to be human carcinogen	
	Benzene	71-43-2
ACGIH	Confirmed human carcinogen	
	Benzene	71-43-2

SECTION 3: Composition/information on ingredients

Synonyms : Aromatic Benzene
Benzol
Cyclohexatriene
Phene
Phenyl Hydride

Molecular formula : C6H6

Component	CAS-No.	Weight %
Benzene	71-43-2	100

SECTION 4: First aid measures

General advice : Move out of dangerous area. Show this material safety data sheet to the doctor in attendance. Material may produce a serious, potentially fatal pneumonia if swallowed or vomited.

If inhaled : If unconscious place in recovery position and seek medical advice. If symptoms persist, call a physician.

In case of skin contact : If skin irritation persists, call a physician. If on skin, rinse well with water. If on clothes, remove clothes.

In case of eye contact : Immediately flush eye(s) with plenty of water. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.

If swallowed : Keep respiratory tract clear. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.

Take victim immediately to hospital.

SECTION 5: Firefighting measures

Flash point	:	-11 °C (12 °F) Method: Tag closed cup
Autoignition temperature	:	498 °C (928 °F)
Suitable extinguishing media	:	Alcohol-resistant foam. Carbon dioxide (CO2). Dry chemical.
Unsuitable extinguishing media	:	High volume water jet.
Specific hazards during fire fighting	:	Do not allow run-off from fire fighting to enter drains or water courses.
Special protective equipment for fire-fighters	:	Wear self-contained breathing apparatus for firefighting if necessary.
Further information	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers.
Fire and explosion protection	:	Do not spray on an open flame or any other incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.
Hazardous decomposition products	:	No data available.

SECTION 6: Accidental release measures

Personal precautions	:	Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.
Environmental precautions	:	Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods for cleaning up	:	Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

SECTION 7: Handling and storage

Handling

Advice on safe handling : Avoid formation of aerosol. Do not breathe vapors/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Provide sufficient air exchange and/or exhaust in work rooms. Container may be opened only under exhaust ventilation hood. Open drum carefully as content may be under pressure. Dispose of rinse water in accordance with local and national regulations.
Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary, but may not by themselves be sufficient. Review all operations, which have the potential to generating and accumulation of electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures. For more information, refer to OSHA Standard 29 CFR 1910.106 "Flammable and Combustible Liquids"; National Fire Protection Association (NFPA 77), "Recommended Practice on Static Electricity"; and/or the American Petroleum Institute (API) Recommended Practice 2003, "Protection Against Ignitions Arising Out of Static, Lightning, and stray Currents". Avoid formation of aerosol. Do not breathe vapors/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Take precautionary measures against static discharges. Provide sufficient air exchange and/or exhaust in work rooms. Container may be opened only under exhaust ventilation hood. Open drum carefully as content may be under pressure. Dispose of rinse water in accordance with local and national regulations.

Advice on protection against fire and explosion : Do not spray on an open flame or any other incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.

Storage

Requirements for storage areas and containers : No smoking. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

SECTION 8: Exposure controls/personal protection

Ingredients with workplace control parameters

US

Ingredients	Basis	Value	Control parameters	Note
Benzene	ACGIH	TWA	0.5 ppm,	BEI, A1, Skin,
	ACGIH	STEL	2.5 ppm,	BEI, A1, Skin,
	OSHA Z-1-A	TWA	1 ppm,	
	OSHA Z-1-A	CEIL	5 ppm,	
	OSHA Z-2	Peak	50 ppm,	(a),
	OSHA 29 CFR 1910.1028(c)	TWA	1 ppm,	
	OSHA 29 CFR 1910.1028(c)	STEL	5 ppm,	
	OSHA CARC	PEL	1 ppm,	
	OSHA CARC	STEL	5 ppm,	

(a) This standard applies to the industry segments exempt from the 1 ppm 8-hour TWA and 5 ppm STEL of the benzene standard at 1910.1028.
A1 Confirmed human carcinogen
BEI Substances for which there is a Biological Exposure Index or Indices (see BEI® section)
Skin Danger of cutaneous absorption

Immediately Dangerous to Life or Health Concentrations (IDLH)

Substance name	CAS-No.	Control parameters	Update
Benzene	71-43-2	Immediately Dangerous to Life or Health Concentration Value 500 ppm	1995-03-01

Engineering measures

Adequate ventilation to control airborned concentrations below the exposure guidelines/limits. Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

Personal protective equipment

Respiratory protection : Wear a supplied-air NIOSH approved respirator unless ventilation or other engineering controls are adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure. Wear a NIOSH approved respirator that provides protection when working with this material if exposure to harmful levels of airborne material may occur, such as:. Air-Purifying Respirator for Organic Vapors. Use a positive pressure, air-supplying respirator if there is potential for uncontrolled release, exposure levels are not known, or other circumstances where air-purifying respirators may not provide adequate protection.

Hand protection : The suitability for a specific workplace should be discussed with the producers of the protective gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Eye protection : Eye wash bottle with pure water. Tightly fitting safety goggles.

Skin and body protection : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Wear as appropriate:. Flame retardant

antistatic protective clothing. Workers should wear antistatic footwear.

Hygiene measures : When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Appearance

Physical state	:	Liquid
Color	:	Clear, Colorless
Odor	:	sweet, distinct

Safety data

Flash point	:	-11 °C (12 °F) Method: Tag closed cup
Lower explosion limit	:	1.2 %(V)
Upper explosion limit	:	7.8 %(V)
Oxidizing properties	:	no
Autoignition temperature	:	498 °C (928 °F)
Molecular formula	:	C6H6
Molecular weight	:	78.12 g/mol
pH	:	Not applicable
Pour point	:	No data available
Boiling point/boiling range	:	80 °C (176 °F)
Vapor pressure	:	75.00 MMHG at 20 °C (68 °F)
Relative density	:	0.88 at 25 °C (77 °F)
Water solubility	:	1.88 g/l at 23.5 °C (74.3 °F)
Partition coefficient: n-octanol/water	:	log Pow: 2.13
Relative vapor density	:	2.77 (Air = 1.0)
Evaporation rate	:	2.8
Percent volatile	:	> 99 %

Other information

Conductivity	:	< 50 pSm at 20 °C

SECTION 10: Stability and reactivity

Reactivity	:	No decomposition if stored and applied as directed.
Chemical stability	:	This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure. No decomposition if stored and applied as directed.

Possibility of hazardous reactions

Conditions to avoid	:	Heat, flames and sparks.
Materials to avoid	:	May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Hazardous decomposition products	:	No data available
Other data	:	No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

Acute oral toxicity

Benzene	:	LD50: > 2,000 mg/kg Species: Rat Sex: female

Acute inhalation toxicity

Benzene	:	LC50: 44.5 mg/l Exposure time: 4 h Species: Rat Sex: Not Specified Test atmosphere: vapor

Acute dermal toxicity

Benzene	:	LD50: > 8,260 mg/kg Species: Rabbit

Benzene
Skin irritation : May cause skin irritation in susceptible persons.

Benzene
Eye irritation : May cause irreversible eye damage.

Sensitization

Benzene : Did not cause sensitization on laboratory animals.

Repeated dose toxicity

Benzene : Species: Rat, female
Sex: female
Application Route: oral gavage
Dose: 0, 25, 50, 100 mg/kg
Exposure time: 103 wk
Number of exposures: 5 d/wk
NOEL: < 25 mg/kg
Lowest observable effect level: 25 mg/kg

Species: Rat, male
Sex: male
Application Route: oral gavage
Dose: 0, 50, 100, 200 mg/kg
Exposure time: 103 wk
Number of exposures: 5 d/wk
NOEL: < 50 mg/kg
Lowest observable effect level: 50 mg/kg

Species: Mouse
Application Route: oral gavage
Dose: 0, 25, 50,100 mg/kg
Exposure time: 103 wk
NOEL: < 25 mg/kg

Carcinogenicity

Benzene : Species: Rat
Sex: female
Dose: 0, 25, 50, 250 mg/kg
Exposure time: 103 wks
Number of exposures: daily, 5 days/week
Test substance: yes
Remarks: zymbal gland carcinomas, squamous cell papillomas

Species: Rat
Sex: male
Dose: 0, 50, 100, 200 mg/kg
Exposure time: 103 wks
Number of exposures: daily, 5 days/week
Test substance: yes
Remarks: zymbal gland carcinomas, squamous cell papillomas

Species: Mouse
Sex: male and female
Dose: 25, 50, 100 mg/kg
Exposure time: 103 wks
Number of exposures: daily, 5 days/week
Test substance: yes
Remarks: Clear evidence of multiple organ carcinogenicity.

Benzene
Aspiration toxicity : May be fatal if swallowed and enters airways.

Substances known to cause human aspiration toxicity hazards or to be regarded as if they cause human aspiration toxicity hazard.

CMR effects

Benzene : Carcinogenicity: Human carcinogen.
Mutagenicity: In vivo tests showed mutagenic effects
Teratogenicity: Did not show teratogenic effects in animal experiments.
Reproductive toxicity: Animal testing did not show any effects on fertility.

Benzene
Further information : Chronic Health Hazard.
Solvents may degrease the skin.

SECTION 12: Ecological information

Toxicity to fish

Benzene : LC50: 5.3 mg/l
Exposure time: 96 h
Species: Oncorhynchus mykiss (rainbow trout)
flow-through test Test substance: yes
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates

Benzene : EC50: 10 mg/l
Exposure time: 48 h
Species: Daphnia magna (Water flea)
static test Test substance: yes
Method: OECD Test Guideline 202

Toxicity to algae

Benzene : ErC50: 100 mg/l
Exposure time: 72 h
Species: Pseudokirchneriella subcapitata (green algae)
Test substance: yes
Method: OECD Test Guideline 201

Elimination information (persistence and degradability)

Biodegradability : This material is expected to be readily biodegradable.

Ecotoxicology Assessment

Acute aquatic toxicity
Benzene : Toxic to aquatic life.

Chronic aquatic toxicity
Benzene : Harmful to aquatic life with long lasting effects.

Results of PBT assessment

Benzene	:	This substance is not considered to be persistent, bioaccumulating and toxic (PBT)., This substance is not considered to be very persistent and very bioaccumulating (vPvB).
Additional ecological information	:	Toxic to aquatic life. An environmental hazard cannot be excluded in the event of unprofessional handling or disposal., Toxic to aquatic life.

SECTION 13: Disposal considerations

The information in this SDS pertains only to the product as shipped.

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

Product	:	The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company.
Contaminated packaging	:	Empty remaining contents. Dispose of as unused product. Do not re-use empty containers. Do not burn, or use a cutting torch on, the empty drum.

SECTION 14: Transport information

The shipping descriptions shown here are for bulk shipments only, and may not apply to shipments in non-bulk packages (see regulatory definition).

Consult the appropriate domestic or international mode-specific and quantity-specific Dangerous Goods Regulations for additional shipping description requirements (e.g., technical name or names, etc.) Therefore, the information shown here, may not always agree with the bill of lading shipping description for the material. Flashpoints for the material may vary slightly between the SDS and the bill of lading.

US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)
UN1114, BENZENE, 3, II, RQ (BENZENE)

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)
UN1114, BENZENE, 3, II, (-11 °C)

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)
UN1114, BENZENE, 3, II

ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))

UN1114, BENZENE, 3, II, (D/E)

RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))
UN1114, BENZENE, 3, II

ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)
UN1114, BENZENE, 3, II

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Other information	**:**	**Benzene and mixtures having 10% Benzene or more, S.T. 3, Cat.Y**

SECTION 15: Regulatory information

National legislation

CERCLA Reportable Quantity	:	10 lbs Benzene
SARA 302 Reportable Quantity	:	This material does not contain any components with a SARA 302 RQ.
SARA 302 Threshold Planning Quantity	:	No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.
SARA 304 Reportable Quantity	:	This material does not contain any components with a section 304 EHS RQ.
SARA 313 Ingredients	:	The following components are subject to reporting levels established by SARA Title III, Section 313:
	:	Benzene - 71-43-2

Clean Air Act

Ozone-Depletion Potential	:	This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 12 (40 CFR 61):

: Benzene - 71-43-2

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489):

: Benzene - 71-43-2

US State Regulations

Pennsylvania Right To Know

: Benzene - 71-43-2

New Jersey Right To Know

: Benzene - 71-43-2

California Prop. 65 Ingredients : WARNING! This product contains a chemical known in the State of California to cause cancer.

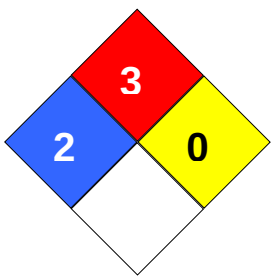
WARNING: This product contains a chemical known in the State of California to cause birth defects or other reproductive harm.

Notification status

Europe REACH	:	On the inventory, or in compliance with the inventory
United States of America TSCA	:	On the inventory, or in compliance with the inventory
Canada DSL	:	On the inventory, or in compliance with the inventory
Australia AICS	:	On the inventory, or in compliance with the inventory
New Zealand NZIoC	:	On the inventory, or in compliance with the inventory
Japan ENCS	:	On the inventory, or in compliance with the inventory
Korea KECI	:	On the inventory, or in compliance with the inventory
Philippines PICCS	:	On the inventory, or in compliance with the inventory
China IECSC	:	On the inventory, or in compliance with the inventory

SECTION 16: Other information

NFPA Classification : Health Hazard: 2
Fire Hazard: 3
Reactivity Hazard: 0



Further information

Legacy SDS Number : CPC00091

Significant changes since the last version are highlighted in the margin. This version replaces all previous versions.

The information in this SDS pertains only to the product as shipped.

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.

Key or legend to abbreviations and acronyms used in the safety data sheet			
ACGIH	American Conference of Government Industrial Hygienists	LD50	Lethal Dose 50%
AICS	Australia, Inventory of Chemical Substances	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemicals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentration
EGEST	EOSCA Generic Exposure Scenario Tool	OSHA	Occupational Safety & Health Administration
EOSCA	European Oilfield Specialty Chemicals Association	PEL	Permissible Exposure Limit
EINECS	European Inventory of Existing Chemical Substances	PICCS	Philippines Inventory of Commercial Chemical Substances
MAK	Germany Maximum Concentration Values	PRNT	Presumed Not Toxic
GHS	Globally Harmonized System	RCRA	Resource Conservation Recovery Act
>=	Greater Than or Equal To	STEL	Short-term Exposure Limit
IC50	Inhibition Concentration 50%	SARA	Superfund Amendments and Reauthorization Act.
IARC	International Agency for Research on Cancer	TLV	Threshold Limit Value
IECSC	Inventory of Existing Chemical Substances in China	TWA	Time Weighted Average
ENCS	Japan, Inventory of Existing and New Chemical Substances	TSCA	Toxic Substance Control Act
KECI	Korea, Existing Chemical Inventory	UVCB	Unknown or Variable Composition, Complex Reaction Products, and Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials Information System
LC50	Lethal Concentration 50%		

SAFETY DATA SHEET

Revision Date 14-Feb-2020 **Revision Number** 2

1. Identification

Product Name **Benzo[a]pyrene**

Cat No. : **15856**

CAS-No 50-32-8
Synonyms Benzo[def]chrysene.; 3,4-Benzopyrene; 3,4-Benzpyrene

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company
Alfa Aesar
Thermo Fisher Scientific Chemicals, Inc.
30 Bond Street
Ward Hill, MA 01835-8099
Tel: 800-343-0660
Fax: 800-322-4757
Email: tech@alfa.com
www.alfa.com

Emergency Telephone Number
During normal business hours (Monday-Friday, 8am-7pm EST), call (800) 343-0660.
After normal business hours, call Carechem 24 at (866) 928-0789.

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin Sensitization	Category 1
Germ Cell Mutagenicity	Category 1B
Carcinogenicity	Category 1A
Reproductive Toxicity	Category 1B

Label Elements

Signal Word
Danger

Hazard Statements
May cause an allergic skin reaction
May cause genetic defects
May cause cancer
May damage fertility. May damage the unborn child



Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Avoid breathing dust/fume/gas/mist/vapors/spray
Contaminated work clothing should not be allowed out of the workplace
Wear protective gloves
Response
IF exposed or concerned: Get medical attention/advice
Skin
IF ON SKIN: Wash with plenty of soap and water
If skin irritation or rash occurs: Get medical advice/attention
Wash contaminated clothing before reuse
Storage
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Very toxic to aquatic life with long lasting effects
WARNING. Cancer - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Benzo[a]pyrene	50-32-8	> 96

4. First-aid measures

General Advice If symptoms persist, call a physician.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.

Inhalation Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

Ingestion Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.

Most important symptoms and effects None reasonably foreseeable. . May cause allergic skin reaction. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature Not applicable
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Do not allow run-off from fire-fighting to enter drains or water courses.

Hazardous Combustion Products
Carbon monoxide (CO). Carbon dioxide (CO_2).
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	1	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation.

Environmental Precautions Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

Methods for Containment and Clean Up Sweep up and shovel into suitable containers for disposal. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling Wear personal protective equipment/face protection. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Avoid dust formation.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Benzo[a]pyrene		TWA: 0.2 mg/m³		

Legend

OSHA - Occupational Safety and Health Administration

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard

EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Powder Solid
Appearance	Dark yellow
Odor	aromatic
Odor Threshold	No information available
pH	Not applicable
Melting Point/Range	175 - 179 °C / 347 - 354.2 °F
Boiling Point/Range	495 °C / 923 °F @ 760 mmHg
Flash Point	No information available
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	Not applicable
Specific Gravity	No information available
Solubility	Insoluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	Not applicable
Decomposition Temperature	No information available
Viscosity	Not applicable
Molecular Formula	C20H12
Molecular Weight	252.31

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products.

Incompatible Materials Oxidizing agent

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization May cause sensitization by skin contact

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Benzo[a]pyrene	50-32-8	Group 1	Reasonably Anticipated	A2	X	A2

IARC (International Agency for Research on Cancer)

NTP: (National Toxicity Program)

ACGIH: (American Conference of Governmental Industrial Hygienists)

IARC (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2A - Probably Carcinogenic to Humans
Group 2B - Possibly Carcinogenic to Humans
NTP: (National Toxicity Program)
Known - Known Carcinogen
Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen
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 None known
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

Endocrine Disruptor Information

Component	EU - Endocrine Disrupters Candidate List	EU - Endocrine Disruptors - Evaluated Substances	Japan - Endocrine Disruptor Information
Benzo[a]pyrene	Group III Chemical	Not applicable	Not applicable

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Persistence and Degradability May persist

Bioaccumulation/ Accumulation No information available.

Mobility Is not likely mobile in the environment due its low water solubility.

Component	log Pow
Benzo[a]pyrene	6.06

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a

hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Benzo[a]pyrene - 50-32-8	U022	-

14. Transport information

DOT

UN-No UN3077
Proper Shipping Name Environmentally hazardous substances, solid, n.o.s.
Technical Name Benzo[a]pyrene
Hazard Class 9
Packing Group III

TDG

UN-No UN3077
Proper Shipping Name Environmentally hazardous substances, solid, n.o.s.
Hazard Class 9
Packing Group III

IATA

UN-No UN3077
Proper Shipping Name Environmentally hazardous substances, solid, n.o.s.
Hazard Class 9
Packing Group III

IMDG/IMO

UN-No UN3077
Proper Shipping Name Environmentally hazardous substances, solid, n.o.s.
Hazard Class 9
Packing Group III

15. Regulatory information

United States of America Inventory

Component	CAS-No	TSCA	TSCA Inventory notification - Active/Inactive	TSCA - EPA Regulatory Flags
Benzo[a]pyrene	50-32-8	X	ACTIVE	-

Legend:
TSCA - 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
Benzo[a]pyrene	50-32-8	X	-	200-028-5	X	-	-	X	KE-05-0184

U.S. Federal Regulations

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Benzo[a]pyrene	50-32-8	> 96	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
Benzo[a]pyrene	-	-	X	X

Clean Air Act Not applicable

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA Not applicable

Component	Hazardous Substances RQs	CERCLA EHS RQs
Benzo[a]pyrene	1 lb	-

California Proposition 65 This product contains the following Proposition 65 chemicals.

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Benzo[a]pyrene	50-32-8	Carcinogen	0.06 µg/day	Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Benzo[a]pyrene	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ): 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 Health, Safety and Environmental Department
Email: tech@alfa.com
www.alfa.com

Revision Date 14-Feb-2020
Print Date 14-Feb-2020
Revision Summary SDS authoring systems update, replaces ChemGes SDS No. 50-32-8/1.

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-May-2012 **Revision Date** 24-Dec-2021 **Revision Number** 5

1. Identification

Product Name **Benzo[ghi]perylene**

Cat No. : **AC105550000; AC105550050; AC105550250; AC105551000**

CAS No 191-24-2
Synonyms 1,12-Benzoperylene

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company

Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification

Classification under 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Label Elements

None required

Hazards not otherwise classified (HNOC)

Very toxic to aquatic life with long lasting effects

3. Composition/Information on Ingredients

Component	CAS No	Weight %
Benzo(ghi)perylene	191-24-2	>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

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature No information available

Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
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
0	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. See Section 12 for additional Ecological Information. Avoid release to the environment. Collect spillage.

Methods for Containment and Clean Up Avoid dust formation. Sweep up and shovel into suitable containers for disposal. Do not let this chemical enter the environment.

7. Handling and storage

Handling Avoid contact with skin and eyes. Do not breathe dust.

Storage. Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Incompatible Materials. Strong oxidizing agents.

8. Exposure controls / personal protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limitsestablished by the region specific regulatory bodies.

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection No protective equipment is needed under normal use conditions.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Solid
Appearance	Yellow
Odor	No information available
Odor Threshold	No information available
pH	No information available
Melting Point/Range	276 - 280 °C / 528.8 - 536 °F
Boiling Point/Range	> 500 °C @ 760 mmHg
Flash Point	No information available
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	Not applicable
Specific Gravity	No information available
Solubility	Insoluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	Not applicable
Molecular Formula	C22 H12
Molecular Weight	276.33

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under recommended storage conditions.

Conditions to Avoid Excess heat. Exposure to light. Incompatible products.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information No acute toxicity information is available for this product

Component Information

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Benzo(ghi)perylene	191-24-2	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known

STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Persistence and Degradability Insoluble in water May persist

Bioaccumulation/ Accumulation No information available.

Mobility . Is not likely mobile in the environment due its low water solubility.

Component	log Pow
Benzo(ghi)perylene	6.58

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 Benzo(ghi)perylene
Hazard Class 9
Packing Group III

TDG

UN-No UN3077
Proper Shipping Name Environmentally hazardous substances, solid, n.o.s.
Hazard Class 9
Packing Group III

IATA

UN-No UN3077
Proper Shipping Name Environmentally hazardous substances, solid, n.o.s.
Hazard Class 9
Packing Group III

IMDG/IMO

UN-No UN3077
Proper Shipping Name Environmentally hazardous substances, solid, n.o.s.
Hazard Class 9
Packing Group III

15. Regulatory information

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
Benzo(ghi)perylene	191-24-2	-	-	-

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Benzo(ghi)perylene	191-24-2	-	-	205-883-8	-	-		-	-	-

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313

Component	CAS No	Weight %	SARA 313 - Threshold Values %
Benzo(ghi)perylene	191-24-2	>95	1.0 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
Benzo(ghi)perylene	-	-	-	X

Clean Air Act Not applicable

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Benzo(ghi)perylene	5000 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Benzo(ghi)perylene	X	X	X	X	-

U.S. Department of Transportation
Reportable Quantity (RQ): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Authorisation/Restrictions according to EU REACH

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Benzo(ghi)perylene	-	-	SVHC Candidate list - 205-883-8 - PBT (Article 57d) vPvB (Article 57e)

After the sunset date the use of this substance requires either an authorization or can only be used for exempted uses, e.g. use in scientific research and development which includes routine analytics or use as intermediate.

https://echa.europa.eu/authorisation-list
https://echa.europa.eu/candidate-list-table

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Benzo(ghi)perylene	191-24-2	Not applicable	Not applicable	Not applicable	Not applicable

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Benzo(ghi)perylene	191-24-2	Not applicable	Not applicable	Not applicable	Not applicable

16. Other information

Prepared By

Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 03-May-2012
Revision Date 24-Dec-2021
Print Date 24-Dec-2021
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

ChemicalBook

Chemical Safety Data Sheet MSDS / SDS

BROMODICHLOROMETHANE

Revision Date:2023-06-10 Revision Number:1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product identifier

Product name	: BROMODICHLOROMETHANE
CBnumber	: CB2186236
CAS	: 75-27-4
EINECS Number	: 200-856-7
Synonyms	: Bromodichloromethane,Dichloroiodomethane

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	: For R&D use only. Not for medicinal, household or other use.
Uses advised against	: none

Company Identification

Company	: Chemicalbook
Address	: Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing
Telephone	: 400-158-6606

SECTION 2: Hazards identification

GHS Label elements, including precautionary statements

Symbol(GHS)



Signal word Danger

Precautionary statements

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P264 Wash hands thoroughly after handling.

P264 Wash skin thouroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P271 Use only outdoors or in a well-ventilated area.

P273 Avoid release to the environment.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continuerinsing.

P308+P313 IF exposed or concerned: Get medical advice/attention.

P311 Call a POISON CENTER or doctor/physician.

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

P405 Store locked up.

P501 Dispose of contents/container to.....

Hazard statements

H225 Highly Flammable liquid and vapour

H302 Harmful if swallowed

H315 Causes skin irritation

H318 Causes serious eye damage

H335 May cause respiratory irritation

H340 May cause genetic defects

H351 Suspected of causing cancer

H360 May damage fertility or the unborn child

H370 Causes damage to organs

H373 May cause damage to organs through prolonged or repeated exposure

H402 Harmful to aquatic life

Disposal

WARNING.Cancer - https://oehha.ca.gov/proposition-65/chemicals/bromodichloromethane

---

SECTION 3: Composition/information on ingredients

Substance

Product name	: BROMODICHLOROMETHANE
Synonyms	: Bromodichloromethane,Dichloroiodomethane
CAS	: 75-27-4
EC number	: 200-856-7
MF	: CHBrCl2
MW	: 163.83

SECTION 4: First aid measures

Description of first aid measures

General advice

Consult a physician. Show this material safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

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.

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

Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special hazards arising from the substance or mixture

Carbon oxides, Hydrogen chloride gas, Hydrogen bromide gas

Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

Further information

No data available

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

For personal protection see section 8.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Methods and materials for containment and cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. For precautions see section 2.2.

Conditions for safe storage, including any incompatibilities

Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

---

SECTION 8: Exposure controls/personal protection

control parameter

Hazard composition and occupational exposure limits

Does not contain substances with occupational exposure limits.

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

Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.

Splash contact

Material: Fluorinated rubber Minimum layer thickness: 0,7 mm Break through time: 120 min

Material tested:Vitoject? (KCL 890 / Aldrich Z677698, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full- face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face

supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

SECTION 9: Physical and chemical properties

Information on basic physicochemical properties

Appearance	Form: liquid, clear Color: colorless
Odour	No data available
Odour Threshold	No data available
pH	No data available
Melting point/freezing point	Melting point/range: -55 °C - lit.
Initial boiling point and boiling range	87 °C - lit.
Flash point	87-89°C
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	No data available
Vapour pressure	50 at 20 °C (Dreisbach, 1952)
Vapour density	No data available
Relative density	1,98 g/cm3 at 25 °C
Water solubility	insoluble
Partition coefficient: n-octanol/water	No data available
Autoignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available
Explosive properties	No data available
Oxidizing properties	No data available
Henry's Law Constant	In seawater (salinity 30.4‰): 5.52, 10.51, and 18.97 at 0, 10, and 20 °C, respectively (Moore et al., 1995)

Other safety information

No data available

SECTION 10: Stability and reactivity

Reactivity

No data available

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

No data available

Conditions to avoid

No data available

Incompatible materials

Strong oxidizing agents, Strong bases, Magnesium

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas, Hydrogen bromide gas

Other decomposition products - No data available In the event of fire: see section 5

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity

LD50 Oral - Mouse - 450,0 mg/kg

Remarks: Brain and Coverings:Changes in circulation (hemorrhage,thrombosis, etc.). Liver:Fatty liver degeneration. Blood: Hemorrhage.

TDLo Oral - Rat - 40 mg/kg

Remarks: Nutritional and Gross Metabolic:Weight loss or decreased weight gain. TDLo Oral - Rat - 35 mg/kg

Remarks: Liver:Other changes. Kidney, Ureter, Bladder:Other changes. TDLo Oral - Rat - 20,5 mg/kg

Remarks: Liver:Liver function tests impaired. TDLo Oral - Rat - 400 mg/kg

Remarks: Biochemical:Enzyme inhibition, induction, or change in blood or tissue lev hydroxylation, etc.). Liver:Other changes.

TDLo Oral - Rat - 2.000 mg/kg

Remarks: Kidney, Ureter, Bladder:Changes in both tubules and glomeruli. Kidney, Ureter, Bladder:Other changes in urine composition.

TDLo Oral - Rat - 9.828 mg/kg

Remarks: Blood:Changes in erythrocyte (RBC) count. Nutritional and Gross Metabolic:Weight loss or decreased weight gain.

Biochemical:Enzyme inhibition, induction, or change in blood or tissue levels: Transaminases.

TDLo Oral - Rat - 2.904,6 mg/kg

Remarks: Behavioral:Fluid intake. Nutritional and Gross Metabolic:Weight loss or decreased weight gain. Nutritional and Gross Metabolic:Dehydration.

TDLo Oral - Rat - 5.366,9 mg/kg

Remarks: Kidney, Ureter, Bladder:Changes in kidney weight. Endocrine:Other changes. Skin and Appendages: Other: Hair.

TDLo Oral - Rat - 3.127 mg/kg

Remarks: Behavioral:Fluid intake. Nutritional and Gross Metabolic:Weight loss or decreased weight gain.

TDLo Oral - Rat - 20.075 mg/kg

Remarks: Liver:Fatty liver degeneration. Liver:Other changes. Liver:Changes in liver weight.

TDLo Oral - Rat - 5.670 mg/kg

Remarks: Liver:Changes in liver weight. Blood:Changes in serum composition (e.g., TP, bilirubin, cholesterol). Nutritional and Gross Metabolic:Weight loss or decreased weight gain.

TDLo Oral - Rat - 742 mg/kg

Remarks: Nutritional and Gross Metabolic:Weight loss or decreased weight gain. Behavioral:Food intake (animal).

TDLo Oral - Rat - 2.000 mg/kg

Remarks: Kidney, Ureter, Bladder:Changes in both tubules and glomeruli. Kidney, Ureter, Bladder:Other changes in urine composition.

TDLo Oral - Rat - 375 mg/kg

Remarks: Endocrine:Estrogenic. Blood:Changes in serum composition (e.g., TP, bilirubin, cholesterol).

TDLo Oral - Rat - 750 mg/kg

Remarks: Biochemical:Enzyme inhibition, induction, or change in blood or tissue lev hydroxylation, etc.). Liver:Changes in liver weight. Kidney, Ureter, Bladder:Other changes. TDLo Oral - Mouse - 1.000 mg/kg

Remarks: Kidney, Ureter, Bladder:Renal function tests depressed. Blood:Changes in serum composition (e.g., TP, bilirubin, cholesterol).

TDLo Oral - Mouse - 750 mg/kg

Remarks: Biochemical:Enzyme inhibition, induction, or change in blood or tissue levels: Dehydrogenases. Biochemical:Enzyme inhibition, induction, or change in blood or tissue levels: Transaminases. Liver:Changes in liver weight.

TDLo Oral - Rabbit - 59,5 mg/kg

Remarks: Behavioral:Fluid intake. Behavioral:Food intake (animal).

Skin corrosion/irritation

Irritating to eyes, respiratory system and skin.

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

Laboratory experiments have shown mutagenic effects.

Carcinogenicity

This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

Limited evidence of carcinogenicity in animal studies

IARC: 2B - Group 2B: Possibly carcinogenic to humans (Bromodichloromethane) IARC: 2B - Group 2B: Possibly carcinogenic to humans (Bromodichloromethane)

Reproductive toxicity

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: PA5310000

prolonged or repeated exposure can cause:, Nausea, Dizziness, Headache, narcosis

Toxicity

LD50 in male, female mice (mg/kg): 450, 900 orally (Bowman)

SECTION 12: Ecological information

Toxicity

No data available

Persistence and degradability

No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Other adverse effects

No data available

SECTION 13: Disposal considerations

Waste treatment methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging

Dispose of as unused product.

SECTION 14: Transport information

UN number

ADR/RID: - IMDG: - IATA: -

UN proper shipping name

ADR/RID: Not dangerous goods IMDG: Not dangerous goods IATA: Not dangerous goods

Transport hazard class(es)

ADR/RID: - IMDG: - IATA: -

Packaging group

ADR/RID: - IMDG: - IATA: -

Environmental hazards

ADR/RID: no IMDG Marine pollutant: no IATA: no

Special precautions for user

No data available

SECTION 15: Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

Regulations on the Safety Management of Hazardous Chemicals

China Catalog of Hazardous chemicals 2015:Not Listed. website: https://www.mem.gov.cn/

Measures for Environmental Management of New Chemical Substances

EC Inventory:Listed.

European Inventory of Existing Commercial Chemical Substances (EINECS):Listed. website: https://echa.europa.eu/

New Zealand Inventory of Chemicals (NZIoC):Listed. website: https://www.epa.govt.nz/

United States Toxic Substances Control Act (TSCA) Inventory:Listed. website: https://www.epa.gov/

Vietnam National Chemical Inventory:Listed. website: https://chemicaldata.gov.vn/

Chinese Chemical Inventory of Existing Chemical Substances (China IECSC):Not Listed. website: https://www.mee.gov.cn/

Korea Existing Chemicals List (KECL):Not Listed. website: http://ncis.nier.go.kr

Philippines Inventory of Chemicals and Chemical Substances (PICCS):Not Listed. website: https://emb.gov.ph/

SECTION 16: Other information

Abbreviations and acronyms

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

CAS: Chemical Abstracts Service

EC50: Effective Concentration 50%

IATA: International Air Transportation Association

IMDG: International Maritime Dangerous Goods

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

STEL: Short term exposure limit

TWA: Time Weighted Average

References

【1】CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple

【2】ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp

【3】ECHA - European Chemicals Agency, website: https://echa.europa.eu/

【4】eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website:

http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en

【5】ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: http://www.phmsa.dot.gov/hazmat/library/erg

【6】Germany GESTIS-database on hazard substance, website: http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp

【7】HSDB - Hazardous Substances Data Bank, website: https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm

【8】IARC - International Agency for Research on Cancer, website: http://www.iarc.fr/

【9】IPCS - The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home

【10】Sigma-Aldrich, website: https://www.sigmaaldrich.com/

Other Information

Bromodichloromethane can be found in chlorinated water.Health effects of exposure to the substance have not been investigated adequately other than by ingestion.

Disclaimer:
The information in this MSDS is only applicable to the specified product, unless otherwise specified, it is not applicable to the mixture of this product and other substances. This MSDS only provides information on the safety of the product for those who have received the appropriate professional training for the user of the product. Users of this MSDS must make independent judgments on the applicability of this SDS. The authors of this MSDS will not be held responsible for any harm caused by the use of this MSDS.

SAFETY DATA SHEET

Creation Date 11-Nov-2010 **Revision Date** 06-Jan-2023 **Revision Number** 8

1. Identification

Product Name **Carbon disulfide**

Cat No. : **AC167710000; AC167710025; AC167710250; AC167711000; AC167715000**

CAS No 75-15-0
Synonyms No information available

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company

Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

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 Inhalation Toxicity - Vapors	Category 4
Skin Corrosion/Irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Reproductive Toxicity	Category 2
Specific target organ toxicity (single exposure) Target Organs - Central nervous system (CNS).	Category 3
Specific target organ toxicity - (repeated exposure) Target Organs - Liver, Kidney.	Category 1

Label Elements

Signal Word

Danger

Hazard Statements
Highly flammable liquid and vapor
Causes skin irritation
Causes serious eye irritation
Harmful if inhaled
May cause drowsiness or dizziness
Suspected of damaging fertility. Suspected of damaging the unborn child
Causes damage to organs through prolonged or repeated exposure



Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Use only outdoors or in a well-ventilated area
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
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
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)

Other hazards
Stench. Contains a known or suspected endocrine disruptor.
WARNING. Reproductive Harm - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS No	Weight %
Carbon disulfide	75-15-0	>95

4. First-aid measures

General Advice Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

Inhalation Remove to fresh air. 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. If not breathing, give artificial respiration.

Ingestion Do NOT induce vomiting. Call a physician or poison control center immediately.

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 (CO2), dry chemical, alcohol-resistant foam. Water mist may be used to cool closed containers.

Unsuitable Extinguishing Media Water may be ineffective

Flash Point -30 °C / -22 °F

Method - No information available

Autoignition Temperature 100 °C / 212 °F

Explosion Limits

Upper 60 vol %

Lower 1 vol %

Sensitivity to Mechanical Impact No information available

Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical

Risk of ignition. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated. Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition. Extremely flammable. Vapors may form explosive mixtures with air.

Hazardous Combustion Products

Carbon monoxide (CO). Carbon dioxide (CO_2). Sulfur oxides.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health	Flammability	Instability	Physical hazards
3	4	0	N/A

6. Accidental release measures

Personal Precautions Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.

Environmental Precautions Should not be released into the environment. Do not flush into surface water or sanitary sewer system. See Section 12 for additional Ecological Information.

Methods for Containment and Clean Up Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

7. Handling and storage

Handling Use only under a chemical fume hood. Wear personal protective equipment/face protection. Do not breathe mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Do not ingest. If swallowed then seek immediate medical assistance. 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, sparks and flame. Incompatible Materials. Amines. Halogens. Fluorine. Metals. copper. Butyl rubber. Oxidizing agent.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH	Mexico OEL (TWA)
Carbon disulfide	TWA: 1 ppm Skin	(Vacated) TWA: 4 ppm (Vacated) TWA: 12 mg/m³ Ceiling: 30 ppm (Vacated) STEL: 12 ppm (Vacated) STEL: 36 mg/m³ Skin TWA: 20 ppm	IDLH: 500 ppm TWA: 1 ppm TWA: 3 mg/m³ STEL: 10 ppm STEL: 30 mg/m³	TWA: 1 ppm

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures Use only under a chemical fume hood. 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. 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.

Recommended Filter type: low boiling organic solvent. Type AX. Brown. conforming to EN371.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	Stench
Odor Threshold	No information available
pH	No information available 5
Melting Point/Range	-111 °C / -167.8 °F
Boiling Point/Range	46 °C / 114.8 °F @ 760 mmHg
Flash Point	-30 °C / -22 °F
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	60 vol %
Lower	1 vol %
Vapor Pressure	400 hPa @ 20 °C
Vapor Density	2.67 (Air = 1.0)
Specific Gravity	1.262
Solubility	Soluble
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	100 °C / 212 °F
Decomposition Temperature	No information available
Viscosity	0.363 cP at 20 °C
Molecular Formula	C S2
Molecular Weight	76.13

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Excess heat. Incompatible products. Keep away from open flames, hot surfaces and sources of ignition.

Incompatible Materials Amines, Halogens, Fluorine, Metals, copper, Butyl rubber, Oxidizing agent

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2), Sulfur oxides

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
Carbon disulfide	LD50 = 1200 mg/kg (Rat)	Not listed	LC50 = 10.35 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
Carbon disulfide	75-15-0	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects Substances which cause concern for man owing to possible mutagenic effects but for which the available information is not adequate for making a satisfactory assessment

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Central nervous system (CNS)
STOT - repeated exposure Liver Kidney

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

Component	EU - Endocrine Disrupters Candidate List	EU - Endocrine Disruptors - Evaluated Substances	Japan - Endocrine Disruptor Information
Carbon disulfide	Group II Chemical	Not applicable	Not applicable

Other Adverse Effects Teratogenic effects have occurred in experimental animals.

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. Contains a substance which is:. Toxic to aquatic organisms.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Carbon disulfide	Not listed	LC50: = 4 mg/L, 96h static (Poecilia reticulata) LC50: 3 - 5.8 mg/L, 96h semi-static (Poecilia reticulata)	EC50 = 260 mg/L 15 min	EC50: = 2.1 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
Carbon disulfide	1.9

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	UN1131
Proper Shipping Name	CARBON DISULFIDE
Hazard Class	3
Subsidiary Hazard Class	6.1
Packing Group	I

TDG

UN-No	UN1131
Proper Shipping Name	CARBON DISULFIDE
Hazard Class	3
Subsidiary Hazard Class	6.1
Packing Group	I

IATA FORBIDDEN FOR IATA TRANSPORT

UN-No	UN1131
Proper Shipping Name	CARBON DISULPHIDE FORBIDDEN FOR IATA TRANSPORT
Hazard Class	3
Subsidiary Hazard Class	6.1
Packing Group	I

IMDG/IMO

UN-No	UN1131
Proper Shipping Name	CARBON DISULPHIDE
Hazard Class	3
Subsidiary Hazard Class	6.1
Packing Group	I

15. Regulatory information

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
Carbon disulfide	75-15-0	X	ACTIVE	TP

Legend:
TSCA US EPA (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 - Per 40 CFR 751, Regulation of Certain Chemical Substances & Mixtures, Under TSCA Section 6(h) (PBT) Not applicable

TSCA 12(b) - Notices of Export Not applicable

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Carbon disulfide	75-15-0	X	-	200-843-6	X	X	X	X	X	KE-04755

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313

Component	CAS No	Weight %	SARA 313 - Threshold Values %
Carbon disulfide	75-15-0	>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
Carbon disulfide	X	100 lb	-	-

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Carbon disulfide	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
Carbon disulfide	100 lb	100 lb

California Proposition 65: This product contains the following Proposition 65 chemicals.

Component	CAS No	California Prop. 65	Prop 65 NSRL	Category
Carbon disulfide	75-15-0	Developmental Female Reproductive Male Reproductive	-	Developmental

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Carbon disulfide	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 contains the following DHS chemicals:
Legend - STQs = Screening Threshold Quantities, APA = A placarded amount

Component	DHS Chemical Facility Anti-Terrorism Standard
Carbon disulfide	Release STQs - 20000lb

Other International Regulations

Mexico - Grade: Serious risk, Grade 3

Authorisation/Restrictions according to EU REACH

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Carbon disulfide	75-15-0	-	Use restricted. See item 75. (see link for restriction details)	-

https://echa.europa.eu/substances-restricted-under-reach

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Carbon disulfide	75-15-0	Listed	Not applicable	Not applicable	Not applicable

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Carbon disulfide	75-15-0	Not applicable	Not applicable	Not applicable	Not applicable

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 11-Nov-2010
Revision Date 06-Jan-2023
Print Date 06-Jan-2023
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 10-Sep-2009 **Revision Date** 24-Dec-2021 **Revision Number** 10

1. Identification

Product Name **Chlorobenzene**

Cat No. : **B254-4; B254-4LC; B254-20; B254RS-200; B255-1; B255-500**

CAS No 108-90-7
Synonyms Monochlorobenzene; Benzene chloride (Laboratory/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 3
Acute Inhalation Toxicity - Vapors	Category 4
Skin Corrosion/Irritation	Category 2

Label Elements

Signal Word
Warning

Hazard Statements
Flammable liquid and vapor
Causes skin irritation
Harmful if inhaled



Precautionary Statements
Prevention
Use only outdoors or in a well-ventilated area
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
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
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
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)
Toxic to aquatic life with long lasting effects

3. Composition/Information on Ingredients

Component	CAS No	Weight %
Chlorobenzene	108-90-7	>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. Causes central nervous system depression: 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.

Unsuitable Extinguishing Media Water may be ineffective

Flash Point 23 °C / 73.4 °F

Method - No information available

Autoignition Temperature 590 °C / 1094 °F

Explosion Limits

Upper 9.6 vol %

Lower 1.8 vol %

Sensitivity to Mechanical Impact No information available

Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical

Flammable. Risk of ignition. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated.

Hazardous Combustion Products

Carbon monoxide (CO). Carbon dioxide (CO_2). Phosgene. 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 Use personal protective equipment as required. Ensure adequate ventilation.

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.

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.

Storage. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks and flame. Incompatible Materials. Strong oxidizing agents. Bases. Strong reducing agents. Metals.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Chlorobenzene	TWA: 10 ppm	(Vacated) TWA: 75 ppm (Vacated) TWA: 350 mg/m^3 TWA: 75 ppm TWA: 350 mg/m^3	IDLH: 1000 ppm	TWA: 5 ppm STEL: 15 ppm

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures Use only under a chemical fume hood. Use explosion-proof electrical/ventilating/lighting equipment. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

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	Clear
Odor	bitter almonds
Odor Threshold	No information available
pH	No information available
Melting Point/Range	-45 °C / -49 °F
Boiling Point/Range	131 °C / 267.8 °F
Flash Point	23 °C / 73.4 °F
Evaporation Rate	1 (Butyl Acetate = 1.0)
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	9.6 vol %
Lower	1.8 vol %
Vapor Pressure	12 mbar @ 20°C
Vapor Density	3.9
Specific Gravity	1.108
Solubility	Moderately soluble
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	590 °C / 1094 °F
Decomposition Temperature	> 132°C
Viscosity	0.8 mPa.s @ 20°C
Molecular Formula	C6 H5 Cl
Molecular Weight	112.56

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under recommended storage conditions.

Conditions to Avoid Incompatible products. Excess heat. Keep away from open flames, hot surfaces and sources of ignition.

Incompatible Materials Strong oxidizing agents, Bases, Strong reducing agents, Metals

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2), Phosgene, 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

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Chlorobenzene	LD50 2000 - 4000 mg/kg (Rat)	LD50 > 7940 mg/kg (Rabbit)	LC50 = 13.5 mg/L (Rat) 7 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 skin

Sensitization No information available

Carcinogenicity

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Chlorobenzene	108-90-7	Not listed	Not listed	A3	Not listed	A3

ACGIH: (American Conference of Governmental Industrial Hygienists)

A1 - Known Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Animal Carcinogen

Mexico - Occupational Exposure Limits - Carcinogens

ACGIH: (American Conference of Governmental Industrial Hygienists)
Mexico - Occupational Exposure Limits - Carcinogens
A1 - Confirmed Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Confirmed Animal Carcinogen
A4 - Not Classifiable as a Human Carcinogen
A5 - Not Suspected as a Human Carcinogen

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known

STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Causes central nervous system depression: Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

Endocrine Disruptor Information No information available

Other Adverse Effects Tumorigenic effects have been reported in experimental animals.

12. Ecological information

Ecotoxicity

The product contains following substances which are hazardous for the environment. Contains a substance which is:. Very toxic to aquatic organisms.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Chlorobenzene	EC50: = 12.5 mg/L, 96h static (Pseudokirchneriella subcapitata) EC50: 2.55 - 420 mg/L, 96h (Pseudokirchneriella subcapitata)	LC50: 36.35 - 58.19 mg/L, 96h static (Poecilia reticulata) LC50: 7 - 8.5 mg/L, 96h flow-through (Pimephales promelas) LC50: = 4.5 mg/L, 96h static (Pimephales promelas) LC50: 6.9 - 7.9 mg/L, 96h flow-through (Lepomis macrochirus) LC50: 4.1 - 4.9 mg/L, 96h static (Lepomis macrochirus) LC50: 4.1 - 5.3 mg/L, 96h flow-through (Oncorhynchus mykiss) LC50: = 91 mg/L, 96h static (Brachydanio rerio)	EC50 = 11.26 mg/L 30 min EC50 = 11.3 mg/L 30 min EC50 = 11.5 mg/L 15 min EC50 = 20 mg/L 10 min EC50 = 9.36 mg/L 5 min	EC50: = 0.59 mg/L, 48h (Daphnia magna)

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
Chlorobenzene	2.8

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
Chlorobenzene - 108-90-7	U037	-

14. Transport information

DOT

UN-No UN1134
Proper Shipping Name CHLOROBENZENE
Hazard Class 3
Packing Group III

TDG

UN-No UN1134
Proper Shipping Name CHLOROBENZENE
Hazard Class 3
Packing Group III

IATA

UN-No UN1134
Proper Shipping Name CHLOROBENZENE
Hazard Class 3
Packing Group III

IMDG/IMO

UN-No UN1134

Proper Shipping Name CHLOROBENZENE
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
Chlorobenzene	108-90-7	X	ACTIVE	-

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Chlorobenzene	108-90-7	X	-	203-628-5	X	X	X	X	X	KE-25489

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313

Component	CAS No	Weight %	SARA 313 - Threshold Values %
Chlorobenzene	108-90-7	>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
Chlorobenzene	X	100 lb	-	X

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Chlorobenzene	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
Chlorobenzene	100 lb 1 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
Chlorobenzene	X	X	X	X	X

U.S. Department of Transportation
Reportable Quantity (RQ): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade Serious risk, Grade 3

Authorisation/Restrictions according to EU REACH

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Chlorobenzene	-	Use restricted. See item 75. (see link for restriction details)	-

https://echa.europa.eu/substances-restricted-under-reach

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Chlorobenzene	108-90-7	Listed	Not applicable	Not applicable	Not applicable

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Chlorobenzene	108-90-7	Not applicable	Not applicable	Not applicable	Annex I - Y45

16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 10-Sep-2009
Revision Date 24-Dec-2021
Print Date 24-Dec-2021
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Creation Date 20-Oct-2009 **Revision Date** 28-Dec-2021 **Revision Number** 6

1. Identification

Product Name **Chloroform, stabilized with amylene**

Cat No. : **AC610280000; AC610281000**

CAS No 67-66-3
Synonyms Methane trichloride; Methenyl trichloride; Formyl trichloride

Recommended Use Laboratory chemicals.
Uses advised against .

Details of the supplier of the safety data sheet

Company
Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute oral toxicity	Category 4
Acute Inhalation Toxicity - Vapors	Category 3
Skin Corrosion/Irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Carcinogenicity	Category 2
Reproductive Toxicity	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Central nervous system (CNS).	
Specific target organ toxicity - (repeated exposure)	Category 2
Target Organs - Liver, Kidney.	

Label Elements

Signal Word
Danger

Hazard Statements
Harmful if swallowed
Toxic if inhaled
Causes skin irritation
Causes serious eye irritation
Suspected of causing cancer
Suspected of damaging the unborn child
May cause respiratory irritation
May cause drowsiness or dizziness
May cause damage to organs through prolonged or repeated exposure



Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
Wear eye/face protection
Do not breathe dust/fume/gas/mist/vapors/spray
Response
IF exposed or concerned: Get medical attention/advice
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Skin
IF ON SKIN: Wash with plenty of soap and water
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash before reuse
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
Ingestion
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)

WARNING. Cancer and Reproductive Harm - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS No	Weight %
Chloroform	67-66-3	>99

1-Pentene	109-67-1	0.01

4. First-aid measures

General Advice Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

Inhalation Remove to fresh air. If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.

Ingestion Do NOT induce vomiting. Call a physician or poison control center immediately.

Most important symptoms and effects . Symptoms of overexposure are dizziness, headache, tiredness, nausea, unconsciousness, cessation of breathing: Causes central nervous system depression

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Substance is nonflammable; use agent most appropriate to extinguish surrounding fire.

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature No information available

Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.

Hazardous Combustion Products
Carbon monoxide (CO). Carbon dioxide (CO_2). Phosgene. 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. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health	Flammability	Instability	Physical hazards
2	0	0	N/A

6. Accidental release measures

Personal Precautions Use personal protective equipment as required. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas.

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.

7. Handling and storage

Handling Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance.

Storage. Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from direct sunlight. Store under an inert atmosphere. Protect from moisture. Incompatible Materials. Strong oxidizing agents. Alkali metals. Aluminium. Acetone.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Chloroform	TWA: 10 ppm	(Vacated) TWA: 2 ppm (Vacated) TWA: 9.78 mg/m^3 Ceiling: 50 ppm Ceiling: 240 mg/m^3	IDLH: 500 ppm STEL: 2 ppm STEL: 9.78 mg/m^3	TWA: 10 ppm TWA: 50 mg/m^3 STEL: 50 ppm STEL: 225 mg/m^3

Legend

NIOSH IDLH: NIOSH - National Institute for Occupational Safety and 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 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 sweet
Odor Threshold	No information available
pH	No information available
Melting Point/Range	-63 °C / -81.4 °F
Boiling Point/Range	61 °C / 141.8 °F
Flash Point	No information available
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	

Upper	No data available
Lower	No data available
Vapor Pressure	213 mbar @ 20 °C
Vapor Density	No information available
Specific Gravity	1.480
Solubility	Slightly soluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	0.56 mPa s at 20 °C
Molecular Formula	C H Cl3
Molecular Weight	119.38
VOC Content(%)	100

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions. UNSTABLE (REACTIVE) UPON DEPLETION OF INHIBITOR. Light sensitive.

Conditions to Avoid Incompatible products. Heat, flames and sparks. Excess heat. Exposure to light. Protect from moisture.

Incompatible Materials Strong oxidizing agents, Alkali metals, Aluminium, Acetone

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2), Phosgene, 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

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Chloroform	LD50 = 908 mg/kg (rat) LD50 = 695 mg/kg (Rat) LD50 = 450 mg/kg (Rat)	LD50 > 20 g/kg (Rabbit)	LC50 = 10.5 mg/L (Rat) 4 h
1-Pentene	>2000 mg/kg (Rat)	>2000 mg/kg (Rabbit)	LC50 = 10000 ppm (Rat) 4 h

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Irritating to eyes and skin

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Chloroform	67-66-3	Group 2B	Reasonably Anticipated	A3	X	A3
1-Pentene	109-67-1	Not listed	Not listed	Not listed	Not listed	Not listed

IARC (International Agency for Research on Cancer)

IARC (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans

	Group 2A - Probably Carcinogenic to Humans *Group 2B - Possibly Carcinogenic to Humans*
NTP: (National Toxicity Program)	*NTP: (National Toxicity Program)* *Known - Known Carcinogen* *Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen*
ACGIH: (American Conference of Governmental Industrial Hygienists)	*A1 - Known Human Carcinogen* *A2 - Suspected Human Carcinogen* *A3 - Animal Carcinogen*
	ACGIH: (American Conference of Governmental Industrial Hygienists)
Mexico - Occupational Exposure Limits - Carcinogens	*Mexico - Occupational Exposure Limits - Carcinogens* *A1 - Confirmed Human Carcinogen* *A2 - Suspected Human Carcinogen* *A3 - Confirmed Animal Carcinogen* *A4 - Not Classifiable as a Human Carcinogen* *A5 - Not Suspected as a Human Carcinogen*

Mutagenic Effects No information available

Reproductive Effects Experiments have shown reproductive toxicity effects on laboratory animals.

Developmental Effects Developmental effects have occurred in experimental animals.

Teratogenicity Study result . negative.

STOT - single exposure Central nervous system (CNS)
STOT - repeated exposure Liver Kidney

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Symptoms of overexposure are dizziness, headache, tiredness, nausea, unconsciousness, cessation of breathing: Causes central nervous system depression

Endocrine Disruptor Information No information available

Other Adverse Effects Tumorigenic effects have been reported in experimental animals.

12. Ecological information

Ecotoxicity

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.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Chloroform	EC50 = 560 mg/L/48h	LC50: = 300 mg/L, 96h static (Poecilia reticulata) LC50: = 18 mg/L, 96h flow-through (Lepomis macrochirus) LC50: = 18 mg/L, 96h flow-through (Oncorhynchus mykiss) LC50: = 71 mg/L, 96h flow-through (Pimephales promelas)	Photobacterium phosphoreum: EC50 = 520 mg/L/5 min Photobacterium phosphoreum: EC50 = 670 mg/L/15 min Photobacterium phosphoreum: EC50 = 670 mg/L/30min	EC50 = 28.9 mg/L/48h

Persistence and Degradability Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its volatility.

Component	log Pow
Chloroform	2
1-Pentene	2.66

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
Chloroform - 67-66-3	U044	-

14. Transport information

DOT

UN-No UN1888
Proper Shipping Name CHLOROFORM
Hazard Class 6.1
Packing Group III

TDG

UN-No UN1888
Proper Shipping Name CHLOROFORM
Hazard Class 6.1
Packing Group III

IATA

UN-No UN1888
Proper Shipping Name Chloroform
Hazard Class 6.1
Packing Group III

IMDG/IMO

UN-No UN1888
Proper Shipping Name Chloroform
Hazard Class 6.1
Packing Group III

15. Regulatory information

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
Chloroform	67-66-3	X	ACTIVE	-
1-Pentene	109-67-1	X	ACTIVE	-

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Chloroform	67-66-3	X	-	200-663-8	X	X	X	X	X	X
1-Pentene	109-67-1	X	-	203-694-5	X	X	X	X	X	KE-28027

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313

Component	CAS No	Weight %	SARA 313 - Threshold Values %
Chloroform	67-66-3	>99	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
Chloroform	X	10 lb	X	X

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Chloroform	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
Chloroform	10 lb 1 lb	10 lb

California Proposition 65 This product contains the following Proposition 65 chemicals.

Component	CAS No	California Prop. 65	Prop 65 NSRL	Category
Chloroform	67-66-3	Carcinogen Developmental	20 µg/day 40 µg/day	Developmental Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Chloroform	X	X	X	X	X
1-Pentene	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 contains the following DHS chemicals:
Legend - STQs = Screening Threshold Quantities, APA = A placarded amount

Component	DHS Chemical Facility Anti-Terrorism Standard
Chloroform	Release STQs - 20000lb
1-Pentene	Release STQs - 10000lb

Other International Regulations

Mexico - Grade No information available

Authorisation/Restrictions according to EU REACH

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Chloroform	-	Use restricted. See item 32. (see	-

		http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32006R1907:EN:NOT for restriction details)	

https://echa.europa.eu/substances-restricted-under-reach

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Chloroform	67-66-3	Listed	Not applicable	Not applicable	Not applicable
1-Pentene	109-67-1	Listed	Not applicable	Not applicable	Not applicable

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Chloroform	67-66-3	Not applicable	Not applicable	Not applicable	Annex I - Y45
1-Pentene	109-67-1	Not applicable	Not applicable	Not applicable	Not applicable

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 20-Oct-2009
Revision Date 28-Dec-2021
Print Date 28-Dec-2021
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Creation Date 06-Aug-2010 **Revision Date** 24-Dec-2021 **Revision Number** 6

1. Identification

Product Name **Ethylbenzene**

Cat No. : **AC118080000; AC118080010; AC118080025; AC118080250; AC118080251; AC118085000**

CAS No 100-41-4
Synonyms Ethylbenzol; Phenylethane

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company
Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 2
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
Target Organs - Ears.	
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. Get medical attention.

Inhalation Remove to fresh air. If breathing is difficult, give oxygen. Get 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 Difficulty in breathing. . 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 Water spray, carbon dioxide (CO2), dry chemical, alcohol-resistant foam. Water mist may be used to cool closed containers.

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 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. 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/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. 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, sparks and flame. Flammables area. Incompatible Materials. Strong oxidizing agents.

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: 20 ppm

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures 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 skin, eye, 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	A3

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
A1 - Known Human Carcinogen

Hygienists)

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 Ears

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: 2.6 - 11.3 mg/L, 72h static (Pseudokirchneriella subcapitata) EC50: 1.7 - 7.6 mg/L, 96h static (Pseudokirchneriella subcapitata) EC50: > 438 mg/L, 96h (Pseudokirchneriella subcapitata) EC50: = 4.6 mg/L, 72h (Pseudokirchneriella subcapitata)	LC50: 7.55 - 11 mg/L, 96h flow-through (Pimephales promelas) 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: 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

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
Ethylbenzene	100-41-4	X	ACTIVE	-

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Ethylbenzene	100-41-4	X	-	202-849-4	X	X	X	X	X	KE-13532

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313

Component	CAS No	Weight %	SARA 313 - Threshold Values %
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): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security: This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade: Serious risk, Grade 3

Authorisation/Restrictions according to EU REACH

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Ethylbenzene	100-41-4	Listed	Not applicable	Not applicable	Not applicable

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Ethylbenzene	100-41-4	Not applicable	Not applicable	Not applicable	Not applicable

16. Other information

Prepared By

Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date	06-Aug-2010
Revision Date	24-Dec-2021
Print Date	24-Dec-2021
Revision Summary	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Creation Date 08-Nov-2010 **Revision Date** 24-Dec-2021 **Revision Number** 7

1. Identification

Product Name **Fluoranthene**

Cat No. : **AC119170000; AC119170250; AC119171000; AC119175000**

CAS No 206-44-0
Synonyms Benzo[j,k]fluorene

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company

Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute oral toxicity	Category 4

Label Elements

Signal Word
Warning

Hazard Statements
Harmful if swallowed



Precautionary Statements
Prevention
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Ingestion
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Very toxic to aquatic life with long lasting effects

3. Composition/Information on Ingredients

Component	CAS No	Weight %
Fluoranthene	206-44-0	>95

4. First-aid measures

General Advice If symptoms persist, call a physician.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.

Inhalation Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

Ingestion Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.

Most important symptoms and effects None reasonably foreseeable.

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray, carbon dioxide (CO2), dry chemical, alcohol-resistant foam.

Unsuitable Extinguishing Media No information available

Flash Point Not applicable
Method - No information available

Autoignition Temperature No information available
Explosion Limits

Upper	No data available
Lower	No data available
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical
Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
Carbon monoxide (CO). Carbon dioxide (CO_2).
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	0	0	N/A

6. Accidental release measures

Personal Precautions	Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation.
Environmental Precautions	Should not be released into the environment.
Methods for Containment and Clean Up	Sweep up and shovel into suitable containers for disposal. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling	Ensure adequate ventilation. Wear personal protective equipment/face protection. Avoid dust formation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation.
Storage.	Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Incompatible Materials. Strong oxidizing agents.

8. Exposure controls / personal protection

Exposure Guidelines	This product does not contain any hazardous materials with occupational exposure limitsestablished by the region specific regulatory bodies.
Engineering Measures	Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection	Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin and body protection	Wear appropriate protective gloves and clothing to prevent skin exposure.
Respiratory Protection	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Powder Solid
Appearance	Light green
Odor	Odorless
Odor Threshold	No information available
pH	Not applicable
Melting Point/Range	109 - 111 °C / 228.2 - 231.8 °F
Boiling Point/Range	384 °C / 723.2 °F
Flash Point	Not applicable
Evaporation Rate	No information available
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	No information available
Specific Gravity	No information available
Solubility	insoluble
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C16 H10
Molecular Weight	202.25

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information No acute toxicity information is available for this product

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Fluoranthene	LD50 = 2 g/kg (Rat)	LD50 = 3180 mg/kg (Rabbit)	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Fluoranthene	206-44-0	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information.

12. Ecological information

Ecotoxicity

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Fluoranthene	Not listed	Oncorhynchus mykiss: LC50=0.0077 mg/L 96h	Not listed	EC50: 0.78 mg/L 20h

Persistence and Degradability No information available

Bioaccumulation/ Accumulation No information available.

Mobility .

Component	log Pow
Fluoranthene	5.1

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Fluoranthene - 206-44-0	U120	-

14. Transport information

DOT

UN-No UN3077
Proper Shipping Name Environmentally hazardous substances, solid, n.o.s.
Technical Name Fluoranthene
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
Fluoranthene	206-44-0	X	ACTIVE	-

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Fluoranthene	206-44-0	-	X	205-912-4	-	X	X	X	X	-

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313

Component	CAS No	Weight %	SARA 313 - Threshold Values %
Fluoranthene	206-44-0	>95	1.0 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
Fluoranthene	-	-	X	X

Clean Air Act Not applicable

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Fluoranthene	100 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Fluoranthene	X	X	X	-	-

U.S. Department of Transportation

Reportable Quantity (RQ): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Authorisation/Restrictions according to EU REACH

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Fluoranthene	-	-	SHVC Candidate list - 205-912-4 - PBT (Article 57d) vPvB (Article 57e)

After the sunset date the use of this substance requires either an authorization or can only be used for exempted uses, e.g. use in scientific research and development which includes routine analytics or use as intermediate.

https://echa.europa.eu/authorisation-list
https://echa.europa.eu/candidate-list-table

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Fluoranthene	206-44-0	Not applicable	Not applicable	Not applicable	Not applicable

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Fluoranthene	206-44-0	Not applicable	Not applicable	Not applicable	Not applicable

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 08-Nov-2010
Revision Date 24-Dec-2021
Print Date 24-Dec-2021
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Creation Date 27-January-2010 **Revision Date** 24-December-2021 **Revision Number** 8

1. Identification

Product Name **Methylene chloride**

Cat No. : **D37-1; D37-4; D37-20; D37-200; D37-200LC; D37-500; D37FB-19; D37FB-50; D37FB-115; D37FB-200; D37POP-19; D37POPB-50; D37POPB-200; D37RB-19; D37RB-50; D37RB-115; D37RB-200; D37RS-19; D37RS-28; D37RS-50; D37RS-115; D37RS-200; D37SK-4; D37SK-4LC; D37SS-28; D37SS-50; D37SS-115; D37SS-200; D37SS-1350; D37RS1000ASME; NC1485726; D37RE200ASME; NC1568702; NC1641358; XXMECLDOW2000; XXMECLDOW200LI; NC1870181; D37ETSS1350; XXD37ET200LI; NC1948847; D37SS-19; NC2047457; NC1561768**

CAS-No 75-09-2
Synonyms Dichloromethane; DCM

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company
Importer/Distributor
Fisher Scientific
112 Colonnade Road,
Ottawa, ON K2E 7L6,
Canada
Tel: 1-800-234-7437

Manufacturer
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

WHMIS 2015 Classification Classified as hazardous under the Hazardous Products Regulations (SOR/2015-17)

Skin Corrosion/Irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Carcinogenicity	Category 1B
Specific target organ toxicity (single exposure)	Category 3

Target Organs - Central nervous system (CNS).
Specific target organ toxicity - (repeated exposure) Category 2
Target Organs - Liver, Kidney, Blood.

Label Elements

Signal Word
Danger

Hazard Statements
Causes skin irritation
Causes serious eye irritation
May cause drowsiness and 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
Wear protective gloves/protective clothing/eye protection/face protection
Do not breathe dust/fumes/gas/mist/vapours/spray
Wash face, hands and any exposed skin thoroughly after handling
Use only outdoors or in a well-ventilated area
Response
IF exposed or concerned: Get medical advice/attention
IF ON SKIN: Wash with plenty of soap and water
IF INHALED: Remove person to fresh air and keep comfortable for breathing
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash it before reuse
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

Other Hazards
Contains a known or suspected endocrine disruptor

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Dichloromethane	75-09-2	>99.5

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/effects . Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: Causes central nervous system depression: Continued or high exposures by inhalation will cause anaesthetic effects. This may result in a loss of consciousness and could prove fatal: Causes formation of carbon monoxide in the blood. Carbon monoxide may cause adverse effects on the cardiovascular system and the central nervous system

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray, carbon dioxide (CO2), dry chemical, alcohol-resistant foam.

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature 556 °C / 1032.8 °F

Explosion Limits
Upper 23 vol %
Lower 13 vol %
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
Carbon monoxide (CO). Carbon dioxide (CO_2). Phosgene. 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	1	0	N/A

6. Accidental release measures

Personal Precautions Use personal protective equipment as required. Ensure adequate ventilation.
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.

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. Vapors are heavier than air and may spread along floors. Handle product only in closed system or provide appropriate exhaust ventilation. Reacts with aluminum and its alloys.

Storage. Keep containers tightly closed in a dry, cool and well-ventilated place. Do not store in aluminum containers. Incompatible Materials. Strong oxidizing agents. Strong acids. Amines.

8. Exposure controls / personal protection

Exposure Guidelines

Component	Alberta	British Columbia	Ontario TWAEV	Quebec	ACGIH TLV	OSHA PEL	NIOSH IDLH
Dichloromethane	TWA: 50 ppm TWA: 174 mg/m^3	TWA: 25 ppm	TWA: 50 ppm	TWA: 50 ppm TWA: 174 mg/m^3	TWA: 50 ppm	(Vacated) TWA: 500 ppm (Vacated) STEL: 2000 ppm (Vacated) Ceiling: 1000 ppm TWA: 25 ppm STEL: 125 ppm	IDLH: 2300 ppm

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures

Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment

Eye Protection Goggles
Hand Protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Glove material	Breakthrough time	Glove thickness	Glove comments
Viton (R)	See manufacturers recommendations	-	Splash protection only

Inspect gloves before use. observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information) gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. gloves with care avoiding skin contamination.

Respiratory Protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. 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.
To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly
Recommended Filter type: low boiling organic solvent Type AX Brown conforming to EN371

When RPE is used a face piece Fit Test should be conducted

Environmental exposure controls

No information available.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	sweet
Odor Threshold	No information available
pH	No information available
Melting Point/Range	-97 °C / -142.6 °F
Boiling Point/Range	39 °C / 102.2 °F
Flash Point	No information available
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	23 vol %
Lower	13 vol %
Vapor Pressure	350 mbar @ 20°C
Vapor Density	2.93 (Air = 1.0)
Specific Gravity	1.33
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	556 °C / 1032.8 °F
Decomposition Temperature	No information available
Viscosity	0.42 mPas @ 25°C
Molecular Formula	C H2 Cl2
Molecular Weight	84.93

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions. Decomposes on exposure to light.

Conditions to Avoid Excess heat. Protect from direct sunlight.

Incompatible Materials Strong oxidizing agents, Strong acids, Amines

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2), Phosgene, Hydrogen chloride gas

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions Forms a detonable mixture with nitric acid.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Dichloromethane	> 2000 mg/kg (Rat)	> 2000 mg/kg (Rat)	53 mg/L (Rat) 6 h 76000 mg/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 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
Dichloromethane	75-09-2	Group 2A	Reasonably Anticipated	A3	X	A3

IARC (International Agency for Research on Cancer)

IARC (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2A - Probably Carcinogenic to Humans
Group 2B - Possibly Carcinogenic to Humans

NTP: (National Toxicity Program)

NTP: (National Toxicity Program)
Known - Known Carcinogen
Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

ACGIH: (American Conference of Governmental Industrial Hygienists)

A1 - Known Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Animal Carcinogen
ACGIH: (American Conference of Governmental Industrial Hygienists)

Mexico - Occupational Exposure Limits - Carcinogens

Mexico - Occupational Exposure Limits - Carcinogens
A1 - Confirmed Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Confirmed Animal Carcinogen
A4 - Not Classifiable as a Human Carcinogen
A5 - Not Suspected as a Human Carcinogen

Mutagenic Effects Mutagenic effects have occured in microorganisms.

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Central nervous system (CNS)
STOT - repeated exposure Liver Kidney Blood

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: Causes central nervous system depression: Continued or high exposures by inhalation will cause anaesthetic effects. This may result in a loss of consciousness and could prove fatal: Causes formation of carbon monoxide in the blood. Carbon monoxide may cause adverse effects on the cardiovascular system and the central nervous system

Endocrine Disruptor Information No information available

Other Adverse Effects Tumorigenic effects have been reported in experimental animals.

12. Ecological information

Ecotoxicity

.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Dichloromethane	EC50:>660 mg/L/96h	Pimephales promelas: LC50:193 mg/L/96h	EC50: 1 mg/L/24 h EC50: 2.88 mg/L/15 min	EC50: 140 mg/L/48h

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
Dichloromethane	1.25

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
Dichloromethane - 75-09-2	U080	-

14. Transport information

DOT

UN-No UN1593
Proper Shipping Name DICHLOROMETHANE
Hazard Class 6.1
Packing Group III

TDG

UN-No UN1593
Proper Shipping Name DICHLOROMETHANE
Hazard Class 6.1
Packing Group III

IATA

UN-No UN1593
Proper Shipping Name Dichloromethane
Hazard Class 6.1
Packing Group III

IMDG/IMO

UN-No UN1593
Proper Shipping Name Dichloromethane
Hazard Class 6.1
Packing Group III

15. Regulatory information

International Inventories

Component	CAS-No	DSL	NDSL	TSCA	TSCA Inventory notification - Active-Inactive	EINECS	ELINCS	NLP
Dichloromethane	75-09-2	X	-	X	ACTIVE	200-838-9	-	-

Component	CAS-No	IECSC	KECL	ENCS	ISHL	TCSI	AICS	NZIoC	PICCS
Dichloromethane	75-09-2	X	KE-23893	X	X	X	X	X	X

Legend:
X - Listed '-' - Not Listed
KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
IECSC - Chinese Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
ENCS - Japanese Existing and New Chemical Substances
AICS - Australian Inventory of Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances

Canada

SDS in compliance with provisions of information as set out in Canadian Standard - Part 4, Schedule 1 and 2 of the Hazardous Products Regulations (HPR) and meets the requirements of the HPR (Paragraph 13(1)(a) of the Hazardous Products Act (HPA)).

Component	Canada - National Pollutant Release Inventory (NPRI)	Canadian Environmental Protection Agency (CEPA)	Canada's Chemicals Management Plan (CEPA)

		- List of Toxic Substances	
Dichloromethane	Part 1, Group A Substance Part 4 Substance	Schedule I	

Other International Regulations

Authorisation/Restrictions according to EU REACH

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Dichloromethane	-	Use restricted. See item 59. (see link for restriction details) Use restricted. See item 75. (see link for restriction details)	-

https://echa.europa.eu/substances-restricted-under-reach

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS-No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Dichloromethane	75-09-2	Listed	Not applicable	Not applicable	Not applicable

Component	CAS-No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Dichloromethane	75-09-2	Not applicable	Not applicable	Not applicable	Annex I - Y45

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 27-January-2010
Revision Date 24-December-2021
Print Date 24-December-2021
Revision Summary This document has been updated to comply with the requirements of WHMIS 2015 to align with the Globally Harmonised System (GHS) for the Classification and Labelling of Chemicals.

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 27-Sep-2010 **Revision Date** 14-Feb-2020 **Revision Number** 2

1. Identification

Product Name **Naphthalene**

Cat No. : **33347**

CAS-No 91-20-3
Synonyms Tar camphor; Naphthalin; Coal tar camphor

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company
Alfa Aesar
Thermo Fisher Scientific Chemicals, Inc.
30 Bond Street
Ward Hill, MA 01835-8099
Tel: 800-343-0660
Fax: 800-322-4757
Email: tech@alfa.com
www.alfa.com

Emergency Telephone Number
During normal business hours (Monday-Friday, 8am-7pm EST), call (800) 343-0660.
After normal business hours, call Carechem 24 at (866) 928-0789.

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable solids	Category 2
Acute oral toxicity	Category 4
Carcinogenicity	Category 1B

Label Elements

Signal Word
Danger

Hazard Statements
Flammable solid
Harmful if swallowed
May cause cancer



Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
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
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/equipment
Response
IF exposed or concerned: Get medical attention/advice
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Ingestion
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth
Fire
In case of fire: Use CO2, dry chemical, or foam for extinction
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Very toxic to aquatic life with long lasting effects
WARNING. Cancer - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Naphthalene	91-20-3	>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. Get medical attention.

Inhalation Remove to fresh air. If breathing is difficult, give oxygen. Get medical attention.

Ingestion Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.

Most important symptoms and . Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

effects

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 78 °C / 172.4 °F

Method - No information available

Autoignition Temperature 526 °C / 978.8 °F

Explosion Limits

Upper	5.9 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

Combustible material. Containers may explode when heated. 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	2	0	N/A

6. Accidental release measures

Personal Precautions Use personal protective equipment as required. Ensure adequate ventilation. Avoid dust formation. Remove all sources of ignition. Take precautionary measures against static discharges.

Environmental Precautions Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

Methods for Containment and Clean Up Sweep up and shovel into suitable containers for disposal. Keep in suitable, closed containers for disposal. Remove all sources of ignition.

7. Handling and storage

Handling Wear personal protective equipment/face protection. Ensure adequate ventilation. Avoid ingestion and inhalation. Do not get in eyes, on skin, or on clothing. Avoid dust formation. 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)
Naphthalene	TWA: 10 ppm Skin	(Vacated) TWA: 10 ppm (Vacated) TWA: 50 mg/m³ (Vacated) STEL: 15 ppm (Vacated) STEL: 75 mg/m³ TWA: 10 ppm TWA: 50 mg/m³	IDLH: 250 ppm TWA: 10 ppm TWA: 50 mg/m³ STEL: 15 ppm STEL: 75 mg/m³	TWA: 10 ppm TWA: 50 mg/m³ STEL: 15 ppm

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures 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. Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Solid
Appearance	White
Odor	Characteristic
Odor Threshold	No information available
pH	No information available
Melting Point/Range	79 - 82 °C / 174.2 - 179.6 °F
Boiling Point/Range	218 °C / 424.4 °F
Flash Point	78 °C / 172.4 °F
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	5.9 vol %
Lower	0.9 vol %
Vapor Pressure	0.08 mbar @ 20 °C
Vapor Density	Not applicable
Specific Gravity	0.990
Solubility	slightly soluble
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	526 °C / 978.8 °F
Decomposition Temperature	540 °C
Viscosity	Not applicable
Molecular Formula	C10 H8
Molecular Weight	128.17

10. Stability and reactivity

Reactive Hazard Yes

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products. Excess heat. Avoid dust formation. 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
Naphthalene	LD50 = 1110 mg/kg (Rat) LD50 = 490 mg/kg (Rat)	LD50 = 1120 mg/kg (Rabbit) LD50 > 20 g/kg (Rabbit)	LC50 > 340 mg/m³ (Rat) 1 h

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation 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
Naphthalene	91-20-3	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 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 Teratogenic effects have occurred in experimental animals.

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 Tumorigenic effects have been reported in experimental animals.

12. Ecological information

Ecotoxicity

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Naphthalene	EC50: = 0.4 mg/L, 72h (Skeletonema costatum)	LC50 96 h 1-6.5 mg/L (Pimephales promelas)	EC50 = 0.93 mg/L 30 min EC50 > 20 mg/L 18 h	EC50: 1.09 - 3.4 mg/L, 48h Static (Daphnia magna) EC50: = 1.96 mg/L, 48h Flow through (Daphnia magna) LC50: = 2.16 mg/L, 48h (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
Naphthalene	3.6

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
Naphthalene - 91-20-3	U165	-

14. Transport information

DOT

UN-No UN1334
Proper Shipping Name NAPHTHALENE, CRUDE
Hazard Class 4.1
Packing Group III

TDG

UN-No UN1334
Proper Shipping Name NAPHTHALENE, CRUDE
Hazard Class 4.1
Packing Group III

IATA

UN-No UN1334
Proper Shipping Name NAPHTHALENE, CRUDE
Hazard Class 4.1
Packing Group III

IMDG/IMO

UN-No UN1334

Proper Shipping Name NAPHTHALENE, CRUDE
Hazard Class 4.1
Packing Group III

15. Regulatory information

United States of America Inventory

Component	CAS-No	TSCA	TSCA Inventory notification - Active/Inactive	TSCA - EPA Regulatory Flags
Naphthalene	91-20-3	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
Naphthalene	91-20-3	X	-	202-049-5	X	X	X	X	KE-25545

U.S. Federal Regulations

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Naphthalene	91-20-3	>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
Naphthalene	X	100 lb	X	X

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Naphthalene	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
Naphthalene	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
Naphthalene	91-20-3	Carcinogen	5.8 µg/day	Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island

Naphthalene	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 Health, Safety and Environmental Department
Email: tech@alfa.com
www.alfa.com

Creation Date 27-Sep-2010
Revision Date 14-Feb-2020
Print Date 14-Feb-2020
Revision Summary SDS authoring systems update, replaces ChemGes SDS No. 91-20-3/3.

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 01-Jul-2010 **Revision Date** 24-Dec-2021 **Revision Number** 6

1. Identification

Product Name **Pyrene**

Cat No. : **AC180830000; AC180830250; AC180831000; AC180835000**

CAS No 129-00-0
Synonyms Benzo[def]phenanthrene

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company

Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Specific target organ toxicity (single exposure) Target Organs - Central nervous system (CNS).	Category 3
Specific target organ toxicity - (repeated exposure) Target Organs - Liver.	Category 2

Label Elements

Signal Word
Warning

Hazard Statements
May cause drowsiness or dizziness
May cause damage to organs through prolonged or repeated exposure



Precautionary Statements
Prevention
Do not breathe dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
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
Storage
Store in a well-ventilated place. Keep container tightly closed
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Very toxic to aquatic life with long lasting effects

3. Composition/Information on Ingredients

Component	CAS No	Weight %
Pyrene	129-00-0	>95

4. First-aid measures

General Advice If symptoms persist, call a physician.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.

Inhalation Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

Ingestion Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.

Most important symptoms and effects None reasonably foreseeable.

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray, carbon dioxide (CO2), dry chemical, alcohol-resistant foam.

Unsuitable Extinguishing Media No information available

Flash Point	210 °C / 410 °F
Method -	No information available
Autoignition Temperature	No information available
Explosion Limits	
Upper	No data available
Lower	No data available
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical
Do not allow run-off from fire-fighting to enter drains or water courses.

Hazardous Combustion Products
Carbon monoxide (CO). Carbon dioxide (CO_2).
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	1	0	N/A

6. Accidental release measures

Personal Precautions	Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation.
Environmental Precautions	Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.
Methods for Containment and Clean Up	Sweep up and shovel into suitable containers for disposal. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling	Ensure adequate ventilation. Wear personal protective equipment/face protection. Avoid dust formation. Avoid ingestion and inhalation. Do not get in eyes, on skin, or on clothing.
Storage.	Keep containers tightly closed in a dry, cool and well-ventilated place. Incompatible Materials. Strong oxidizing agents.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Pyrene		TWA: 0.2 mg/m³		

Legend

OSHA - Occupational Safety and Health Administration

Engineering Measures	Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection	Wear appropriate protective eyeglasses or chemical safety goggles as described by

OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Solid
Appearance	Yellow
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	148 - 152 °C / 298.4 - 305.6 °F
Boiling Point/Range	393 °C / 739.4 °F @ 760 mmHg
Flash Point	210 °C / 410 °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	No information available
Vapor Density	Not applicable
Specific Gravity	No information available
Solubility	practically insoluble
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	Not applicable
Molecular Formula	C16 H10
Molecular Weight	202.25

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products. Excess heat. Avoid dust formation.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Pyrene	LD50 = 2700 mg/kg (Rat)	Not listed	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Irritating to eyes and skin

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Pyrene	129-00-0	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Central nervous system (CNS)
STOT - repeated exposure Liver

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Pyrene	Not listed	Oncorhynchus mykiss: LC50 > 2mg/L 96h	Not listed	EC50 48h 1.8 mg/L EC50 48h 0.002-0.003 mg/L

Persistence and Degradability Insoluble in water May persist

Bioaccumulation/ Accumulation No information available.

Mobility No information available.

Component	log Pow
Pyrene	4.88

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No UN3077
Proper Shipping Name Environmentally hazardous substances, solid, n.o.s.

Technical Name Pyrene
Hazard Class 9
Packing Group III

TDG
UN-No UN3077
Proper Shipping Name Environmentally hazardous substances, solid, n.o.s.
Hazard Class 9
Packing Group III

IATA
UN-No UN3077
Proper Shipping Name Environmentally hazardous substances, solid, n.o.s.
Hazard Class 9
Packing Group III

IMDG/IMO
UN-No UN3077
Proper Shipping Name Environmentally hazardous substances, solid, n.o.s.
Hazard Class 9
Packing Group III

15. Regulatory information

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
Pyrene	129-00-0	X	ACTIVE	-

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Pyrene	129-00-0	X	-	204-927-3	X	X	X	X	X	KE-14-0069

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313 Not applicable

Component	CAS No	Weight %	SARA 313 - Threshold Values %
Pyrene	129-00-0	>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
Pyrene	-	-	-	X

Clean Air Act Not applicable

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Pyrene	5000 lb	5000 lb

California Proposition 65 This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Pyrene	X	X	X	X	-

U.S. Department of Transportation
Reportable Quantity (RQ): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Authorisation/Restrictions according to EU REACH

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Pyrene	-	-	SHVC Candidate list - 204-927-3 - PBT (Article 57d) vPvB (Article 57e)

After the sunset date the use of this substance requires either an authorization or can only be used for exempted uses, e.g. use in scientific research and development which includes routine analytics or use as intermediate.

https://echa.europa.eu/authorisation-list
https://echa.europa.eu/candidate-list-table

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Pyrene	129-00-0	Not applicable	Not applicable	Not applicable	Not applicable

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Pyrene	129-00-0	Not applicable	Not applicable	Not applicable	Not applicable

16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific

Email: EMSDS.RA@thermofisher.com

Creation Date	01-Jul-2010
Revision Date	24-Dec-2021
Print Date	24-Dec-2021
Revision Summary	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Creation Date 11-Jun-2009 **Revision Date** 25-Dec-2021 **Revision Number** 6

1. Identification

Product Name **Toluene**

Cat No. : **AC326980000; AC326980010; AC326980025; AC326981000; AC326982500**

CAS No 108-88-3
Synonyms Tol; Methylbenzene

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company
Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 2
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, Neurological effects, Eyes, Ears.	
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 drowsiness or dizziness
Suspected of damaging the unborn child
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 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
WARNING. Reproductive Harm - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS No	Weight %
Toluene	108-88-3	<=100

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 . 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 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 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 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 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/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. 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, sparks and flame. Incompatible Materials. Strong oxidizing agents. Strong acids. Strong bases. Halogenated compounds.

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: 20 ppm

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures Ensure 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 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	1.74 ppm
pH	No information available
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)	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 Neurological effects Eyes Ears

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

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
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 Persistence is unlikely

Bioaccumulation/ Accumulation No information available.

Mobility Is not likely mobile in the environment due its low 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

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
Toluene	108-88-3	X	ACTIVE	-

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Toluene	108-88-3	X	-	203-625-9	X	X	X	X	X	KE-33936

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313

Component	CAS No	Weight %	SARA 313 - Threshold Values %
Toluene	108-88-3	<=100	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

Authorisation/Restrictions according to EU REACH

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Toluene	-	Use restricted. See item 48. (see link for restriction details) Use restricted. See item 75. (see link for restriction details)	-

https://echa.europa.eu/substances-restricted-under-reach

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Toluene	108-88-3	Listed	Not applicable	Not applicable	Not applicable

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Toluene	108-88-3	Not applicable	Not applicable	Not applicable	Annex I - Y42

16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific

Email: EMSDS.RA@thermofisher.com

Creation Date	11-Jun-2009
Revision Date	25-Dec-2021
Print Date	25-Dec-2021
Revision Summary	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Creation Date 03-Feb-2010 **Revision Date** 26-Dec-2021 **Revision Number** 5

1. Identification

Product Name **Trichloroethylene**

Cat No. : **AC421520000; AC421520025; AC421525000**

CAS No 79-01-6
Synonyms Triclene; Trichloroethene; Ethylene trichloride

Recommended Use Laboratory chemicals.
Uses advised against .

Details of the supplier of the safety data sheet

Company

Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

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. Cancer and Reproductive Harm - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS No	Weight %
Trichloroethylene	79-01-6	>95

4. First-aid measures

General Advice Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Eye Contact	In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.
Inhalation	Remove to fresh air. If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.
Ingestion	Do NOT induce vomiting. Call a physician or poison control center immediately.
Most important symptoms and effects	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	Water spray, carbon dioxide (CO2), dry chemical, alcohol-resistant foam.
Unsuitable Extinguishing Media	No information available
Flash Point	No information available
Method -	No information available
Autoignition Temperature	410 °C / 770 °F
Explosion Limits	
Upper	44.8 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
Chlorine. Phosgene. 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. 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 as required. 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/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance.

Storage. Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from light. Do not store in aluminum containers. Incompatible Materials. Strong oxidizing agents. Strong bases. Amines. Alkali metals. Metals. .

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: 10 ppm STEL: 25 ppm

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures 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 Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	Characteristic
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	44.8 vol %
Lower	8 vol %
Vapor Pressure	77.3 mbar @ 20 °C
Vapor Density	4.5 (Air = 1.0)
Specific Gravity	1.460
Solubility	Insoluble 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 Chlorine, Phosgene, 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

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Trichloroethylene	LD50 = 4920 mg/kg (Rat)	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 May cause sensitization by skin contact

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Trichloroethylene	79-01-6	Group 1	Known	A2	X	A2

IARC (International Agency for Research on Cancer)

IARC (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2A - Probably Carcinogenic to Humans
Group 2B - Possibly Carcinogenic to Humans

NTP: (National Toxicity Program)

NTP: (National Toxicity Program)
Known - Known Carcinogen
Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

ACGIH: (American Conference of Governmental Industrial Hygienists)

A1 - Known Human Carcinogen
A2 - Suspected Human Carcinogen

A3 - Animal Carcinogen
ACGIH: (American Conference of Governmental Industrial Hygienists)

Mutagenic Effects 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: 31.4 - 71.8 mg/L, 96h flow-through (Pimephales promelas) LC50: 39 - 54 mg/L, 96h static (Lepomis macrochirus)	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

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
Trichloroethylene	79-01-6	X	ACTIVE	R;S

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.

TSCA 12(b) - Notices of Export

Component	CAS No	**TSCA 12(b)** - Notices of Export
Trichloroethylene	79-01-6	Section 5 Section 6

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Trichloroethylene	79-01-6	X	-	201-167-4	X	X	X	X	X	X

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313

Component	CAS No	Weight %	SARA 313 - Threshold Values %
Trichloroethylene	79-01-6	>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
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

Authorisation/Restrictions according to EU REACH

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Trichloroethylene	Carcinogenic Category 1B Article 57 Application date: October 21, 2014 Sunset date: April 21, 2016 Exemption - None	Use restricted. See item 28. (see link for restriction details) Use restricted. See item 75. (see link for restriction details)	SVHC Candidate list - 201-167-4 - Carcinogenic, Article 57a

After the sunset date the use of this substance requires either an authorization or can only be used for exempted uses, e.g. use in scientific research and development which includes routine analytics or use as intermediate.

https://echa.europa.eu/authorisation-list
https://echa.europa.eu/substances-restricted-under-reach
https://echa.europa.eu/candidate-list-table

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Trichloroethylene	79-01-6	Listed	Not applicable	Not applicable	Not applicable

Component	CAS No	Seveso III Directive	Seveso III Directive	Rotterdam	Basel Convention

		(2012/18/EC) - Qualifying Quantities for Major Accident Notification	(2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Convention (PIC)	(Hazardous Waste)
Trichloroethylene	79-01-6	Not applicable	Not applicable	Not applicable	Annex I - Y45

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 03-Feb-2010
Revision Date 26-Dec-2021
Print Date 26-Dec-2021
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Creation Date 11-Jun-2009 **Revision Date** 26-Dec-2021 **Revision Number** 6

1. Identification

Product Name **Xylenes**

Cat No. : **AC422680000; AC422680025; AC422680040; AC422680200; AC422680250; AC422685000**

CAS No 1330-20-7
Synonyms 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 Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 3
Acute dermal toxicity	Category 4
Acute Inhalation Toxicity - Vapors	Category 4
Skin Corrosion/Irritation	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).	
Specific target organ toxicity - (repeated exposure)	Category 2
Target Organs - Heart, Liver, Kidney, Ears.	
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
Suspected of causing cancer
May cause damage to organs through prolonged or repeated exposure



Precautionary Statements
Prevention
Keep cool
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
Wash face, hands and any exposed skin thoroughly after handling
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
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

WARNING. Cancer - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS No	Weight %
Xylenes (o-, m-, p- isomers)	1330-20-7	>75
Ethylbenzene	100-41-4	<25

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. 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. Get medical attention. Risk of serious damage to the lungs (by aspiration). If not breathing, give artificial respiration.

Ingestion Aspiration hazard. 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. 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 23 - 30 °C / 73.4 - 86 °F

Method - No information available

Autoignition Temperature 460 °C / 860 °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

Flammable. Risk of ignition. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated. Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products

Carbon monoxide (CO). Carbon dioxide (CO_2). Hydrocarbons. Aldehydes.

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 Use personal protective equipment as required. Remove all sources of ignition. Take precautionary measures against static discharges. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Keep people away from and upwind of spill/leak.

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 Remove all sources of ignition. Take precautionary measures against static discharges. Use spark-proof tools and explosion-proof equipment. Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling Wear personal protective equipment/face protection. Ensure adequate ventilation. Use spark-proof tools and explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges. Do not get in eyes, on skin, or on clothing. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance. Use only non-sparking tools.

Storage. Keep container tightly closed in a dry and well-ventilated place. Keep away from heat, sparks and flame. Flammables area. Incompatible Materials. Strong oxidizing agents. Strong acids.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Xylenes (o-, m-, p- isomers)	TWA: 100 ppm STEL: 150 ppm	(Vacated) TWA: 100 ppm (Vacated) TWA: 435 mg/m^3 (Vacated) STEL: 150 ppm (Vacated) STEL: 655 mg/m^3 TWA: 100 ppm TWA: 435 mg/m^3		TWA: 100 ppm STEL: 150 ppm
Ethylbenzene	TWA: 20 ppm	(Vacated) TWA: 100 ppm (Vacated) TWA: 435 mg/m^3 (Vacated) STEL: 125 ppm (Vacated) STEL: 545 mg/m^3 TWA: 100 ppm TWA: 435 mg/m^3	IDLH: 800 ppm TWA: 100 ppm TWA: 435 mg/m^3 STEL: 125 ppm STEL: 545 mg/m^3	TWA: 20 ppm

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting equipment. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by

OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	aromatic
Odor Threshold	No information available
pH	No information available
Melting Point/Range	-34 °C / -29.2 °F
Boiling Point/Range	136 - 140 °C / 276.8 - 284 °F @ 760 mmHg
Flash Point	23 - 30 °C / 73.4 - 86 °F
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	8 mbar @ 20 °C
Vapor Density	No information available
Specific Gravity	0.865
Solubility	practically insoluble
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	460 °C / 860 °F
Decomposition Temperature	No information available
Viscosity	0.6 mPa s @ 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), Hydrocarbons, Aldehydes

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Oral LD50 Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.

Dermal LD50 Category 4. ATE = 1000 - 2000 mg/kg.
Vapor LC50 Category 4. ATE = 10 - 20 mg/l.
Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Xylenes (o-, m-, p- isomers)	LD50 = 3500 mg/kg (Rat)	LD50 > 4350 mg/kg (Rabbit)	29.08 mg/L [MOE Risk Assessment Vol.1, 2002]
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 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
Xylenes (o-, m-, p- isomers)	1330-20-7	Not listed	Not listed	Not listed	Not listed	Not listed
Ethylbenzene	100-41-4	Group 2B	Not listed	A3	X	A3

IARC (International Agency for Research on Cancer)

ACGIH: (American Conference of Governmental Industrial Hygienists)

IARC (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2A - Probably Carcinogenic to Humans
Group 2B - Possibly Carcinogenic to Humans
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 Heart Liver Kidney Ears

Aspiration hazard 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
Contains a substance which is:. Toxic to aquatic organisms. The product contains following substances which are hazardous for the environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Xylenes (o-, m-, p- isomers)	Not listed	LC50: 30.26 - 40.75 mg/L, 96h static (Poecilia reticulata) LC50: = 780 mg/L, 96h semi-static (Cyprinus carpio) LC50: 23.53 - 29.97 mg/L, 96h static (Pimephales	EC50 = 0.0084 mg/L 24 h	LC50: = 0.6 mg/L, 48h (Gammarus lacustris) EC50: = 3.82 mg/L, 48h (water flea)

		promelas) LC50: > 780 mg/L, 96h (Cyprinus carpio) LC50: 7.711 - 9.591 mg/L, 96h static (Lepomis macrochirus) LC50: = 19 mg/L, 96h (Lepomis macrochirus) LC50: 13.1 - 16.5 mg/L, 96h flow-through (Lepomis macrochirus) LC50: 13.5 - 17.3 mg/L, 96h (Oncorhynchus mykiss) LC50: 2.661 - 4.093 mg/L, 96h static (Oncorhynchus mykiss) LC50: = 13.4 mg/L, 96h flow-through (Pimephales promelas)		
Ethylbenzene	EC50: 2.6 - 11.3 mg/L, 72h static (Pseudokirchneriella subcapitata) EC50: 1.7 - 7.6 mg/L, 96h static (Pseudokirchneriella subcapitata) EC50: > 438 mg/L, 96h (Pseudokirchneriella subcapitata) EC50: = 4.6 mg/L, 72h (Pseudokirchneriella subcapitata)	LC50: 7.55 - 11 mg/L, 96h flow-through (Pimephales promelas) 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: 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 Persistence is unlikely

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
Xylenes (o-, m-, p- isomers)	3.15
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.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Xylenes (o-, m-, p- isomers) - 1330-20-7	U239	-

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
Xylenes (o-, m-, p- isomers)	1330-20-7	X	ACTIVE	-
Ethylbenzene	100-41-4	X	ACTIVE	-

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Xylenes (o-, m-, p- isomers)	1330-20-7	X	-	215-535-7	X	X	X	X	X	KE-35427
Ethylbenzene	100-41-4	X	-	202-849-4	X	X	X	X	X	KE-13532

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313

Component	CAS No	Weight %	SARA 313 - Threshold Values %
Xylenes (o-, m-, p- isomers)	1330-20-7	>75	1.0
Ethylbenzene	100-41-4	<25	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
Xylenes (o-, m-, p- isomers)	X	100 lb	-	-
Ethylbenzene	X	1000 lb	X	X

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Xylenes (o-, m-, p- isomers)	X		-

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
Xylenes (o-, m-, p- isomers)	100 lb	-
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
Xylenes (o-, m-, p-isomers)	X	X	X	X	X
Ethylbenzene	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security: This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade: Serious risk, Grade 3

Authorisation/Restrictions according to EU REACH

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Xylenes (o-, m-, p- isomers)	-	Use restricted. See item 75. (see link for restriction details)	-

https://echa.europa.eu/substances-restricted-under-reach

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Xylenes (o-, m-, p- isomers)	1330-20-7	Listed	Not applicable	Not applicable	Not applicable
Ethylbenzene	100-41-4	Listed	Not applicable	Not applicable	Not applicable

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)

Xylenes (o-, m-, p- isomers)	1330-20-7	Not applicable	Not applicable	Not applicable	Annex I - Y42
Ethylbenzene	100-41-4	Not applicable	Not applicable	Not applicable	Not applicable

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 11-Jun-2009
Revision Date 26-Dec-2021
Print Date 26-Dec-2021
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Version 8.8
Revision Date 08/23/2023
Print Date 10/07/2023

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Vinyl chloride

Product Number : 387622
Brand : Aldrich
Index-No. : 602-023-00-7
CAS-No. : 75-01-4

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable gases (Category 1), H220
Gases under pressure (Liquefied gas), H280
Carcinogenicity (Category 1A), H350

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word Danger

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Hazard statement(s)

H220	Extremely flammable gas.
H280	Contains gas under pressure; may explode if heated.
H350	May cause cancer.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P377	Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381	Eliminate all ignition sources if safe to do so.
P405	Store locked up.
P410 + P403	Protect from sunlight. Store in a well-ventilated place.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

May form explosive peroxides.

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms : Chloroethylene

Formula : C_2H_3Cl
Molecular weight : 62.50 g/mol
CAS-No. : 75-01-4
EC-No. : 200-831-0
Index-No. : 602-023-00-7

Component	Classification	Concentration
Vinyl chloride		
	Flam. Gas 1; Press. Gas Liquefied gas; Carc. 1A; H220, H280, H350	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice

Show this material safety data sheet to the doctor in attendance.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

If inhaled
After inhalation: fresh air. Call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

In case of eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Hydrogen chloride gas
Combustible.
Pay attention to flashback.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Remove container from danger zone and cool with water. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Do not breathe gas. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Stop flow of gas, move leaking cylinder to open air if without risk.

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Keep locked up or in an area accessible only to qualified or authorized persons. Keep away from combustible materials and sources of ignition.

Contents under pressure. Light sensitive.

Storage class
Storage class (TRGS 510): 2A: Gases

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Vinyl chloride	75-01-4	TWA	1 ppm	USA. Table Z-1-A Limits for Air Contaminants (1989 vacated values)
		TWA	1 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Liver damage Lung cancer Confirmed human carcinogen		

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

		STEL	5 ppm	USA. Table Z-1-A Limits for Air Contaminants (1989 vacated values)
		TWA	1 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		STEL	5 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		See 1910.1017		
		Potential Occupational Carcinogen See Appendix A		

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Body Protection
Flame retardant antistatic protective clothing.

Respiratory protection
Recommended Filter type: Filter type ABEK
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when vapours/mists are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: Liquefied gas Color: colorless
b)	Odor	odorless
c)	Odor Threshold	Not applicable
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -153.8 °C (-244.8 °F) - lit.

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

f)	Initial boiling point and boiling range	-13.4 °C 7.9 °F - lit.
g)	Flash point	-62 °C (-80 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 29.3 %(V) Lower explosion limit: 3.8 %(V)
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Density	0.911 g/cm3 at 25 °C (77 °F) - lit.
	Relative density	No data available
n)	Water solubility	9.15 g/l at 20 °C (68 °F)
o)	Partition coefficient: n-octanol/water	log Pow: 1.58 at 22 °C (72 °F) - Bioaccumulation is not expected.
p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	none

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
Violent reactions possible with:
Strong oxidizing agents

10.4 Conditions to avoid
no information available

10.5 Incompatible materials
No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

10.6 Hazardous decomposition products

In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Oral: No data available
LC50 Inhalation - Rat - 2 h - 390 mg/l - gas

Remarks: (ECHA)
Dermal: No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
Test Type: In vitro mammalian cell gene mutation test
Test system: Chinese hamster lung cells
Metabolic activation: without metabolic activation
Result: negative
Remarks: (ECHA)
Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: positive

Test Type: dominant lethal test
Species: Mouse

Application Route: inhalation (gas)

Result: negative
Remarks: (ECHA)

Test Type: Micronucleus test
Species: Mouse

Application Route: inhalation (gas)
Method: OECD Test Guideline 474
Result: positive

Carcinogenicity
May cause cancer. Positive evidence from human epidemiological studies.

IARC: 1 - Group 1: Carcinogenic to humans (Vinyl chloride)

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

NTP: Known - Known to be human carcinogen (Vinyl chloride)

OSHA: OSHA specifically regulated carcinogen (Vinyl chloride)

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

Repeated dose toxicity - Rat - male and female - Oral - 13 Weeks - NOAEL (No observed adverse effect level) - 30 mg/kg

RTECS: KU9625000
burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Central nervous system -

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	semi-static test LC50 - Danio rerio (zebra fish) - 210 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to bacteria	Remarks: (ECHA) (Vinyl chloride)

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 28 d Result: 16 % - Not readily biodegradable. (OECD Test Guideline 301D)

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties
No data available

12.7 Other adverse effects
No data available

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. Pressurised gas bottle: dispose of only in empty condition! See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

DOT (US)
UN number: 1086 Class: 2.1
Proper shipping name: Vinyl chloride, stabilized
Reportable Quantity (RQ): 1 lbs
Reportable Quantity (RQ): 1 lbs
Poison Inhalation Hazard: No

IMDG
UN number: 1086 Class: 2.1 EMS-No: F-D, S-U
Proper shipping name: VINYL CHLORIDE, STABILIZED

IATA
UN number: 1086 Class: 2.1
Proper shipping name: Vinyl chloride, stabilized
IATA Passenger: Not permitted for transport

SECTION 15: Regulatory information

SARA 302 Components
This material does not contain any components with a section 302 EHS TPQ.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Vinyl chloride	75-01-4	2007-07-01

SARA 311/312 Hazards
Fire Hazard, Sudden Release of Pressure Hazard, Acute Health Hazard, Chronic Health Hazard

Reportable Quantity : D043 lbs

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Vinyl chloride	75-01-4	2007-07-01
Phenol	108-95-2	2007-07-01
hydroquinone	123-31-9	2007-03-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Vinyl chloride	75-01-4	2007-07-01
Phenol	108-95-2	2007-07-01

California Prop. 65 Components

	CAS-No.	Revision Date
, which is/are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.Vinyl chloride	75-01-4	2007-09-28

SECTION 16: Other information

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

Version: 8.8 Revision Date: 08/23/2023 Print Date: 10/07/2023

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

APPENDIX D

Daily Tailgate Safety Meeting Form

6.08 PRE-JOB SAFETY TAILGATE/TOOLBOX MEETING FORM

Date		Time	
Location or Address		Temperature	
Project Number		Humidity	
Conducted by		Conditions	
Were all workers reminded that COVID is still prevalent and that appropriate measures should be taking to prevent infection of themselves and others?			Yes ☐ No ☐

911	**If 911 is unavailable at this location, please state the procedure for reporting emergencies** _____

List Safety Topic of Discussion and/or Any Specific Hazards for the Work Being Performed Today	
1	
2	
3	
4	
5	
6	
7	
List Control Measures for Each Specific Hazard Listed Above	
1	
2	
3	
4	
5	
6	
7	

PLEASE SIGN THE BACK OF THIS SHEET

The presenter and all attendees shall print and sign in the appropriate areas on the back of this sheet

By signing, you declare that you understand the information presented in today's meeting, and that you have had the opportunity to ask questions and to clarify any uncertainty regarding such information.

All Visitors and Contractors Must Print Their Company Name

Name	Signature	Company

APPENDIX E

Silica Exposure Plan

6.17 SILICA EXPOSURE CONTROL PLAN

Silica Exposure Control Plans are Required for all Tasks with Potential Exposure to Silica
See LaBella Safety Manual Policy 4.09 and Attachment A - Table 1 of OSHA 1926.1153

Exposure Control Plan Project Information

Person Completing the Plan:	Date:
Location:	Division:
Project Number:	Phase:

Description of Task

Controls

OSHA requires Silica Exposure Control Plans include the following:
- Engineering Controls - Work Practice Controls - Respiratory Protection
- Housekeeping Measures - Procedures Used to Restrict Access to Work Areas

Types of Controls:

Elimination or Substitution Controls:
☐ Other means of demo _____
☐ Different products _____
☐ Other _____

Engineering and Work Practice Controls:
☐ Doing work when concrete is wet _____
☐ Equipment with integrated water delivery _____
☐ Equipment w/ shroud/dust collection system _____
☐ HEPA vacuuming _____
☐ Water or water/surfactant for dust suppression _____
☐ Isolation/Enclosure _____
☐ Heavy equip. operation from enclosed cab _____
☐ Ventilation* _____
☐ Other _____
*When using ventilation, draw air out and don't expose others to exhaust dusts. See Ventilation section, below.

Restricted Access to Work Areas Measures:
☐ Signage _____
☐ Physical Barriers _____
☐ Dust Barriers _____
☐ Other _____

Housekeeping Measures:
☐ Wet mopping/wet sweeping _____
☐ HEPA vacuuming of work area _____
☐ HEPA vacuuming of clothing/coveralls _____
☐ Other _____

6.17 SILICA EXPOSURE CONTROL PLAN

Administrative Controls:

☐ Work schedules/coordination _____
☐ Inspections by competent persons _____
☐ Control points _____

Respiratory Protection and PPE:

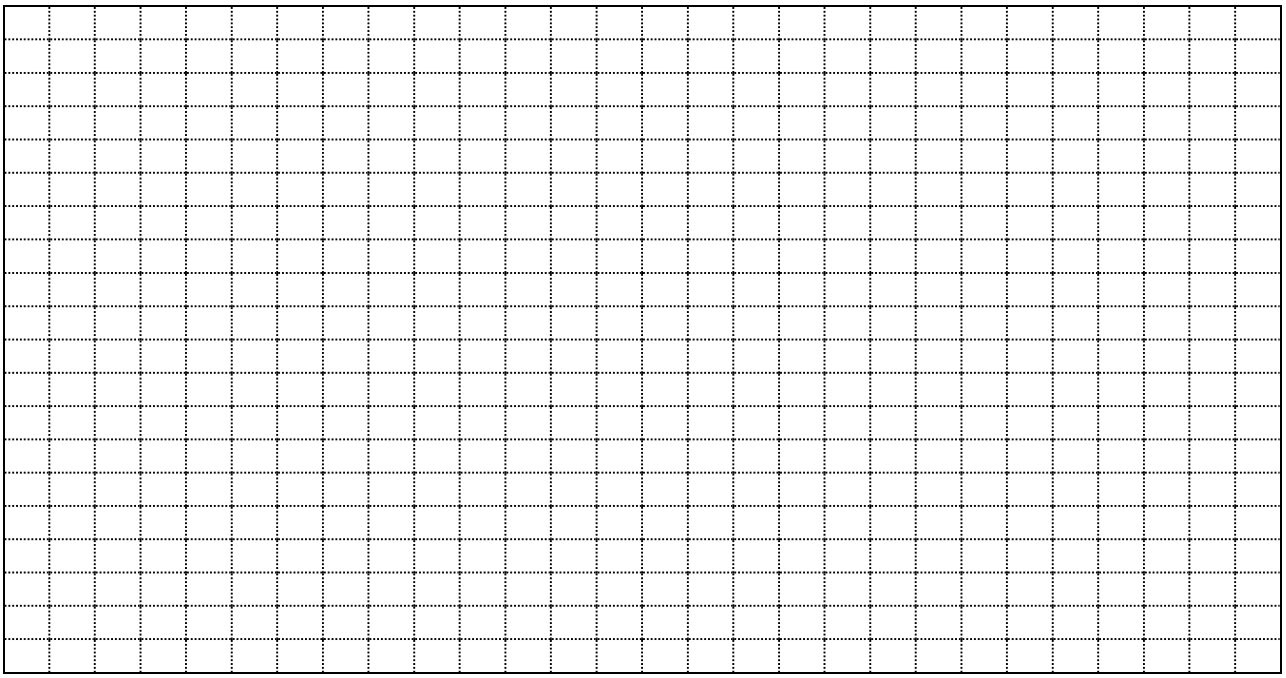
☐ Half face: _____ Cartridge Type: _____
☐ Full face: _____ Cartridge Type: _____
☐ Supplied air units_____
☐ Coveralls: _____ ☐ Other _____
☐ Gloves: _____ ☐ Other _____

Hygiene and Decontamination:

☐ Water or washing facilities on site _____
☐ Vacuuming clothing/self _____
☐ Other _____

Ventilation

Ventilation Plan: Indicate number/location of fans (positive / negative), airflow direction ⇦ makeup air locations, discharge air outlets.



Area of location in building of ventilation plan: _____

Date Plan was posted/reviewed by workers: _____

Ventilation Safety Checklist:

☐ Makeup air free of contaminants
☐ Exhaust fan operation has failure warning
☐ Wetting of materials used to keep dust down
☐ Discharge not affecting others
☐ Dilution fans not stirring up dust
☐ All workers have approved respirators
☐ Workers not placed between contaminants created and exhaust inlet ports

ATTACHMENT

Table 1: Specified Exposure Control Methods When Working With Materials Containing Crystalline Silica

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
1	Stationary masonry saws	• Use saw equipped with integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
2a	Handheld power saws (any blade diameter) when used outdoors	• Use saw equipped with integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
2b	Handheld power saws (any blade diameter) when used indoors or in an enclosed area	• Use saw equipped with integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
3	Handheld power saws for cutting fiber-cement board (with blade diameter of 8 inches or less) for tasks performed outdoors only	• Use saw equipped with commercially available dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency.	None	None
4a	Walk-behind saws when used outdoors	• Use saw equipped with integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
4b	Walk-behind saws when used indoors or in an enclosed area	• Use saw equipped with integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
5	Drivable saws for tasks performed outdoors only	• Use saw equipped with integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
6	Rig-mounted core saws or drills	• Use tool equipped with integrated water delivery system that supplies water to cutting surface. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
7	Handheld and stand-mounted drills (including	• Use drill equipped with commercially available shroud or cowling with dust	None	None

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
	impact and rotary hammer drills)	collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. • Use a HEPA-filtered vacuum when cleaning holes.		
8	Dowel drilling rigs for concrete for tasks performed outdoors only	• Use shroud around drill bit with a dust collection system. • Dust collector must have a filter with 99% or greater efficiency and a filter cleaning mechanism. • Use a HEPA-filtered vacuum when cleaning holes.	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
9a	Vehicle-mounted drilling rigs for rock and concrete	• Use dust collection system with close capture hood or shroud around drill bit with a low-flow water spray to wet the dust at the discharge point from the dust collector.	None	None
9b	Vehicle-mounted drilling rigs for rock and concrete	• Operate from within an enclosed cab and use water for dust suppression on drill bit.	None	None
10a	Jackhammers and handheld powered chipping tools when used outdoors	• Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact.	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
10b	Jackhammers and handheld powered chipping tools when used indoors or in an enclosed area	• Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact.	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
10c	Jackhammers and handheld powered chipping tools when used outdoors	• Use tool equipped with commercially available shroud and dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism.	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
10d	Jackhammers and handheld powered chipping tools when used indoors or in an enclosed area	• Use tool equipped with commercially available shroud and dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism.	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
11	Handheld grinders for mortar removal (i.e., tuckpointing)	• Use grinder equipped with commercially available shroud and dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	Powered Air-Purifying Respirator (PAPR) with P100 Filters
12a	Handheld grinders for uses other than mortar removal for tasks performed outdoors only	• Use grinder equipped with integrated water delivery system that continuously feeds water to the grinding surface. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
12b	Handheld grinders for uses other than mortar removal when used outdoors	• Use grinder equipped with commercially available shroud and dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.	None	None
12c	Handheld grinders for uses other than mortar removal when used indoors or in an enclosed area	• Use grinder equipped with commercially available shroud and dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
13a	Walk-behind milling machines and floor grinders	• Use machine equipped with integrated water delivery system that continuously feeds water to the cutting surface. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
13b	Walk-behind milling machines and floor grinders	• Use machine equipped with dust collection system recommended by the manufacturer. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide the air flow	None	None

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
		recommended by the manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. • When used indoors or in an enclosed area, use a HEPA-filtered vacuum to remove loose dust in between passes.		
14	Small drivable milling machines (less than half-lane)	• Use a machine equipped with supplemental water sprays designed to suppress dust. • Water must be combined with a surfactant. • Operate and maintain machine to minimize dust emissions.	None	None
15a	Large drivable milling machines (half-lane and larger) for cuts of any depth on asphalt only	• Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. • Operate and maintain machine to minimize dust emissions.	None	None
15b	Large drivable milling machines (half-lane and larger) for cuts of four inches in depth or less on any substrate	• Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. • Operate and maintain machine to minimize dust emissions.	None	None
15c	Large drivable milling machines (half-lane and larger) for cuts of four inches in depth or less on any substrate	• Use a machine equipped with supplemental water spray designed to suppress dust. • Water must be combined with a surfactant. • Operate and maintain machine to minimize dust emissions.	None	None
16	Crushing machines	• Use equipment designed to deliver water spray or mist for dust suppression at crusher and other points where dust is generated (e.g., hoppers, conveyers, sieves/sizing or vibrating components, and discharge points). • Operate and maintain machine in accordance with manufacturer's instructions to minimize dust emissions. • Use a ventilated booth that provides fresh, climate-controlled air to the operator, or a remote control station.	None	None
17a	Heavy equipment and utility vehicles used to abrade or fracture silica-containing materials (e.g., hoe-ramming, rock ripping) or used during demolition activities involving silica-containing materials	• Operate equipment from within an enclosed cab.	None	None
17b	Heavy equipment and utility vehicles used to abrade or fracture silica-containing	• When employees outside of the cab are engaged in the task, apply water and/or dust suppressants as necessary	None	None

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
	materials (e.g., hoe-ramming, rock ripping) or used during demolition activities involving silica-containing materials	to minimize dust emissions.		
18a	Heavy equipment and utility vehicles for tasks such as grading and excavating but not including demolishing, abrading, or fracturing silica-containing materials	• Apply water and/or dust suppressants as necessary to minimize dust emissions.	None	None
18b	Heavy equipment and utility vehicles for tasks such as grading and excavating but not including demolishing, abrading, or fracturing silica-containing materials	• When the equipment operator is the only employee engaged in the task, operate equipment from within an enclosed cab.	None	None