

REVISED FOCUSED FEASIBILITY STUDY

HERS Industrial Park, Mukilteo, Washington

Prepared for: Russell Road Industrial Park, LLC

Project No. 140252 • July 20, 2021 AGENCY REVIEW DRAFT



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Acronyms

Aspect	Aspect Consulting, LLC
ARAR	applicable or relevant and appropriate requirements
BETX	benzene, toluene, ethylbenzene, and xylenes
cPAH	carcinogenic polycyclic aromatic hydrocarbons
CAP	Cleanup Action Plan
COCs	constituents of concern
CSM	conceptual site model
Ecology	Washington State Department of Ecology
EDB	ethylene dibromide
EDC	ethylene dichloride
FS	Feasibility Study
GPR	ground penetrating radar
mg/kg	milligrams/kilograms
µg/L	micrograms per liter
MTBE	methyl tert-butyl ether
MTCA	Model Toxics Control Act
NFA	No Further Action
PCB	polychlorinated biphenyls
PCE	tetrachloroethylene
RAOs	Remedial Action Objectives
RI	Remedial Investigation
SVE	soil vapor extraction
TCE	trichloroethylene
TEE	Terrestrial Ecological Evaluation
TPH	total petroleum hydrocarbons
UST	Underground Storage Tank
VCP	Voluntary Cleanup Program
VOC	volatile organic compound

1 Introduction

1.1 Purpose

This Revised Focused Feasibility Study (Revised FFS) has been prepared by Aspect Consulting, LLC (Aspect) on behalf of Russell Road Industrial Park LLC (RRIP). RRIP is conducting an investigation and cleanup of the property located at 4403 Russell Road in Mukilteo, Washington (the Property) under the Washington State Department of Ecology's (Ecology) Voluntary Cleanup Program (VCP). The site, where contamination released at the Property has come to be located, includes the Property and portions of adjacent properties (collectively referred to as the Site). It is registered with Ecology as VCP Site No. NW1554.

A Remedial Investigation and Feasibility Study (RI/FS) Report prepared by Aspect (Aspect, 2015) described the nature and extent of contamination at the Site and evaluated potential remedies. In response to Ecology comments on the RI/FS Report (Ecology, 2016), Aspect prepared a Groundwater Classification and Proposed Cleanup Standards Report (Aspect, 2018), which proposed Site cleanup standards based on a groundwater potability analysis. In a letter dated June 28, 2018, (Opinion Letter: Ecology, 2018), Ecology provided an opinion that included the following:

- Characterization of the Site is sufficient to establish cleanup standards and select a cleanup action.
- Current groundwater data is needed to confirm the Site's compliance with MTCA.
- Cleanup standards must consider groundwater and a potential drinking water source and the standard point of compliance for groundwater is groundwater throughout the Site.
- The vapor intrusion pathway must be considered during the development of cleanup levels and cleanup actions for the Site.
- Cleanup performed to date does not meet cleanup standards at the Site.
- Wells damaged during previous cleanup actions (injection of oxidants) should be decommissioned and replaced to evaluate groundwater conditions within the concentrated plume area.

Based on the Opinion Letter and subsequent communications with Ecology, Aspect conducted the following work in October 2019:

- Performing groundwater monitoring at Site wells not used for oxidant injections.
- Conducting a vapor intrusion assessment.
- Preparing an FFS, which documented the groundwater sampling and vapor intrusion assessment results, provided updated cleanup standards, evaluated potential remedies to achieve Site closure, and selected a preferred cleanup action.

Based on subsequent discussions with Ecology, additional data needed to complete the FFS were identified. This included groundwater data at former injection wells, a new

monitoring well to delineate the northwest extent of the chlorinated solvent plume, soil data to delineate the extent of chlorinated solvents in the source area, and updated water levels based on well elevations measured by a licensed surveyor. The investigation scope was described in the Data Gaps Work Plan (Aspect, 2021) and was conducted in April 2021. This Revised FFS incorporates the newly collected data and additional analysis requested by Ecology.

This report is organized as follows:

- **Section 1** summarizes background information about the Site, including Site history, the CSM (geology, hydrogeology, and nature and extent of contamination), and an exposure pathway assessment.
- **Section 2** describes the cleanup requirements, including remedial action objectives (RAOs), applicable or relevant and appropriate requirements (ARARs), cleanup levels and points of compliance.
- **Section 3** provides a focused feasibility study (FFS) including screening of remediation technologies, identifying and evaluating three remedial alternatives, and selecting a preferred remedy.
- **Section 4** provides references used in the preparation of this report.

1.2 Site Description and History

The Property is located at 4403 Russell Road in Mukilteo, Washington (Figure 1-1). The Property includes eight tax parcels, six of which are owned by RRIP, one of which is owned by the Blunt Family LLC (4480 Chennault Beach Road), and one of which are owned by the International Church of the Foursquare Gospel (4424 Chennault Beach Road). Surrounding properties are generally commercial and industrial. Current use of the Property includes real estate offices, a church, and storage. A Site map showing tax parcels, building footprints, and groundwater monitoring well locations is provided on Figure 1-2.

Historical use of the Property is described in the RI/FS Report (Aspect, 2015), and has included the following suspected sources of contamination:

- A 550-gallon heating oil underground storage tank (UST) was located on the south side of building 4493.
- A floor drain in Building 4433 in the area of operations formerly by Exotic Metals Welding was connected to the storm drain system north of the building, and contained oil staining in 1995.
- Former operations of Intermec Corporation and King Machine, which occupied the north end of Building 4403, are suspected of using and releasing tetrachloroethylene (PCE) and trichloroethylene (TCE). In 1995, oily sludge was observed in catch basin #34, located east of Building 4403.
- Absolute Cleaning Services used PCE and kerosene, which were stored or used in Buildings 4433 and 4403.

The primary source of chlorinated volatile organic compound (cVOC) contamination in soil and groundwater appears to have originated from former and existing storm drains located east of the former Intermec space in Building 4403. These storm drains consist of catch basins connected to perforated lateral piping to infiltrate water into the subsurface.

Interim Actions. Previous remedial actions are described in the RI/FS Report and include the following:

- **1995:** Removal of the former heating oil UST and 25 tons of petroleum-contaminated soil. Soil and groundwater confirmation samples indicated no exceedances of Method A cleanup levels.
- **1995:** Removal of 1 cubic yard of petroleum-contaminated soil from the Exotic Tool Welding floor drain. Confirmation samples indicated no exceedances of Method A cleanup levels.
- **1996:** 25 tons of petroleum-contaminated soil was removed from around Catch Basin #34. No confirmation samples were collected.
- **2006:** Three rounds of *in situ* chemical oxidation using Fenton's Reagent were applied to the area of PCE and TCE groundwater contamination east and northeast of Building 4403.

1.3 Conceptual Site Model

The CSM, including Site geology and hydrogeology and the nature and extent of contamination, is described in detail in the RI/FS Report, and an updated CSM is provided in the Groundwater Classification and Proposed Cleanup Standards Report (Aspect, 2018). This section provides a summary of the key CSM elements relevant to this FFS and includes additional information requested by Ecology in its Opinion Letter.

1.3.1 Geology

Site geology includes the following:

- Silty sand, from surface to a depth of approximately 5 feet, interpreted as fill.
- Dense, heterogeneous, non-sorted mixture of silt, sand and gravel (glacial till), from beneath the fill to a maximum depth of 177 feet. Weathered glacial till is present to an approximate depth of 15 feet, with denser unweathered till beneath.
- Dense sand, beneath the glacial till, interpreted as Advance Outwash deposits (Esperance sand).

1.3.2 Hydrogeology

Groundwater occurs as a perched zone above and within the glacial till. Groundwater above the unweathered glacial till occurs at depths ranging from 2 to 7 feet and is likely influenced by the stormwater infiltration system. The general direction of groundwater flow is to the north-northwest. A groundwater contour map for May 2021 is included on Figure 1-6.

1.3.3 Nature and Extent of Contamination

Soil and groundwater data collected through 2015 is provided in tables and on figures in the RI/FS Report. The constituents of concern (COCs), based on constituents with exceedances of the Model Toxics Control Act (MTCA) Method A cleanup levels, are as follows:

- **COCs in soil:** PCE, TCE.
- **COCs in groundwater:** PCE, TCE, cis-1,2-dichloroethene (cis-DCE), vinyl chloride (VC), methylene chloride, diesel-range total petroleum hydrocarbons (TPH), oil-range TPH, and arsenic.

The occurrence of Site COCs in soil, groundwater, and soil vapor are summarized below.

1.3.3.1 COC Occurrences in Soil

Soil data for COCs collected through 2015 were presented in Table 4.1 of the RI/FS Report. Soil samples collected from MW-16 and MW-16D at depths ranging from 5 to 65 feet exceeding the MTCA Method A cleanup level for PCE and/or TCE, and a soil sample collected from MW-21 at a depth of 9 to 10 feet exceeded the MTCA Method A cleanup level for TCE. The maximum concentrations detected were 0.13 mg/kg PCE (MW-16D, at a depth of 5 feet) and 4.9 mg/kg TCE (MW-16, at a depth of 15.5 to 16 feet).

In 2021, additional soil data was collected in the cVOC source area to delineate the extent of PCE and TCE to be targeted for treatment. That data is provided in Appendix A and summarized on Figure 1-3. Soil data is also included on cross-sections AA' (Figure 1-4) and BB' (Figure 1-5). The highest concentrations detected were at AB-9, at a depth of 13.5 feet (0.43 mg/kg TCE) and AB-10 at a depth of 16.5 feet (0.053 mg/kg PCE, 0.31 mg/kg TCE). The majority of soil contamination appears to be located near the weathered/unweathered glacial till contact approximately 12 to 17 feet deep.

1.3.3.2 COC Occurrences in Groundwater

Historical groundwater data for COCs through 2015 were presented in Table 4.2 and Figures 7A through 7E of the RI/FS Report (Aspect, 2015). Groundwater sampling was conducted in October 2019 and April 2021 as described in Appendix A¹; that data is tabulated in Appendix A (Table A-1). Occurrences of cVOCs, TPH, and arsenic in groundwater are summarized below.

cVOCs. Concentrations of PCE and TCE measured in October 2019 and April 2021 are shown on Figure 1-6 and included on cross-sections AA' (Figure 1-4) and BB' (Figure 1-5). The estimated extent of the PCE/TCE plume based on historical and current data is shown on Figure 1-6. Trend plots for wells within the plume are shown on Figure 1-7. These concentrations show significant improvement in a number of wells within the ISCO treatment area. Elevated concentrations of other cVOCs have been detected in this area but do not extend beyond the PCE/TCE plume footprint.

¹ Groundwater sampling in October 2019 included all site wells except those previously used as injection points for remediation.

cVOC concentrations in deep monitoring wells (MW-2D and MW-16D) were not detected above Method A cleanup levels in October 2019, but TCE was detected at a concentration of 30 ug/L (similar to historical groundwater data) in April 2021.

TPH. In October 2019, diesel- and oil-range TPH concentrations did not exceed Method A cleanup levels. In April 2021, oil-range TPH concentrations exceeded Method A cleanup levels in the area of the cVOC plume, at wells MW-1, MW-9, and MW-12. Historical data indicated intermittent detections slightly above cleanup levels at wells MW-3, MW-6, MW-9, MW-16D, and MW-19, at a maximum concentration of 950 ug/L oil-range TPH (MW-9).

Arsenic. In October 2019 and April 2021, arsenic exceeded the MTCA Method A cleanup level at 5 wells, as shown on Figure 1-8, at maximum dissolved and total concentrations of 54.8 and 77.5 ug/L (MW-19). Arsenic exceedances are not collocated with exceedances of other contaminants and do not exhibit a particular pattern of occurrence. These occurrences may be related to natural background, affected by fill materials, and/or influenced by the stormwater infiltration system at the Site.

1.3.3.3 COC Occurrences in Soil Vapor

In October 2019, two soil vapor samples were collected within the PCE/TCE plume footprint, as described in Appendix A. These samples were collected at locations with the greatest potential for vapor intrusion, based on the magnitude of soil or groundwater contamination and the presence of enclosed, occupied structures. Locations are shown on Figure 1-3. cVOCs, including PCE and TCE, were not detected in either sample, and detection limits were below the applicable soil vapor screening levels. Therefore, vapor intrusion was not identified as a pathway of concern under current Site conditions.

1.4 Exposure Pathway Assessment

The primary exposure associated with the presence of COCs at the Site is for human health. Terrestrial ecological risk is not considered a viable exposure pathway because of the developed nature of the Site and surroundings, and Ecology has concurred that the Site meets the initial Terrestrial Ecological Evaluation exclusion criteria (Ecology, 2018).

Potential exposure pathways that may affect human health include soil, groundwater, and vapor intrusion. The following sections present a description of these potential exposure pathways at the Site.

1.4.1 Soil Exposure Pathway

The soil direct-contact pathway considers both dermal contact and ingestion of soil from beneath the Site, to a maximum depth of 15 feet below ground surface (bgs). None of the detected COC concentrations exceed MTCA Method B direct contact cleanup levels for unrestricted use. Therefore, this pathway does not represent an unacceptable risk at the Site.

1.4.2 Groundwater Exposure Pathway

This pathway includes ingestion of groundwater at the Site. Potable water for the Site is supplied by the City of Mukilteo; there are no drinking water supply wells near the Site.

It is unlikely that Site groundwater will be used for drinking water in the near future, so this pathway does not represent an unacceptable risk under current Site conditions. However, current groundwater data are above MTCA Method A cleanup levels, and Ecology has indicated that Site groundwater should be considered a potential future drinking water source. Therefore, additional actions may be needed to protect this pathway for the future.

1.4.3 Vapor Exposure Pathway

The vapor intrusion pathway includes exposure to volatilized gases in air that have migrated from soil gas. A vapor intrusion assessment conducted in October 2019 determined that vapor intrusion risk to current buildings was not a concern. However, based on the concentrations of PCE and TCE in soil and groundwater, this pathway may need to be reevaluated if Site use changes.

2 Cleanup Requirements

This section presents the cleanup action objectives, applicable or relevant and appropriate requirements (ARARs), and cleanup standards for the cleanup action.

2.1 Remedial Action Objectives

Remedial action objectives consist of the key goals that the selected remedial action will achieve. The objective for the cleanup action is to remediate contaminated soil and groundwater at the Site that pose a potential threat to human health via the potential exposure pathways in an efficient and cost-effective manner to the maximum extent practicable.

The specific goal of the cleanup is to reduce concentrations of COCs in soil and groundwater at the Site below their applicable cleanup levels to the extent practicable to meet MTCA requirements and obtain an NFA determination from Ecology. Concentrations of COCs may remain above their applicable cleanup levels with Ecology approval if a restrictive covenant is placed on the affected properties.

2.2 Applicable or Relevant and Appropriate Requirements

The most applicable or relevant and appropriate requirement for the Site is Ecology's MTCA cleanup levels and regulations that address the implementation of a cleanup under MTCA (Chapter 173.105D RCW; Chapter 173-340 WAC). Other potentially applicable or relevant and appropriate requirements include:

- State Water Pollution Control Act (Chapter 90.48 RCW)
- Water Resources Act (Chapter 90.54 RCW)
- Washington State Hazardous Waste Management Act (Chapter 70.105 RCW)
- State Dangerous Waste Regulation (Chapter 173-303 WAC)
- Solid waste management Reduction and Recycling (Chapter 70.95 RCW)
- Minimum Standards for Construction and Maintenance of Wells (Chapter 173-160 RCW)
- Washington Clean Air Act (Chapter 70.94 RCW)
- Puget Sound Clean Air Agency Regulations (<http://www.pscleanair.org>)
- Occupational Safety and Health Act (OSHA), 29 CFR Subpart 1910.120
- Washington Industrial Safety and Health Act (WISHA)
- Archaeological and Cultural Resources Act (Chapter 43.53 RCW)
- State Environmental Policy Act (Chapter 43.21C RCW, Chapter 173-802 WAC, and Chapter 197-11 WAC)

2.3 Cleanup Standards

Cleanup standards for the Site include establishing cleanup levels and the points of compliance at which those cleanup levels will be attained. The following presents a discussion of the proposed cleanup levels and points of compliance for the Site.

2.3.1 Cleanup Levels

Cleanup levels are based on the potential exposure pathways identified in the exposure assessment (direct contact with soil, ingestion of groundwater). They include consideration of cross-media transport pathways (i.e., soil leaching to groundwater).

Proposed cleanup levels for affected media at the Site are as follows:

- **Soil** – MTCA Method A cleanup levels for unrestricted land use.
- **Groundwater** – MTCA Method A cleanup levels for protection of drinking water as a beneficial use.

2.3.2 Points of Compliance

The standard points of compliance for affected media at the Site are as follows:

- **Soil for protection from direct contact.** Ground surface to a depth of 15 feet.
- **Soil for protection of groundwater.** Throughout the Site.
- **Groundwater for protection of drinking water.** Extending vertically from the uppermost level of the saturated zone to the lowest-most depth potentially affected.

When it is not practicable to achieve cleanup levels in soil at the standard points of compliance, the cleanup action may involve containment of hazardous substances. Remedies involving containment may still be determined to comply with cleanup standards, provided: 1) the selected remedy is permanent to the maximum extent practicable; 2) the cleanup action is protective of human health and the environment; and 3) appropriate institutional controls, including compliance monitoring and periodic reviews, are implemented (173-340-740(6)(f) WAC).

3 Focused Feasibility Study

This FFS considers the requirements under 173-340-350 WAC, Site-specific conditions, and the criteria defined in 173-340-360 WAC for screening and evaluation of potentially feasible remedial alternatives for the Site.

3.1 Potential Remedial Technologies

Potential remedial technologies for addressing the residual soil and groundwater impacts at the Site include:

- **Institutional Controls (ICs).** Measures to limit or prohibit activities that may interfere with the integrity of a cleanup action or result in exposure to hazardous substances (e.g., limitations on the use of the Property or resources, such as an environmental covenant or maintenance requirements for engineering controls).
- **Engineering Controls (ECs).** Containment and/or mitigation systems designed to prevent or limit the movement of, or the exposure to, hazardous substances (e.g., paving/capping, vapor barriers).
- **Monitored Natural Attenuation (MNA).** Monitoring the reduction of contaminants through natural processes over time (e.g., biodegradation).
- **Soil Vapor Extraction (SVE).** Extracting contaminants in the form of soil vapor and introducing oxygen into the unsaturated zone to enhance microbial activity.
- **Air Sparging (AS).** Injecting air into contaminated groundwater to volatilize contaminants (typically collected with an SVE system).
- **Dual-Phase Extraction (DPE).** Extracting and treating contaminated groundwater and vapor.
- **In Situ Chemical Oxidation (ISCO).** Injecting or mixing an oxidant, such as potassium permanganate or sodium persulfate, into the soil to react with and destroy contaminants.
- **Enhanced Anaerobic Biodegradation (EAB).** Introducing carbon and/or nutrients to the subsurface to stimulate microbial biodegradation of contaminants.
- **In Situ Chemical Reduction (ISCR).** Injecting, emplacing, or mixing a reductant, such as zero-valent iron, into the soil to react with and destroy contaminants.
- **In Situ Thermal Treatment (ISTT).** Heating the soil to volatilize and extract contaminants for above-ground treatment.
- **Soil Excavation.** Removal of impacted soil followed by off-site disposal.

3.2 Remedial Technology Screening

These remedial technologies have been applied at sites with similar conditions and chemical occurrences. The following technologies are not retained for the following reasons:

- The effectiveness of AS and SVE is expected to be limited because the perched water table is very shallow, and the majority of residual soil impacts are located beneath the water table within low-permeability soils.
- The effectiveness of DPE will similarly be limited by low-permeability soils, low-yielding groundwater, and relatively insoluble contaminants. Furthermore, the cost of this technology is relatively high.
- ISCO was previously applied at the Site in three separate injections rounds, and while it reduced PCE and TCE concentrations, it was not able to significantly shrink the plume footprint.
- The cost for ISTT is very high for shallow soil contamination when compared to excavation, and implementation of ISTT would cause significant site disruptions.

The remaining technologies were retained for the following reasons:

- ICs and ECs are easily implemented at a relatively low cost and are an effective means to prevent unacceptable exposures to residual contamination.
- MNA is easily implemented at a relatively low cost and can be an effective component for sites where ICs and ECs can reliably control exposure pathways, particularly when combined with active treatment technologies.
- EAB and ISCR are complimentary and are often combined through amendment mixtures, although site-specific testing may indicate one or the other is more effective. These technologies can be effective with moderate costs even with low-permeability or heterogeneous soils, although effectiveness is highly site-specific and typically requires pilot testing.
- Soil excavation and off-site disposal is often the most effective method, particularly for low-permeability soils, when impacted soil is accessible.

3.3 Development of Remedial Alternatives

Based on the screening of remedial technologies, three remedial alternatives² were developed for comparison with MTCA criteria for cleanup actions using the technologies retained in the initial screening:

- Alternative 1 – ICs and MNA
- Alternative 2 – EAB/ISCR of cVOCs with ICs and MNA
- Alternative 3 – Soil Excavation of cVOCs with ICs and MNA
- Alternative 4 – Thermal Treatment of cVOCs with ICs and MNA

These alternatives are described in the following sections. Feasibility-level cost estimates (+50/-30 percent) for each alternative were developed in accordance EPA cost-estimating guidance (EPA, 2000) and professional experience with similar projects. Future costs were calculated using net-present value analysis. Cost-estimate details and assumptions

for Alternatives 1, 2, 3, and 4 are provided in Tables 3-1, 3-2 3-3, and 3-4, respectively, and discussed below.

3.3.1 Alternative 1—Institutional Controls and Monitored Natural Attenuation

This alternative supplements the interim remedial actions of ISCO (for cVOC treatment) and soil removal (for TPH). The purpose of this alternative is to provide protection of human health and the environment until it can be demonstrated that natural attenuation has reduced COC concentrations below applicable cleanup standards. This alternative involves the following elements:

- Placing an environmental covenant on affected parcels of the Property to control subsurface activities and potential exposure (e.g., restricting groundwater withdrawal).
- Conducting an MNA analysis, including quarterly monitoring of geochemical parameters in groundwater for one year.
- Periodic performance monitoring of groundwater to confirm effectiveness of the remedy and confirm the residual plume is stable or shrinking.
- Confirmation soil sampling to assess the performance of MNA for remediation of residual soil impacts.

As part of this alternative, existing monitoring wells that were used for remediation by ISCO injection would be decommissioned, and approximately 4 replacement wells would be installed to help monitor the PCE/TCE plume. Groundwater monitoring at the Site would be conducted for all Site COCs (VOCs, arsenic, and TPH). The monitoring well network, including potential replacement wells, and parcels requiring an environmental covenant are shown on Figure 3-1.

Contaminant concentrations have declined as a result of interim measures. TPH concentrations were below cleanup levels in October 2019, although more confirmation monitoring data is needed to evaluate seasonality. Based on the groundwater concentration trends to date, arsenic, PCE and/or TCE are expected to exceed cleanup levels into the foreseeable future. The time for monitoring under this alternative is assumed to be 30 years for cost-estimating purposes.

Quarterly groundwater monitoring including geochemical parameters for MNA would be performed for 1 year to establish seasonal trends. Subsequent groundwater monitoring is assumed to be conducted annually (assumed, for cost estimating purposes, to be 5 years) until the plume is demonstrated to be shrinking and projected to achieve cleanup levels within a reasonable restoration time frame, at which time an NFA would be requested. Subsequent monitoring would be conducted once every 5 years to support 5-year reviews. Confirmation soil sampling within the PCE/TCE plume footprint is assumed to be conducted in Year 30.

The estimated cost of this alternative is \$327,000 as shown in Table 3-1.

3.3.2 *Alternative 2— EAB/ISCR of cVOCs with Institutional Controls and Monitored Natural Attenuation*

This alternative supplements the measures identified in Alternative 1 by adding active treatment using enhanced anaerobic bioremediation and/or in-situ chemical reduction (specific amendment mixture to be determined during design) to achieve treatment of cVOCs to the extent practicable. It involves the following elements:

- Conducting an EAB/ISCR pilot test and preparing a design and performance monitoring plan.
- Implementation of EAB/ISCR, by injecting amendments. Injection methods, amendments, quantities, and injection locations would be based on pilot testing results.
- Conducting soil and groundwater performance monitoring.
- If treatment to the extent practicable results in residual concentrations above cleanup levels:
 - Placing an environmental covenant on affected parcels of the Property to control subsurface activities and potential exposure.
 - Periodic performance monitoring of groundwater for cVOCs, arsenic, and diesel- and oil-range TPH, to assess the effectiveness of the remedy and confirm the residual plume is stable or shrinking.

As with Alternative 1, existing monitoring wells that were previously used for remediation by ISCO injection would be decommissioned. Approximately four additional wells would be installed to support design and pilot testing.

If the pilot test indicates that EAB/ISCR is effective at reducing cVOC concentrations, the pilot test data would be used to design full-scale implementation of EAB/ISCR within the cVOC plume area. It is anticipated that EAB/ISCR will destroy contaminant mass and reduce the restoration time frame, but that the effectiveness of active treatment will reach a point of diminishing returns and would transition to MNA with institutional controls. At the cessation of active treatment, if residual contamination remains on the Property above cleanup levels, an environmental covenant would be placed on the affected parcels and a No Further Action (NFA) letter would be requested from Ecology.

For cost estimating purposes, we have assumed that EAB/ISCR would be implemented in two injection events using direct-push technology within the first 4 years followed by MNA. The target injection depth – 16 feet – is close to the practicable limit of direct-push injection based on previous investigations; therefore, the costs include a contingency for auger-drilled injection points in targeted locations. A conceptual injection layout that includes 3 injection transects perpendicular to the main groundwater plume, a potential monitoring well network, and parcels requiring an environmental covenant are shown on Figure 3-2.

Groundwater monitoring is assumed to be conducted semi-annually during EAB implementation to evaluate performance. Subsequent groundwater monitoring is assumed to be conducted annually until the plume is demonstrated to be stable or shrinking (assumed, for cost estimating purposes, to be 5 years), at which time an NFA would be

requested. Subsequent monitoring would be conducted in year 10 to support the 5-year review.

The estimated cost of this alternative is \$450,000 as shown in Table 3-2.

3.3.3 Alternative 3—Soil Excavation

This alternative assumes that accessible soil exceeding cleanup levels will be excavated and removed. For the purposes of this evaluation, we have assumed soil that cannot be removed without underpinning or removing existing buildings is inaccessible, but that drainage utilities (catch basins and piping) can be temporarily removed and replaced to facilitate cleanup. The maximum practicable excavation depth, considering neighboring buildings and the depth to groundwater, is assumed to be approximately 16 feet, and that a maximum allowable sideslope without engineered shoring is 1H:1V.

This alternative involves the following elements:

- Removal of accessible soil exceeding cleanup levels within the cVOC plume.
- Confirmation soil sampling at the limits of excavation.
- Placing an environmental covenant on affected parcels of the Property to control subsurface activities and potential exposure.
- Periodic performance monitoring of groundwater to assess the effectiveness of the remedy and confirm the residual plume is stable or shrinking.

The limits of contaminated soil to be removed would be determined during a design investigation. Excavated soil would be characterized and disposed of at a permitted landfill, and the excavated area backfilled with clean imported material. Removed pavement and any temporarily removed utilities would be replaced to restore area. A contained-in determination may be requested to dispose of soil with cVOC concentrations below the hazardous waste characteristic at a Subtitle D (non-hazardous) landfill. For cost estimating purposes, it is assumed that 10 percent of the excavated soil would be disposed of at a Subtitle C (hazardous) landfill and the remainder at a Subtitle D landfill.

It is assumed that due to access constraints, residual contamination will remain on the Property above cleanup levels. After monitoring confirms that the groundwater plume is stable or shrinking, an environmental covenant would be placed on the affected parcels and an NFA letter would be requested from Ecology. The assumed excavation area, monitoring well network, and parcels requiring an environmental covenant are shown on Figure 3-3.

Groundwater monitoring would be conducted semi-annually for two years following excavation and then be conducted on an annual basis until the plume is demonstrated to be stable or shrinking. Subsequent groundwater monitoring is assumed to be conducted annually until the plume is demonstrated to be stable or shrinking (assumed, for cost estimating purposes, to be 5 years), at which time an NFA would be requested. Subsequent monitoring would be conducted in year 10 to support the 5-year review.

The estimated cost of this alternative is \$1,176,000 as shown in Table 3-3. This cost does not include lost rent from tenant impacts, which are expected to be substantial.

3.3.4 Alternative 4—Thermal Treatment

This alternative assumes that soil exceeding cleanup levels will be treated via Electrical Resistance Heating (ERH). ERH applies electricity to subsurface electrodes, and the resistance of the soil generates heat. ERH heats the soil to near the boiling point of water, which volatilizes cVOCs. The vapors are then extracted and treated.

For the purposes of this evaluation, we have assumed that treatment will include the portion of contamination beneath the building, which may require drilling electrodes inside the building. Temporary enlargement of the doorway may be needed to facilitate access. We have assumed that ERH would target the main portion of contaminant mass, approximately 20 feet deep or less, within the main cVOC plume; slightly elevated concentrations at deeper depths and in the vicinity of MW-1 would be addressed via ICs and MNA.

This alternative involves the following elements:

- Installation of an ERH treatment system, including:
 - Subsurface electrodes on an approximate 15-foot spacing;
 - A soil vapor extraction blower and vapor extraction points, to collect volatilized contaminants;
 - A condenser, to cool the extracted vapor and remove water vapor; and
 - Granular activated carbon (GAC) for treatment of extracted vapor and water.
- Operation of the treatment system for approximately 3 to 6 months.
- Confirmation soil and groundwater sampling after mass removal becomes asymptotic.
- Placing an environmental covenant on affected parcels of the Property to control subsurface activities and potential exposure.
- Periodic performance monitoring of groundwater to assess the effectiveness of the remedy and confirm the residual plume, if present, is stable or shrinking.

Thermal treatment can greatly reduce cVOC concentrations in soil, but as with any *in situ* technology applied to dense, heterogeneous soils, it is assumed that some residual contamination will remain on the Property above cleanup levels. After monitoring confirms that the groundwater plume is stable or shrinking, an environmental covenant would be placed on the affected parcels and an NFA letter would be requested from Ecology. The assumed treatment area, monitoring well network, and parcels requiring an environmental covenant are shown on Figure 3-3.

Groundwater monitoring would be conducted quarterly for 1 year following thermal treatment, and subsequent groundwater monitoring would be conducted annually until the plume is demonstrated to be stable or shrinking (assumed, for cost estimating purposes, to be 2 years), at which time an NFA would be requested.

The estimated cost of this alternative is \$2,248,000 as shown in Table 3-4. This cost does not include lost rent from tenant impacts, which are expected to be substantial.

3.4 Evaluation of Remedial Alternatives

MTCA requires that remedial alternatives for a site satisfy certain “threshold” criteria, as specified in 173-340-360(2) WAC:

- Protect human health and the environment
- Comply with cleanup standards
- Comply with applicable state and federal laws
- Provide for compliance monitoring

In addition to meeting the threshold criteria, cleanup action alternatives under MTCA must also satisfy these “other” requirements:

- Use of permanent solutions to the maximum extent practicable
- Provide for a reasonable restoration time frame
- Consider public concerns

These criteria represent the minimum requirements for an acceptable cleanup action alternative under MTCA. All remedial alternatives being considered for this Site meet these criteria as summarized in Table 3-5.

3.5 Disproportionate Cost Analysis

In addition to meeting the minimum requirements for a cleanup action, MTCA also allows for consideration of cost in selecting among competing remedial alternatives (173-240-360(3)(e) WAC). If the cost of one alternative is disproportionately higher than another when compared to the benefits afforded by each alternative, then the lower-cost alternative can be selected. The test for making this determination is stated in MTCA as follows: *“Costs are disproportionate to benefits if the incremental costs of the alternative over that of a lower cost alternative exceed the incremental degree of benefits achieved by the alternative over the other lower cost alternative.”* MTCA requires evaluation of the following criteria when conducting a DCA:

- Protectiveness
- Permanence
- Effectiveness over the long-term
- Management of short-term risks
- Technical and administrative implementability
- Consideration of public concerns

For this comparison, the evaluation of each remedial alternative relative to these criteria is summarized in Table 3-5. Although Alternative 1 meets the threshold requirement for protectiveness, the ability of Alternative 1 to achieve cleanup levels within a reasonable restoration time frame is uncertain because the wells with the highest cVOC concentrations are not currently exhibiting a declining trend. Alternative 2 is identified as the preferred remedial alternative for the Site because it provides benefits when compared

to Alternative 1 by reducing the restoration time frame for cVOCs for only a modest increase in cost, while the costs to implement Alternatives 3 and 4 are disproportionately higher than Alternative 2 and do not provide a significant environmental benefit . A graphical summary of the disproportionate cost analysis is provided in Figure 3-5.

4 References

Aspect Consulting, LLC (Aspect), 2015, Remedial Investigation/Feasibility Study, HERS Industrial Park, Mukilteo, Washington, November 2015.

Aspect Consulting, LLC (Aspect), 2018, Draft Groundwater Classification Report and Proposed Cleanup Standards, HERS Industrial Park Site, Mukilteo, Washington, January 29, 2018.

Washington State Department of Ecology (Ecology), 2016, Opinion pursuant to WAC 173-340-515(5) on Remedial Investigation/Feasibility Study for the HERS Industrial Park Site, Facility/Site ID No. 127256, VCP No. NW1554, November 8, 2016.

Washington State Department of Ecology (Ecology), 2018, Letter to Mr. Romeo Gonyea Re: Further Action at the following Site: HERS Industrial Park, June 28, 2018.

5 Limitations

Work for this project was performed for Russell Road Industrial Park LLC (Client), and this report was prepared in accordance with generally accepted professional practices for the nature and conditions of work completed in the same or similar localities, at the time the work was performed. This report does not represent a legal opinion. No other warranty, expressed or implied, is made.

All reports prepared by Aspect Consulting for the Client apply only to the services described in the Agreement(s) with the Client. Any use or reuse by any party other than the Client is at the sole risk of that party, and without liability to Aspect Consulting. Aspect Consulting's original files/reports shall govern in the event of any dispute regarding the content of electronic documents furnished to others.

TABLES

Table 3-1. Cost Estimate for Alternative 1

DRAFT

Project No. 140252, Mukilteo, Washington

Site:	Hers Industrial Park				
Remedial Action Description:	Institutional Controls and Monitored Natural Attenuation				
Cost Estimate Accuracy:	Feasibility Study Level (+50/-30 percent)				
Key Assumptions and Quantities:					
10 existing wells					
4 new wells					
5 years to NFA					
30 year monitoring					
CONSTRUCTION COSTS					
Item	Quantity	Unit	Unit Cost	Total Cost	Notes
Professional Services					
Decommission damaged wells	8	ea	\$ 2,500	\$ 20,000	overdrill wells with damaged seals
New monitoring wells	4	ea	\$ 4,000	\$ 16,000	2 inch, shallow wells
IDW disposal	24	drums	\$ 350	\$ 8,400	assume F-listed
MNA characterization	1	LS	\$ 50,000	\$ 50,000	14 wells, quarterly monitoring, one year, and report
Environmental Covenant Support	1	LS	\$ 5,000	\$ 5,000	Figures and descriptions for covenants
Subtotal Professional Services				\$ 99,400	
Tax	10%			\$ 9,940	
Contingency	20%			\$ 21,868	
Total Estimated for Professional Services				\$ 131,000	Rounded to the nearest thousand dollars
ESTIMATED CONSTRUCTION COST				\$ 131,000	Rounded to the nearest thousand dollars
MONITORING COSTS					
Item	Quantity	Unit	Unit Cost	Total Cost	Notes
Groundwater Monitoring Per Event (14 wells)					
labor	26	hr	\$ 128	\$ 3,328	
equipment	3	days	\$ 340	\$ 1,020	
IDW	1	ls	\$ 1,000	\$ 1,000	
analytical	14	ea	\$ 334	\$ 4,669	VOCs, arsenic, TPH-Dx
Subtotal Groundwater Monitoring Per Event (14 wells)				\$ 10,017	
Project Management and Reporting Per Groundwater Monitoring Event					
project management	4	hr	\$ 230	\$ 920	
data management	2	hr	\$ 128	\$ 256	
data analysis and evaluation	8	hr	\$ 173	\$ 1,384	
reporting	16	hr	\$ 173	\$ 2,768	
Subtotal Project Management and Reporting Per Groundwater Monitoring Event				\$ 5,328	
1.9% Annual discount rate					
Confirmation Monitoring and Reporting					
Groundwater - annually through year 10	10	each	\$ 15,345	\$ 138,562	net present value
Groundwater - Year 15	1	each	\$ 15,345	\$ 11,571	net present value
Groundwater - Year 20	1	each	\$ 15,345	\$ 10,531	net present value
Groundwater - Year 25	1	each	\$ 15,345	\$ 9,585	net present value
Groundwater - Year 30	1	each	\$ 15,345	\$ 8,725	net present value
Soil sampling and well decommissioning at Year 30	1	each	\$ 30,000	\$ 17,057	net present value
ESTIMATED MONITORING COSTS				\$ 196,000	Rounded to the nearest thousand dollars
TOTAL ESTIMATED NPV COST:				\$ 327,000	

Table 3-2. Cost Estimate for Alternative 2

Project No. 140252, Mukilteo, Washington

DRAFT

Site:	Hers Industrial Park				
Remedial Action Description:	EAB/ISCR				
Cost Estimate Accuracy:	Feasibility Study Level (+50/-30 percent)				
Key Assumptions and Quantities:					
injection depth	16 feet				
injection point spacing	6 feet				
average length of transects	30 feet				
number of transects	3				
number of injection points	15				
number of points/day	8				
Amendment capacity	250 gal/point				
CONSTRUCTION COSTS					
Item	Quantity	Unit	Unit Cost	Total Cost	Notes
EAB/ISCR Treatment					
Field scale pilot testing	1	ls	\$ 50,000	\$ 50,000	engineers estimate - 50-foot-long injection transect
EAnB injection - direct-push	4	days	\$ 8,000	\$ 32,000	2 injection events
EAnB injection - auger (contingency)	1	ls	\$ 12,000	\$ 12,000	
soil cuttings mgmt and disposal	30	drum	\$ 350	\$ 10,500	injection and well decommissioning/installation
decon and development water disposal	8	drum	\$ 350	\$ 2,800	
EAnB amendments	7500	lb	\$ 2.5	\$ 18,750	10% solution; 2 injection events
Application equipment, mob/demob	2	ea	\$ 10,000	\$ 20,000	tanks, pumps, etc.
Subtotal				\$ 146,050	
Tax	10%			\$ 14,605	
Contingency	25%			\$ 40,164	
Total Estimated for EAB/ISCR				\$ 201,000	Rounded to the nearest thousand dollars
Professional Services					
Decommission damaged wells	8	ea	\$ 2,500	\$ 20,000	overdrill wells with damaged seals
New monitoring wells	4	ea	\$ 4,000	\$ 16,000	2 inch, shallow wells
Groundwater performance monitoring	4	ea	\$ 10,000	\$ 40,000	EAB parameters, 4 extra events, 6 wells to supplement site-wide monitoring
Design	1	LS	\$ 15,000	\$ 15,000	
Project management, construction oversight and monitoring	2	ea	\$ 15,000	\$ 30,000	2 injection events
Construction reporting and documentation	1	LS	\$ 10,000	\$ 10,000	
Environmental Covenant Support	1	LS	\$ 5,000	\$ 5,000	Figures and descriptions for covenant
Subtotal Professional Services				\$ 136,000	
Contingency	20%			\$ 27,200	
Total Estimated for Professional Services				\$ 163,000	Rounded to the nearest thousand dollars
ESTIMATED CONSTRUCTION COST				\$ 364,000	Rounded to the nearest thousand dollars
MONITORING COSTS					
Item	Quantity	Unit	Unit Cost	Total Cost	Notes
Groundwater Monitoring Per Event (14 wells)					
labor	26	hr	\$ 128	\$ 3,328	
equipment	3	day	\$ 340	\$ 1,020	
IDW	1	ls	\$ 1,000	\$ 1,000	
analytical	14	ea	\$ 334	\$ 4,669	VOCs, arsenic, TPH-Dx
Subtotal Groundwater Monitoring Per Event (14 wells)				\$ 10,017	
Project Management and Reporting Per Groundwater Monitoring Event					
project management	4	hr	\$ 230	\$ 920	
data management	2	hr	\$ 128	\$ 256	
data analysis and evaluation	8	hr	\$ 173	\$ 1,384	
reporting	16	hr	\$ 173	\$ 2,768	
Subtotal Project Management and Reporting Per Groundwater Monitoring Event				\$ 5,328	
1.6% Annual discount rate					
Confirmation Monitoring and Reporting					
Annually for Years 1-5	5	each	\$ 15,345	\$ 73,175	net present value
Year 10	1	each	\$ 15,345	\$ 13,093	net present value
ESTIMATED MONITORING COSTS				\$ 86,000	Rounded to the nearest thousand dollars
TOTAL ESTIMATED NPV COST:				\$ 450,000	

Table 3-3. Cost Estimate for Alternative 3

Project No. 140252, Mukilteo, Washington

DRAFT

Site:	Hers Industrial Park				
Remedial Action Description:	Excavation and Off-Site Disposal				
Cost Estimate Accuracy:	Feasibility Study Level (+50/-30 percent)				
Key Assumptions and Quantities:		Quantities			
	2600 sf	excavation area			
	16 ft	excavation depth			
	300 ft	excavation perimeter			
	1,630 cy	total excavation volume			
	1.65 ton/cy	soil density			
no structural support or engineered shoring					
CONSTRUCTION COSTS					
Item	Quantity	Unit	Unit Cost	Total Cost	Notes
Excavation and Off-Site Disposal					
Mobilization/demobilization, TESC	1	LS	\$ 10,000	\$ 10,000	
Pre-construction submittals and permitting	1	LS	\$ 15,000	\$ 15,000	
Excavate and load soil for offsite disposal	2,689	TON	\$ 14	\$ 37,644	
Transport and dispose of F-listed contaminated soil	269	TON	\$ 230	\$ 61,844	assumes 10% of soil not eligible for CID
Transport and dispose of contained-in contaminated soil	2,420	TON	\$ 134	\$ 324,280	
Import, place, and compact gravel borrow to surface	2,689	TON	\$ 29	\$ 77,978	
remove/replace asphalt	2,600	sf	\$ 12	\$ 31,200	
utility protection	1	LS	\$ 35,000	\$ 35,000	includes replacement of catch basin and infiltration piping
Analytical sampling	40	each	\$ 368	\$ 14,720	24hr TAT
Subtotal Excavation and Off-Site Disposal				\$ 607,667	
Tax	10%			\$ 60,767	
Contingency	35%			\$ 233,952	higher contingency for excavation than in-situ treatment
Total Estimated for Excavation and Off-Site Disposal				\$ 902,000	Rounded to the nearest thousand dollars
Professional Services					
Design investigation	1	LS	\$ 50,000	\$ 50,000	
Decommission damaged wells	8	ea	\$ 2,500	\$ 20,000	overdrill wells with damaged seals
New monitoring wells	4	ea	\$ 4,000	\$ 16,000	2 inch, shallow wells
Project management, construction oversight and monitoring	1	LS	\$ 30,000	\$ 30,000	
Construction reporting and documentation	1	LS	\$ 25,000	\$ 25,000	
Environmental Covenant Support	1	LS	\$ 5,000	\$ 5,000	Figures and descriptions for covenant
Subtotal Professional Services				\$ 146,000	
Contingency	20%			\$ 29,200	
Total Estimated for Professional Services				\$ 175,000	Rounded to the nearest thousand dollars
ESTIMATED CONSTRUCTION COST				\$ 1,077,000	Rounded to the nearest thousand dollars
MONITORING COSTS					
Item	Quantity	Unit	Unit Cost	Total Cost	Notes
Groundwater Monitoring Per Event (14 wells)					
labor	26	hr	\$ 128	\$ 3,328	
IDW	1	ls	\$ 1,000	\$ 1,000	
equipment	3	day	\$ 340	\$ 1,020	
analytical	14	ea	\$ 334	\$ 4,669	VOCs, arsenic, TPH-Dx
Subtotal Groundwater Monitoring Per Event (14 wells)				\$ 10,017	
Project Management and Reporting Per Groundwater Monitoring Event					
project management	4	hr	\$ 230	\$ 920	
data management	2	hr	\$ 128	\$ 256	
data analysis and evaluation	8	hr	\$ 173	\$ 1,384	
reporting	16	hr	\$ 173	\$ 2,768	
Subtotal Project Management and Reporting Per Groundwater Monitoring Event				\$ 5,328	
1.9% Annual discount rate					
Confirmation Monitoring and Reporting					
Semi-annually for Years 1-2	4	each	\$ 15,345	\$ 58,572	net present value
Annually for Years 4-8	2	each	\$ 15,345	\$ 28,199	net present value
Year 10	1	each	\$ 15,345	\$ 12,712	net present value
ESTIMATED MONITORING COSTS				\$ 99,000	Rounded to the nearest thousand dollars
TOTAL ESTIMATED NPV COST:				\$ 1,176,000	

Table 3-4. Cost Estimate for Alternative 4

Project No. 140252, Mukilteo, Washington

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Site:	Hers Industrial Park				
Remedial Action Description:	In-Situ Thermal Treatment				
Cost Estimate Accuracy:	Feasibility Study Level (+50/-30 percent)				
Key Assumptions and Quantities:	3500 sf	Quantities			
	20 ft	treatment area			
	15 ft	treatment depth			
		electrode spacing			
CONSTRUCTION COSTS					
Item	Quantity	Unit	Unit Cost	Total Cost	Notes
In-Situ Thermal Treatment					
Electrode materials	1	LS	\$ 35,000	\$ 35,000	
Drilling - Electrodes, vapor recovery wells, and temperature poi	1	LS	\$ 150,000	\$ 150,000	
Trenching - power, recovery wells, controls	1	LS	\$ 95,000	\$ 95,000	underground piping and utility installation. CDF backfill. Concrete and asphalt cut
Soil disposal - drilling and trenching	110	TON	\$ 95	\$ 10,450	Assumes eligible for CID
Power drop	1	LS	\$ 75,000	\$ 67,500	temporary, pad-mounted transformer
Surface equipment	1	LS	\$ 275,000	\$ 275,000	condenser, blower, PCU. Incl. installation and level pad
GAC units for vapor treatment	4	EA	\$ 7,500	\$ 30,000	includes transport and 2,000 lb GAC each
GAC units for water treatment	2	EA	\$ 800	\$ 1,600	assumes discharge to sewer
GAC disposal	8000	lb	\$ 1	\$ 8,000	assumes direct landfilled (not incinerated)
Operation	5	mo	\$ 80,000	\$ 400,000	includes labor and equipment
Electricity	5	mo	\$ 25,000	\$ 125,000	
Analytical sampling - air	40	each	\$ 200	\$ 8,000	GAC treatment monitoring
Analytical sampling - water	20	each	\$ 180	\$ 3,600	condensate (sewer discharge)
Confirmation soil sampling	1	EA	\$ 15,000	\$ 15,000	direct-push investigation to confirm treatment objectives
Subtotal In-Situ Thermal Treatment				\$ 1,224,150	
Tax	10%			\$ 122,415	
Contingency	35%			\$ 471,298	higher contingency for excavation than in-situ treatment
Total Estimated for Excavation and Off-Site Disposal				\$ 1,818,000	Rounded to the nearest thousand dollars
Professional Services					
Design and permitting	1	LS	\$ 140,000	\$ 140,000	incl. electrical remediation design and additional soil delineation
Decommission damaged wells	8	ea	\$ 2,500	\$ 20,000	overdrill wells with damaged seals
New monitoring wells	4	ea	\$ 4,000	\$ 16,000	2 inch, shallow wells
Project management, construction oversight and monitoring	1	LS	\$ 80,000	\$ 80,000	
Construction reporting and documentation	1	LS	\$ 25,000	\$ 25,000	
Environmental Covenant Support	1	LS	\$ 5,000	\$ 5,000	Figures and descriptions for covenant
Subtotal Professional Services				\$ 286,000	
Contingency	20%			\$ 57,200	
Total Estimated for Professional Services				\$ 343,000	Rounded to the nearest thousand dollars
ESTIMATED CONSTRUCTION COST				\$ 2,161,000	Rounded to the nearest thousand dollars
MONITORING COSTS					
Item	Quantity	Unit	Unit Cost	Total Cost	Notes
Groundwater Monitoring Per Event (14 wells)					
labor	26	hr	\$ 128	\$ 3,328	
IDW	1	ls	\$ 1,000	\$ 1,000	
equipment	3	day	\$ 340	\$ 1,020	
analytical	14	ea	\$ 334	\$ 4,669	VOCs, arsenic, TPH-Dx
Subtotal Groundwater Monitoring Per Event (14 wells)				\$ 10,017	
Project Management and Reporting Per Groundwater Monitoring Event					
project management	4	hr	\$ 230	\$ 920	
data management	2	hr	\$ 128	\$ 256	
data analysis and evaluation	8	hr	\$ 173	\$ 1,384	
reporting	16	hr	\$ 173	\$ 2,768	
Subtotal Project Management and Reporting Per Groundwater Monitoring Event				\$ 5,328	
1.9% Annual discount rate					
Confirmation Monitoring and Reporting					
Semi-annually for Years 1-2	4	each	\$ 15,345	\$ 58,572	net present value
Annually for Years 4-8	2	each	\$ 15,345	\$ 28,199	net present value
ESTIMATED MONITORING COSTS				\$ 87,000	Rounded to the nearest thousand dollars
TOTAL ESTIMATED NPV COST:				\$ 2,248,000	

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7/20/2021

V:\140252 HERS Industrial Park\Deliverables\FFS\Revised FFS\Tables\Cost Estimate tables and DCA Figure_Rev

Table 3-4

Revised Focused Feasibility Study, July 2021

Page 1 of 1

Table 3-5. Summary of Remedial Alternative Evaluation

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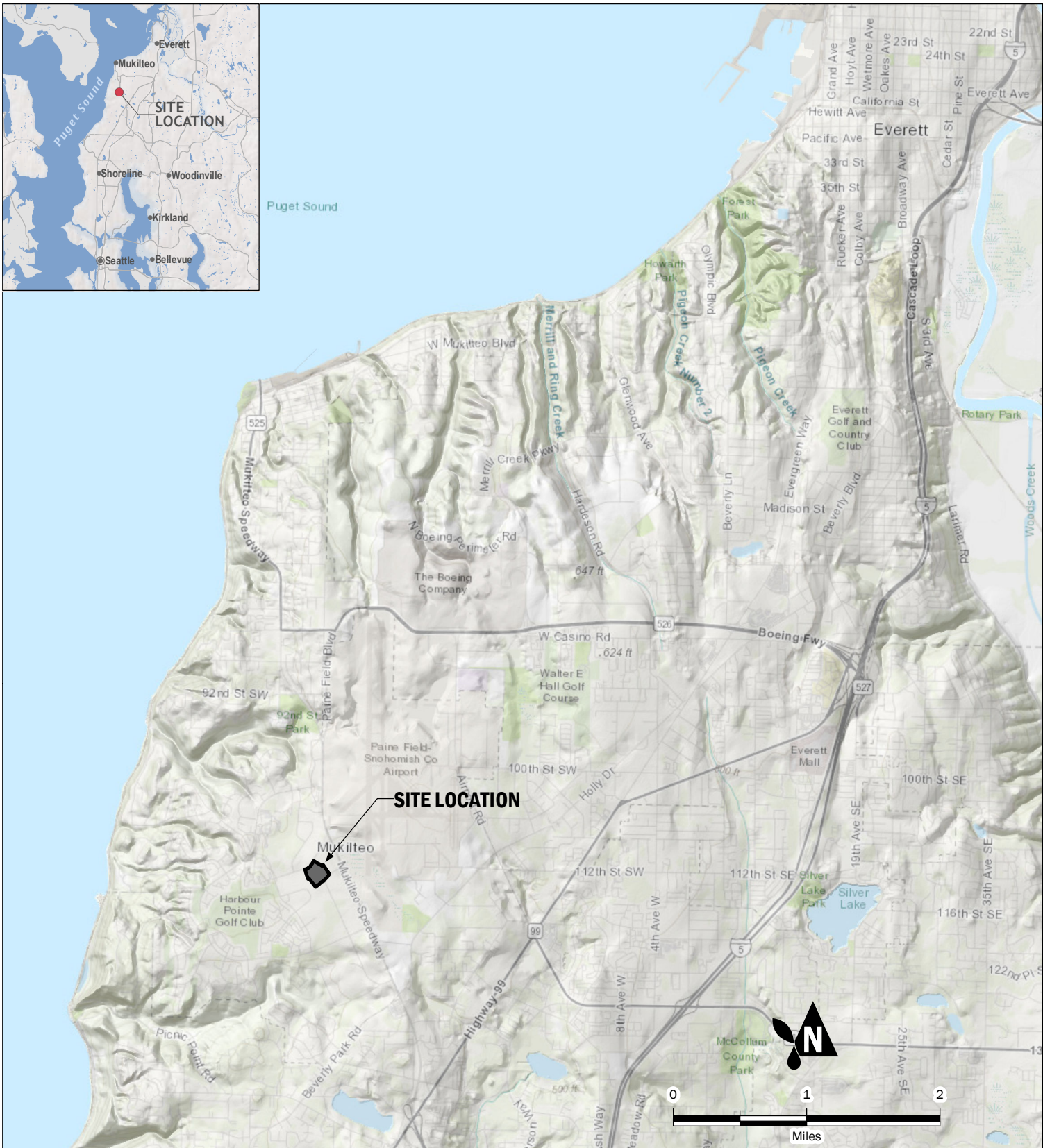
Project No. 140252, Mukilteo, Washington

Alternative Number	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Description	MNA with Institutional Controls	EAB/ISCR with MNA and Institutional Controls	Soil Excavation with MNA and Institutional Controls	In Situ Thermal Treatment with MNA and Institutional Controls
Overall Alternative Ranking	6.3	7.5	6.9	7.3
Benefit-to-Cost Ratio	19.3	16.7	5.9	3.2
Compliance with MTCA Threshold Criteria				
Protection of Human Health and the Environment	Yes	Yes	Yes	Yes
Compliance with Cleanup Standards	Yes	Yes	Yes	Yes
Compliance with Applicable State and Federal Laws	Yes	Yes	Yes	Yes
Provision for Compliance Monitoring	Yes	Yes	Yes	Yes
Restoration Time Frame	30 years	10 years	10 years	5 years
Evaluation Criteria				
Protectiveness (30% Weighted Factor):	6 Protective of exposure pathways through the combination of engineering and institutional controls, lengthy timeframe required.	8 Protective of exposure pathways, reduces potential restoration timeframe.	9 Considered protective of exposure pathways, reduces potential restoration timeframe, removes accessible contaminated soil	9 Considered protective of exposure pathways, reduces potential restoration timeframe, removes accessible contaminated soil
Permanence (20% Weighted Factor):	7 Natural attenuation will permanently reduce the volume and concentration of residual impacted soil and groundwater over lengthy timeframe.	8 Contaminant mass is permanently reduced through chemical treatment.	6 Volume of impacted soil and groundwater on site is reduced; however, contaminated soil transported to landfill rather than destroyed.	9 Volume of impacted soil and groundwater on site is greatly reduced through destruction.
Long-Term Effectiveness (20% Weighted Factor):	4 Relies on natural attenuation to reduce soil and groundwater impacts, requires institutional and engineering controls, and monitoring	7 Shorter restoration time frame. Institutional controls are reliably protective for the low concentrations remaining in place.	7 Shorter restoration time frame, but will still require monitoring of inaccessible contamination.	8 Shorter restoration time frame, but will still require monitoring of plume attenuation outside treatment area.
Short-Term Risk Management (10% Weighted Factor):	9 Lowest risk, involves minimal construction activities	8 Slight risk from drilling and injection activities	6 Modest amount of risk from construction activities, including volatilization of contaminants during excavation.	4 Higher amount of risk from treatment activities, including high voltages, temperatures, and generation of steam.
Implementability (10% Weighted Factor):	9 Highest implementability, requires planning and implementation of monitoring program	8 High implementability. Drilling and injection will require coordination with tenants but should not significantly interfere with site operations.	6 High impact to site tenants during excavation activities.	4 Greatest impact to site tenants during construction and operation of ERH.
Public Concerns (10% Weighted Factor):	5 Relatively long restoration time frame	5 Limited disruption and inconvenience to tenants from construction activities	4 Some disruption and inconvenience to tenant from construction activities.	4 Some disruption and inconvenience to tenant from construction activities.
Cost:	\$327,000	\$450,000	\$1,176,000	\$2,248,000

Note:

For each evaluation criterion, technologies are ranked on a scale of 1 to 10, with 1 representing the lowest protectiveness, permanence, effectiveness, risk and implementability, or greatest level of public concern.

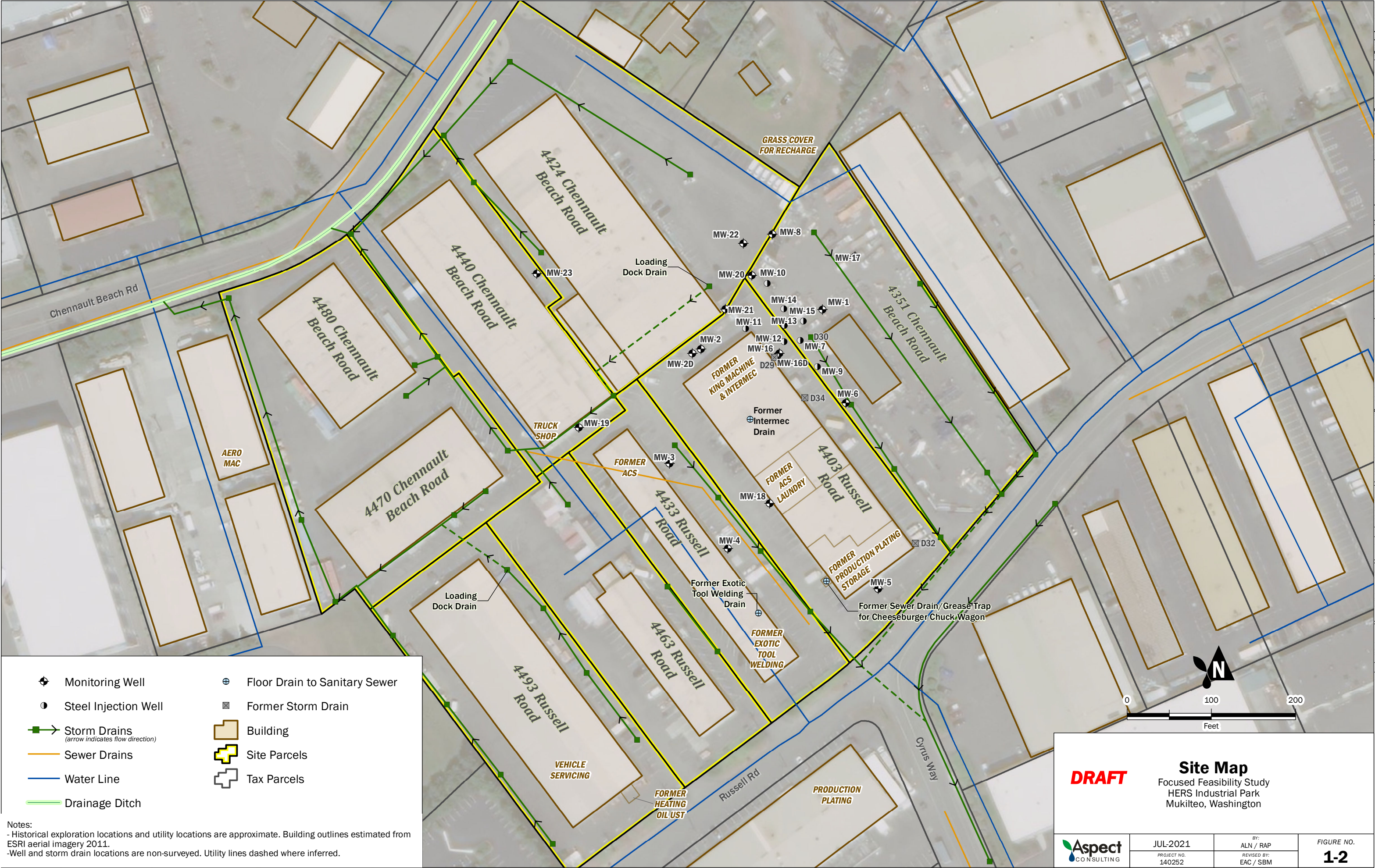
FIGURES



DRAFT

Vicinity Map
 Focused Feasibility Study
 HERS Industrial Park
 Mukilteo, Washington

	JAN-2020	BY: ALN / RAP	FIGURE NO. 1-1
	PROJECT NO. 140252	REVISED BY: EAC	



Monitoring Well

Steel Injection Well

Storm Drains
(arrow indicates flow direction)

Sewer Drains

Water Line

Drainage Ditch

Floor Drain to Sanitary Sewer

Former Storm Drain

Building

Site Parcels

Tax Parcels

Notes:

- Historical exploration locations and utility locations are approximate. Building outlines estimated from ESRI aerial imagery 2011.
- Well and storm drain locations are non-surveyed. Utility lines dashed where inferred.

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Site Map
Focused Feasibility Study
HERS Industrial Park
Mukilteo, Washington

JUL-2021

PROJECT NO.
140252

BY:
ALN / RAP

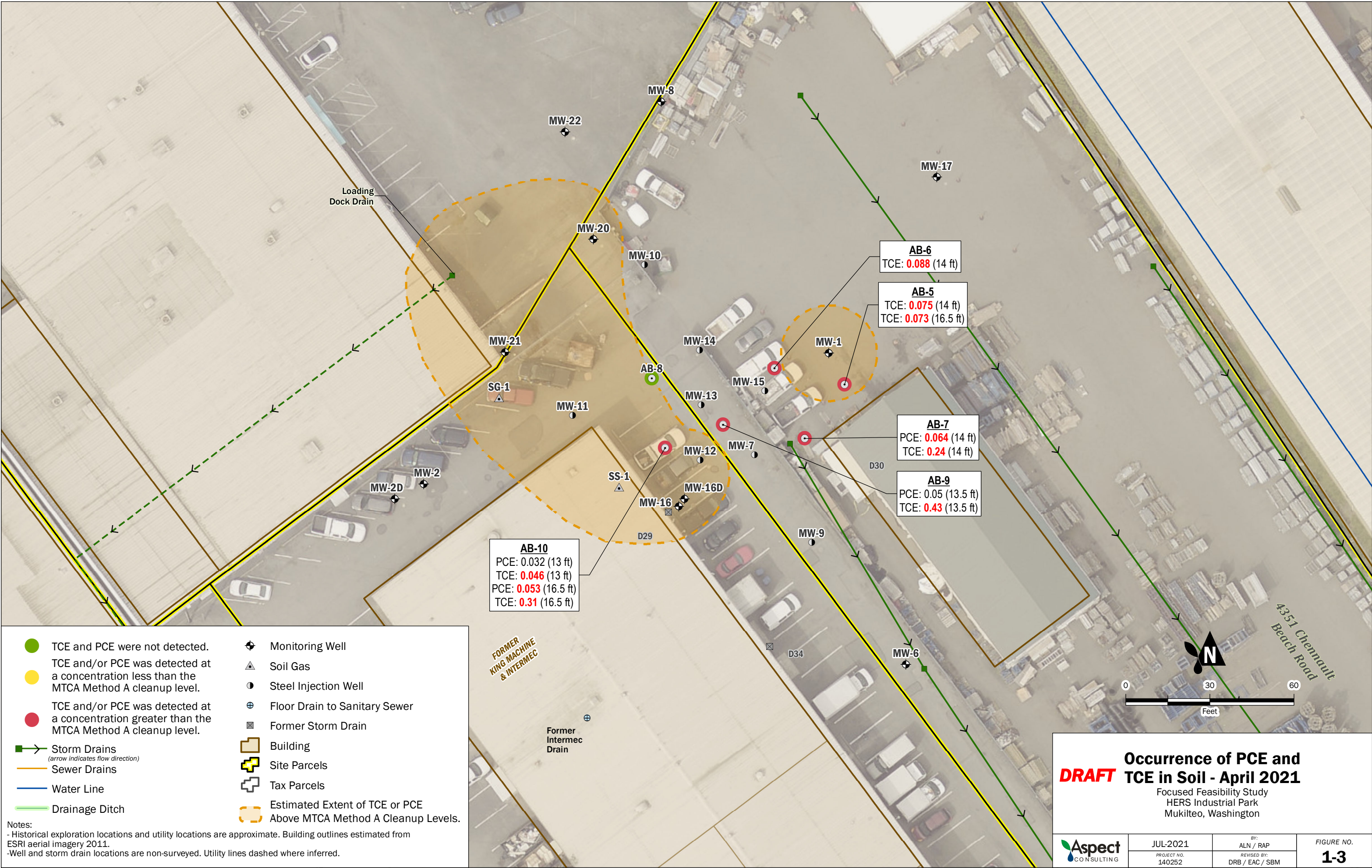
REVISED BY:
EAC / SBM

FIGURE NO.

1-2

Basemap Layer Credits || Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

GIS Path: I:\Projects_8\HERSIndustrialPark_140252\Delivered\Focused Feasibility Study\1-2 Site Map.mxd | Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet | Date Saved: 7/12/2021 | User: smoroney | Print Date: 7/12/2021

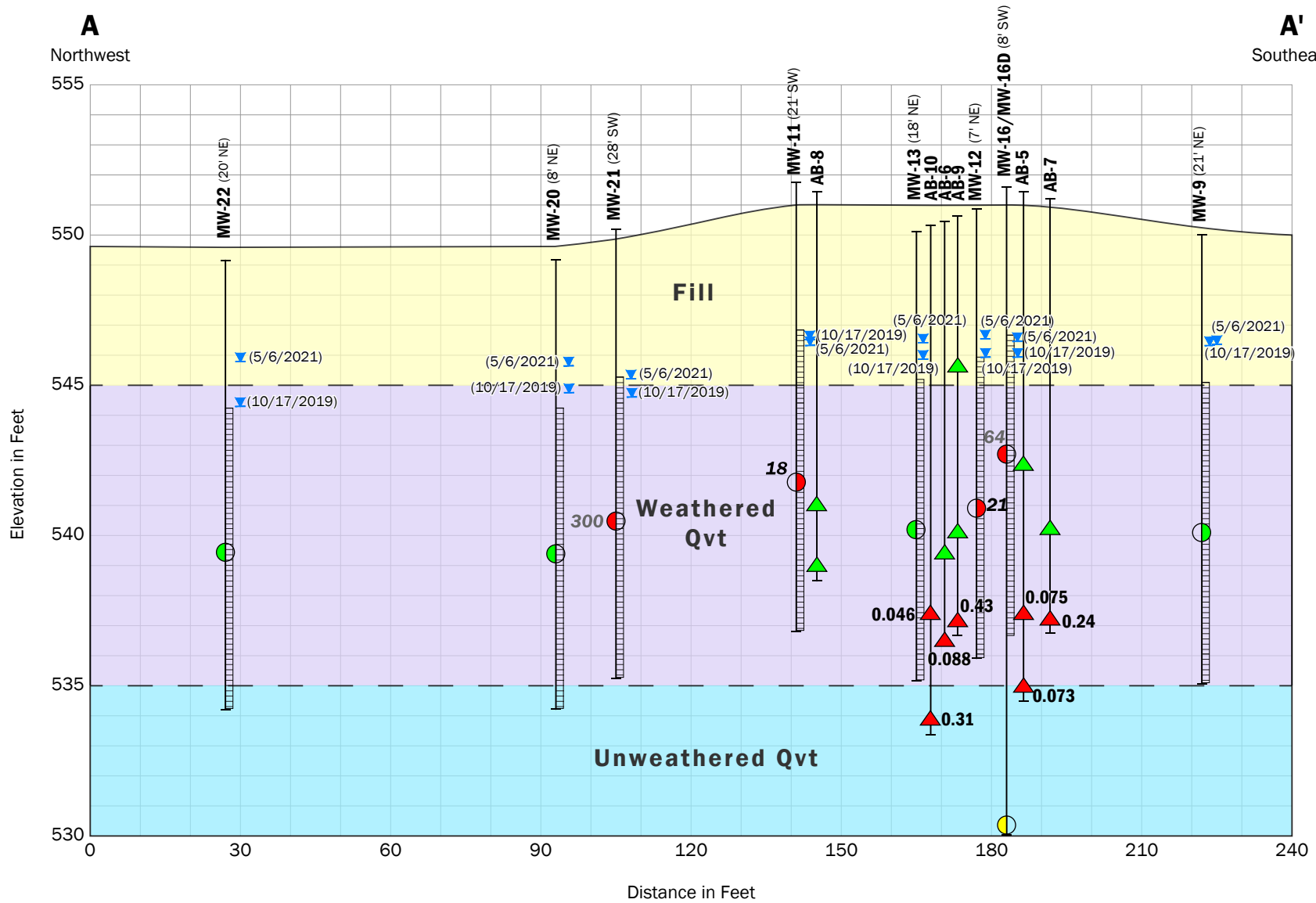


A

Northwest

A'

Southeast



- Trichloroethene (TCE) was not detected.
- TCE was detected at a concentration less than the MTCA Method A cleanup level.
- TCE was detected at a concentration greater than the MTCA Method A cleanup level.
- No data available

▲ **0.31** Soil Analytical Results from 4/28/21, expressed in mg/kg

Groundwater Analytical Results from 10/8/2019, expressed in µg/L

Groundwater Analytical Results from 4/27/21, expressed in µg/L

Fill

Qvt: Weathered Vashon Till

Qvt: Unweathered Vashon Till

— Inferred Geologic Contact

Offset from Cross Section Monitoring Well Identification

Groundwater Elevation

Well Screen

MW-19 (46' S)

(10/17/2019)

0 30 60 Feet

Vertical Exaggeration = 6x

Notes:

- The MTCA Method A Cleanup Level for soil is 0.03 mg/kg
- The MTCA Method A Cleanup Level for groundwater is 5 µg/L
- MTCA = Model Toxics Control Act

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Cross Section A-A'

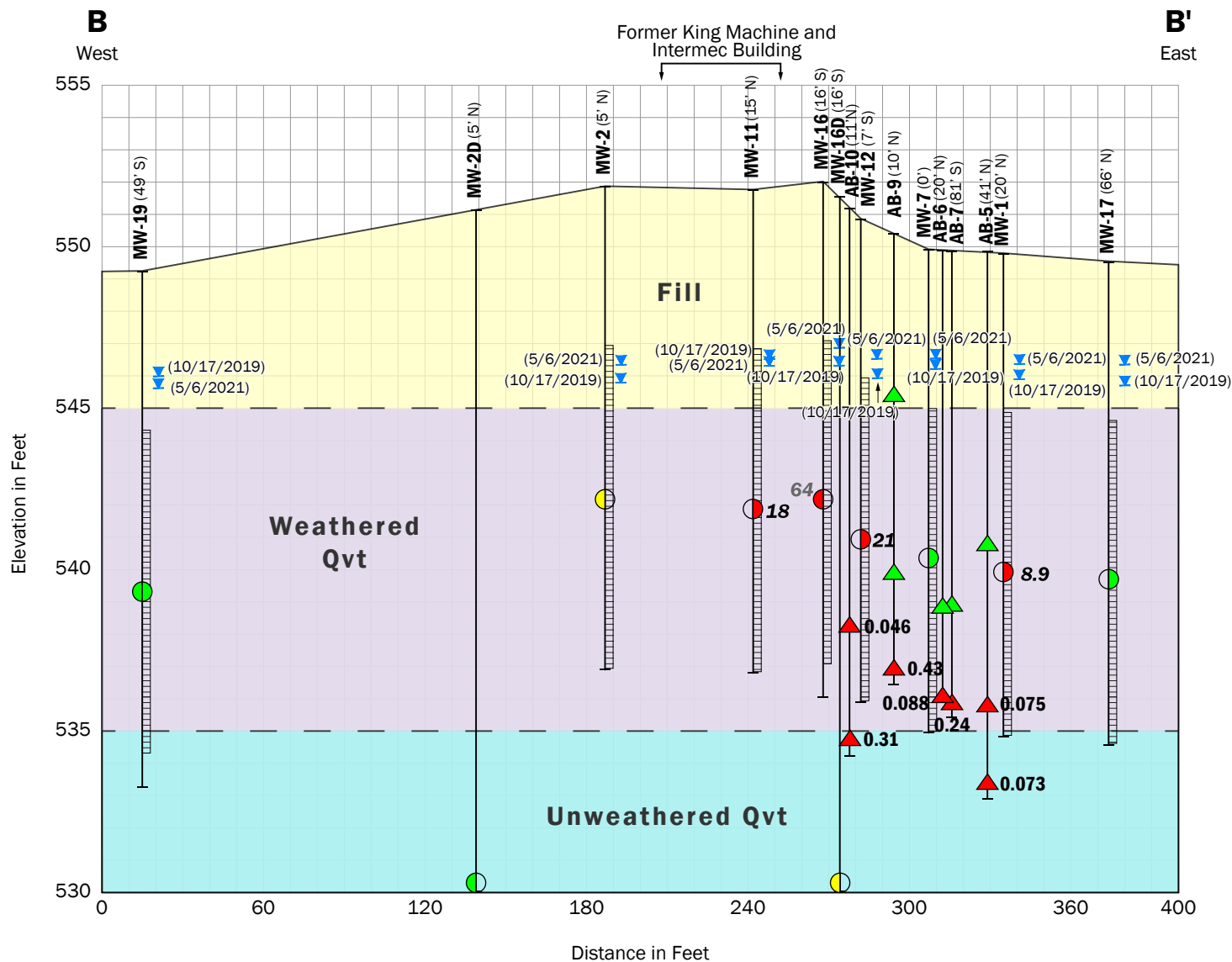
Revised Focused Feasibility Study
HERS Industrial Park
Mukilteo, Washington

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CONSULTING

JULY-2021
PROJECT NO.
140252

BY:
RAC
REVISED BY:
-

FIGURE NO.
1-4



- Trichloroethene (TCE) was not detected.
- TCE was detected at a concentration less than the MTCA Method A cleanup level.
- TCE was detected at a concentration greater than the MTCA Method A cleanup level.
- No data available

▲ 0.31 Soil Analytical Results from 4/28/21, expressed in mg/kg

64 18

Groundwater Analytical Results from 10/8/2019, expressed in µg/L

Groundwater Analytical Results from 4/27/21, expressed in µg/L

Fill

Qvt: Weathered Vashon Till

Qvt: Unweathered Vashon Till

--- Inferred Geologic Contact

Offset from Cross Section

Monitoring Well Identification

Groundwater Elevation

Well Screen

MW-19 (46' S)

(10/17/2019)

0 60 120 Feet

Vertical Exaggeration = 12x

Notes:

- The MTCA Method A Cleanup Level for soil is 0.03 mg/kg
- The MTCA Method A Cleanup Level for groundwater is 5 µg/L
- MTCA = Model Toxics Control Act

DRAFT

Cross Section B-B'

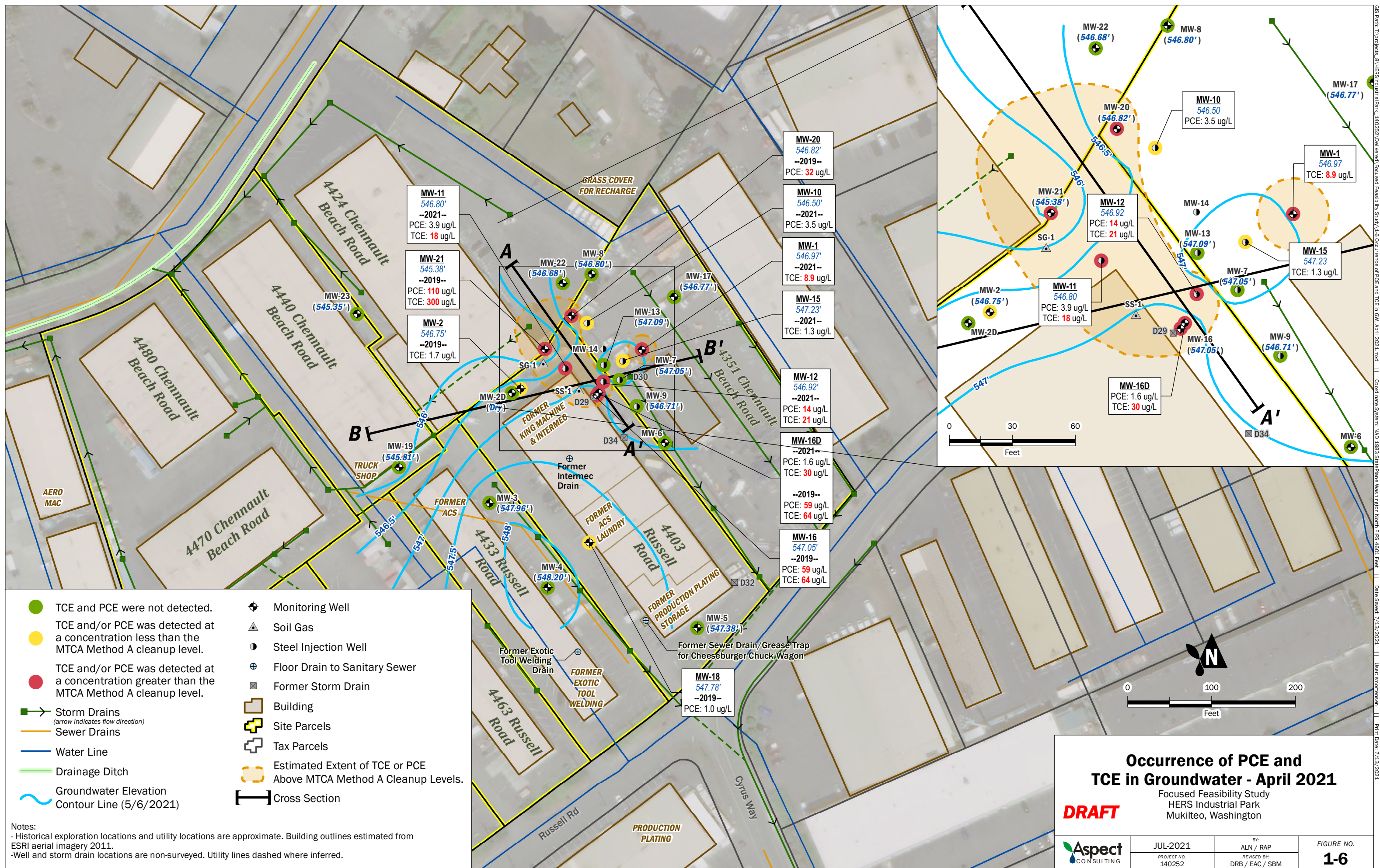
Revised Focused Feasibility Study
HERS Industrial Park
Mukilteo, Washington

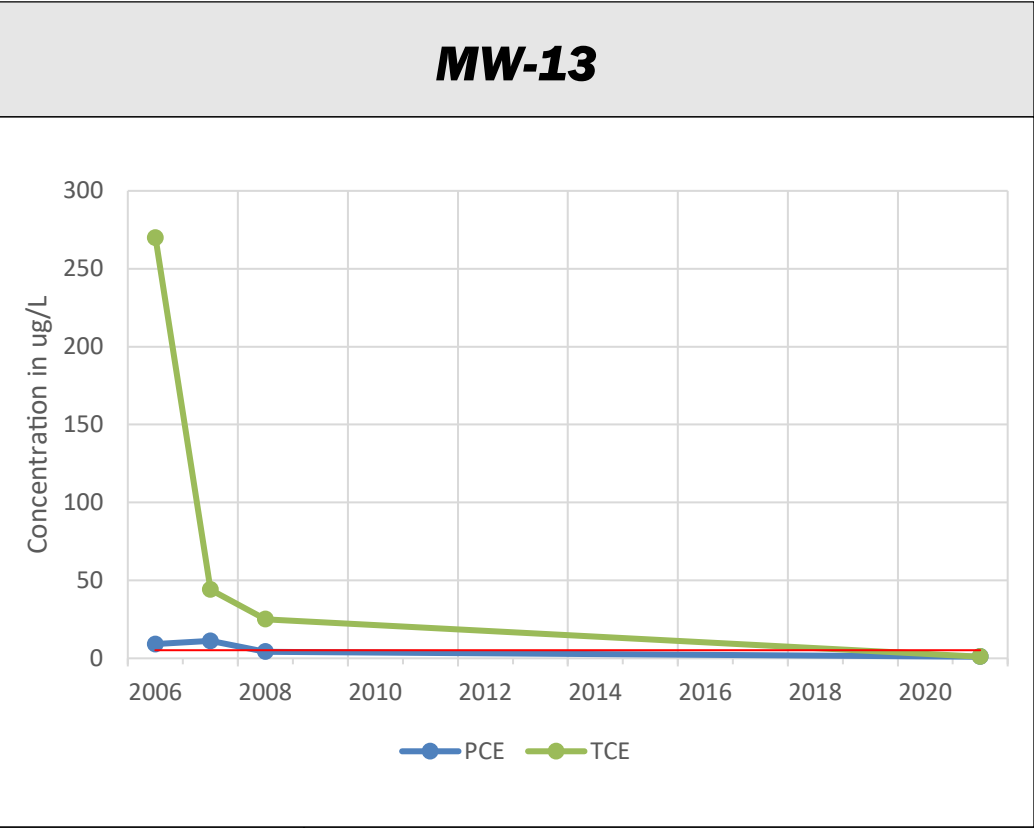
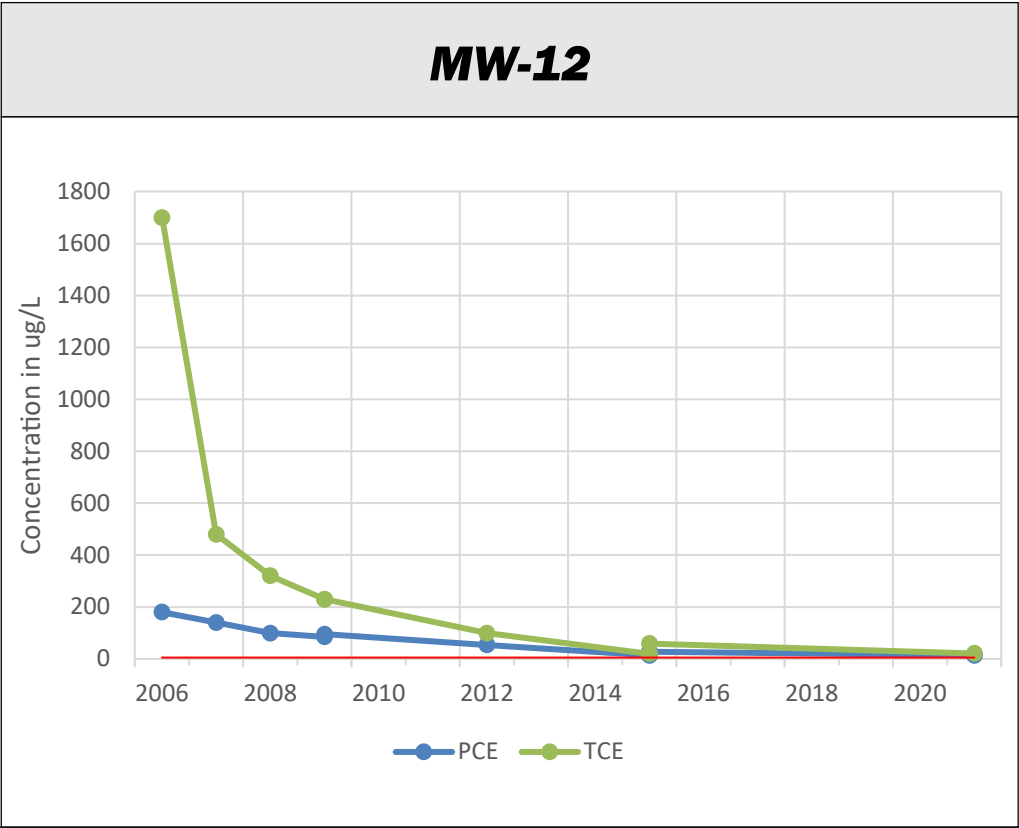
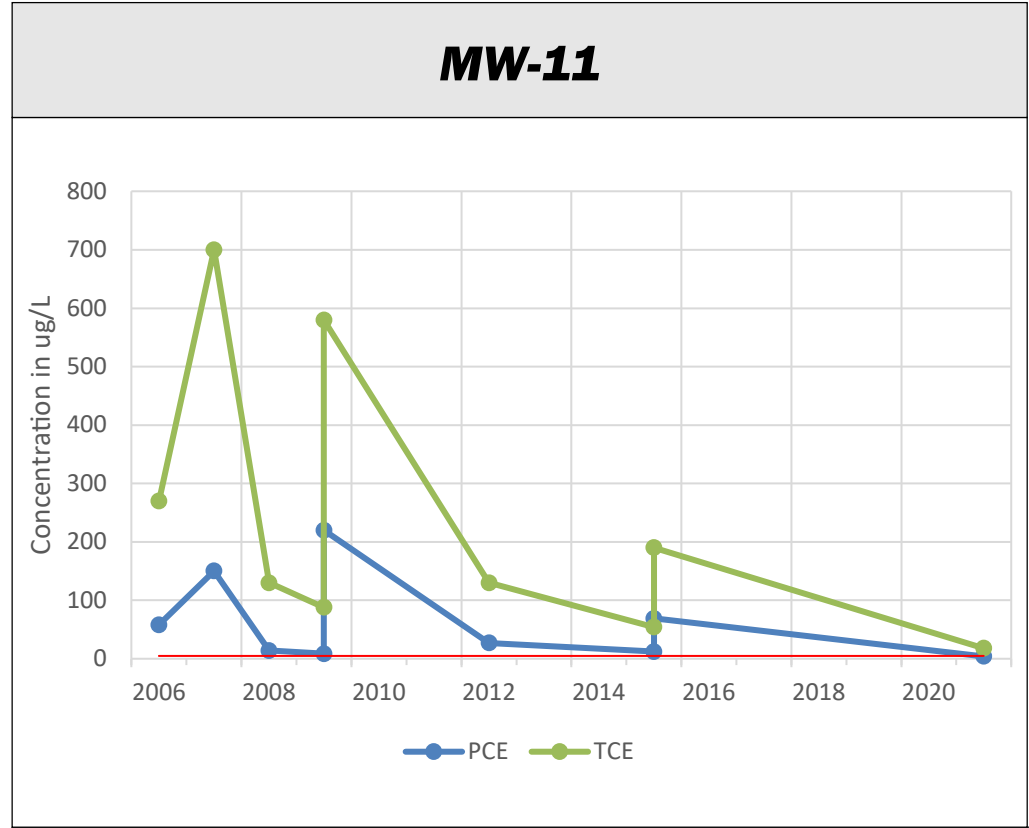
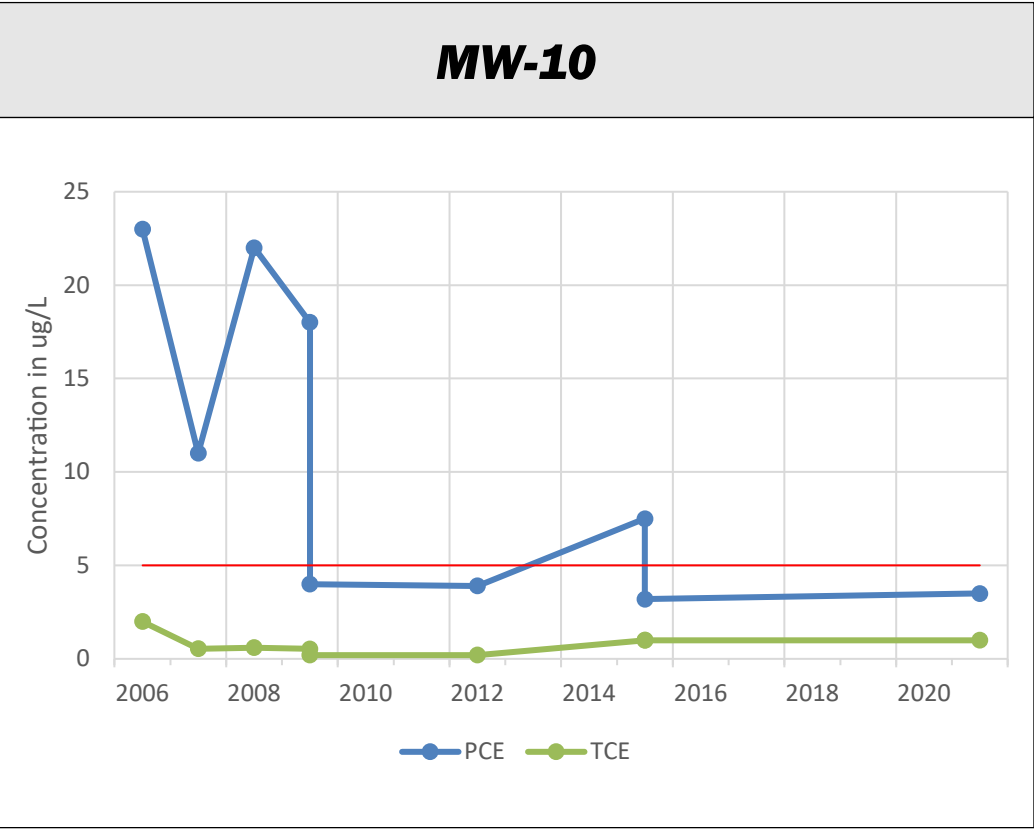
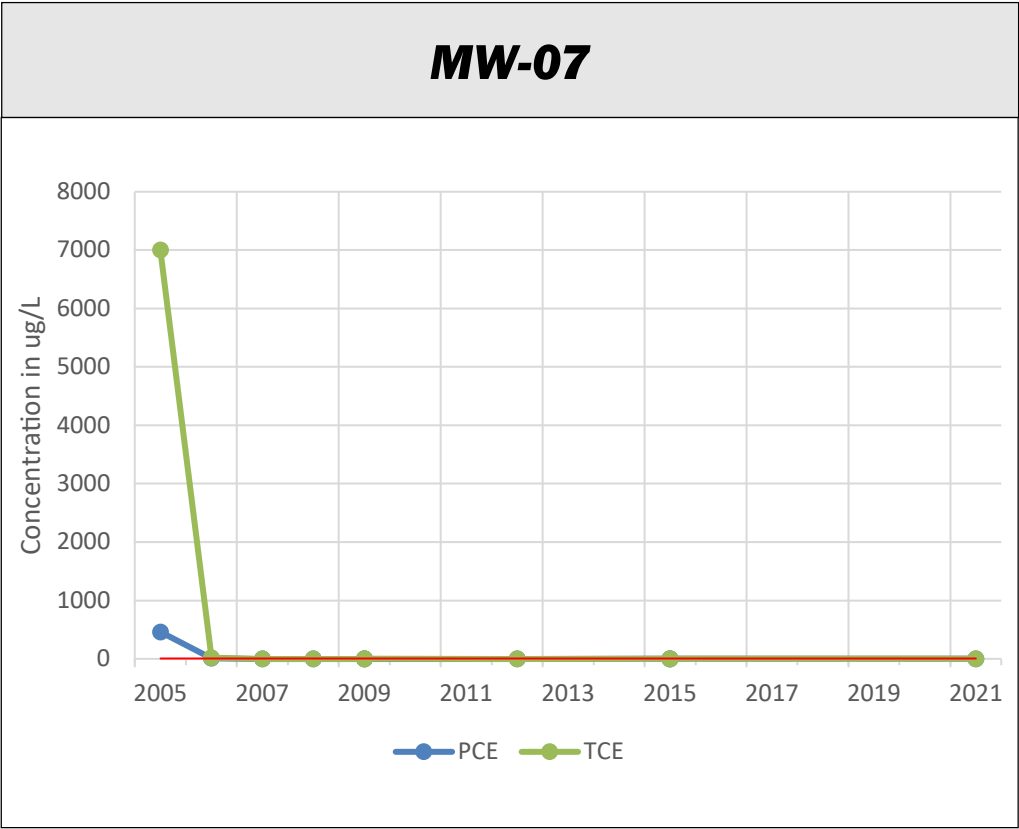
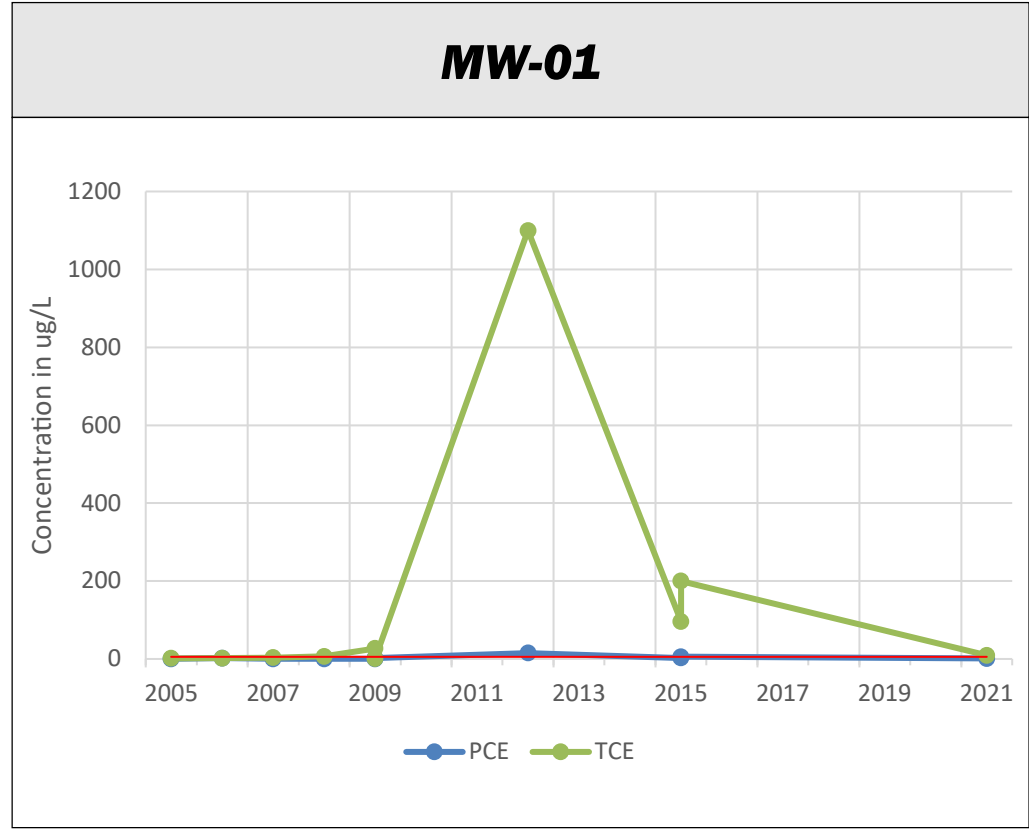


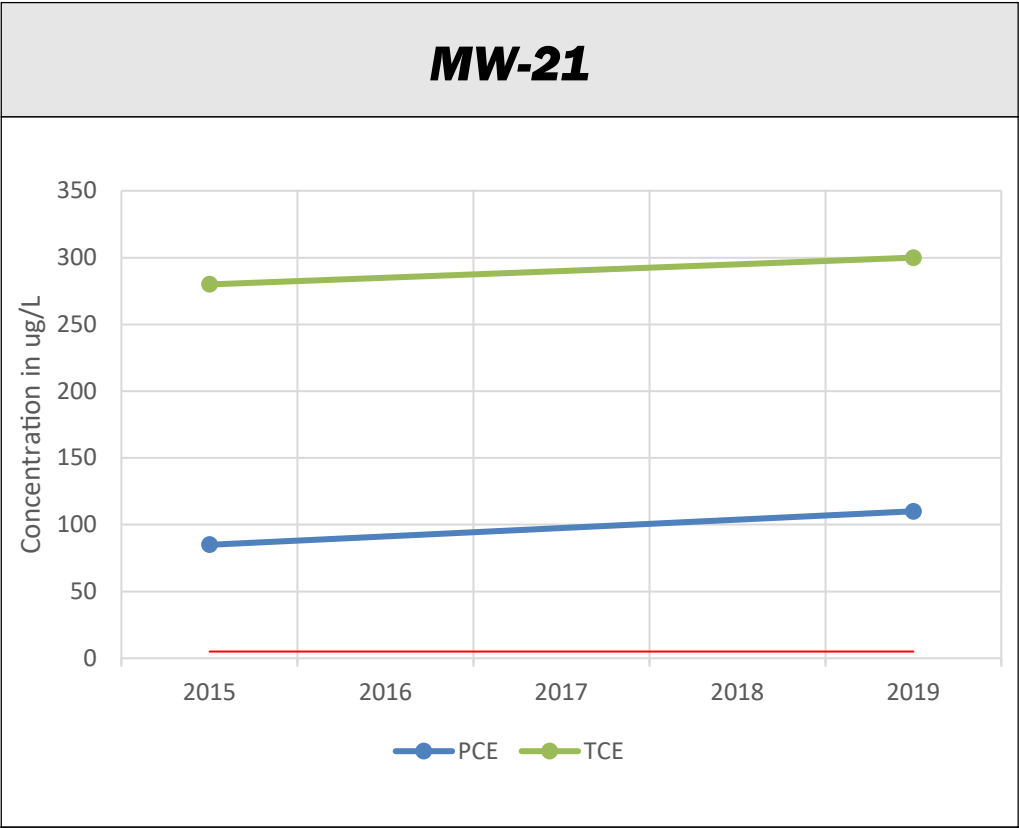
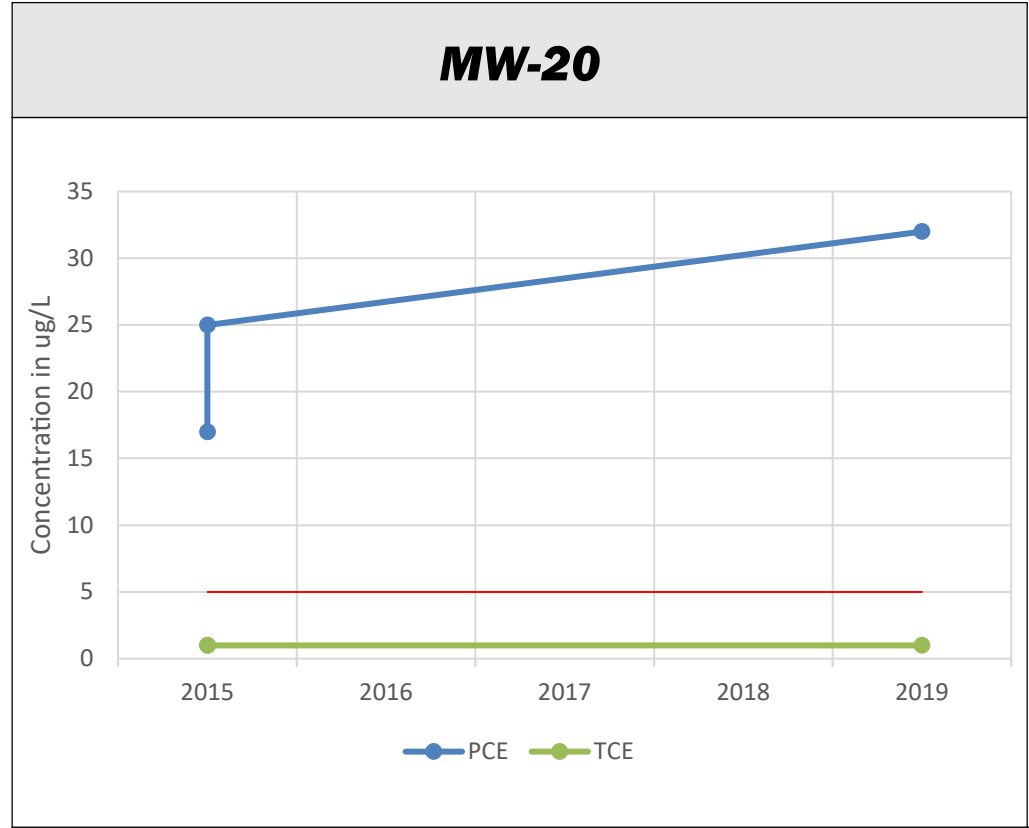
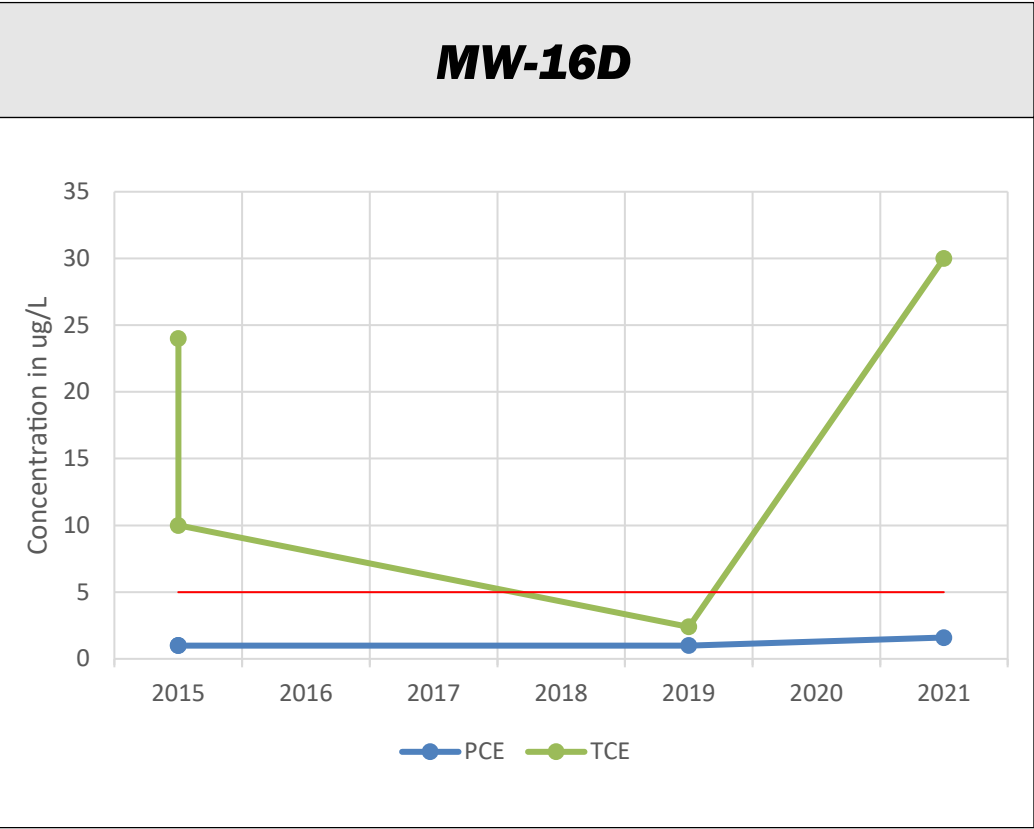
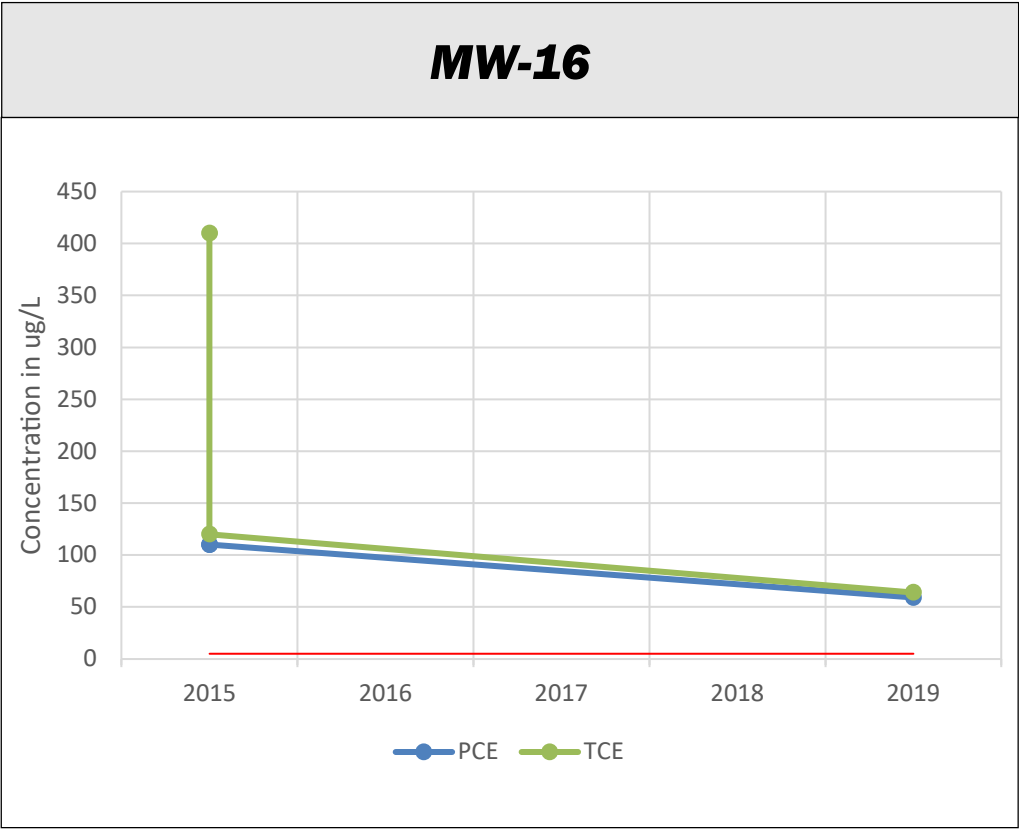
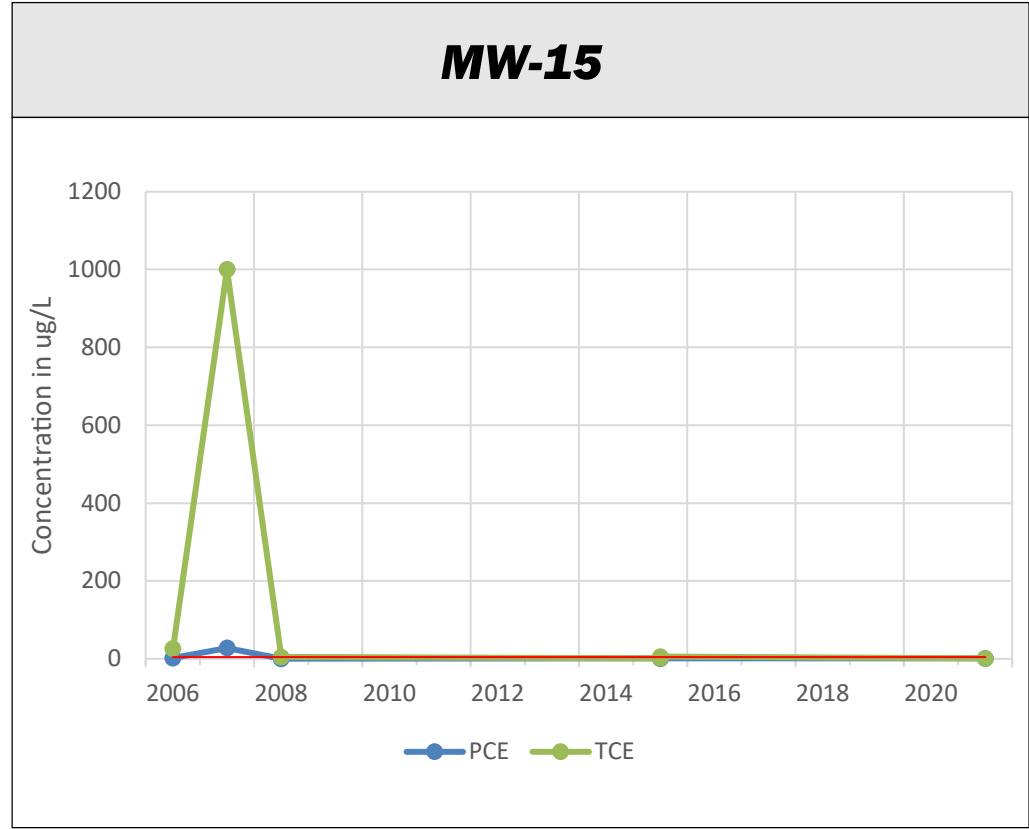
JULY-2021
PROJECT NO.
140252

BY:
ALN/SCC/RAC
REVISED BY:
-

FIGURE NO.
1-5







Notes:

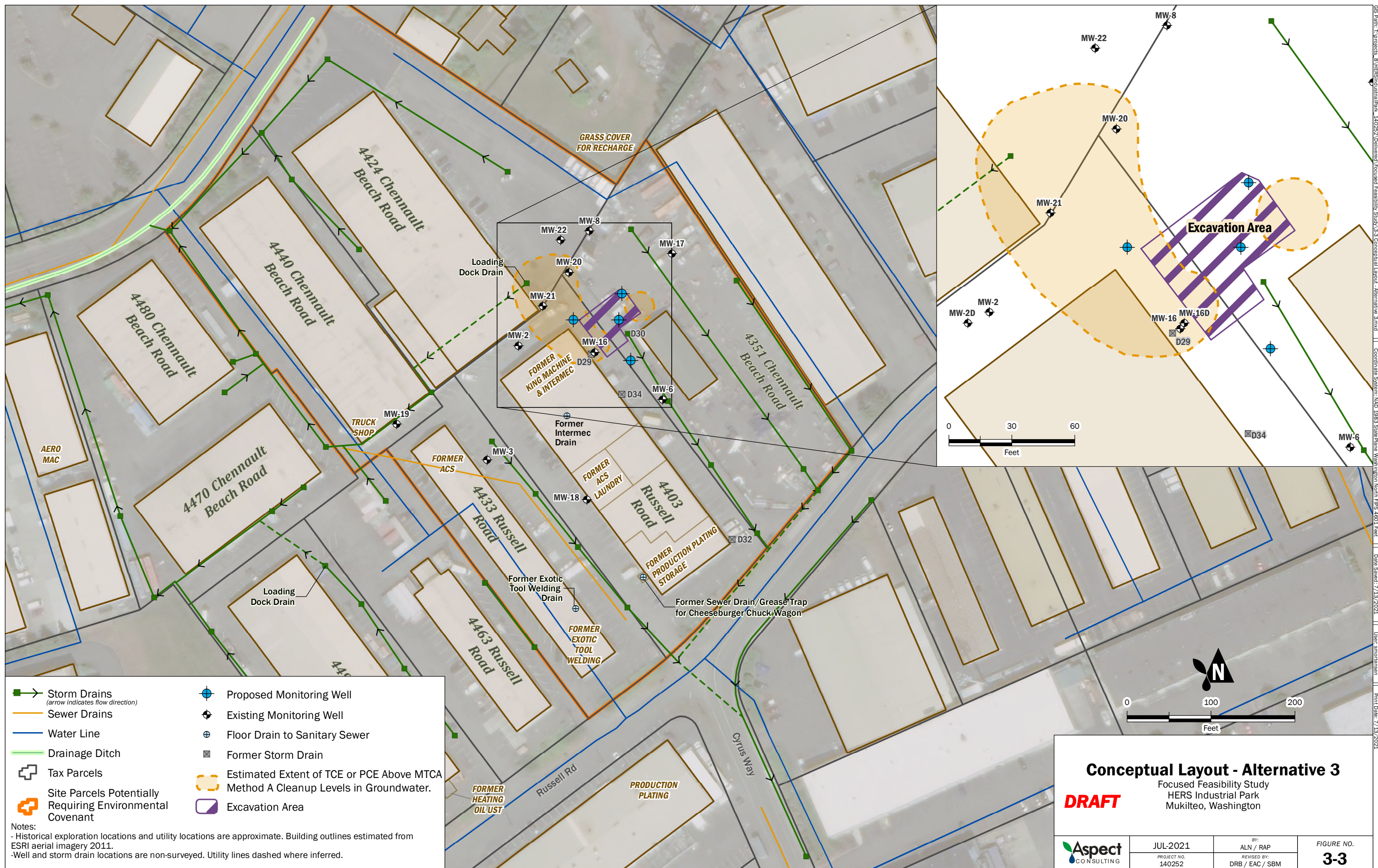
- ug/L = micrograms per liter
- TCE = Trichloroethene
- PCE = Tetrachloroethene
- Screening level for TCE and PCE is 5 ug/L

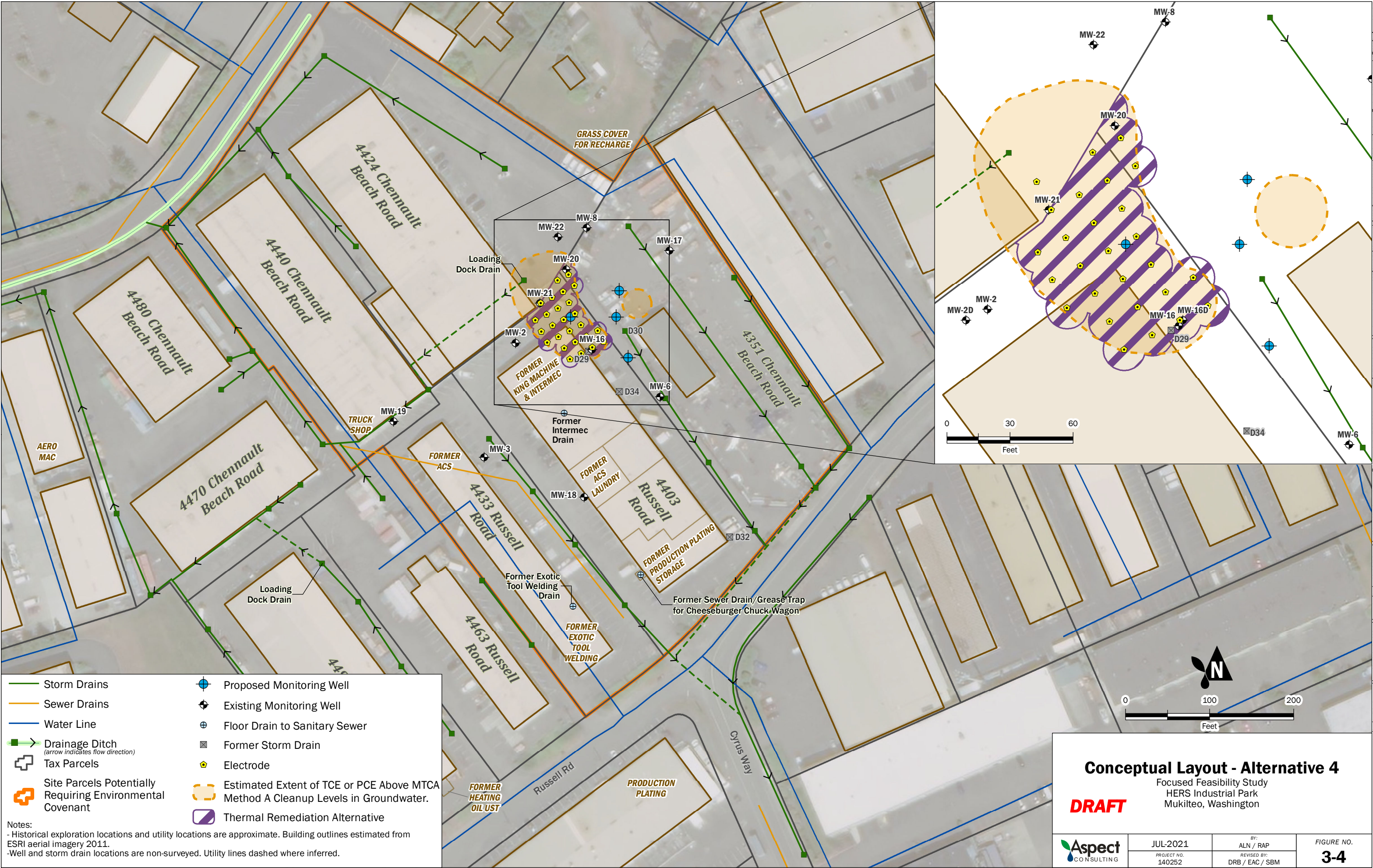
Trend Plots for PCE and TCE in Groundwater

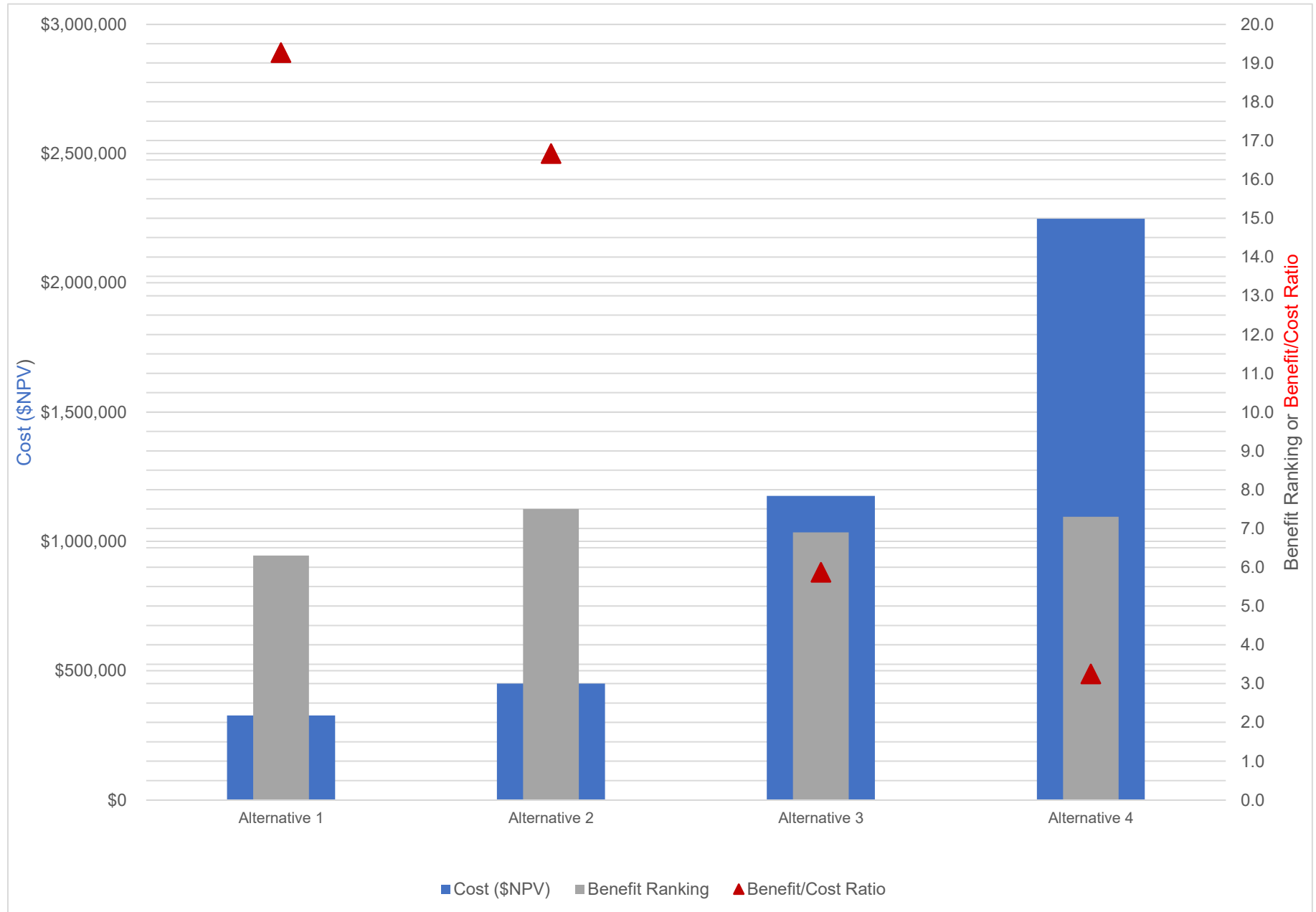
DRAFT

Focused Feasibility Study
HERS Industrial Park
Mukilteo, Washington

	JUL-2021	BY: JP / SBM / WEG	FIGURE NO. 1-7B
	PROJECT NO. 140252	REV BY: ---	





**Figure 3-5. Disproportionate Cost Analysis Summary**

APPENDIX A

Groundwater and Soil Gas Sampling Results – October 2019

MEMORANDUM

Project No. 140252

March 10, 2020

To: Jason Bontrager
Russell Road Industrial Park, LLC
17600 147th Street SE PMB 222
Monroe, WA 98275

From:



March 10, 2020

Jeremy Porter, PE
Sr. Associate Engineer
jporter@aspectconsulting.com



Daniel Babcock, GIT
Staff Geologist
dbabcock@aspectconsulting.com

Re: Groundwater and Soil Gas Sampling Results – October 2019

Aspect Consulting, LLC (Aspect) prepared this memorandum to document the results of groundwater monitoring and soil gas sampling conducted in October 2019 at the property located at 4403 Russell Road, Mukilteo, Washington and adjacent parcels (collectively, the HERS Industrial Park site [Site]) (Figure 1). The 2019 groundwater sampling event included collection of samples from 15 monitoring wells at the Site. This memorandum presents a description of the work performed in October 2019 and a summary of the results.

Soil Gas Evaluation

The soil gas evaluation was performed to determine the presence, nature, and extent of volatile contaminants of potential concern in soil gas beneath commercial buildings on the Subject Property above or adjacent to the PCE/TCE groundwater plume. This section describes the soil gas sampling methods and results.

Utility Location

Applied Professional Services, Inc. (APS) was retained by Aspect to perform the private locate. APS confirmed the proposed locations for the soil gas sampling points were clear of subsurface utilities during a site visit on October 8, 2019.

Soil Gas Sampling

Soil gas sampling was performed on October 8, 2019 in general accordance with the Guidance for Evaluating Soil Vapor Intrusion in *Washington State: Investigation and Remedial Action* (Washington State Department of Ecology [Ecology], 2018).

Two soil gas samples (SG-1 & SS-1) were collected at locations shown on Figure 1. Temporary pins were installed by drilling a 5/8-inch hole through the concrete slab to collect a subslab soil gas sample at SS-1 and in deeper soil three feet beneath the asphalt pavement at SG-1 (maximum practicable depth of the sampling equipment), cleaning the hole using a brush and vacuum, and using a silicon seal between the vapor pin and the clean hole. Following sample collection, the vapor pin was removed, and the hole patched with rapid set concrete.

The subslab soil gas samples were collected using a laboratory-supplied, evacuated, 1-liter (L) SUMMA canister with 150 milliliter per minute (mL/min) flow controller, according to the following procedure:

- A shut-in test was performed by inducing a vacuum to the sampling train (including Teflon tubing up to the vapor pin, fittings, and connections to the SUMMA canister). A minimum vacuum of 20 inches of mercury was applied for a period of 5 minutes. No change in vacuum was observed during the shut-in test.
- The vapor pin was then enclosed in a leak-testing shroud and helium tracer gas was applied until a minimum of 30 percent helium was measured inside the shroud. Approximately 700 mL of subslab vapor was purged through each vapor pin before measuring the purged subslab vapor for helium with a handheld helium meter in order to verify integrity of the silicon seal between the vapor pin and concrete slab.
- After confirming that no significant leakage was present in the sampling train or around the vapor pin seal, the SUMMA canister was opened and allowed to fill at 150 mL/min over approximately 5 minutes until the canister vacuum reached -5 inches of mercury.

Samples were transferred under appropriate chain-of-custody documentation to Friedman and Bruya, Inc., of Seattle, Washington. Samples were analyzed using U.S. Environmental Protection Agency (EPA) Method TO-15 for volatile organic compounds (VOCs).

Soil Gas Results

The analytical results of the subslab soil gas sampling were compared to the MTCA Method B screening levels and are summarized in Table 1. No VOCs were detected at either SG-1 or SS-1 at concentrations exceeding their respective MTCA Method B screening levels (Table 1). Laboratory reports are attached.

Groundwater Monitoring

Groundwater Sampling and Analysis

In October 2019 Aspect collected depth-to-water data and groundwater samples from 15 monitoring wells at the Site. All monitoring wells appeared to be in satisfactory condition for sampling, and included locking monument covers and secure, sealed well caps. Water levels were measured from the top of each monitoring well casing to the nearest 0.01 foot. 12 wells were purged in accordance with U.S. Environmental Protection Agency (EPA) low-flow purge

March 10, 2020

MEMORANDUM

Project No. 140252

techniques until water quality parameters stabilized and, due to drawdown during low-flow purging, three monitoring wells were purged in accordance with EPA Multiple Volume Purge techniques until the purging of three well volumes was met. Groundwater samples were collected from each well following parameter stabilization or after three well volumes were purged. The groundwater samples were submitted to Friedman & Bruya, Inc. in Seattle, Washington, for chemical analysis of dissolved arsenic by EPA 6020, Diesel-, and heavy oil-range petroleum hydrocarbons by Northwest Method NWTPH-Dx, VOCs by EPA Method 8260C.

Groundwater Results

Groundwater levels measured in the monitoring wells in October 2019 ranged from 2.65 feet to 5.68 feet below the top of monitoring well casings in the shallow monitoring wells. The groundwater flow direction in October 2019 was generally to the north-northwest based on water level measurements. Groundwater elevation contours are shown on Figure 1.

Monitoring wells sampled in October 2019 are shown on Figure 1. The laboratory report is attached. Analytical results are summarized in Table 2, and are summarized as follows:

VOCs. Concentrations of Tetrachloroethene (PCE), Trichloroethene (TCE), and/or vinyl chloride (VC) were detected above MTCA Method A cleanup levels in three of the monitoring wells (MW-16, MW-20, & MW-21) in October 2019. The laboratory did not detect concentrations of VOCs above MTCA cleanup levels in the other wells. The highest concentrations of PCE (110 ug/L) and TCE (300 ug/L) were reported in groundwater collected from MW-21.

Arsenic. Concentrations of Arsenic were detected above the MTCA Method A cleanup level in four of the monitoring wells (MW-3, MW-16D, MW-17, & MW-19). The highest concentration of arsenic (49 ug/L) was detected in groundwater collected from MW-17.

TPH. Concentrations of Diesel-range TPH were not detected above the MTCA Method A cleanup level in any of the monitoring wells that were sampled.

References

Washington State Department of Ecology (Ecology), 2018, Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action, Publication No. 09-09-047, dated April 2018.

Limitations

Work for this project was performed for Russell Road Industrial Park, LLC (Client), and this letter was prepared in accordance with generally accepted professional practices for the nature and conditions of work completed in the same or similar localities, at the time the work was performed. This letter does not represent a legal opinion. No other warranty, expressed or implied, is made.

All reports prepared by Aspect Consulting for the Client apply only to the services described in the Agreement(s) with the Client. Any use or reuse by any party other than the Client is at the sole risk of that party, and without liability to Aspect Consulting. Aspect Consulting's original files/reports shall govern in the event of any dispute regarding the content of electronic documents furnished to others.

Russell Road Industrial Park, LLC

March 10, 2020

MEMORANDUM

Project No. 140252

Attachments: Table A-1 – Soil Gas Sampling Results
Table A-2 – Groundwater Sampling Results
Figure 1 – Sampling Locations and Groundwater Elevation Contours – October 2019
Attachment 1 - Laboratory Certificates of Analysis

V:\140252 HERS Industrial Park\Deliverables\FFS\Data Memo (Appendix A)\App A Data Memo.docx

TABLES

Project No. 140252 , 4403 Russell Road, Mukilteo, Washington

Bold - Analyte Detected
 Blue Shaded - Detected result exceeded screening level
 U - Analyte not detected at or above Reporting Limit (RL) shown
 UJ - Analyte not detected and the Reporting Limit (RL) is an estimate
 R - Result value estimated
 X - Chromatographic pattern does not match fuel standard used for q
 D - Dissolved Fraction (filtered) sample result
 T - Total Fraction (unfiltered) sample result

Table A-2. HERS Industrial Park Soil Gas Analytical Results

Project No. 140252 , 4403 Russell Road, Mukilteo, Washington

Location			Date Sample	SG-1 10/08/2019 SG-1	SS-1 10/08/2019 SS-1
Analyte	Unit	MTCA Method B Screening Levels For Soil Gas			
VOCs					
1,1,1-Trichloroethane	ug/m3	76000	< 3 U	< 3 U	
1,1,2-Trichloroethane	ug/m3	3	< 0.6 U	< 0.6 U	
1,1-Dichloroethane	ug/m3	52	< 2.2 U	< 2.2 U	
1,1-Dichloroethene	ug/m3	3000	< 2.2 U	< 2.2 U	
1,2-Dichloroethane (EDC)	ug/m3	3.2	< 0.22 U	< 0.22 U	
1,2-Dichloropropane	ug/m3	23	< 1.3 U	< 1.3 U	
Chloroethane	ug/m3	150000	< 15 U	< 15 U	
cis-1,2-Dichloroethene (cDCE)	ug/m3		< 2.2 U	< 2.2 U	
Tetrachloroethene (PCE)	ug/m3	320	< 37 U	< 37 U	
trans-1,2-Dichloroethene	ug/m3		< 2.2 U	< 2.2 U	
Trichloroethene (TCE)	ug/m3	12	< 1.5 U	< 1.5 U	
Vinyl Chloride	ug/m3	9.4	< 1.4 U	< 1.4 U	

Bold - Analyte Detected

Blue Shaded - Detected result exceeded screening level

U - Analyte not detected at or above Reporting Limit (RL) shown

FIGURES

ATTACHMENT 1

Laboratory Certificates of Analysis

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

October 24, 2019

Jeremy Porter, Project Manager
Aspect Consulting, LLC
710 2nd Ave S, Suite 550
Seattle, WA 98104

Dear Mr Porter:

Included are the results from the testing of material submitted on October 9, 2019 from the Russell Rd 140252, F&BI 910188 project. There are 6 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
c: Data Aspect
ASP1024R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on October 9, 2019 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC Russell Rd 140252, F&BI 910188 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Aspect Consulting, LLC</u>
910188 -01	SS-1
910188 -02	SG-1

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SS-1	Client:	Aspect Consulting, LLC
Date Received:	10/09/19	Project:	Russell Rd 140252, F&BI 910188
Date Collected:	10/08/19	Lab ID:	910188-01 1/5.5
Date Analyzed:	10/16/19	Data File:	101539.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	83	70	130

Compounds:	Concentration	
	ug/m3	ppbv
Vinyl chloride	<1.4	<0.55
Chloroethane	<15	<5.5
1,1-Dichloroethene	<2.2	<0.55
trans-1,2-Dichloroethene	<2.2	<0.55
1,1-Dichloroethane	<2.2	<0.55
cis-1,2-Dichloroethene	<2.2	<0.55
1,2-Dichloroethane (EDC)	<0.22	<0.055
1,1,1-Trichloroethane	<3	<0.55
Trichloroethene	<1.5	<0.28
1,2-Dichloropropane	<1.3	<0.28
1,1,2-Trichloroethane	<0.6	<0.11
Tetrachloroethene	<37	<5.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID: SG-1	Client: Aspect Consulting, LLC
Date Received: 10/09/19	Project: Russell Rd 140252, F&BI 910188
Date Collected: 10/08/19	Lab ID: 910188-02 1/5.5
Date Analyzed: 10/16/19	Data File: 101540.D
Matrix: Air	Instrument: GCMS7
Units: ug/m3	Operator: bat

	%	Lower	Upper
Surrogates:	Recovery:	Limit:	Limit:
4-Bromofluorobenzene	83	70	130

Compounds:	Concentration	
	ug/m3	ppbv
Vinyl chloride	<1.4	<0.55
Chloroethane	<15	<5.5
1,1-Dichloroethene	<2.2	<0.55
trans-1,2-Dichloroethene	<2.2	<0.55
1,1-Dichloroethane	<2.2	<0.55
cis-1,2-Dichloroethene	<2.2	<0.55
1,2-Dichloroethane (EDC)	<0.22	<0.055
1,1,1-Trichloroethane	<3	<0.55
Trichloroethene	<1.5	<0.28
1,2-Dichloropropane	<1.3	<0.28
1,1,2-Trichloroethane	<0.6	<0.11
Tetrachloroethene	<37	<5.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	Russell Rd 140252, F&BI 910188
Date Collected:	Not Applicable	Lab ID:	09-2465 mb
Date Analyzed:	10/15/19	Data File:	101517.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	82	70	130

Compounds:	Concentration	
	ug/m3	ppbv
Vinyl chloride	<0.26	<0.1
Chloroethane	<2.6	<1
1,1-Dichloroethene	<0.4	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1
1,1-Dichloroethane	<0.4	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1
1,2-Dichloroethane (EDC)	<0.04	<0.01
1,1,1-Trichloroethane	<0.55	<0.1
Trichloroethene	<0.27	<0.05
1,2-Dichloropropane	<0.23	<0.05
1,1,2-Trichloroethane	<0.11	<0.02
Tetrachloroethene	<6.8	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 10/24/19

Date Received: 10/09/19

Project: Russell Rd 140252, F&BI 910188

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES
FOR VOLATILES BY METHOD TO-15**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Vinyl chloride	ppbv	5	92	70-130
Chloroethane	ppbv	5	92	70-130
1,1-Dichloroethene	ppbv	5	99	70-130
trans-1,2-Dichloroethene	ppbv	5	94	70-130
1,1-Dichloroethane	ppbv	5	95	70-130
cis-1,2-Dichloroethene	ppbv	5	93	70-130
1,2-Dichloroethane (EDC)	ppbv	5	99	70-130
1,1,1-Trichloroethane	ppbv	5	99	70-130
1,2-Dichloropropane	ppbv	5	90	70-130
Trichloroethene	ppbv	5	97	70-130
1,1,2-Trichloroethane	ppbv	5	84	70-130
Tetrachloroethene	ppbv	5	90	70-130

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht - The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

ME 10/9/19

316 617 0499
Phone
Email: patrick.conway@nyc.gov

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
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www.friedmanandbruya.com

October 22, 2019

Jeremy Porter, Project Manager
Aspect Consulting, LLC
710 2nd Ave S, Suite 550
Seattle, WA 98104

Dear Mr Porter:

Included are the results from the testing of material submitted on October 9, 2019 from the Russell Rd 140252, F&BI 910191 project. There are 42 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
c: Data Aspect
ASP1022R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on October 9, 2019 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC Russell Rd 140252, F&BI 910191 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Aspect Consulting, LLC</u>
910191 -01	MW-5-100719
910191 -02	MW-6-100719
910191 -03	MW-17-100719
910191 -04	MW-22-100719
910191 -05	MW-18-100719
910191 -06	MW-20-100719
910191 -07	MW-4-100819
910191 -08	MW-8-100819
910191 -09	MW-2-100819
910191 -10	MW-19-100819
910191 -11	MW-3-100819
910191 -12	MW-21-100819
910191 -13	MW-2D-100919
910191 -14	MW-16-100919
910191 -15	MW-16D-100919

1,1-Dichloroethane in the 8260C laboratory control sample duplicate exceeded the acceptance criteria. The analyte was not detected in the sample, therefore the data were acceptable.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 10/22/19

Date Received: 10/09/19

Project: Russell Rd 140252, F&BI 910191

Date Extracted: 10/10/19 and 10/15/19

Date Analyzed: 10/10/19 and 10/15/19

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL AND MOTOR OIL
USING METHOD NWTPH-Dx**
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> (% Recovery) (Limit 51-134)
MW-5-100719 910191-01	68 x	<250	115
MW-6-100719 910191-02	<50	<250	119
MW-17-100719 910191-03	140 x	<250	118
MW-22-100719 910191-04	95 x	<250	126
MW-18-100719 910191-05	<50	<250	118
MW-20-100719 910191-06	<50	<250	106
MW-4-100819 910191-07	<50	<250	100
MW-8-100819 910191-08	190 x	410	107
MW-2-100819 910191-09	<50	<250	113
MW-19-100819 910191-10	230 x	280	107
MW-3-100819 910191-11	400 x	430 x	86

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 10/22/19

Date Received: 10/09/19

Project: Russell Rd 140252, F&BI 910191

Date Extracted: 10/10/19 and 10/15/19

Date Analyzed: 10/10/19 and 10/15/19

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL AND MOTOR OIL
USING METHOD NWTPH-D_x
Results Reported as ug/L (ppb)**

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> (% Recovery) (Limit 51-134)
MW-21-100819 910191-12	80 x	<250	103
MW-2D-100919 910191-13	93 x	<250	97
MW-16-100919 910191-14	150 x	<250	111
MW-16D-100919 910191-15	<50	<250	107
Method Blank 09-2485 MB	<50	<250	104
Method Blank 09-2524 MB	<50	<250	110

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-5-100719	Client:	Aspect Consulting, LLC
Date Received:	10/09/19	Project:	Russell Rd 140252, F&BI 910191
Date Extracted:	10/16/19	Lab ID:	910191-01
Date Analyzed:	10/16/19	Data File:	910191-01.067
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Arsenic	2.51
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-6-100719	Client:	Aspect Consulting, LLC
Date Received:	10/09/19	Project:	Russell Rd 140252, F&BI 910191
Date Extracted:	10/16/19	Lab ID:	910191-02
Date Analyzed:	10/16/19	Data File:	910191-02.110
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Arsenic	<1
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-17-100719	Client:	Aspect Consulting, LLC
Date Received:	10/09/19	Project:	Russell Rd 140252, F&BI 910191
Date Extracted:	10/16/19	Lab ID:	910191-03
Date Analyzed:	10/16/19	Data File:	910191-03.111
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Arsenic	49.0
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-22-100719	Client:	Aspect Consulting, LLC
Date Received:	10/09/19	Project:	Russell Rd 140252, F&BI 910191
Date Extracted:	10/16/19	Lab ID:	910191-04
Date Analyzed:	10/16/19	Data File:	910191-04.112
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Arsenic	1.47
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-18-100719	Client:	Aspect Consulting, LLC
Date Received:	10/09/19	Project:	Russell Rd 140252, F&BI 910191
Date Extracted:	10/16/19	Lab ID:	910191-05
Date Analyzed:	10/16/19	Data File:	910191-05.113
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Arsenic	<1
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-20-100719	Client:	Aspect Consulting, LLC
Date Received:	10/09/19	Project:	Russell Rd 140252, F&BI 910191
Date Extracted:	10/16/19	Lab ID:	910191-06
Date Analyzed:	10/16/19	Data File:	910191-06.114
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Arsenic	1.40
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-4-100819	Client:	Aspect Consulting, LLC
Date Received:	10/09/19	Project:	Russell Rd 140252, F&BI 910191
Date Extracted:	10/16/19	Lab ID:	910191-07
Date Analyzed:	10/16/19	Data File:	910191-07.115
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Arsenic	1.24
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-8-100819	Client:	Aspect Consulting, LLC
Date Received:	10/09/19	Project:	Russell Rd 140252, F&BI 910191
Date Extracted:	10/16/19	Lab ID:	910191-08
Date Analyzed:	10/16/19	Data File:	910191-08.116
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Arsenic	<1
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-2-100819	Client:	Aspect Consulting, LLC
Date Received:	10/09/19	Project:	Russell Rd 140252, F&BI 910191
Date Extracted:	10/16/19	Lab ID:	910191-09
Date Analyzed:	10/16/19	Data File:	910191-09.117
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Arsenic	<1
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-19-100819	Client:	Aspect Consulting, LLC
Date Received:	10/09/19	Project:	Russell Rd 140252, F&BI 910191
Date Extracted:	10/16/19	Lab ID:	910191-10
Date Analyzed:	10/16/19	Data File:	910191-10.118
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Arsenic	40.2
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-3-100819	Client:	Aspect Consulting, LLC
Date Received:	10/09/19	Project:	Russell Rd 140252, F&BI 910191
Date Extracted:	10/16/19	Lab ID:	910191-11
Date Analyzed:	10/16/19	Data File:	910191-11.121
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Arsenic	22.6
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-21-100819	Client:	Aspect Consulting, LLC
Date Received:	10/09/19	Project:	Russell Rd 140252, F&BI 910191
Date Extracted:	10/16/19	Lab ID:	910191-12
Date Analyzed:	10/16/19	Data File:	910191-12.122
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Arsenic	1.17
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-2D-100919	Client:	Aspect Consulting, LLC
Date Received:	10/09/19	Project:	Russell Rd 140252, F&BI 910191
Date Extracted:	10/16/19	Lab ID:	910191-13
Date Analyzed:	10/16/19	Data File:	910191-13.123
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Arsenic	2.56
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-16-100919	Client:	Aspect Consulting, LLC
Date Received:	10/09/19	Project:	Russell Rd 140252, F&BI 910191
Date Extracted:	10/16/19	Lab ID:	910191-14
Date Analyzed:	10/16/19	Data File:	910191-14.124
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Arsenic	<1
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-16D-100919	Client:	Aspect Consulting, LLC
Date Received:	10/09/19	Project:	Russell Rd 140252, F&BI 910191
Date Extracted:	10/16/19	Lab ID:	910191-15
Date Analyzed:	10/16/19	Data File:	910191-15.125
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Arsenic	6.27
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	NA	Project:	Russell Rd 140252, F&BI 910191
Date Extracted:	10/16/19	Lab ID:	I9-659 mb
Date Analyzed:	10/16/19	Data File:	I9-659 mb.065
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Arsenic	<1
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-5-100719	Client:	Aspect Consulting, LLC
Date Received:	10/09/19	Project:	Russell Rd 140252, F&BI 910191
Date Extracted:	10/11/19	Lab ID:	910191-01
Date Analyzed:	10/11/19	Data File:	101144.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	100	63	127
4-Bromofluorobenzene	98	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-6-100719	Client:	Aspect Consulting, LLC
Date Received:	10/09/19	Project:	Russell Rd 140252, F&BI 910191
Date Extracted:	10/11/19	Lab ID:	910191-02
Date Analyzed:	10/11/19	Data File:	101145.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	99	63	127
4-Bromofluorobenzene	96	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-17-100719	Client:	Aspect Consulting, LLC
Date Received:	10/09/19	Project:	Russell Rd 140252, F&BI 910191
Date Extracted:	10/11/19	Lab ID:	910191-03
Date Analyzed:	10/11/19	Data File:	101146.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	100	63	127
4-Bromofluorobenzene	99	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-22-100719	Client:	Aspect Consulting, LLC
Date Received:	10/09/19	Project:	Russell Rd 140252, F&BI 910191
Date Extracted:	10/11/19	Lab ID:	910191-04
Date Analyzed:	10/12/19	Data File:	101147.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	99	63	127
4-Bromofluorobenzene	97	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-18-100719	Client:	Aspect Consulting, LLC
Date Received:	10/09/19	Project:	Russell Rd 140252, F&BI 910191
Date Extracted:	10/11/19	Lab ID:	910191-05
Date Analyzed:	10/12/19	Data File:	101148.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	100	63	127
4-Bromofluorobenzene	99	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	1.0
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-20-100719	Client:	Aspect Consulting, LLC
Date Received:	10/09/19	Project:	Russell Rd 140252, F&BI 910191
Date Extracted:	10/11/19	Lab ID:	910191-06
Date Analyzed:	10/12/19	Data File:	101149.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	101	63	127
4-Bromofluorobenzene	98	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	32
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-4-100819	Client:	Aspect Consulting, LLC
Date Received:	10/09/19	Project:	Russell Rd 140252, F&BI 910191
Date Extracted:	10/11/19	Lab ID:	910191-07
Date Analyzed:	10/12/19	Data File:	101150.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	57	121
Toluene-d8	100	63	127
4-Bromofluorobenzene	97	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-8-100819	Client:	Aspect Consulting, LLC
Date Received:	10/09/19	Project:	Russell Rd 140252, F&BI 910191
Date Extracted:	10/11/19	Lab ID:	910191-08
Date Analyzed:	10/12/19	Data File:	101151.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	100	63	127
4-Bromofluorobenzene	98	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID: MW-2-100819	Client: Aspect Consulting, LLC
Date Received: 10/09/19	Project: Russell Rd 140252, F&BI 910191
Date Extracted: 10/11/19	Lab ID: 910191-09
Date Analyzed: 10/12/19	Data File: 101152.D
Matrix: Water	Instrument: GCMS4
Units: ug/L (ppb)	Operator: MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	101	63	127
4-Bromofluorobenzene	99	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	1.7	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-19-100819	Client:	Aspect Consulting, LLC
Date Received:	10/09/19	Project:	Russell Rd 140252, F&BI 910191
Date Extracted:	10/11/19	Lab ID:	910191-10
Date Analyzed:	10/12/19	Data File:	101153.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	100	63	127
4-Bromofluorobenzene	98	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-3-100819	Client:	Aspect Consulting, LLC
Date Received:	10/09/19	Project:	Russell Rd 140252, F&BI 910191
Date Extracted:	10/11/19	Lab ID:	910191-11
Date Analyzed:	10/12/19	Data File:	101154.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	57	121
Toluene-d8	100	63	127
4-Bromofluorobenzene	98	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID: MW-21-100819	Client: Aspect Consulting, LLC
Date Received: 10/09/19	Project: Russell Rd 140252, F&BI 910191
Date Extracted: 10/11/19	Lab ID: 910191-12
Date Analyzed: 10/12/19	Data File: 101155.D
Matrix: Water	Instrument: GCMS4
Units: ug/L (ppb)	Operator: MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	100	63	127
4-Bromofluorobenzene	96	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	110
Vinyl chloride	1.6	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	3.1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	1.1	Bromoform	<1
1,1-Dichloroethane	1.4	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	68	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	2.2	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	310 ve	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	MW-21-100819	Client:	Aspect Consulting, LLC
Date Received:	10/09/19	Project:	Russell Rd 140252, F&BI 910191
Date Extracted:	10/11/19	Lab ID:	910191-12 1/10
Date Analyzed:	10/18/19	Data File:	101739.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	98	63	127
4-Bromofluorobenzene	97	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<10	1,3-Dichloropropane	<10
Chloromethane	<100	Tetrachloroethene	100
Vinyl chloride	<2	Dibromochloromethane	<10
Bromomethane	<10	1,2-Dibromoethane (EDB)	<10
Chloroethane	<10	Chlorobenzene	<10
Trichlorofluoromethane	<10	Ethylbenzene	<10
Acetone	<500	1,1,1,2-Tetrachloroethane	<10
1,1-Dichloroethene	<10	m,p-Xylene	<20
Hexane	<10	o-Xylene	<10
Methylene chloride	<50	Styrene	<10
Methyl t-butyl ether (MTBE)	<10	Isopropylbenzene	<10
trans-1,2-Dichloroethene	<10	Bromoform	<10
1,1-Dichloroethane	<10	n-Propylbenzene	<10
2,2-Dichloropropane	<10	Bromobenzene	<10
cis-1,2-Dichloroethene	70	1,3,5-Trimethylbenzene	<10
Chloroform	<10	1,1,2,2-Tetrachloroethane	<10
2-Butanone (MEK)	<100	1,2,3-Trichloropropane	<10
1,2-Dichloroethane (EDC)	<10	2-Chlorotoluene	<10
1,1,1-Trichloroethane	<10	4-Chlorotoluene	<10
1,1-Dichloropropene	<10	tert-Butylbenzene	<10
Carbon tetrachloride	<10	1,2,4-Trimethylbenzene	<10
Benzene	<3.5	sec-Butylbenzene	<10
Trichloroethene	300	p-Isopropyltoluene	<10
1,2-Dichloropropane	<10	1,3-Dichlorobenzene	<10
Bromodichloromethane	<10	1,4-Dichlorobenzene	<10
Dibromomethane	<10	1,2-Dichlorobenzene	<10
4-Methyl-2-pentanone	<100	1,2-Dibromo-3-chloropropane	<100
cis-1,3-Dichloropropene	<10	1,2,4-Trichlorobenzene	<10
Toluene	<10	Hexachlorobutadiene	<10
trans-1,3-Dichloropropene	<10	Naphthalene	<10
1,1,2-Trichloroethane	<10	1,2,3-Trichlorobenzene	<10
2-Hexanone	<100		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-2D-100919	Client:	Aspect Consulting, LLC
Date Received:	10/09/19	Project:	Russell Rd 140252, F&BI 910191
Date Extracted:	10/11/19	Lab ID:	910191-13
Date Analyzed:	10/12/19	Data File:	101156.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	57	121
Toluene-d8	100	63	127
4-Bromofluorobenzene	97	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID: MW-16-100919	Client: Aspect Consulting, LLC
Date Received: 10/09/19	Project: Russell Rd 140252, F&BI 910191
Date Extracted: 10/11/19	Lab ID: 910191-14
Date Analyzed: 10/12/19	Data File: 101157.D
Matrix: Water	Instrument: GCMS4
Units: ug/L (ppb)	Operator: MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	100	63	127
4-Bromofluorobenzene	97	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	59
Vinyl chloride	2.8	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	1.1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	1.9	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	140	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	64	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-16D-100919	Client:	Aspect Consulting, LLC
Date Received:	10/09/19	Project:	Russell Rd 140252, F&BI 910191
Date Extracted:	10/11/19	Lab ID:	910191-15
Date Analyzed:	10/12/19	Data File:	101158.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	99	63	127
4-Bromofluorobenzene	97	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	2.4	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	Russell Rd 140252, F&BI 910191
Date Extracted:	10/11/19	Lab ID:	09-2457 mb
Date Analyzed:	10/11/19	Data File:	101110.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	105	63	127
4-Bromofluorobenzene	90	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 10/22/19

Date Received: 10/09/19

Project: Russell Rd 140252, F&BI 910191

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER
SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL EXTENDED USING METHOD NWTPH-D_x**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	88	92	58-134	4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 10/22/19

Date Received: 10/09/19

Project: Russell Rd 140252, F&BI 910191

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER
SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL EXTENDED USING METHOD NWTPH-D_x**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	92	88	58-134	4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 10/22/19

Date Received: 10/09/19

Project: Russell Rd 140252, F&BI 910191

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR DISSOLVED METALS USING EPA METHOD 6020B**

Laboratory Code: 910191-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	2.51	101	101	75-125	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	94	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 10/22/19

Date Received: 10/09/19

Project: Russell Rd 140252, F&BI 910191

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 910191-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	50	<1	97	10-172
Chloromethane	ug/L (ppb)	50	<10	94	25-166
Vinyl chloride	ug/L (ppb)	50	<0.2	98	36-166
Bromomethane	ug/L (ppb)	50	<1	99	47-169
Chloroethane	ug/L (ppb)	50	<1	94	46-160
Trichlorofluoromethane	ug/L (ppb)	50	<1	54	44-165
Acetone	ug/L (ppb)	250	<50	78	10-182
1,1-Dichloroethene	ug/L (ppb)	50	<1	103	60-136
Hexane	ug/L (ppb)	50	<1	88	52-150
Methylene chloride	ug/L (ppb)	50	<5	100	67-132
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	102	74-127
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	97	72-129
1,1-Dichloroethane	ug/L (ppb)	50	<1	99	70-128
2,2-Dichloropropane	ug/L (ppb)	50	<1	81	36-154
cis-1,2-Dichloroethene	ug/L (ppb)	50	<1	98	71-127
Chloroform	ug/L (ppb)	50	<1	100	65-132
2-Butanone (MEK)	ug/L (ppb)	250	<10	90	10-129
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	98	48-149
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	99	60-146
1,1-Dichloropropene	ug/L (ppb)	50	<1	97	69-133
Carbon tetrachloride	ug/L (ppb)	50	<1	106	56-152
Benzene	ug/L (ppb)	50	<0.35	95	76-125
Trichloroethene	ug/L (ppb)	50	<1	93	66-135
1,2-Dichloropropane	ug/L (ppb)	50	<1	97	78-125
Bromodichloromethane	ug/L (ppb)	50	<1	103	61-150
Dibromomethane	ug/L (ppb)	50	<1	96	66-141
4-Methyl-2-pentanone	ug/L (ppb)	250	<10	97	10-185
cis-1,3-Dichloropropene	ug/L (ppb)	50	<1	102	72-132
Toluene	ug/L (ppb)	50	<1	94	76-122
trans-1,3-Dichloropropene	ug/L (ppb)	50	<1	100	76-130
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	99	68-131
2-Hexanone	ug/L (ppb)	250	<10	96	10-185
1,3-Dichloropropane	ug/L (ppb)	50	<1	95	71-128
Tetrachloroethene	ug/L (ppb)	50	<1	95	10-226
Dibromochloromethane	ug/L (ppb)	50	<1	109	70-139
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<1	97	69-134
Chlorobenzene	ug/L (ppb)	50	<1	94	77-122
Ethylbenzene	ug/L (ppb)	50	<1	95	69-135
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	104	73-137
m,p-Xylene	ug/L (ppb)	100	<2	96	69-135
o-Xylene	ug/L (ppb)	50	<1	97	60-140
Styrene	ug/L (ppb)	50	<1	98	71-133
Isopropylbenzene	ug/L (ppb)	50	<1	97	65-142
Bromoform	ug/L (ppb)	50	<1	103	65-142
n-Propylbenzene	ug/L (ppb)	50	<1	93	58-144
Bromobenzene	ug/L (ppb)	50	<1	92	75-124
1,3,5-Trimethylbenzene	ug/L (ppb)	50	<1	93	66-137
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	99	51-154
1,2,3-Trichloropropane	ug/L (ppb)	50	<1	97	53-150
2-Chlorotoluene	ug/L (ppb)	50	<1	92	66-127
4-Chlorotoluene	ug/L (ppb)	50	<1	94	65-130
tert-Butylbenzene	ug/L (ppb)	50	<1	96	65-137
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	93	59-146
sec-Butylbenzene	ug/L (ppb)	50	<1	92	64-140
p-Isopropyltoluene	ug/L (ppb)	50	<1	91	65-141
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	94	72-123
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	92	69-126
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	93	69-128
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	105	32-164
1,2,4-Trichlorobenzene	ug/L (ppb)	50	<1	95	66-136
Hexachlorobutadiene	ug/L (ppb)	50	<1	84	60-143
Naphthalene	ug/L (ppb)	50	<1	98	44-164
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	96	69-148

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 10/22/19

Date Received: 10/09/19

Project: Russell Rd 140252, F&BI 910191

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	118	137	25-158	15
Chloromethane	ug/L (ppb)	50	143	146	45-156	2
Vinyl chloride	ug/L (ppb)	50	141	142	50-154	1
Bromomethane	ug/L (ppb)	50	134	138	55-143	3
Chloroethane	ug/L (ppb)	50	136	139	58-146	2
Trichlorofluoromethane	ug/L (ppb)	250	131	137	50-150	4
Acetone	ug/L (ppb)	250	106	114	53-131	7
1,1-Dichloroethene	ug/L (ppb)	50	124	130	67-136	5
Hexane	ug/L (ppb)	50	116	124	57-137	7
Methylene chloride	ug/L (ppb)	50	123	127	39-148	3
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	121	126	64-147	4
trans-1,2-Dichloroethene	ug/L (ppb)	50	117	123	68-128	5
1,1-Dichloroethane	ug/L (ppb)	50	116	123 vo	79-121	6
2,2-Dichloropropane	ug/L (ppb)	50	129	135	55-143	5
cis-1,2-Dichloroethene	ug/L (ppb)	50	115	123	80-123	7
Chloroform	ug/L (ppb)	50	108	116	80-121	7
2-Butanone (MEK)	ug/L (ppb)	250	102	114	57-149	11
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	109	118	73-132	8
1,1,1-Trichloroethane	ug/L (ppb)	50	118	125	81-125	6
1,1-Dichloropropene	ug/L (ppb)	50	107	116	77-129	8
Carbon tetrachloride	ug/L (ppb)	50	124	131	75-158	5
Benzene	ug/L (ppb)	50	108	114	69-134	5
Trichloroethene	ug/L (ppb)	50	103	109	79-113	6
1,2-Dichloropropane	ug/L (ppb)	50	106	113	77-123	6
Bromodichloromethane	ug/L (ppb)	50	116	124	81-133	7
Dibromomethane	ug/L (ppb)	50	106	112	82-125	6
4-Methyl-2-pentanone	ug/L (ppb)	250	115	124	65-138	8
cis-1,3-Dichloropropene	ug/L (ppb)	50	118	125	82-132	6
Toluene	ug/L (ppb)	50	90	95	72-122	5
trans-1,3-Dichloropropene	ug/L (ppb)	50	101	107	80-136	6
1,1,2-Trichloroethane	ug/L (ppb)	50	89	95	75-124	7
2-Hexanone	ug/L (ppb)	250	88	99	60-136	12
1,3-Dichloropropene	ug/L (ppb)	50	91	98	76-126	7
Tetrachloroethene	ug/L (ppb)	50	92	96	76-121	4
Dibromochloromethane	ug/L (ppb)	50	113	118	84-133	4
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	89	96	82-115	8
Chlorobenzene	ug/L (ppb)	50	93	98	83-114	5
Ethylbenzene	ug/L (ppb)	50	97	102	77-124	5
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	106	109	84-127	3
m,p-Xylene	ug/L (ppb)	100	94	99	81-112	5
o-Xylene	ug/L (ppb)	50	96	99	81-121	3
Styrene	ug/L (ppb)	50	96	103	84-119	7
Isopropylbenzene	ug/L (ppb)	50	98	102	80-117	4
Bromoform	ug/L (ppb)	50	117	118	74-136	1
n-Propylbenzene	ug/L (ppb)	50	93	98	74-126	5
Bromobenzene	ug/L (ppb)	50	89	94	80-121	5
1,3,5-Trimethylbenzene	ug/L (ppb)	50	91	96	78-123	5
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	94	101	66-126	7
1,2,3-Trichloropropane	ug/L (ppb)	50	88	97	67-124	10
2-Chlorotoluene	ug/L (ppb)	50	88	93	77-127	6
4-Chlorotoluene	ug/L (ppb)	50	89	95	78-128	7
tert-Butylbenzene	ug/L (ppb)	50	95	99	80-123	4
1,2,4-Trimethylbenzene	ug/L (ppb)	50	93	98	79-122	5
sec-Butylbenzene	ug/L (ppb)	50	93	97	80-116	4
p-Isopropyltoluene	ug/L (ppb)	50	94	99	81-123	5
1,3-Dichlorobenzene	ug/L (ppb)	50	89	95	83-113	7
1,4-Dichlorobenzene	ug/L (ppb)	50	88	95	83-107	8
1,2-Dichlorobenzene	ug/L (ppb)	50	89	94	84-112	5
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	107	108	57-141	1
1,2,4-Trichlorobenzene	ug/L (ppb)	50	88	92	72-130	4
Hexachlorobutadiene	ug/L (ppb)	50	88	92	53-141	4
Naphthalene	ug/L (ppb)	50	90	96	64-133	6
1,2,3-Trichlorobenzene	ug/L (ppb)	50	86	91	65-136	6

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht - The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

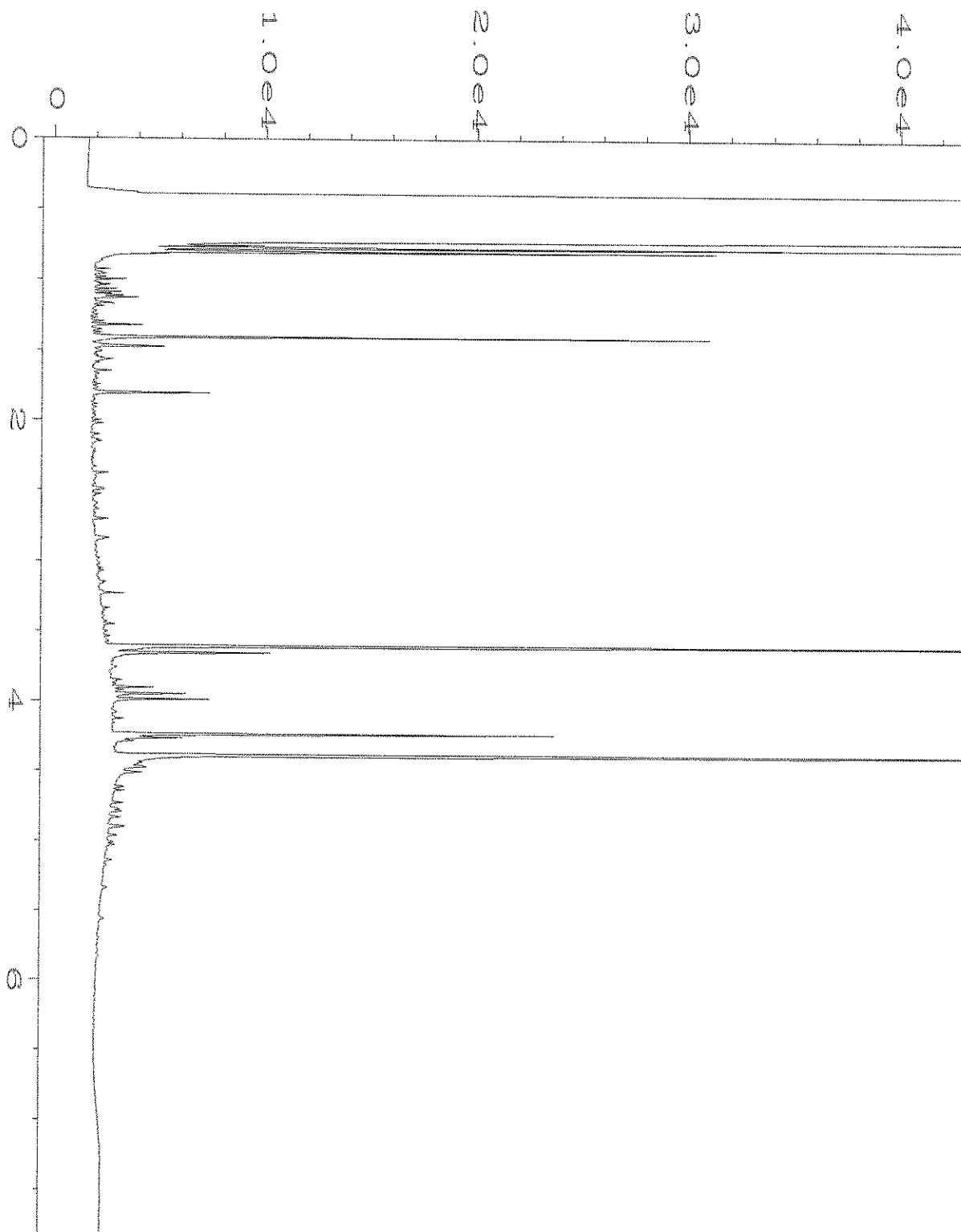
nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

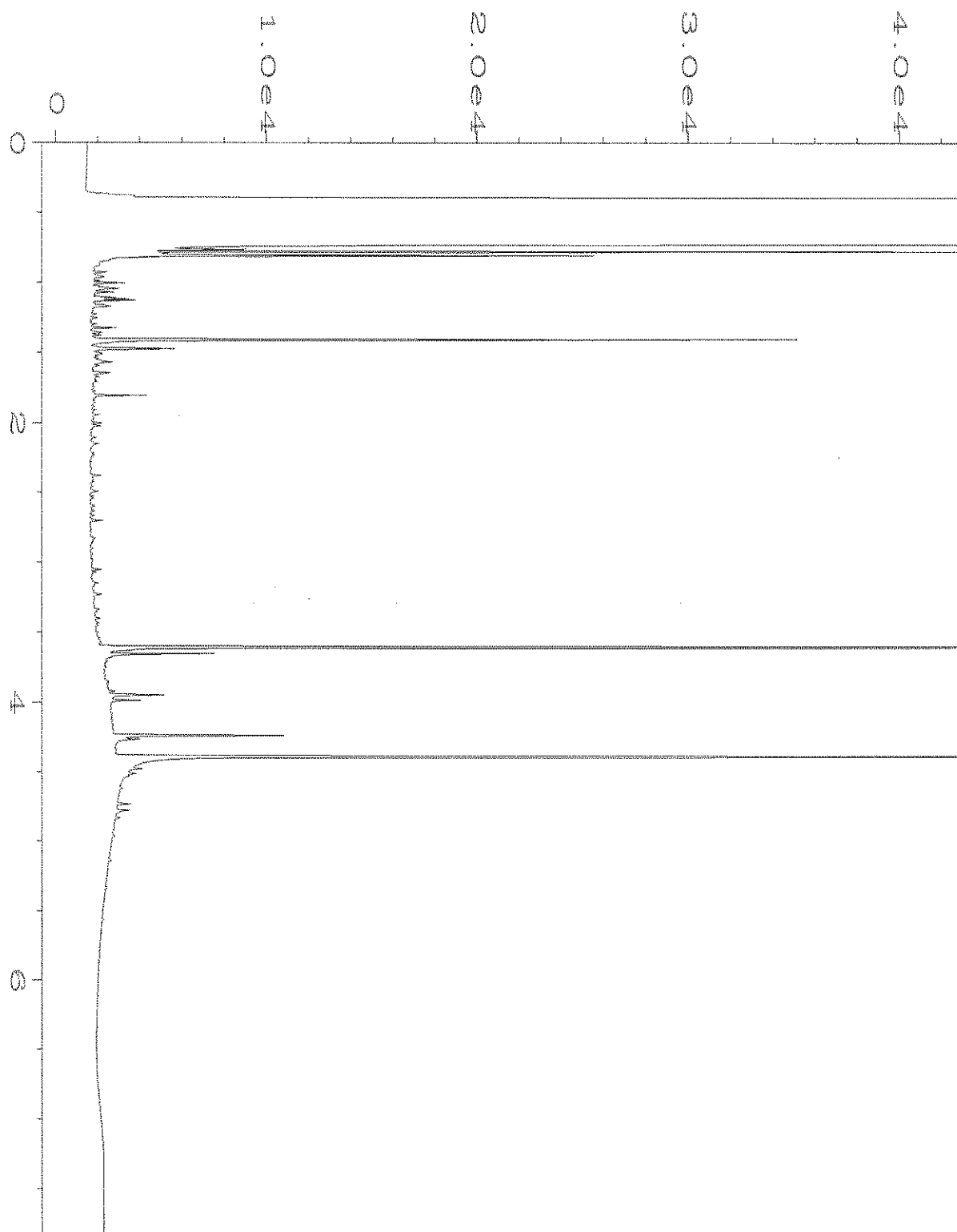
ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

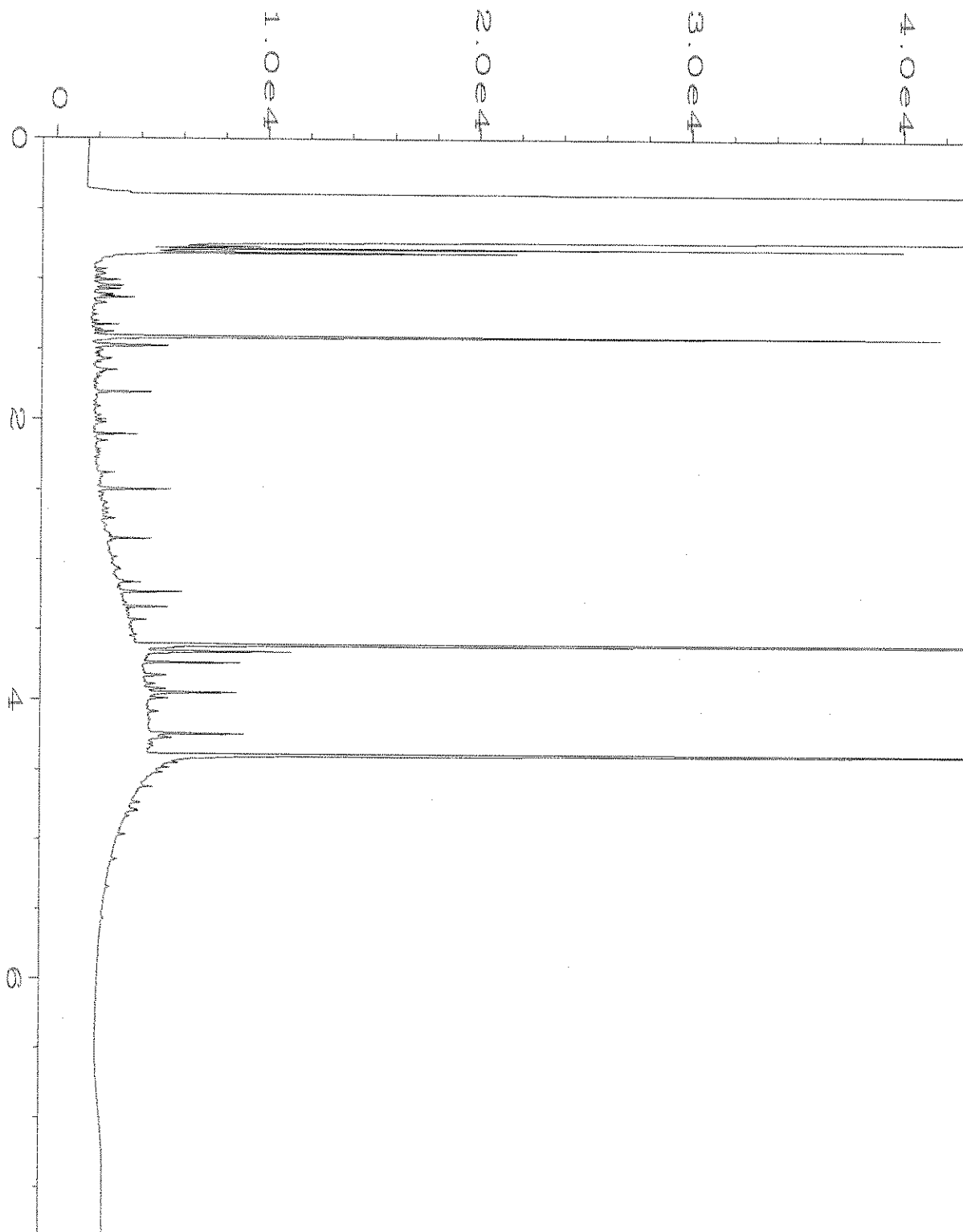
x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.



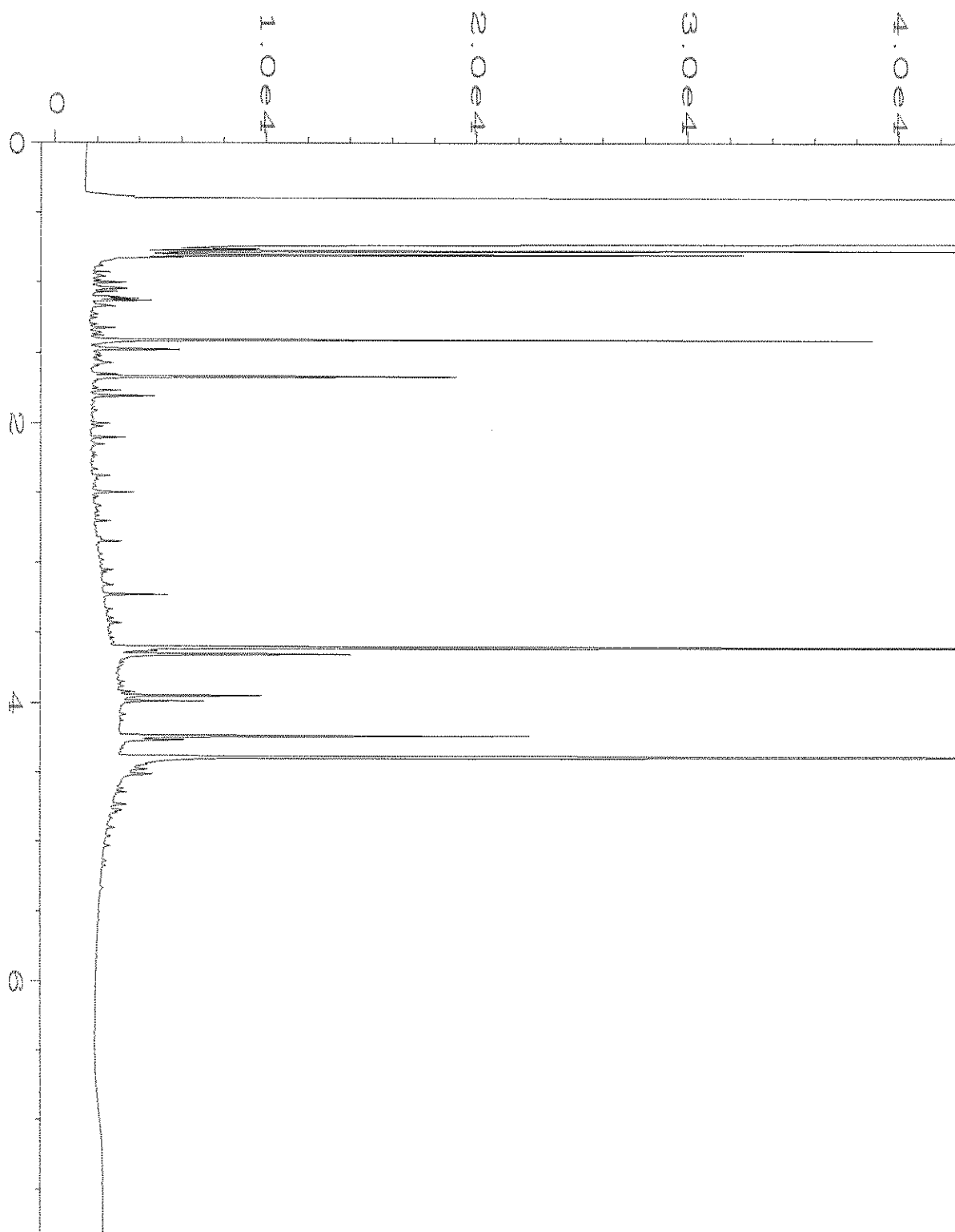
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Instrument	: GC#4	Injection Number	: 1
Sample Name	: 910191-01	Sequence Line	: 11
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Report Created on:	16 Oct 19 12:24 PM		



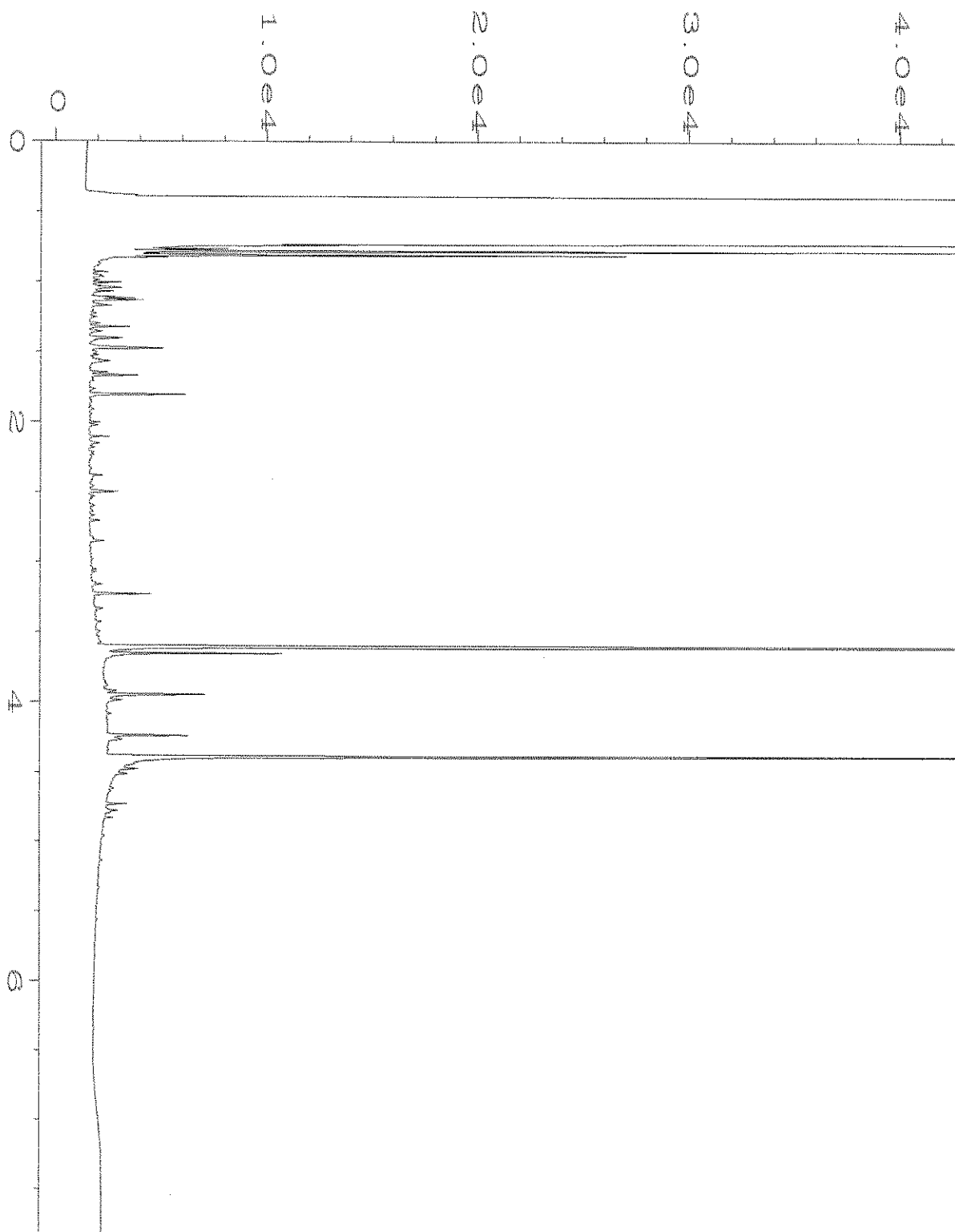
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Instrument	: GC#4	Injection Number	: 1
Sample Name	: 910191-02	Sequence Line	: 11
Run Time Bar Code:		Instrument Method	: DX.MTH
Acquired on	: 15 Oct 19 08:18 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	16 Oct 19 12:24 PM		



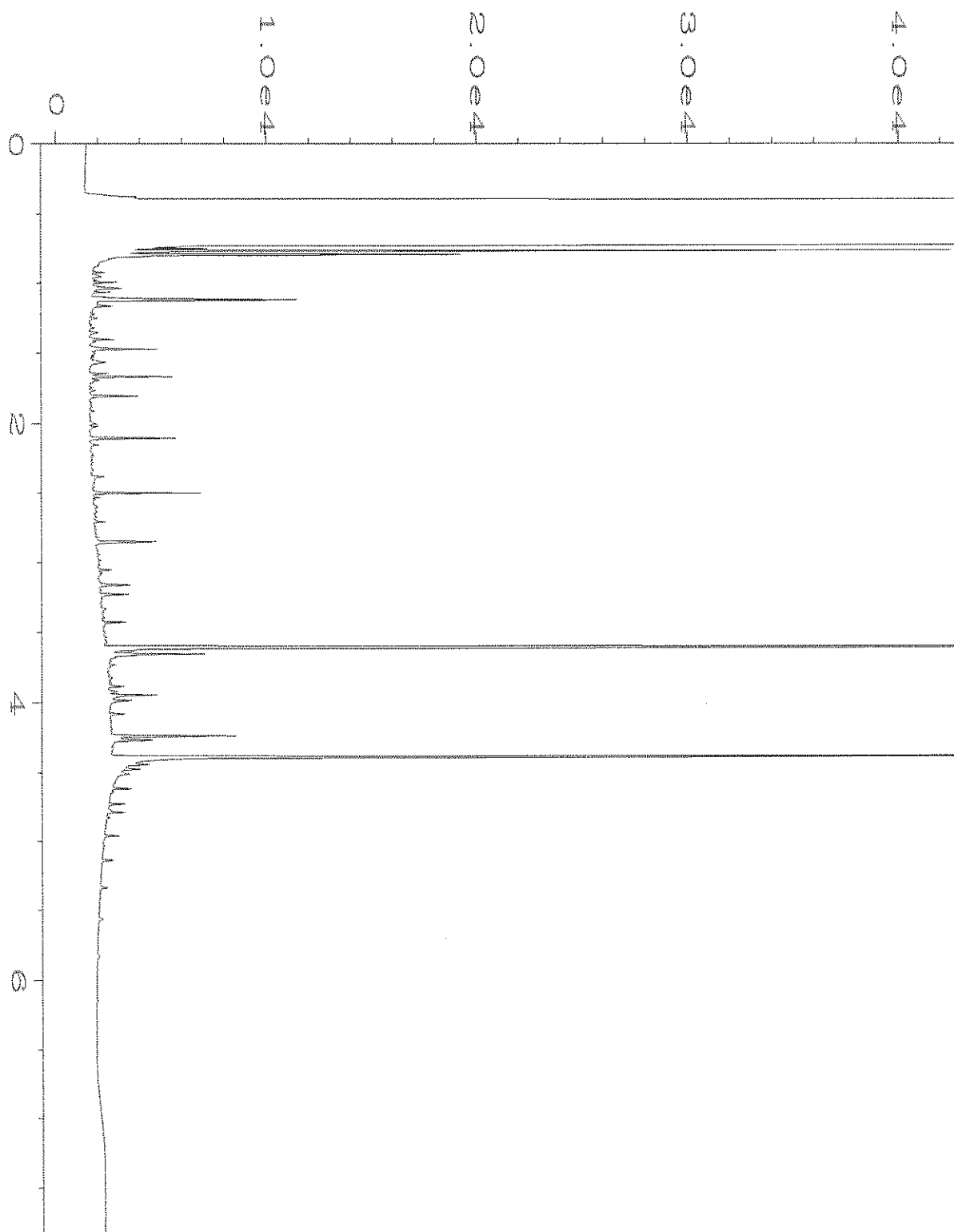
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Sample Name	: 910191-03	Sequence Line	: 11
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Report Created on:	16 Oct 19 12:24 PM		



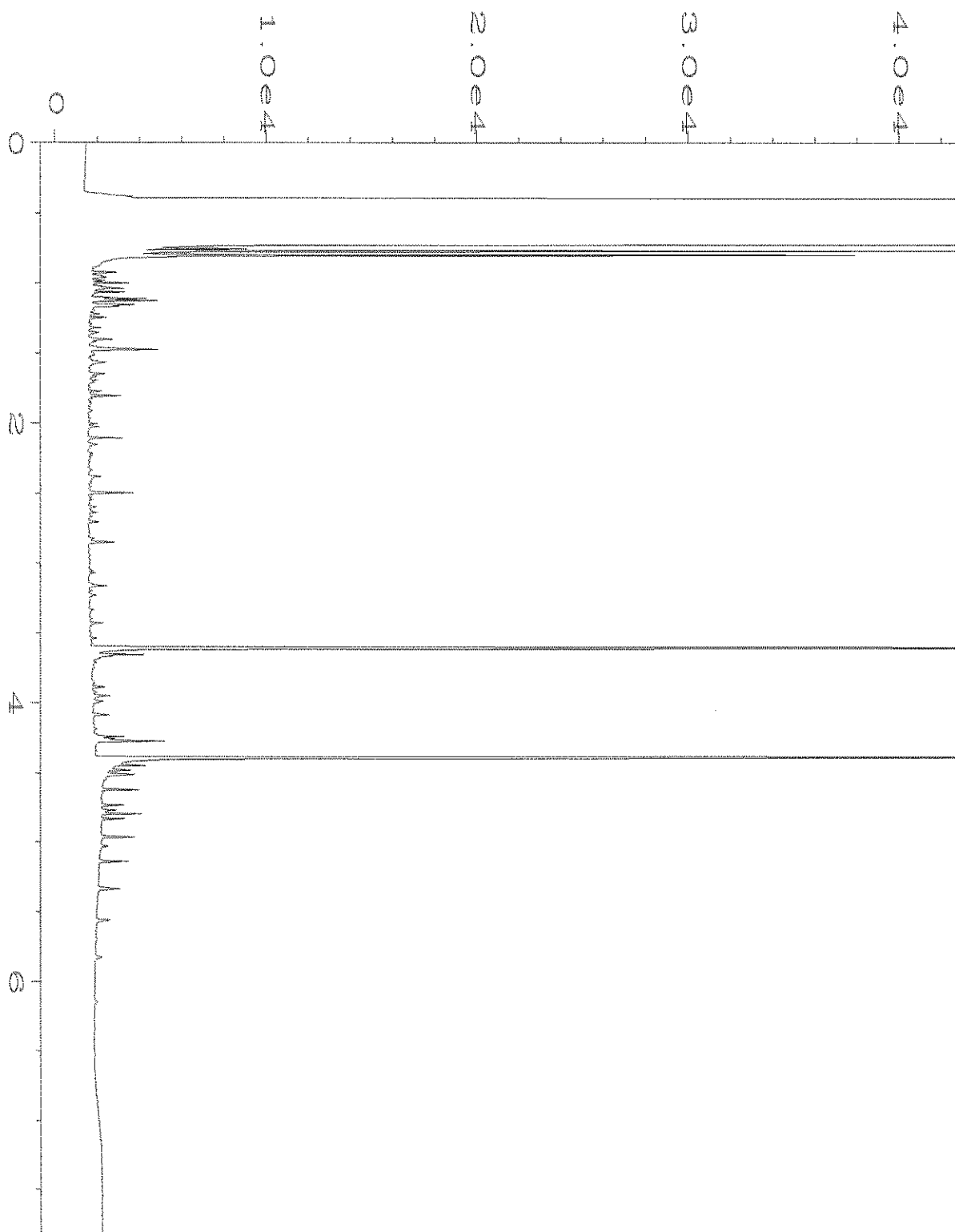
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Sample Name	: 910191-04	Sequence Line	: 11
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Acquired on	: 15 Oct 19 08:42 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	16 Oct 19 12:24 PM		



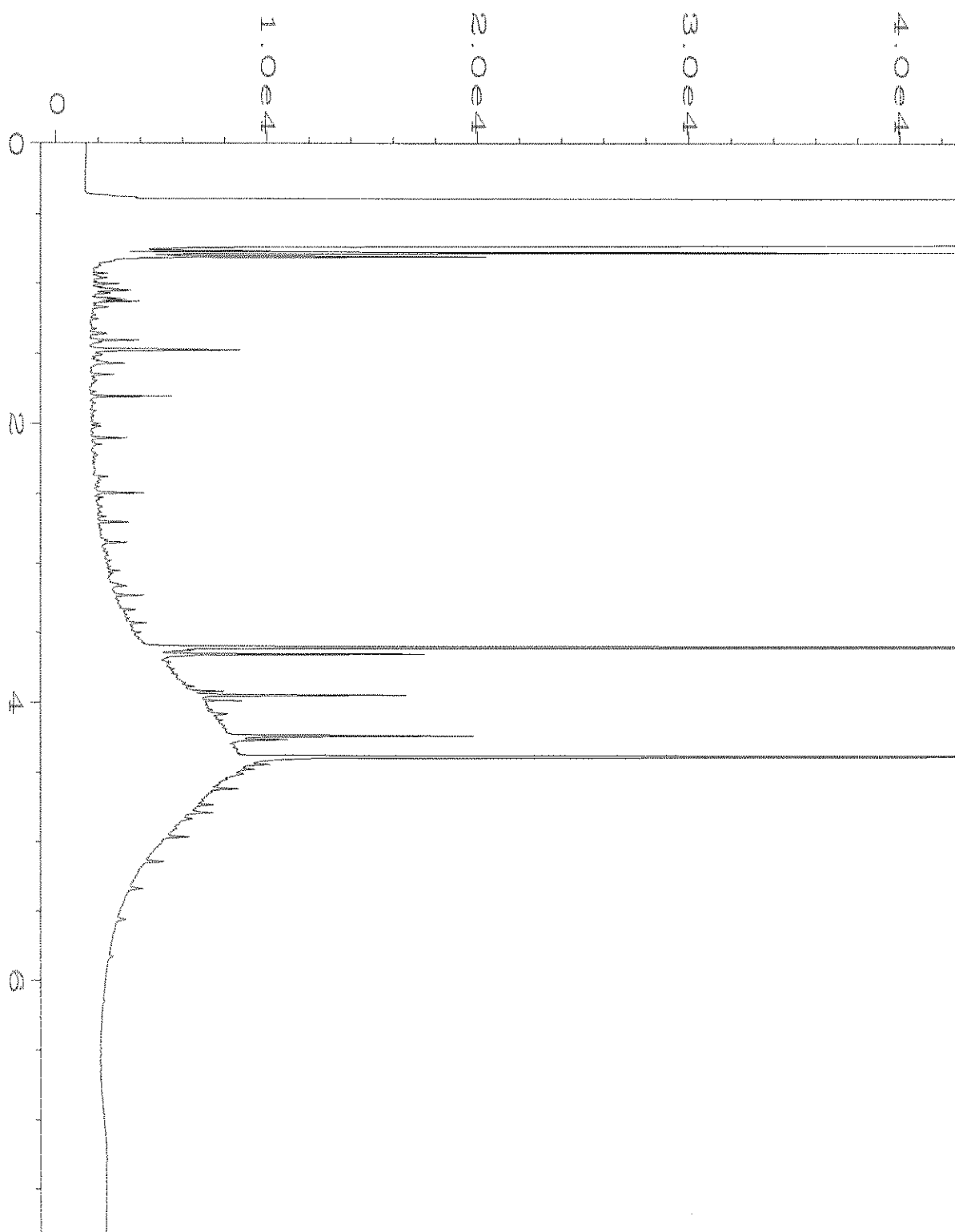
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Instrument	: GC#4	Injection Number	: 1
Sample Name	: 910191-05	Sequence Line	: 11
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Report Created on:	16 Oct 19 12:24 PM		



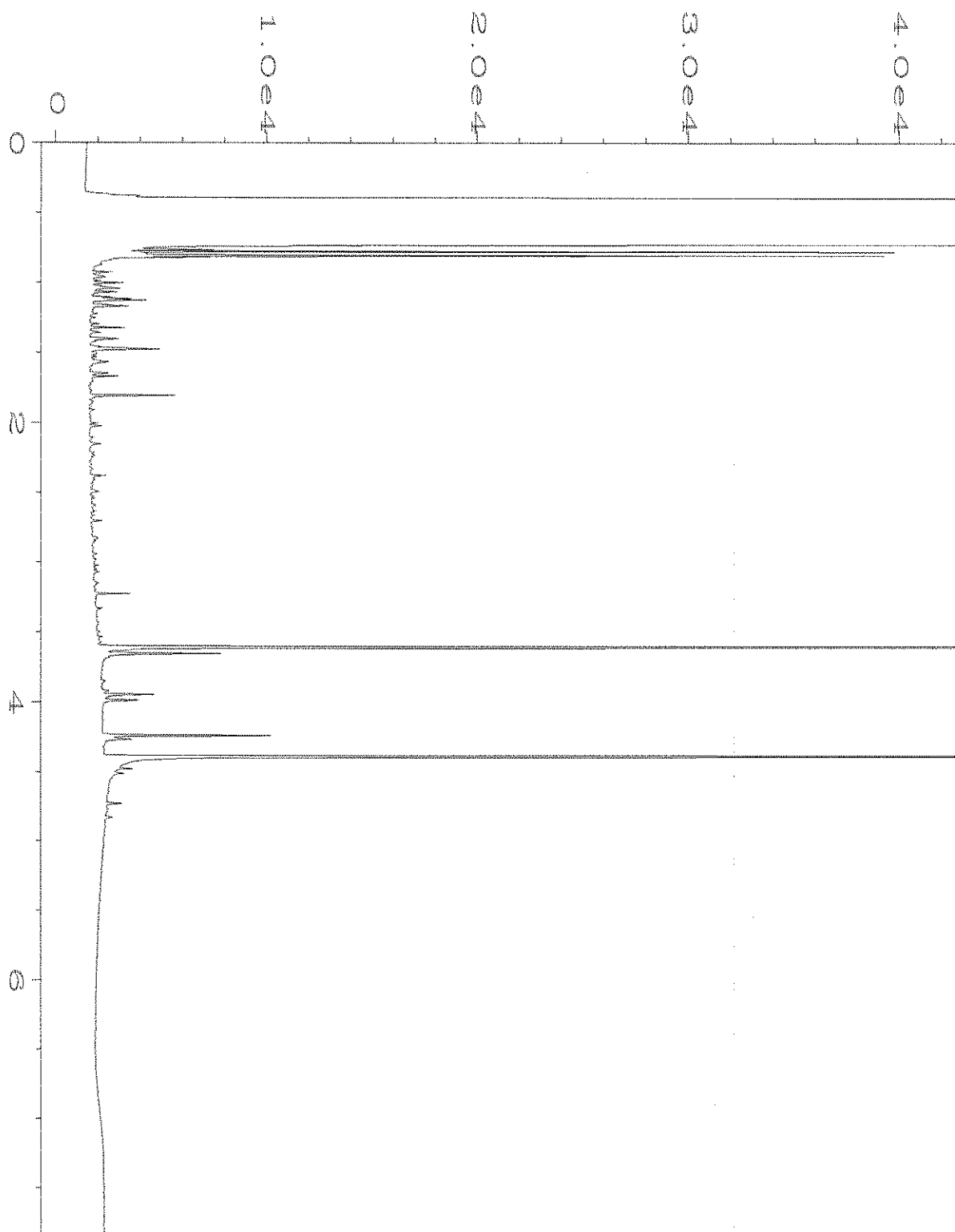
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Sample Name	: 910191-06	Sequence Line	: 11
Run Time Bar Code:		Instrument Method	: DX.MTH
Acquired on	: 15 Oct 19 09:06 PM	Analysis Method	: DEFAULT.MTH
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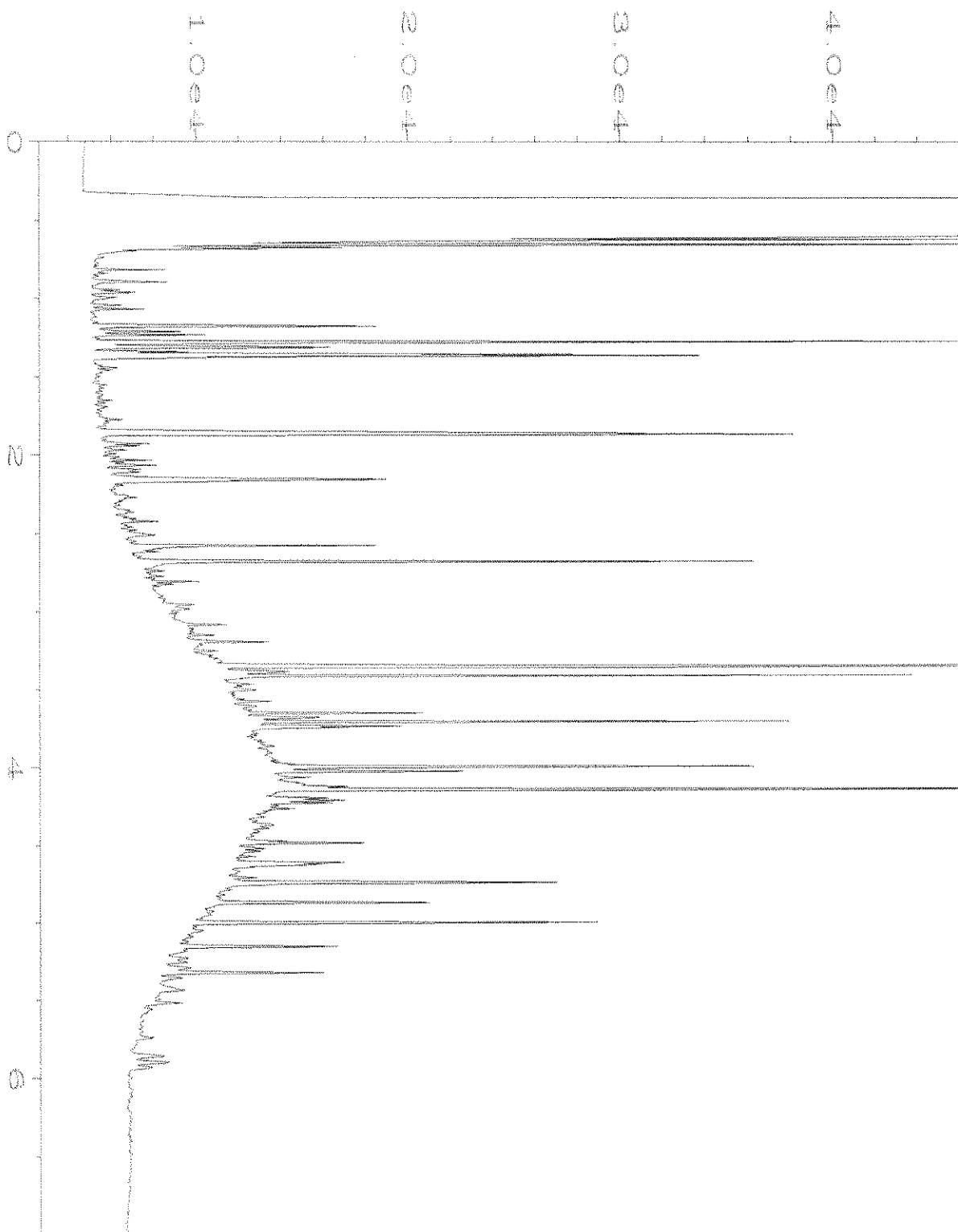
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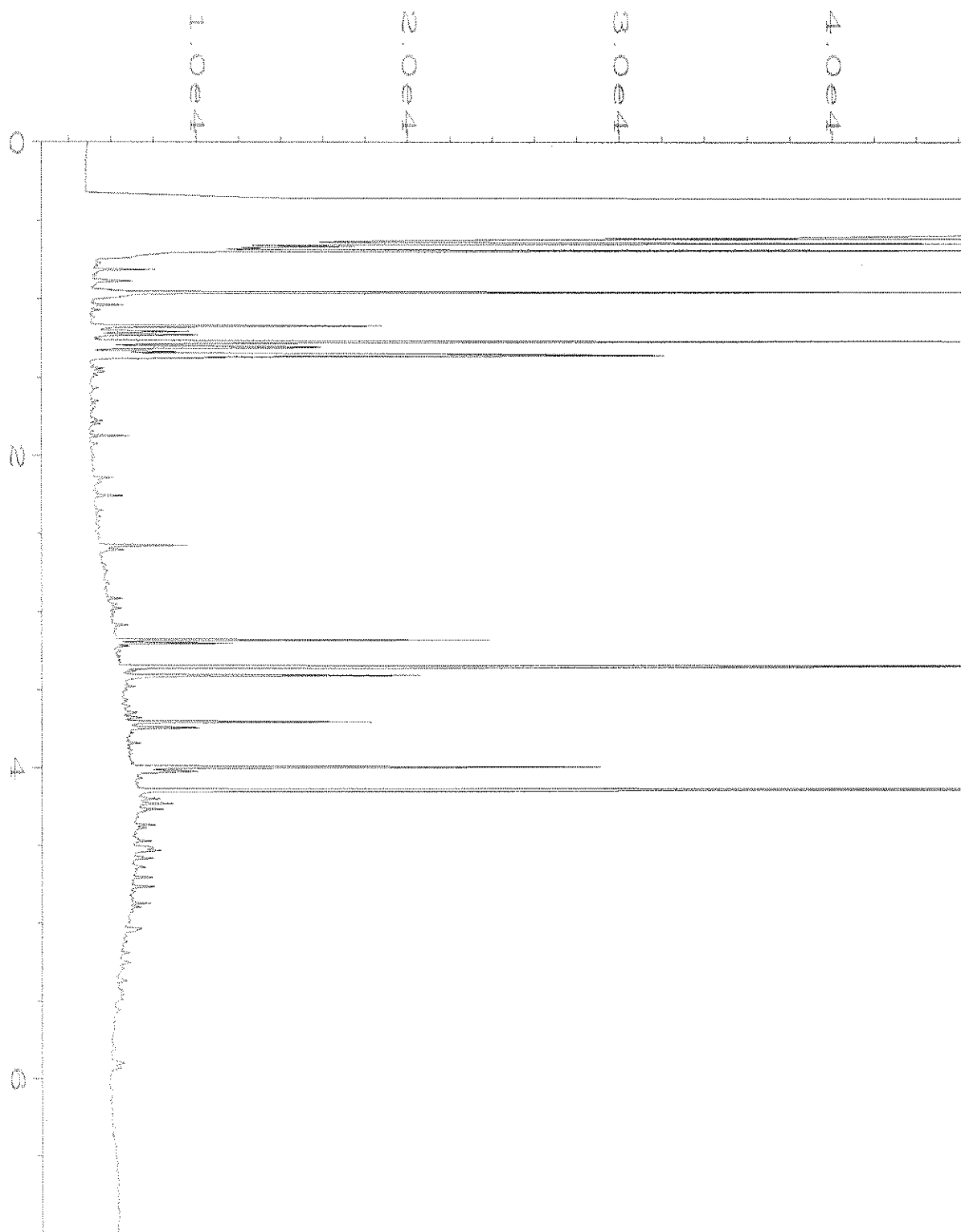
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Sample Name	: 910191-08	Sequence Line	: 11
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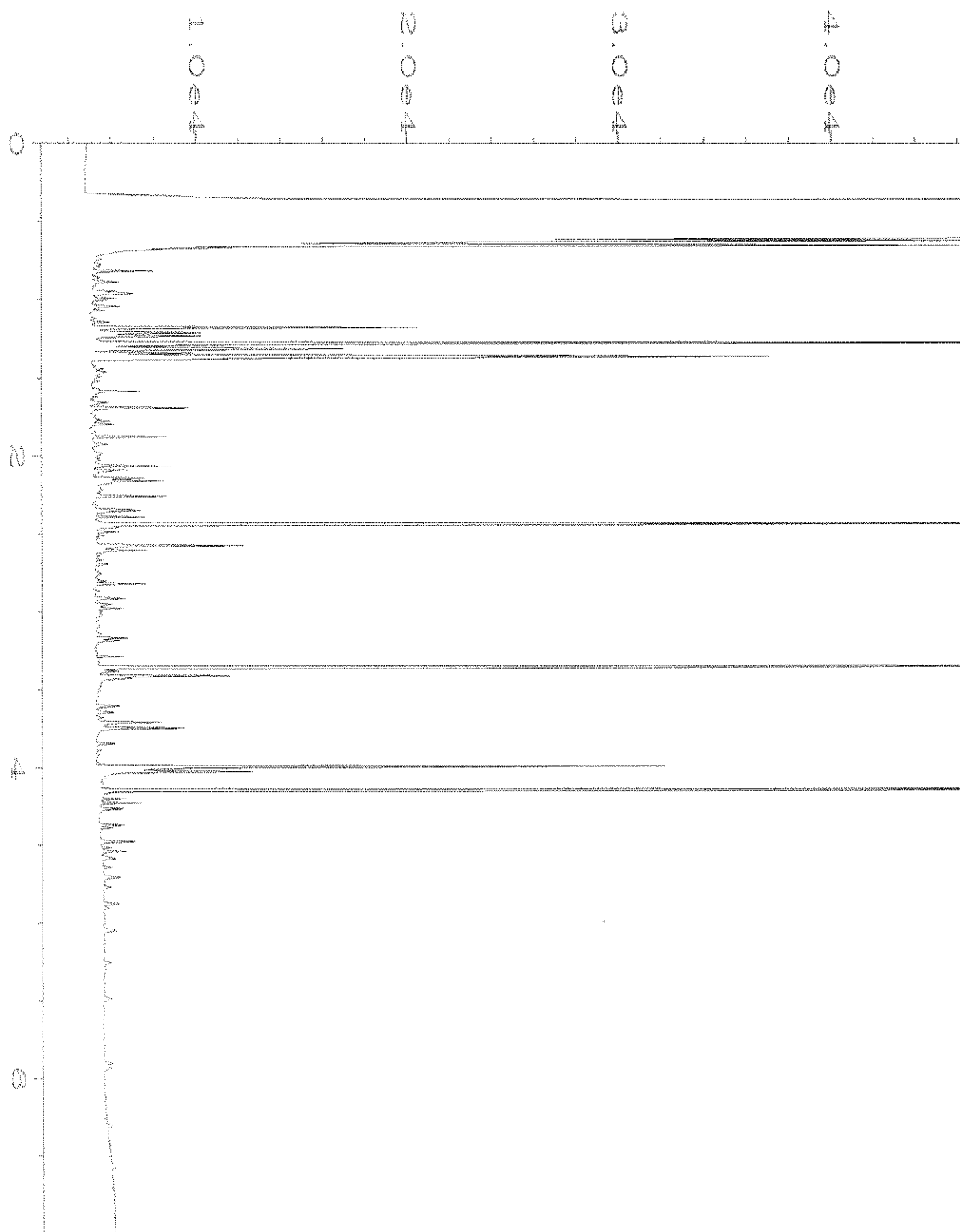
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Acquired on	: 15 Oct 19 09:43 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	16 Oct 19 12:25 PM		



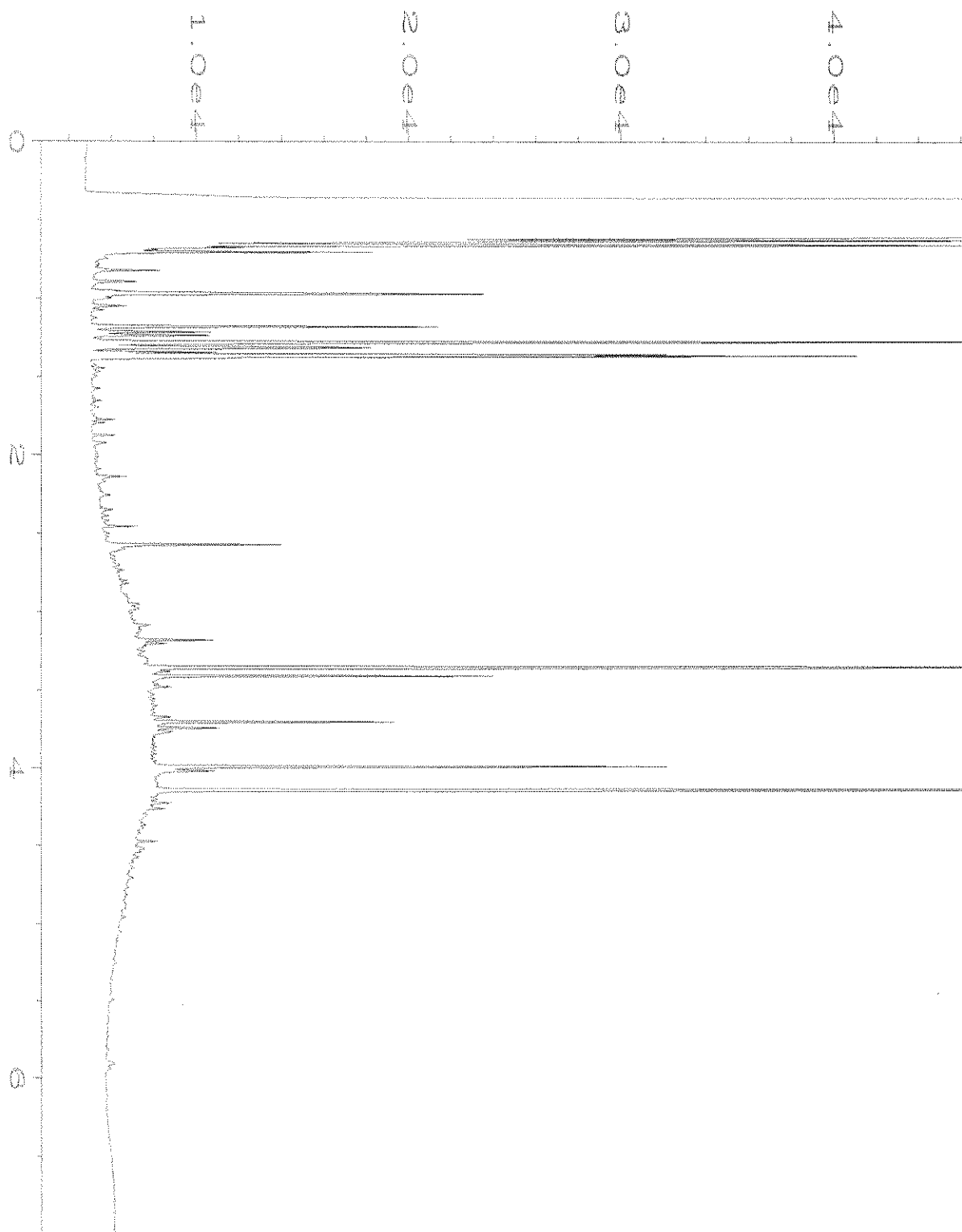
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Instrument	: GC6	Injection Number	: 1
Sample Name	: 910191-11	Sequence Line	: 5
Run Time Bar Code:		Instrument Method	: DX.MTH
Acquired on	: 10 Oct 19 03:54 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	11 Oct 19 11:09 AM		



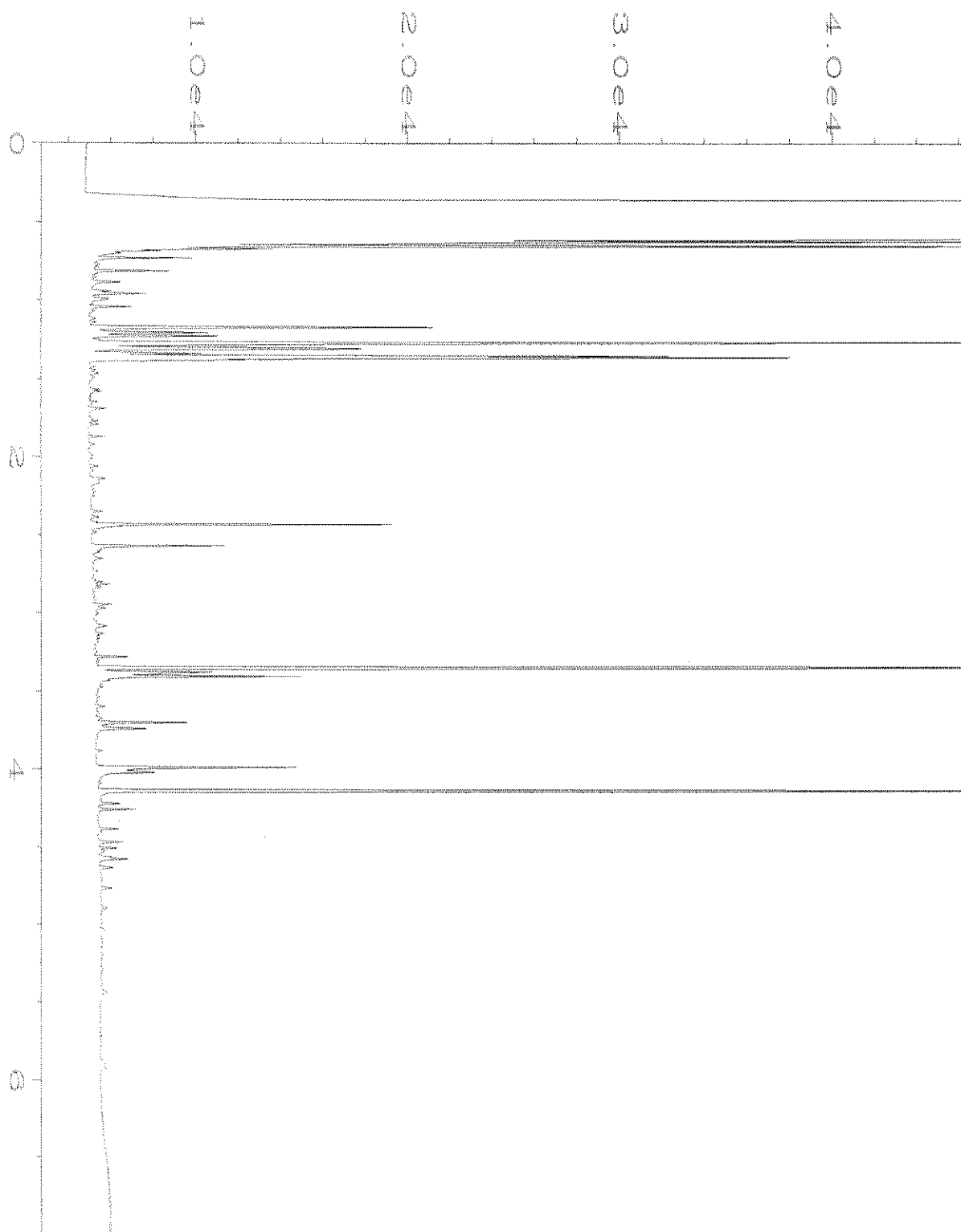
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Sample Name	: 910191-12	Sequence Line	: 5
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Acquired on	: 10 Oct 19 04:05 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	11 Oct 19 11:09 AM		



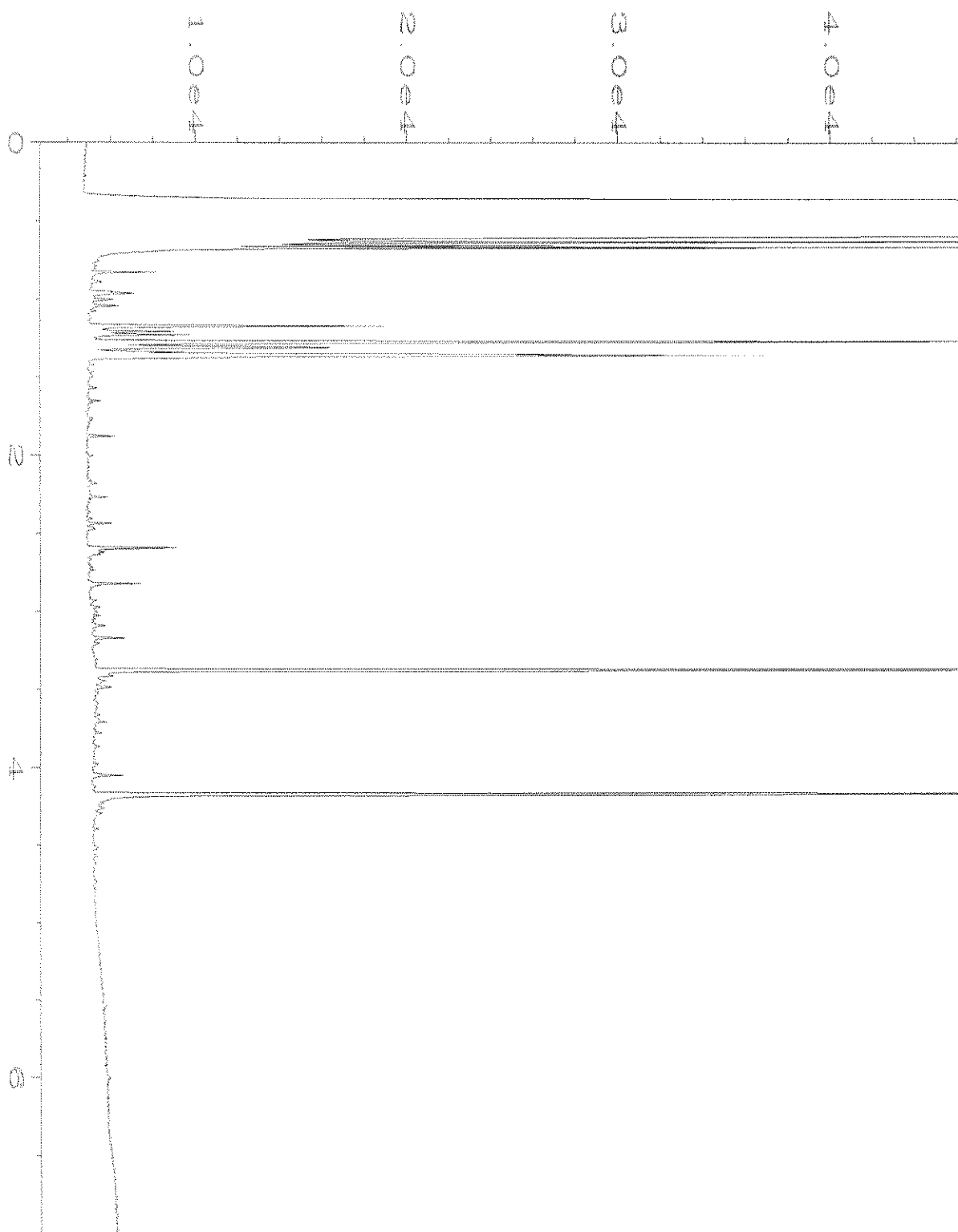
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Acquired on	: 10 Oct 19 04:16 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	11 Oct 19 11:09 AM		



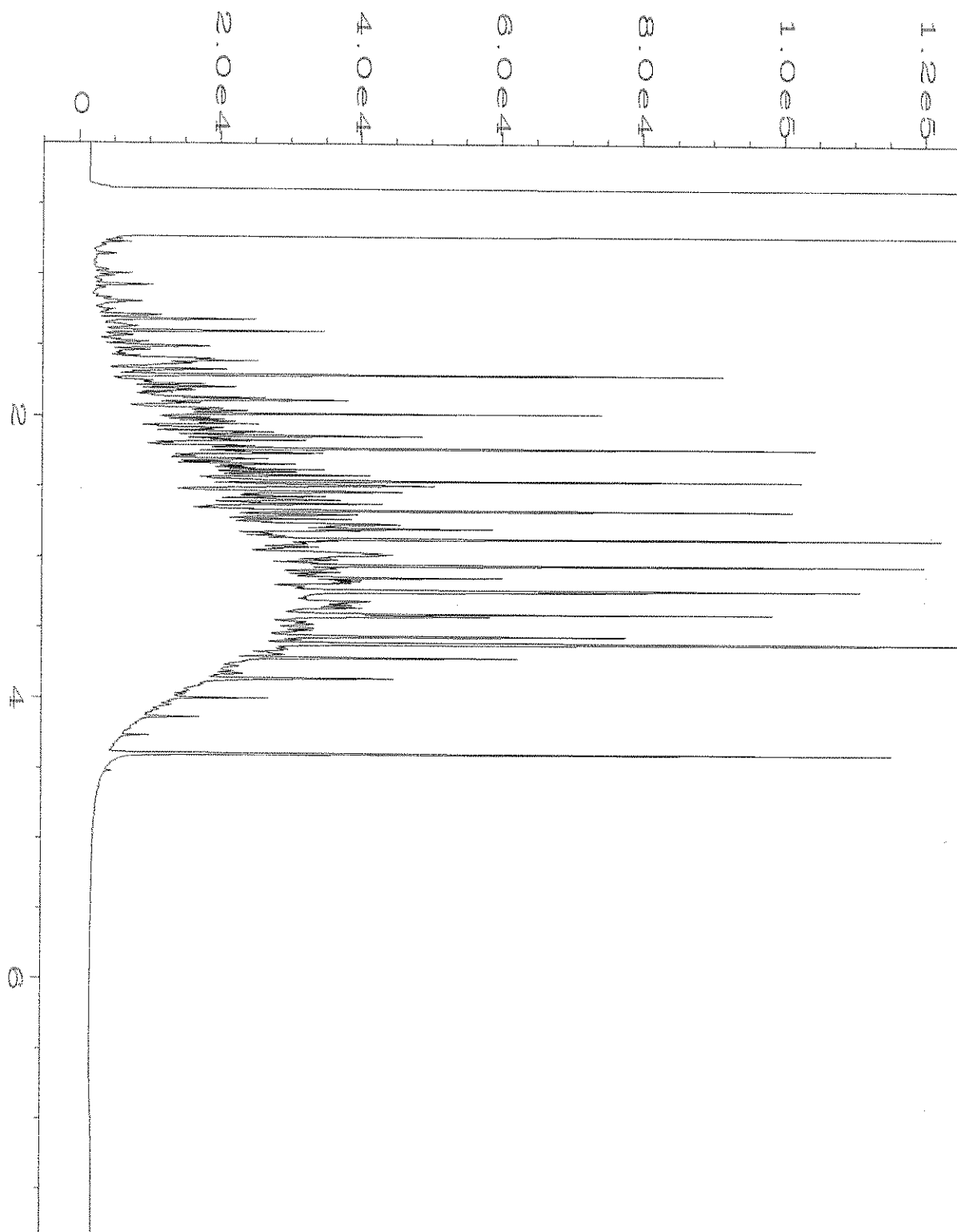
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Acquired on	: 10 Oct 19 04:27 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	11 Oct 19 11:09 AM		



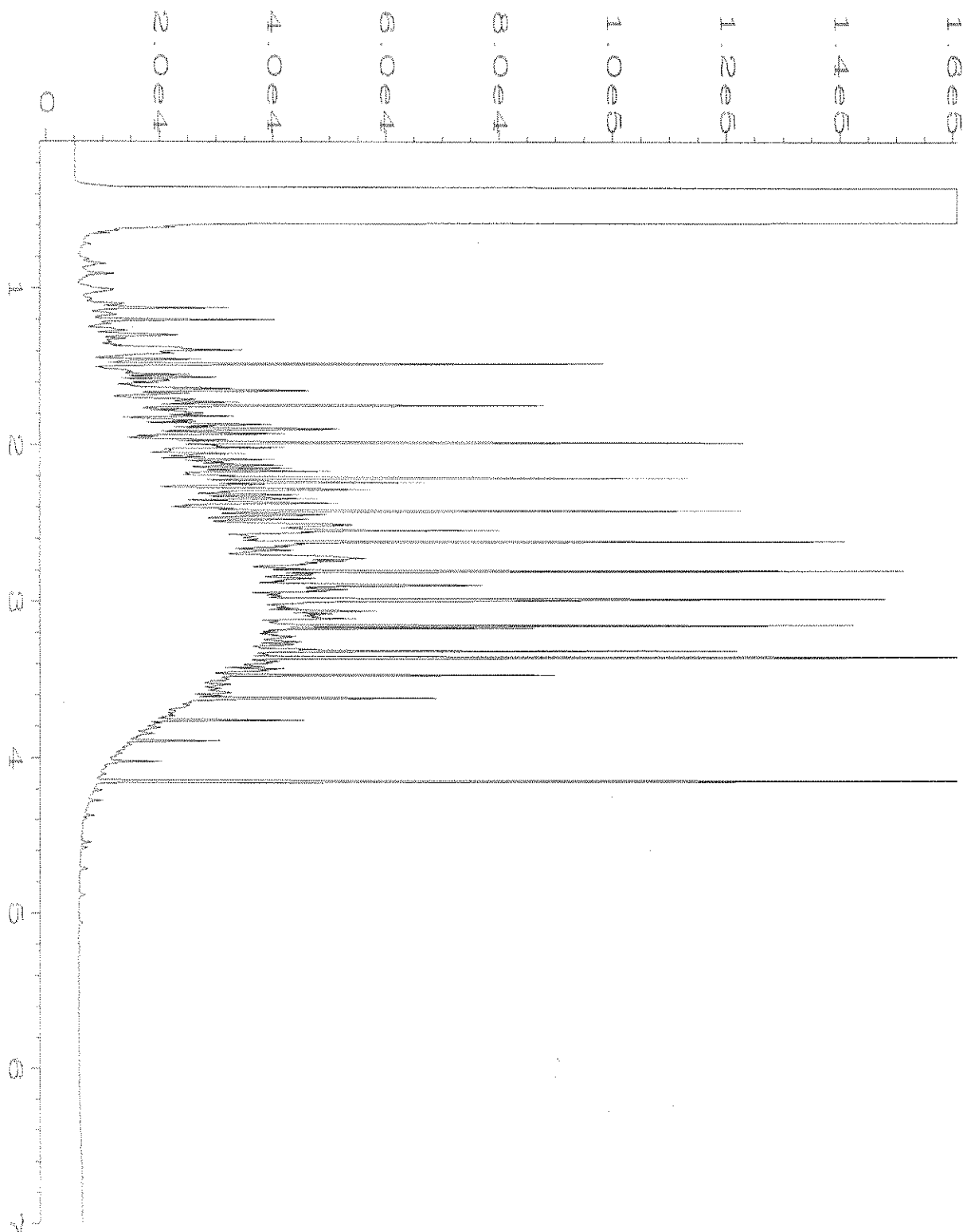
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Instrument	: GC6	Injection Number	: 1
Sample Name	: 910191-15	Sequence Line	: 5
Run Time Bar Code:		Instrument Method	: DX.MTH
Acquired on	: 10 Oct 19 04:38 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	11 Oct 19 11:10 AM		



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Operator	: TL	Vial Number	: 22
Instrument	: GC6	Injection Number	: 1
Sample Name	: 09-2485 mb	Sequence Line	: 3
Run Time Bar Code:		Instrument Method	: DX.MTH
Acquired on	: 10 Oct 19 02:17 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	11 Oct 19 11:09 AM		



Data File Name	: C:\HPCHEM\4\DATA\10-15-19\003F0201.D	Page Number	: 1
Operator	: TL	Vial Number	: 3
Instrument	: GC#4	Injection Number	: 1
Sample Name	: 500 Dx 58-62F	Sequence Line	: 2
Run Time Bar Code:		Instrument Method	: DX.MTH
Acquired on	: 15 Oct 19 06:20 AM	Analysis Method	: DEFAULT.MTH
Report Created on:	16 Oct 19 11:50 AM		



Data File Name	: C:\HPCHEM\6\DATA\10-10-19\003F0201.D	Page Number	: 1
Operator	: TL	Vial Number	: 3
Instrument	: GC6	Injection Number	: 1
Sample Name	: 500 Dx 58-62F	Sequence Line	: 2
Run Time Bar Code:		Instrument Method	: DX.MTH
Acquired on	: 10 Oct 19 06:55 AM	Analysis Method	: DEFAULT.MTH
Report Created on:	11 Oct 19 11:08 AM		

910191

SAMPLE CHAIN OF CUSTODY

ME 10/09/19

WWS/ALM/COS

Page # 1 of 2

Report To Jeremy PorterCompany Aspect Consulting

Address _____

City, State, ZIP _____

Phone 361.7.0449 Email Porter@aspectconsulting.com

SAMPLERS (signature) _____

PROJECT NAME

Russell Rd

PO #

140252

REMARKS

INVOICE TO

TURNAROUND TIME
☒ Standard turnaround
☐ RUSH
Rush charges authorized by: _____SAMPLE DISPOSAL
☐ Archive samples
☐ Other _____

Default: Dispose after 30 days

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Diesel & oil Range Hydrocarbons	Dissolved Arsenic	* Field Test	Notes
MJ-5-100719	01A-H	10/7/19	0950	Wtts	8					X			(X)	(X)		3-ppr DG 10/14/19 ME
MJ-6-100719	02		1110		8					X			(X)	(X)		First 4 samples have EXT 3 vials this was a mistake on samples and for collected extra.
MJ-17-100719	03		1215		8					X			(X)	(X)		
MJ-22-100719	04		1320		8					X			(X)	(X)		
MJ-18-100719	05A-E		1515		8					X			(X)	(X)		
MJ-20-100719	06		1620		5					X			(X)	(X)		
MJ-4-100819	07	10/8/19	1120		5					X			(X)	(X)		
MJ-8-100819	08		1310		5					X			(X)	(X)		
MJ-2-100819	09		1600		5					X			(X)	(X)		
MJ-19-100819	10		1435		5					X			(X)	(X)		

SIGNATURE

PRINT NAME

COMPANY

DATE

TIME

Friedman & Bruya, Inc.

3012 16th Avenue West

Seattle, WA 98119-2029

Ph. (206) 285-8282

Relinquished by: _____

Received by: _____

Relinquished by: _____

Received by: _____

Aspect Consulting

10/9/19

1723

VIN #

FB1

10/9/19

1723

Received by: _____

Samples received at

400

W2/11/05

Company Aspect Consulting

City, State, ZIP _____

Phone 316-617-0409 Email portland@portlandhwy.co

Page # 4 of 2

☒ Standard turnaround
☐ RUSH _____

Rush charges authorized by: _____

SAMPLE DISPOSAL

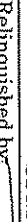
☐ Archive samples
☒ Other _____

Default: Dispose after 30 days

ANALYSES REQUESTED

[illegible]

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: 	Daniel Black	Asst	10/9/19	1723
Received by: 	JNH	EBI	10/9/19	1723
Relinquished by:				
Received by:		Samples received at	4 °C	

APPENDIX B

Soil and Groundwater Sampling Results – April and May 2021

DRAFT MEMORANDUM

Project No. 140252

July 20, 2021

To: Jason Bontrager
Russell Road Industrial Park, LLC
17600 147th Street SE PMB 222
Monroe, WA 98275

From:



Jeremy Porter, PE
Principal Engineer
jporter@aspectconsulting.com

Daniel Babcock, GIT
Staff Geologist
dbabcock@aspectconsulting.com

Re: Groundwater and Soil Sampling Results – April and May 2021

Aspect Consulting, LLC (Aspect) prepared this memorandum to document the results of groundwater monitoring and soil sampling conducted in April and May 2021 at the property located at 4403 Russell Road, Mukilteo, Washington (Subject Property) and adjacent parcels (collectively, the HERS Industrial Park site [Site]). This sampling event included installation of a new monitoring well (MW-23), collection of samples from 11 monitoring wells at the Site, and collection of samples from 6 soil borings. Work was performed in accordance with the Data Gaps Work Plan (Aspect, 2021). This memorandum presents a description of the work performed and a summary of the results.

Soil Investigation

The soil investigation was performed to determine the extent of volatile constituents of potential concern in soil in the source area for the tetrachloroethene (PCE) and trichloroethene (TCE) groundwater plume on the Subject Property. This section describes the soil gas sampling methods and results.

Utility Location

Applied Professional Services, Inc. (APS) was retained by Aspect to perform the private locate. APS confirmed the proposed locations for drilling were clear of subsurface utilities during a site visit on April 21, 2021.

Soil Sampling

Six soil borings (AB-5 through AB-10) were advanced on April 28, 2021, using a direct-push rig at the locations shown on Figure 1. Borings were advanced until refusal (maximum depth of 17 feet). Boring logs are attached. Continuous soil cores were collected, screened for evidence of contamination, and samples were collected for VOC analysis using EPA Method 5035A sampling techniques in accordance with the Data Gaps Work Plan. Samples were transferred under appropriate chain-of-custody documentation to Friedman and Bruya, Inc., of Seattle, Washington. Samples were analyzed using U.S. Environmental Protection Agency (EPA) Method 8260C for volatile organic compounds (VOCs).

Soil Results

The analytical results of the soil sampling were compared to the MTCA Method A screening levels and are summarized in Table 1. Laboratory reports are attached.

Groundwater Monitoring

Groundwater Well Installation

A new monitoring well, MW-23, was installed at the location shown on Figure 2. An attempted installation using a direct-push rig met with refusal before the target depth was reached. A hollow-stem auger rig was mobilized and the well was installed and developed on April 28, 2021. Well construction details are attached.

Groundwater Sampling and Analysis

Aspect collected depth-to-water data from all Site wells¹ on May 6, 2021, and groundwater samples from 11 monitoring wells at the Site on April 27, April 28, and May 6, 2021. Well MW-23 was sampled on May 6 to provide at least 1 week of time between development and sampling.

All monitoring wells appeared to be in satisfactory condition for sampling, and included locking monument covers and secure, sealed well caps. Water levels were measured from the top of each monitoring well casing to the nearest 0.01 foot. 12 wells were purged in accordance with U.S. Environmental Protection Agency (EPA) low-flow purge techniques until water quality parameters stabilized and, due to drawdown during low-flow purging, three monitoring wells were purged in accordance with EPA Multiple Volume Purge techniques until the purging of three well volumes was met. Groundwater samples were collected from each well following parameter stabilization or after three well volumes were purged. The groundwater samples were submitted to Friedman & Bruya, Inc. in Seattle, Washington, for chemical analysis of total and dissolved arsenic by EPA 6020, diesel-, and heavy oil-range petroleum hydrocarbons by Northwest Method NWTPH-Dx, VOCs by EPA Method 8260C.

Groundwater Results

Groundwater levels are summarized on Table 2. Analytical results are summarized in Table 3. The laboratory report is attached.

¹ Except well MW-6, for which the cap was not able to be removed.

Well Surveying

On May 28, 2021, the top-of-casing elevations (NAVD88) of all Site monitoring wells were surveyed by Apex Engineering, a Washington State licensed professional land surveyor. Surveyed elevations are provided in Table 3.

References

Aspect Consulting LLC (Aspect), 2021, Draft Data Gaps Work Plan, HERS Industrial Park Site, dated March 19, 2021.

Limitations

Work for this project was performed for Russell Road Industrial Park, LLC (Client), and this letter was prepared in accordance with generally accepted professional practices for the nature and conditions of work completed in the same or similar localities, at the time the work was performed. This letter does not represent a legal opinion. No other warranty, expressed or implied, is made.

All reports prepared by Aspect Consulting for the Client apply only to the services described in the Agreement(s) with the Client. Any use or reuse by any party other than the Client is at the sole risk of that party, and without liability to Aspect Consulting. Aspect Consulting's original files/reports shall govern in the event of any dispute regarding the content of electronic documents furnished to others.

Russell Road Industrial Park, LLC
July 20, 2021

DRAFT MEMORANDUM

Project No. 140252

Attachments: Table 1 – Soil Sampling Results
 Table 2 – Groundwater Sampling Results
 Table 3 – Groundwater Elevation Measurements
 Figure 1 – Occurrence of PCE and TCE in Soil – April 2021
 Figure 2 – Occurrence of PCE and TCE in Groundwater – April 2021
 Attachment 1 – Laboratory Certificates of Analysis
 Attachment 2 – Boring Logs and Well Construction Details

V:\140252 HERS Industrial Park\Deliverables\FFS\Revised FFS\Appendices\Appendix B\App B Data Memo.docx

TABLES

Table 1. Soil Sampling Results

Project No. 140252, 4403 Russell Road, Mukitleo, Washington

DRAFT

Location Date Sample Depth			AB-05 04/28/2021 AB-5-9 9 ft	AB-05 04/28/2021 AB-5-14 14 ft	AB-05 04/28/2021 AB-5-16.5 16.5 ft	AB-06 04/28/2021 AB-6-11 11 ft	AB-06 04/28/2021 AB-6-14 14 ft	AB-07 04/28/2021 AB-7-11 11 ft	AB-07 04/28/2021 AB-7-14 14 ft	AB-08 04/28/2021 AB-8-10.5 10.5 ft	AB-08 04/28/2021 AB-8-12.5 12.5 ft	AB-09 04/28/2021 AB-9-5 5 ft	AB-09 04/28/2021 AB-9-10.5 10.5 ft	AB-09 04/28/2021 AB-9-13.5 13.5 ft	AB-10 04/28/2021 AB-10-13 13 ft	AB-10 04/28/2021 AB-10-16.5 16.5 ft
Analyte	Unit	MTCA Method A Cleanup Level for Unrestricted Use														
BTEX																
Benzene	mg/kg	0.03	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U
Toluene	mg/kg	7	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Ethylbenzene	mg/kg	6	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Total Xylenes	mg/kg	9	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U
Other SVOCs																
Hexachlorobutadiene	mg/kg		< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U
PAHs																
Naphthalene	mg/kg	5	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
VOCs																
1,1,1,2-Tetrachloroethane	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,1,1-Trichloroethane	mg/kg	2	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,1,2,2-Tetrachloroethane	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,1,2-Trichloroethane	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,1-Dichloroethane	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,1-Dichloroethene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,1-Dichloropropene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,2,3-Trichlorobenzene	mg/kg		< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U
1,2,3-Trichloropropane	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,2,4-Trichlorobenzene	mg/kg		< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U
1,2,4-Trimethylbenzene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,2-Dibromo-3-chloropropane	mg/kg		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dibromoethane (EDB)	mg/kg	0.005	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,2-Dichlorobenzene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,2-Dichloroethane (EDC)	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,2-Dichloropropane	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,3,5-Trimethylbenzene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,3-Dichlorobenzene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,3-Dichloropropane	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,4-Dichlorobenzene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
2,2-Dichloropropane	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
2-Butanone	mg/kg		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
2-Chlorotoluene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
2-Hexanone	mg/kg		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
4-Chlorotoluene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
4-Methyl-2-pentanone	mg/kg		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Acetone	mg/kg		< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Bromobenzene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Bromodichloromethane	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U

Table 1. Soil Sampling Results

Project No. 140252, 4403 Russell Road, Mukitleo, Washington

DRAFT

Location Date Sample Depth			AB-05 04/28/2021 AB-5-9 9 ft	AB-05 04/28/2021 AB-5-14 14 ft	AB-05 04/28/2021 AB-5-16.5 16.5 ft	AB-06 04/28/2021 AB-6-11 11 ft	AB-06 04/28/2021 AB-6-14 14 ft	AB-07 04/28/2021 AB-7-11 11 ft	AB-07 04/28/2021 AB-7-14 14 ft	AB-08 04/28/2021 AB-8-10.5 10.5 ft	AB-08 04/28/2021 AB-8-12.5 12.5 ft	AB-09 04/28/2021 AB-9-5 5 ft	AB-09 04/28/2021 AB-9-10.5 10.5 ft	AB-09 04/28/2021 AB-9-13.5 13.5 ft	AB-10 04/28/2021 AB-10-13 13 ft	AB-10 04/28/2021 AB-10-16.5 16.5 ft
Analyte	Unit	MTCA Method A Cleanup Level for Unrestricted Use														
Bromoform	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Bromomethane	mg/kg		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Carbon Tetrachloride	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Chlorobenzene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Chloroethane	mg/kg		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chloroform	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Chloromethane	mg/kg		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
cis-1,2-Dichloroethene (cDCE)	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
cis-1,3-Dichloropropene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Dibromochloromethane	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Dibromomethane	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Dichlorodifluoromethane	mg/kg		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Isopropylbenzene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
m,p-Xylenes	mg/kg		< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U
Methyl tert-butyl ether (MTBE)	mg/kg	0.1	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Methylene Chloride	mg/kg	0.02	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
n-Hexane	mg/kg		< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U
n-Propylbenzene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
o-Xylene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
p-Isopropyltoluene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
sec-Butylbenzene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Styrene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
tert-Butylbenzene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Tetrachloroethene (PCE)	mg/kg	0.05	< 0.025 U	< 0.025 U	< 0.025 U	< 0.025 U	< 0.025 U	< 0.025 U	0.064	< 0.025 U	< 0.025 U	< 0.025 U	< 0.025 U	0.05	0.032	0.053
trans-1,2-Dichloroethene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
trans-1,3-Dichloropropene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Trichloroethene (TCE)	mg/kg	0.03	< 0.02 U	0.075	0.073	< 0.02 U	0.088	< 0.02 U	0.24	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	0.43	0.046	0.31
Trichlorofluoromethane	mg/kg		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Vinyl Chloride	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U

Bold - Analyte detected
Blue Shaded - Detected result exceeded screening level
U - Analyte not detected at or above Reporting Limit (RL) shown
X - Chromatographic pattern does not match fuel standard used for quantitation
D - Dissolved Fraction (filtered) sample result
T - Total Fraction (unfiltered) sample result

Table 2. Groundwater Sampling Results

Project No. 140252, 4403 Russell Road, Mukitleo, Washington

DRAFT

Location Date Sample			MW-01 4/27/2021 MW-1-042721	MW-07 4/27/2021 MW-7-042721	MW-09 4/28/2021 MW-9-042821	MW-10 4/27/2021 MW-10-042721	MW-11 4/27/2021 MW-11-042721	MW-12 4/27/2021 MW-12-042721	MW-13 4/27/2021 MW-13-042721	MW-15 4/27/2021 MW-15-042721	MW-16D 4/28/2021 MW-16D-042821	MW-19 4/27/2021 MW-19-042721	MW-23 5/6/2021 MW-23-05062021
Analyte	Unit	MTCA Method A Cleanup Levels for Groundwater											
BTEX													
Benzene	ug/L	5	< 0.35 U	< 0.35 U	< 0.35 U	< 0.35 U	< 0.35 U	< 0.35 U	< 0.35 U	< 0.35 U	< 0.35 U	< 0.35 U	< 0.35 U
Toluene	ug/L	1000	< 1 U	2	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Ethylbenzene	ug/L	700	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Total Xylenes	ug/L	1000	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Metals													
Arsenic, Dissolved	ug/L	5	2.87	< 1 U	< 1 U	< 1 U	< 1 U	1.21	< 1 U	37	3.58	54.8	3.74
Arsenic, Total	ug/L	5	8.45	< 1 U	< 1 U	< 1 U	< 1 U	1.62	< 1 U	39.3	3.73	77.5	5.93
Other SVOCs													
Hexachlorobutadiene	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
PAHs													
Naphthalene	ug/L	160	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
TPHs													
Diesel Range Organics	ug/L	500	330 X	62 X	89 X	< 50 U	< 50 U	< 50 U	180 X	110 X	< 50 U	300 X	260 X
Motor Oil Range Organics	ug/L	500	1800	< 250 U	520	< 250 U	< 250 U	< 250 U	580	< 300 U	< 250 U	310 X	< 250 U
VOCs													
1,1,1,2-Tetrachloroethane	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1,1-Trichloroethane	ug/L	200	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1,2,2-Tetrachloroethane	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1,2-Trichloroethane	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1-Dichloroethane	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1-Dichloroethene	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1-Dichloropropene	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2,3-Trichlorobenzene	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2,3-Trichloropropane	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2,4-Trichlorobenzene	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2,4-Trimethylbenzene	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dibromo-3-chloropropane	ug/L		< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
1,2-Dibromoethane (EDB)	ug/L	0.01	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dichlorobenzene	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dichloroethane (EDC)	ug/L	5	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dichloropropane	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,3,5-Trimethylbenzene	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,3-Dichlorobenzene	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,3-Dichloropropane	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,4-Dichlorobenzene	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
2,2-Dichloropropane	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
2-Butanone	ug/L		< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U
2-Chlorotoluene	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
2-Hexanone	ug/L		< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
4-Chlorotoluene	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
4-Methyl-2-pentanone	ug/L		< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U

Table 2. Groundwater Sampling Results

Project No. 140252, 4403 Russell Road, Mukitleo, Washington

DRAFT

Location Date Sample			MW-01 4/27/2021 MW-1-042721	MW-07 4/27/2021 MW-7-042721	MW-09 4/28/2021 MW-9-042821	MW-10 4/27/2021 MW-10-042721	MW-11 4/27/2021 MW-11-042721	MW-12 4/27/2021 MW-12-042721	MW-13 4/27/2021 MW-13-042721	MW-15 4/27/2021 MW-15-042721	MW-16D 4/28/2021 MW-16D-042821	MW-19 4/27/2021 MW-19-042721	MW-23 5/6/2021 MW-23-05062021
Analyte	Unit	MTCA Method A Cleanup Levels for Groundwater											
Acetone	ug/L		< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
Bromobenzene	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Bromodichloromethane	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Bromoform	ug/L		< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Bromomethane	ug/L		< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Carbon Tetrachloride	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Chlorobenzene	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Chloroethane	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Chloroform	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Chloromethane	ug/L		< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
cis-1,2-Dichloroethene (cDCE)	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	1	9.6	< 1 U	< 1 U	3.2	< 1 U	< 1 U
cis-1,3-Dichloropropene	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Dibromochloromethane	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Dibromomethane	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Dichlorodifluoromethane	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U
Isopropylbenzene	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
m,p-Xylenes	ug/L		< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Methyl tert-butyl ether (MTBE)	ug/L	20	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Methylene Chloride	ug/L	5	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
n-Hexane	ug/L		< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
n-Propylbenzene	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
o-Xylene	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
p-Isopropyltoluene	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
sec-Butylbenzene	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Styrene	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
tert-Butylbenzene	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Tetrachloroethene (PCE)	ug/L	5	< 1 U	< 1 U	< 1 U	3.5	3.9	14	< 1 U	< 1 U	1.6	< 1 U	< 1 U
trans-1,2-Dichloroethene	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
trans-1,3-Dichloropropene	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Trichloroethene (TCE)	ug/L	5	8.9	< 1 U	< 1 U	< 1 U	18	21	< 1 U	1.3	30	< 1 U	< 1 U
Trichlorofluoromethane	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Vinyl Chloride	ug/L	0.2	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	0.6	< 0.2 U	0.41	< 0.2 U	< 0.2 U	< 0.2 U

- Bold** - Analyte detected
- Blue Shaded - Detected result exceeded screening level
- U - Analyte not detected at or above Reporting Limit (RL) shown
- J - Result value estimated
- UJ - Analyte not detected and the Reporting Limit (RL) is an estimate
- X - Chromatographic pattern does not match fuel standard used for quantitation
- D - Dissolved Fraction (filtered) sample result
- T - Total Fraction (unfiltered) sample result

Table 3. Groundwater Elevation Measurements

Project No. 140252, 4403 Russell Road, Mukilteo, WA

DRAFT

Well ID	TOC Elevation	Depth to Water (5/6/2021)		Depth to Water (10/7/2019)	
		feet bgs	elevation in feet	feet bgs	elevation in feet
MW-1	549.80	3.41	546.39	3.88	545.92
MW-2	551.88	5.51	546.37	6.05	545.83
MW-2D	551.86	--	--	161.65	390.21
MW-3	552.06	4.38	547.68	5.65	546.41
MW-4	552.02	4.33	547.69	4.35	547.67
MW-5	550.94	4.20	546.74	4.06	546.88
MW-6	549.62	--	--	2.65	546.97
MW-7	549.92	3.36	546.56	3.66	546.26
MW-8	550.02	3.58	546.44	4.88	545.14
MW-9	550.02	3.65	546.37	3.68	546.34
MW-10	550.81	4.58	546.23	--	--
MW-11	551.77	5.44	546.33	5.23	546.54
MW-12	550.87	4.32	546.55	4.92	545.95
MW-13	550.13	3.71	546.42	4.24	545.89
MW-15	549.96	3.32	546.64	--	--
MW-16	551.62	5.13	546.49	5.68	545.94
MW-16D	551.67	57.71	493.96	58.56	493.11
MW-17	549.55	3.18	546.37	3.82	545.73
MW-18	552.09	4.71	547.38	5.06	547.03
MW-19	549.25	3.61	545.64	3.24	546.01
MW-20	549.18	3.55	545.63	4.4	544.78
MW-21	550.20	5.01	545.19	5.58	544.62
MW-22	549.17	3.38	545.79	4.86	544.31
MW-23	547.56	3.40	544.16	--	--

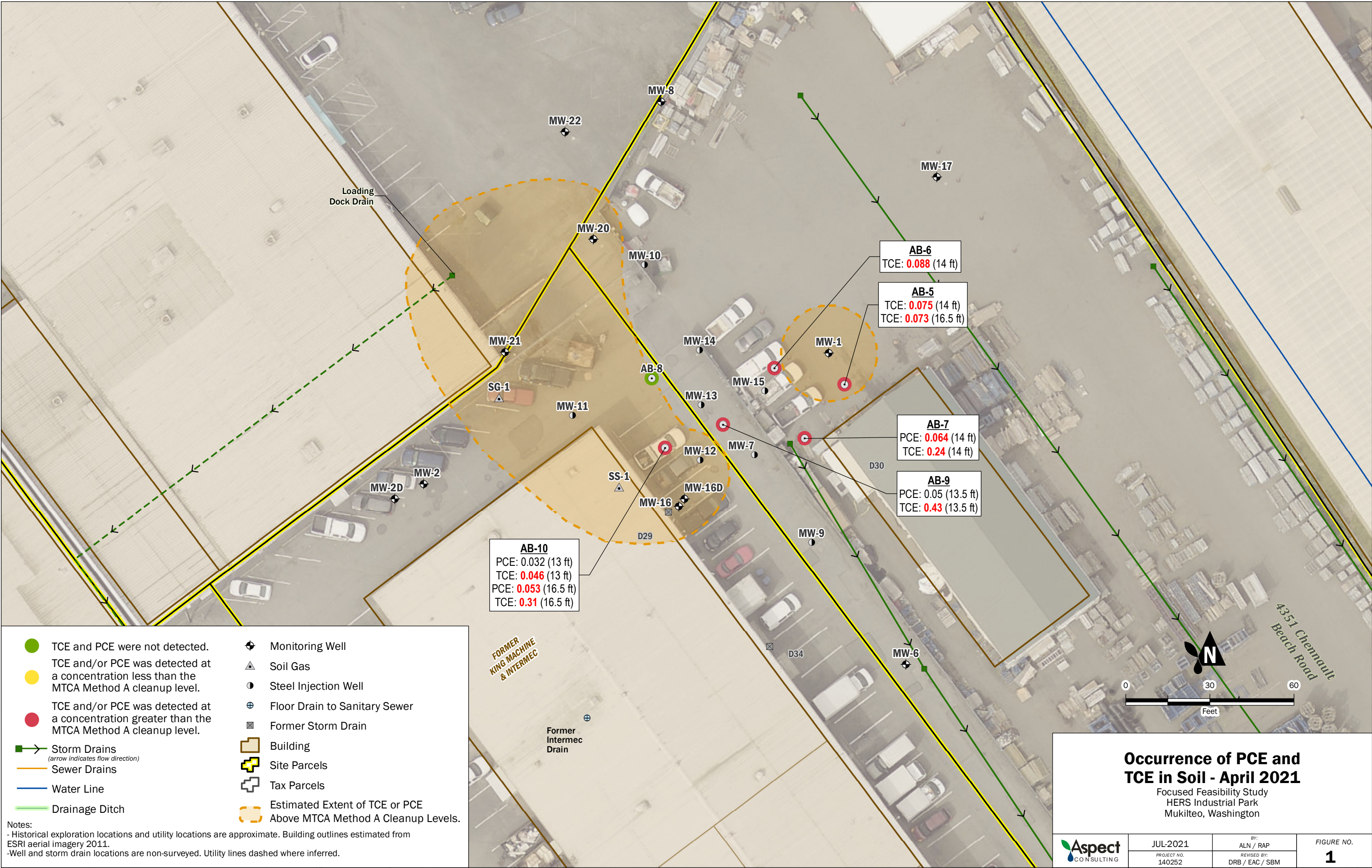
Notes:

(1) Well survey conducted by Apex Engineering on 5/28/2021. Vertical datum (NAVD88).

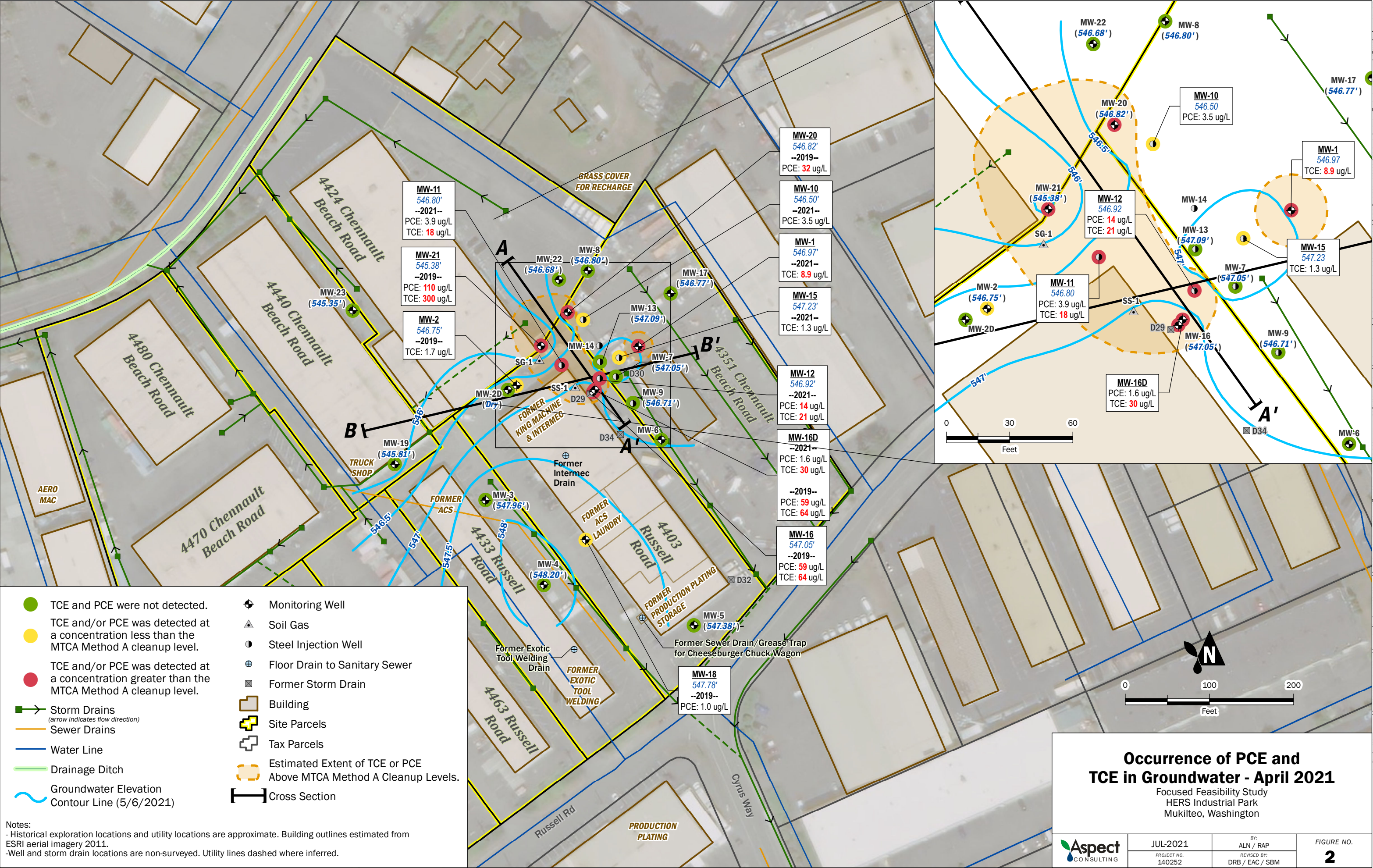
(2) "-" indicates that data not collected or value not given

(3) bgs = below ground surface

FIGURES



GIS Path: I:\Projects_8\HERSIndustrialPark_140252\Delivered\Focused Feasibility Study\1-3 Occurrence of PCE and TCE in Soil April 2021.mxd || Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet || Data Source: 7/14/2021 || User: smortensen || Print Date: 7/14/2021



ATTACHMENT 1

Laboratory Certificates of Analysis

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

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May 5, 2021

Jeremy Porter, Project Manager
Aspect Consulting, LLC
710 2nd Ave S, Suite 550
Seattle, WA 98104

Dear Mr Porter:

Included are the results from the testing of material submitted on April 29, 2021 from the HERS Industrial 140252, F&BI 104542 project. There are 41 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
c: Aspect Data
ASP0505R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on April 29, 2021 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC HERS Industrial 140252, F&BI 104542 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Aspect Consulting, LLC</u>
104542 -01	MW-10-042721
104542 -02	MW-1-042721
104542 -03	MW-15-042721
104542 -04	MW-13-042721
104542 -05	MW-12-042721
104542 -06	MW-7-042721
104542 -07	MW-11-042721
104542 -08	MW-19-042721
104542 -09	MW-16D-042821
104542 -10	MW-9-042821

The 8260D calibration standard failed the acceptance criteria for dichlorodifluoromethane in some samples. The data were flagged accordingly.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/05/21

Date Received: 04/29/21

Project: HERS Industrial 140252, F&BI 104542

Date Extracted: 04/29/21

Date Analyzed: 04/29/21

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL AND MOTOR OIL
USING METHOD NWTPH-Dx**
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> (% Recovery) (Limit 41-152)
MW-10-042721 104542-01	<50	<250	63
MW-1-042721 104542-02	330 x	1,800	113
MW-15-042721 104542-03 1/1.2	110 x	<300	96
MW-13-042721 104542-04	180 x	580	96
MW-12-042721 104542-05	<50	<250	92
MW-7-042721 104542-06	62 x	<250	120
MW-11-042721 104542-07	<50	<250	86
MW-19-042721 104542-08	300 x	310 x	124
MW-16D-042821 104542-09	<50	<250	109
MW-9-042821 104542-10	89 x	520	119
Method Blank 01-1028 MB2	<50	<250	115

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-10-042721	Client:	Aspect Consulting, LLC
Date Received:	04/29/21	Project:	HERS Industrial 140252
Date Extracted:	04/30/21	Lab ID:	104542-01
Date Analyzed:	05/01/21	Data File:	104542-01.211
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
----------	-----------------------------

Arsenic	<1
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-1-042721	Client:	Aspect Consulting, LLC
Date Received:	04/29/21	Project:	HERS Industrial 140252
Date Extracted:	04/30/21	Lab ID:	104542-02
Date Analyzed:	05/01/21	Data File:	104542-02.212
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Arsenic	2.87
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-15-042721	Client:	Aspect Consulting, LLC
Date Received:	04/29/21	Project:	HERS Industrial 140252
Date Extracted:	04/30/21	Lab ID:	104542-03
Date Analyzed:	05/01/21	Data File:	104542-03.213
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
----------	-----------------------------

Arsenic	37.0
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-13-042721	Client:	Aspect Consulting, LLC
Date Received:	04/29/21	Project:	HERS Industrial 140252
Date Extracted:	04/30/21	Lab ID:	104542-04
Date Analyzed:	05/01/21	Data File:	104542-04.214
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
----------	-----------------------------

Arsenic	<1
---------	----

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-12-042721	Client:	Aspect Consulting, LLC
Date Received:	04/29/21	Project:	HERS Industrial 140252
Date Extracted:	04/30/21	Lab ID:	104542-05
Date Analyzed:	05/01/21	Data File:	104542-05.215
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Arsenic	1.21
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-7-042721	Client:	Aspect Consulting, LLC
Date Received:	04/29/21	Project:	HERS Industrial 140252
Date Extracted:	04/30/21	Lab ID:	104542-06
Date Analyzed:	05/01/21	Data File:	104542-06.216
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
----------	-----------------------------

Arsenic	<1
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-11-042721	Client:	Aspect Consulting, LLC
Date Received:	04/29/21	Project:	HERS Industrial 140252
Date Extracted:	04/30/21	Lab ID:	104542-07
Date Analyzed:	05/01/21	Data File:	104542-07.217
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
----------	-----------------------------

Arsenic	<1
---------	----

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-19-042721	Client:	Aspect Consulting, LLC
Date Received:	04/29/21	Project:	HERS Industrial 140252
Date Extracted:	04/30/21	Lab ID:	104542-08
Date Analyzed:	05/01/21	Data File:	104542-08.220
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
----------	-----------------------------

Arsenic	54.8
---------	------

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-16D-042821	Client:	Aspect Consulting, LLC
Date Received:	04/29/21	Project:	HERS Industrial 140252
Date Extracted:	04/30/21	Lab ID:	104542-09
Date Analyzed:	05/01/21	Data File:	104542-09.221
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Arsenic	3.58
---------	------

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-9-042821	Client:	Aspect Consulting, LLC
Date Received:	04/29/21	Project:	HERS Industrial 140252
Date Extracted:	04/30/21	Lab ID:	104542-10
Date Analyzed:	05/01/21	Data File:	104542-10.222
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
----------	-----------------------------

Arsenic	<1
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	NA	Project:	HERS Industrial 140252
Date Extracted:	04/30/21	Lab ID:	I1-285 mb
Date Analyzed:	04/30/21	Data File:	I1-285 mb.142
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
----------	-----------------------------

Arsenic	<1
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-10-042721	Client:	Aspect Consulting, LLC
Date Received:	04/29/21	Project:	HERS Industrial 140252
Date Extracted:	04/30/21	Lab ID:	104542-01
Date Analyzed:	05/01/21	Data File:	104542-01.223
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
----------	-----------------------------

Arsenic	<1
---------	----

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-1-042721	Client:	Aspect Consulting, LLC
Date Received:	04/29/21	Project:	HERS Industrial 140252
Date Extracted:	04/30/21	Lab ID:	104542-02
Date Analyzed:	05/01/21	Data File:	104542-02.224
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Arsenic	8.45
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-15-042721	Client:	Aspect Consulting, LLC
Date Received:	04/29/21	Project:	HERS Industrial 140252
Date Extracted:	04/30/21	Lab ID:	104542-03
Date Analyzed:	05/01/21	Data File:	104542-03.225
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Arsenic	39.3
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-13-042721	Client:	Aspect Consulting, LLC
Date Received:	04/29/21	Project:	HERS Industrial 140252
Date Extracted:	04/30/21	Lab ID:	104542-04
Date Analyzed:	05/01/21	Data File:	104542-04.226
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Arsenic	<1
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-12-042721	Client:	Aspect Consulting, LLC
Date Received:	04/29/21	Project:	HERS Industrial 140252
Date Extracted:	04/30/21	Lab ID:	104542-05
Date Analyzed:	05/01/21	Data File:	104542-05.227
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Arsenic	1.62
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-7-042721	Client:	Aspect Consulting, LLC
Date Received:	04/29/21	Project:	HERS Industrial 140252
Date Extracted:	04/30/21	Lab ID:	104542-06
Date Analyzed:	05/01/21	Data File:	104542-06.228
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Arsenic	<1
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-11-042721	Client:	Aspect Consulting, LLC
Date Received:	04/29/21	Project:	HERS Industrial 140252
Date Extracted:	04/30/21	Lab ID:	104542-07
Date Analyzed:	05/01/21	Data File:	104542-07.229
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Arsenic	<1
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-19-042721	Client:	Aspect Consulting, LLC
Date Received:	04/29/21	Project:	HERS Industrial 140252
Date Extracted:	04/30/21	Lab ID:	104542-08
Date Analyzed:	05/01/21	Data File:	104542-08.232
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Arsenic	77.5
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-16D-042821	Client:	Aspect Consulting, LLC
Date Received:	04/29/21	Project:	HERS Industrial 140252
Date Extracted:	04/30/21	Lab ID:	104542-09
Date Analyzed:	05/01/21	Data File:	104542-09.233
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Arsenic	3.73
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-9-042821	Client:	Aspect Consulting, LLC
Date Received:	04/29/21	Project:	HERS Industrial 140252
Date Extracted:	04/30/21	Lab ID:	104542-10
Date Analyzed:	05/01/21	Data File:	104542-10.234
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Arsenic	<1
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	NA	Project:	HERS Industrial 140252
Date Extracted:	04/30/21	Lab ID:	I1-284 mb
Date Analyzed:	04/30/21	Data File:	I1-284 mb.144
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Arsenic	<1
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	MW-10-042721	Client:	Aspect Consulting, LLC
Date Received:	04/29/21	Project:	HERS Industrial 140252
Date Extracted:	04/29/21	Lab ID:	104542-01
Date Analyzed:	04/30/21	Data File:	043013.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	78	126
Toluene-d8	99	87	115
4-Bromofluorobenzene	106	92	112

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	3.5
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID: MW-1-042721	Client: Aspect Consulting, LLC
Date Received: 04/29/21	Project: HERS Industrial 140252
Date Extracted: 04/29/21	Lab ID: 104542-02
Date Analyzed: 04/30/21	Data File: 043014.D
Matrix: Water	Instrument: GCMS11
Units: ug/L (ppb)	Operator: JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	109	78	126
Toluene-d8	105	87	115
4-Bromofluorobenzene	97	92	112

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	8.9	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	MW-15-042721	Client:	Aspect Consulting, LLC
Date Received:	04/29/21	Project:	HERS Industrial 140252
Date Extracted:	04/29/21	Lab ID:	104542-03
Date Analyzed:	05/03/21	Data File:	050312.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	86	113
Toluene-d8	101	88	114
4-Bromofluorobenzene	109	88	112

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1 ca	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	0.41	Dibromochloromethane	<1
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	1.3	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	MW-13-042721	Client:	Aspect Consulting, LLC
Date Received:	04/29/21	Project:	HERS Industrial 140252
Date Extracted:	04/29/21	Lab ID:	104542-04
Date Analyzed:	04/30/21	Data File:	043016.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	78	126
Toluene-d8	105	87	115
4-Bromofluorobenzene	107	92	112

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID: MW-12-042721	Client: Aspect Consulting, LLC
Date Received: 04/29/21	Project: HERS Industrial 140252
Date Extracted: 04/29/21	Lab ID: 104542-05
Date Analyzed: 05/03/21	Data File: 050313.D
Matrix: Water	Instrument: GCMS4
Units: ug/L (ppb)	Operator: JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	86	113
Toluene-d8	102	88	114
4-Bromofluorobenzene	104	88	112

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1 ca	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	14
Vinyl chloride	0.60	Dibromochloromethane	<1
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	9.6	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	21	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	MW-7-042721	Client:	Aspect Consulting, LLC
Date Received:	04/29/21	Project:	HERS Industrial 140252
Date Extracted:	04/29/21	Lab ID:	104542-06
Date Analyzed:	04/30/21	Data File:	043018.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	111	78	126
Toluene-d8	105	87	115
4-Bromofluorobenzene	101	92	112

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	2.0	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	MW-11-042721	Client:	Aspect Consulting, LLC
Date Received:	04/29/21	Project:	HERS Industrial 140252
Date Extracted:	04/29/21	Lab ID:	104542-07
Date Analyzed:	04/30/21	Data File:	043019.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	78	126
Toluene-d8	95	87	115
4-Bromofluorobenzene	100	92	112

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	3.9
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	1.0	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	18	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	MW-19-042721	Client:	Aspect Consulting, LLC
Date Received:	04/29/21	Project:	HERS Industrial 140252
Date Extracted:	04/29/21	Lab ID:	104542-08
Date Analyzed:	04/30/21	Data File:	043020.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	107	78	126
Toluene-d8	107	87	115
4-Bromofluorobenzene	104	92	112

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	MW-16D-042821	Client:	Aspect Consulting, LLC
Date Received:	04/29/21	Project:	HERS Industrial 140252
Date Extracted:	04/29/21	Lab ID:	104542-09
Date Analyzed:	04/30/21	Data File:	043021.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	78	126
Toluene-d8	100	87	115
4-Bromofluorobenzene	104	92	112

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	1.6
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	3.2	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	30	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	MW-9-042821	Client:	Aspect Consulting, LLC
Date Received:	04/29/21	Project:	HERS Industrial 140252
Date Extracted:	04/29/21	Lab ID:	104542-10
Date Analyzed:	04/30/21	Data File:	043022.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	78	126
Toluene-d8	100	87	115
4-Bromofluorobenzene	104	92	112

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	HERS Industrial 140252
Date Extracted:	04/29/21	Lab ID:	01-848 mb
Date Analyzed:	04/29/21	Data File:	042908.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	86	113
Toluene-d8	99	88	114
4-Bromofluorobenzene	103	88	112

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/05/21

Date Received: 04/29/21

Project: HERS Industrial 140252, F&BI 104542

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER
SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL EXTENDED USING METHOD NWTPH-D_x**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	84	76	63-142	10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/05/21

Date Received: 04/29/21

Project: HERS Industrial 140252, F&BI 104542

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR DISSOLVED METALS USING EPA METHOD 6020B**

Laboratory Code: 104549-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	1.41	96	96	75-125	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	97	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/05/21

Date Received: 04/29/21

Project: HERS Industrial 140252, F&BI 104542

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 104549-02 x10 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	33.4	97	105	75-125	8

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	95	85-115

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/05/21

Date Received: 04/29/21

Project: HERS Industrial 140252, F&BI 104542

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: 104489-03 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	10	<1	84	10-172
Chloromethane	ug/L (ppb)	10	<10	82	25-166
Vinyl chloride	ug/L (ppb)	10	<0.2	83	36-166
Bromomethane	ug/L (ppb)	10	<5	94	47-169
Chloroethane	ug/L (ppb)	10	<1	82	46-160
Trichlorofluoromethane	ug/L (ppb)	10	<1	84	44-165
Acetone	ug/L (ppb)	50	<50	45	10-182
1,1-Dichloroethene	ug/L (ppb)	10	<1	88	58-142
Hexane	ug/L (ppb)	10	<5	84	38-152
Methylene chloride	ug/L (ppb)	10	<5	91	50-145
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	<1	90	61-136
trans-1,2-Dichloroethene	ug/L (ppb)	10	<1	90	61-136
1,1-Dichloroethane	ug/L (ppb)	10	<1	89	63-135
2,2-Dichloropropane	ug/L (ppb)	10	<1	104	36-154
cis-1,2-Dichloroethene	ug/L (ppb)	10	<1	90	63-134
Chloroform	ug/L (ppb)	10	<1	92	61-135
2-Butanone (MEK)	ug/L (ppb)	50	<20	71	10-129
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<1	93	48-149
1,1,1-Trichloroethane	ug/L (ppb)	10	<1	89	60-146
1,1-Dichloropropene	ug/L (ppb)	10	<1	90	69-133
Carbon tetrachloride	ug/L (ppb)	10	<1	92	56-152
Benzene	ug/L (ppb)	10	<0.35	88	57-135
Trichloroethene	ug/L (ppb)	10	<1	91	66-135
1,2-Dichloropropane	ug/L (ppb)	10	<1	90	59-136
Bromodichloromethane	ug/L (ppb)	10	<1	96	61-150
Dibromomethane	ug/L (ppb)	10	<1	96	66-141
4-Methyl-2-pentanone	ug/L (ppb)	50	<10	95	10-185
cis-1,3-Dichloropropene	ug/L (ppb)	10	<1	95	52-147
Toluene	ug/L (ppb)	10	<1	89	50-137
trans-1,3-Dichloropropene	ug/L (ppb)	10	<1	95	53-142
1,1,2-Trichloroethane	ug/L (ppb)	10	<1	97	68-131
2-Hexanone	ug/L (ppb)	50	<10	95	10-185
1,3-Dichloropropane	ug/L (ppb)	10	<1	93	60-135
Tetrachloroethene	ug/L (ppb)	10	<1	93	10-226
Dibromochloromethane	ug/L (ppb)	10	<1	98	52-145
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	<1	91	62-135
Chlorobenzene	ug/L (ppb)	10	<1	94	63-130
Ethylbenzene	ug/L (ppb)	10	<1	93	60-133
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	<1	97	56-143
m,p-Xylene	ug/L (ppb)	20	<2	92	69-135
o-Xylene	ug/L (ppb)	10	<1	93	60-140
Styrene	ug/L (ppb)	10	<1	92	60-133
Isopropylbenzene	ug/L (ppb)	10	<1	94	65-142
Bromoform	ug/L (ppb)	10	<5	103	54-148
n-Propylbenzene	ug/L (ppb)	10	<1	94	58-144
Bromobenzene	ug/L (ppb)	10	<1	97	61-130
1,3,5-Trimethylbenzene	ug/L (ppb)	10	<1	95	59-134
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	<1	105	51-154
1,2,3-Trichloropropane	ug/L (ppb)	10	<1	101	53-150
2-Chlorotoluene	ug/L (ppb)	10	<1	95	66-127
4-Chlorotoluene	ug/L (ppb)	10	<1	97	65-130
tert-Butylbenzene	ug/L (ppb)	10	<1	94	65-137
1,2,4-Trimethylbenzene	ug/L (ppb)	10	<1	95	59-146
sec-Butylbenzene	ug/L (ppb)	10	<1	94	64-140
p-Isopropyltoluene	ug/L (ppb)	10	<1	96	65-141
1,3-Dichlorobenzene	ug/L (ppb)	10	<1	96	60-131
1,4-Dichlorobenzene	ug/L (ppb)	10	<1	100	60-129
1,2-Dichlorobenzene	ug/L (ppb)	10	<1	99	60-130
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	<10	106	32-164
1,2,4-Trichlorobenzene	ug/L (ppb)	10	<1	99	52-138
Hexachlorobutadiene	ug/L (ppb)	10	<1	97	60-143
Naphthalene	ug/L (ppb)	10	<1	98	44-164
1,2,3-Trichlorobenzene	ug/L (ppb)	10	<1	95	69-148

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/05/21

Date Received: 04/29/21

Project: HERS Industrial 140252, F&BI 104542

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	10	112	115	25-158	3
Chloromethane	ug/L (ppb)	10	96	97	45-156	1
Vinyl chloride	ug/L (ppb)	10	102	100	50-154	2
Bromomethane	ug/L (ppb)	10	120	116	55-143	3
Chloroethane	ug/L (ppb)	10	95	97	58-146	2
Trichlorofluoromethane	ug/L (ppb)	10	103	103	50-150	0
Acetone	ug/L (ppb)	50	49	51	22-155	4
1,1-Dichloroethene	ug/L (ppb)	10	99	103	67-136	4
Hexane	ug/L (ppb)	10	84	88	57-137	5
Methylene chloride	ug/L (ppb)	10	108	105	19-178	3
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	98	99	64-147	1
trans-1,2-Dichloroethene	ug/L (ppb)	10	99	100	68-128	1
1,1-Dichloroethane	ug/L (ppb)	10	98	98	74-135	0
2,2-Dichloropropane	ug/L (ppb)	10	116	113	55-143	3
cis-1,2-Dichloroethene	ug/L (ppb)	10	97	97	74-136	0
Chloroform	ug/L (ppb)	10	96	98	74-134	2
2-Butanone (MEK)	ug/L (ppb)	50	72	74	37-150	3
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	95	97	66-129	2
1,1,1-Trichloroethane	ug/L (ppb)	10	99	99	74-142	0
1,1-Dichloropropene	ug/L (ppb)	10	93	96	77-129	3
Carbon tetrachloride	ug/L (ppb)	10	101	101	75-158	0
Benzene	ug/L (ppb)	10	94	95	69-134	1
Trichloroethene	ug/L (ppb)	10	93	94	67-133	1
1,2-Dichloropropane	ug/L (ppb)	10	98	96	71-134	2
Bromodichloromethane	ug/L (ppb)	10	95	97	66-126	2
Dibromomethane	ug/L (ppb)	10	98	99	68-132	1
4-Methyl-2-pentanone	ug/L (ppb)	50	95	97	65-138	2
cis-1,3-Dichloropropene	ug/L (ppb)	10	96	96	74-140	0
Toluene	ug/L (ppb)	10	91	93	72-122	2
trans-1,3-Dichloropropene	ug/L (ppb)	10	93	94	80-136	1
1,1,2-Trichloroethane	ug/L (ppb)	10	94	96	75-124	2
2-Hexanone	ug/L (ppb)	50	91	92	60-136	1
1,3-Dichloropropene	ug/L (ppb)	10	93	93	76-126	0
Tetrachloroethene	ug/L (ppb)	10	91	97	76-121	6
Dibromochloromethane	ug/L (ppb)	10	94	96	84-133	2
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	94	96	82-115	2
Chlorobenzene	ug/L (ppb)	10	92	95	83-114	3
Ethylbenzene	ug/L (ppb)	10	90	92	77-124	2
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	93	96	84-127	3
m,p-Xylene	ug/L (ppb)	20	92	94	81-112	2
o-Xylene	ug/L (ppb)	10	92	97	81-121	5
Styrene	ug/L (ppb)	10	92	95	84-119	3
Isopropylbenzene	ug/L (ppb)	10	90	94	80-117	4
Bromoform	ug/L (ppb)	10	95	98	69-121	3
n-Propylbenzene	ug/L (ppb)	10	90	91	74-126	1
Bromobenzene	ug/L (ppb)	10	92	94	80-121	2
1,3,5-Trimethylbenzene	ug/L (ppb)	10	91	91	78-123	0
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	98	100	66-126	2
1,2,3-Trichloropropane	ug/L (ppb)	10	95	95	67-124	0
2-Chlorotoluene	ug/L (ppb)	10	91	92	77-127	1
4-Chlorotoluene	ug/L (ppb)	10	92	92	78-128	0
tert-Butylbenzene	ug/L (ppb)	10	91	92	80-123	1
1,2,4-Trimethylbenzene	ug/L (ppb)	10	92	91	79-122	1
sec-Butylbenzene	ug/L (ppb)	10	89	91	80-116	2
p-Isopropyltoluene	ug/L (ppb)	10	91	91	81-123	0
1,3-Dichlorobenzene	ug/L (ppb)	10	88	91	83-113	3
1,4-Dichlorobenzene	ug/L (ppb)	10	93	92	81-112	1
1,2-Dichlorobenzene	ug/L (ppb)	10	92	93	84-112	1
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	93	93	57-141	0
1,2,4-Trichlorobenzene	ug/L (ppb)	10	93	91	72-130	2
Hexachlorobutadiene	ug/L (ppb)	10	90	88	53-141	2
Naphthalene	ug/L (ppb)	10	96	94	64-133	2
1,2,3-Trichlorobenzene	ug/L (ppb)	10	96	92	65-136	4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht - The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

104542

SAMPLE CHAIN OF CUSTODY

ME 04-29-21

DOY

Report To Jerry RaderCompany Aspet Consulting

Address _____

City, State, ZIP _____

Phone 361-704-99 Email j.rader@aspetconsulting.comPage # 1 of 1TURNAROUND TIME 10/4Standard turnaround 415RUSH 415

Rush charges authorized by: _____

SAMPLE DISPOSAL

☐ Archive samples

Default: Dispose after 30 days

SAMPLERS (signature) [Signature]

PROJECT NAME

HITS Industrial

PO #

140252

REMARKS

INVOICE TO

Project specific RLS? - Yes / No

ANALYSES REQUESTED

Sample ID

Lab ID

Date Sampled

Time Sampled

Sample Type

of Jars

NWTPH-Dx

NWTPH-Gx

BTEX EPA 8021

NWTPH-HCID

VOCs EPA 8260D

PAHs EPA 8270

PCBs EPA 8082

Total Arsenic 6020BDissolved Arsenic 6020B

Field Notes

MW-10-042721	01A-F	4/27/21	0410	Water	6	X				X									
MW-1-042721	02		1035																
MW-15-042721	03		1120																
MW-13-042721	04		1210																
MW-12-042721	05		1350																
MW-7-042721	06		1440																
MW-11-042721	07		1530																
MW-14-042721	08		1620																
MW-16D-042821	09	4/28/21	0735	Water	6	X				X									
MW-9-042821	10		1425			X													

SIGNATURE

PRINT NAME

COMPANY

DATE

TIME

Relinquished by: [Signature]Jerry RaderAspet Consulting4/29/21 1030Received by: [Signature]Eric DavisFEB4/29/21 1030

Received by: _____

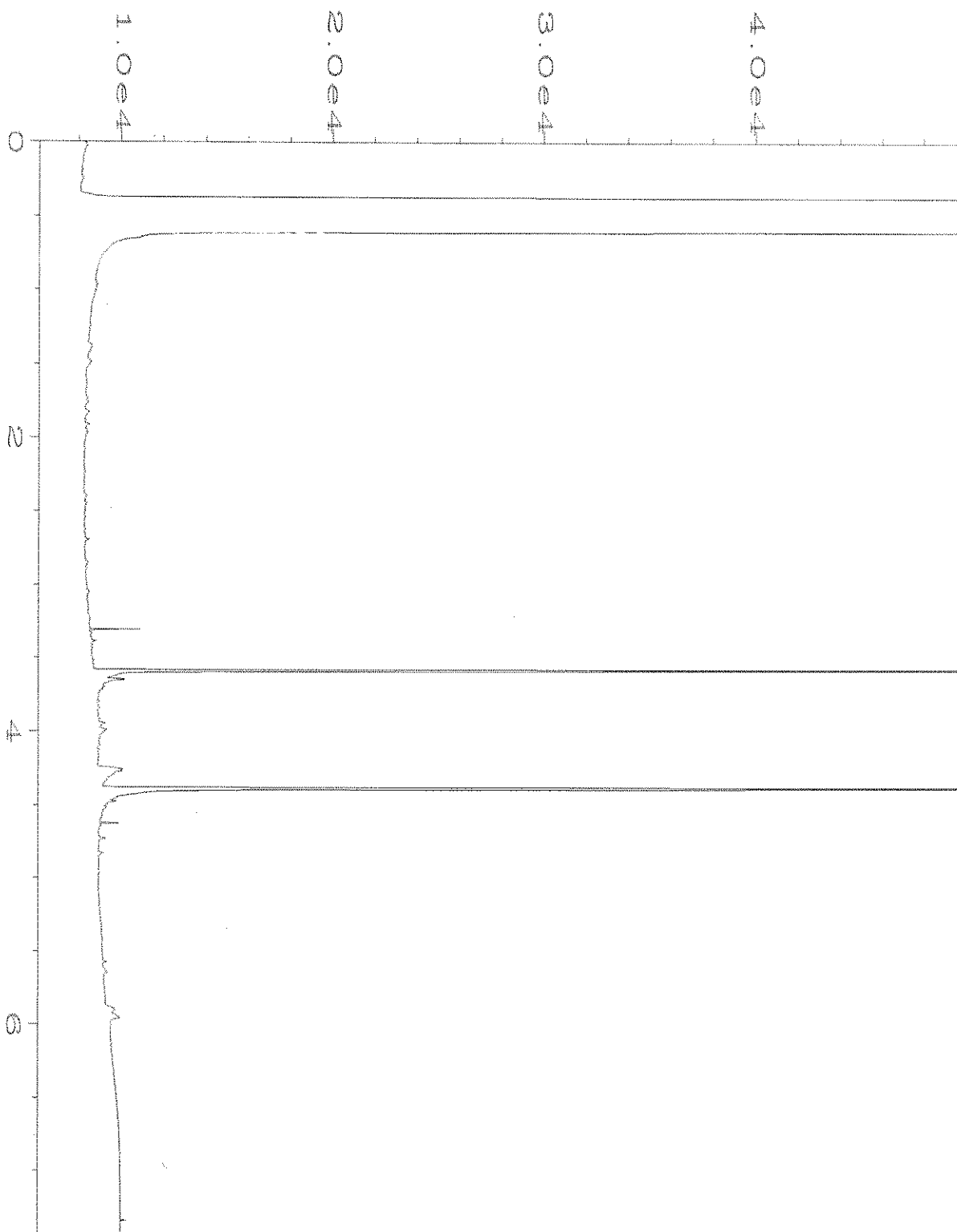
Received by: _____

Friedman & Bruya, Inc.

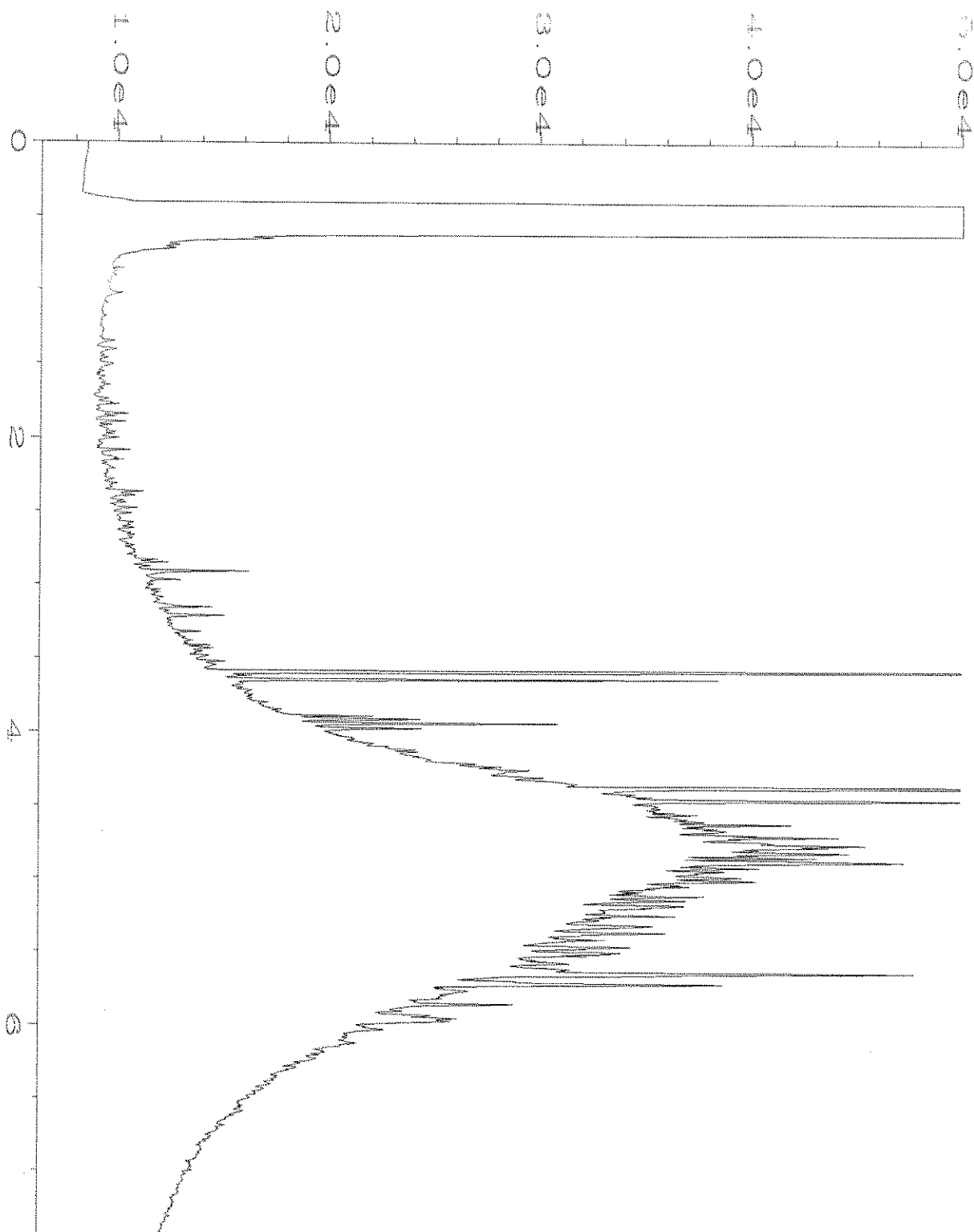
3012 16th Avenue West

Seattle, WA 98119-2029

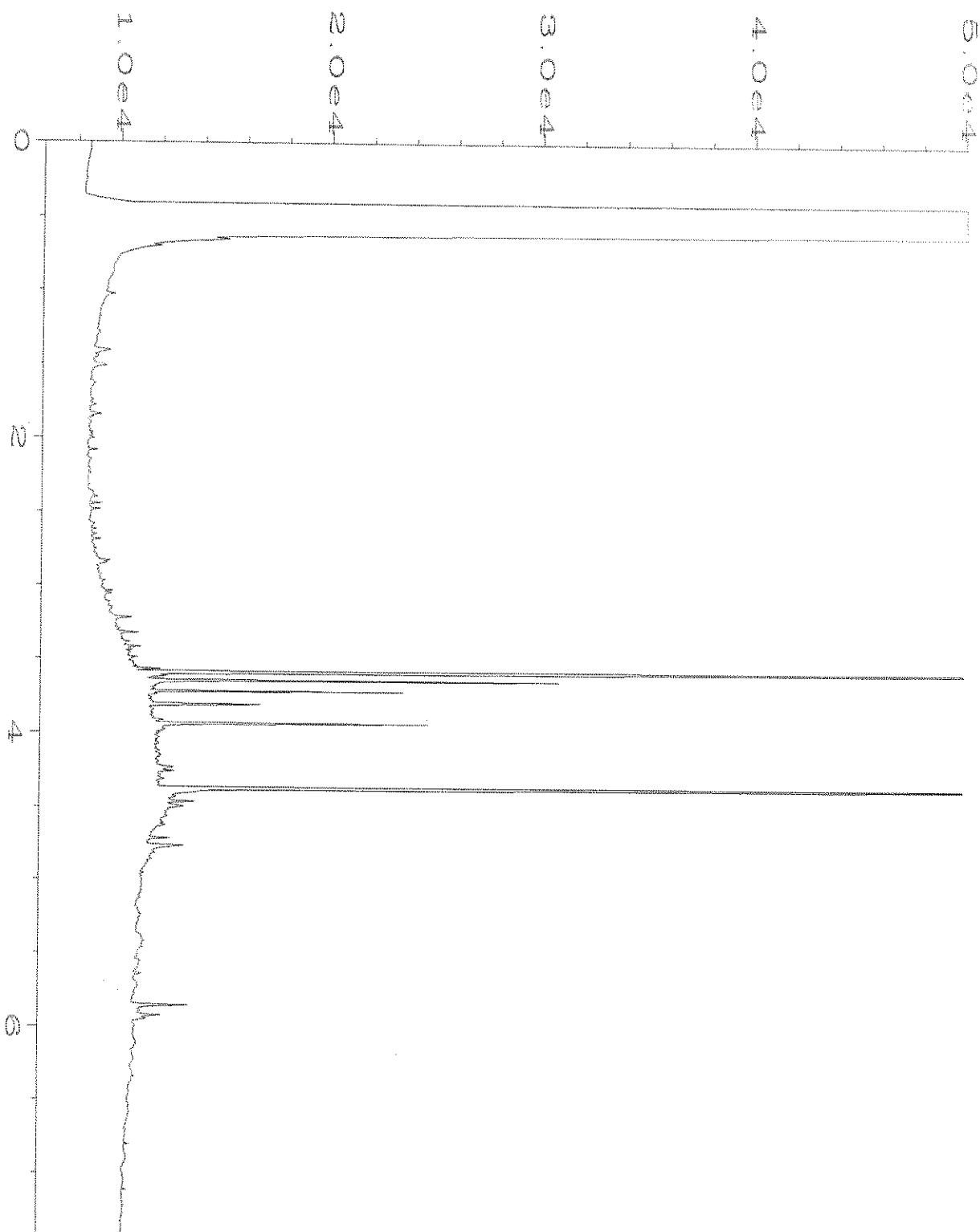
Ph. (206) 285-8282



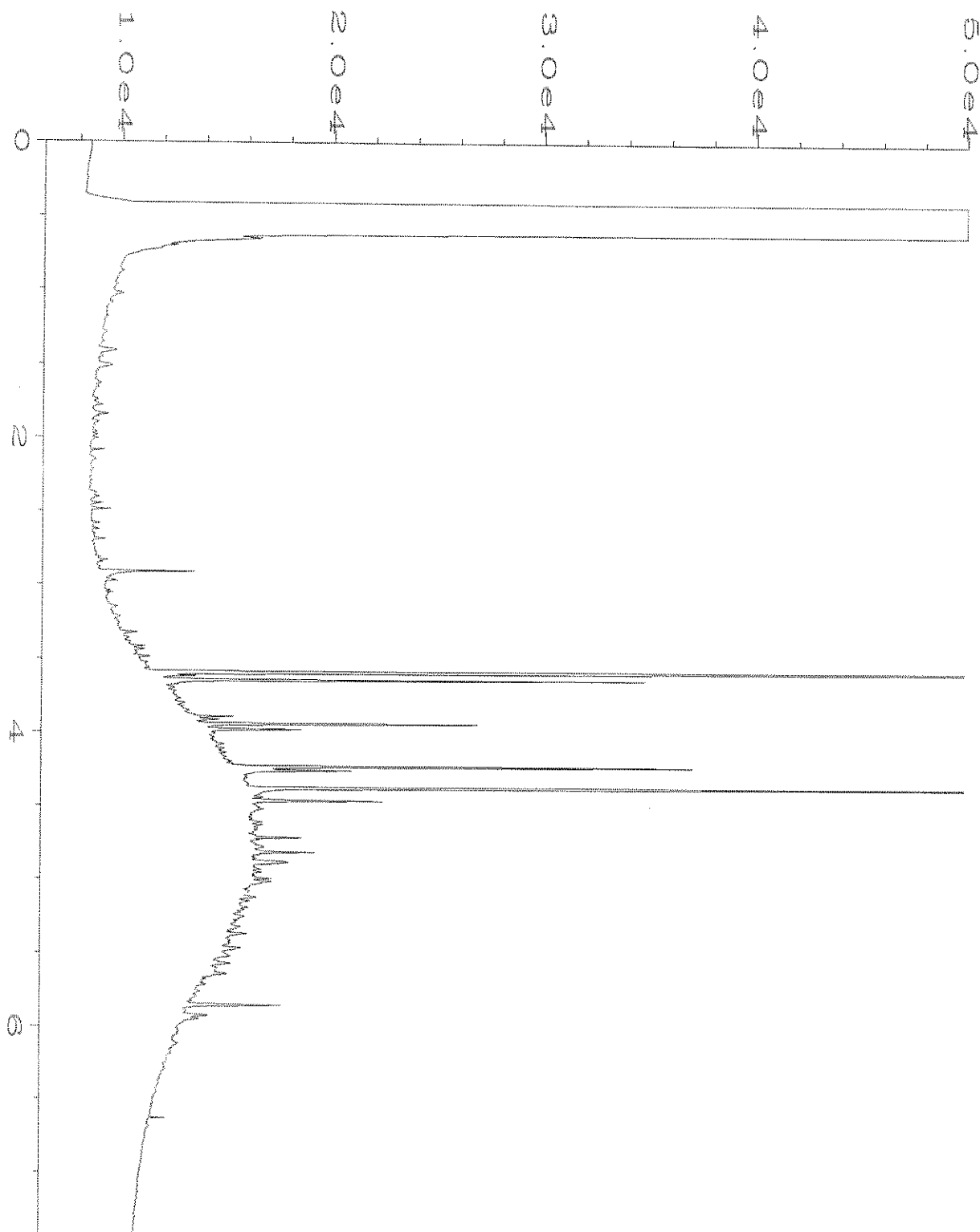
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Instrument	: GC1	Injection Number	: 1
Sample Name	: 104542-01	Sequence Line	: 7
Run Time Bar Code:		Instrument Method	: DX.MTH
Acquired on	: 29 Apr 21 03:32 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	30 Apr 21 08:58 AM		



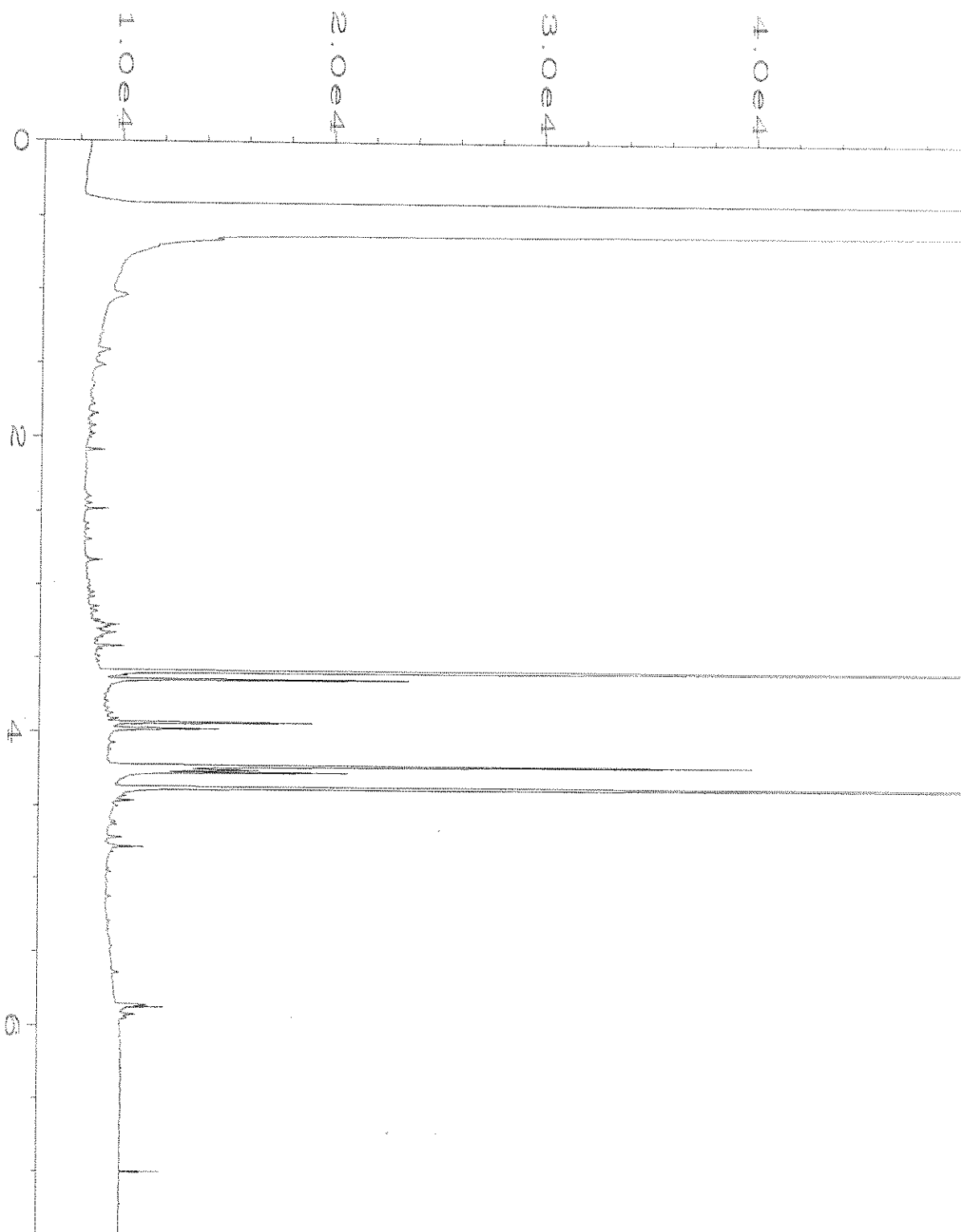
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Operator	: TL	Vial Number	: 22
Instrument	: GC1	Injection Number	: 1
Sample Name	: 104542-02	Sequence Line	: 7
Run Time Bar Code:		Instrument Method	: DX.MTH
Acquired on	: 29 Apr 21 03:41 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	: 30 Apr 21 08:59 AM		



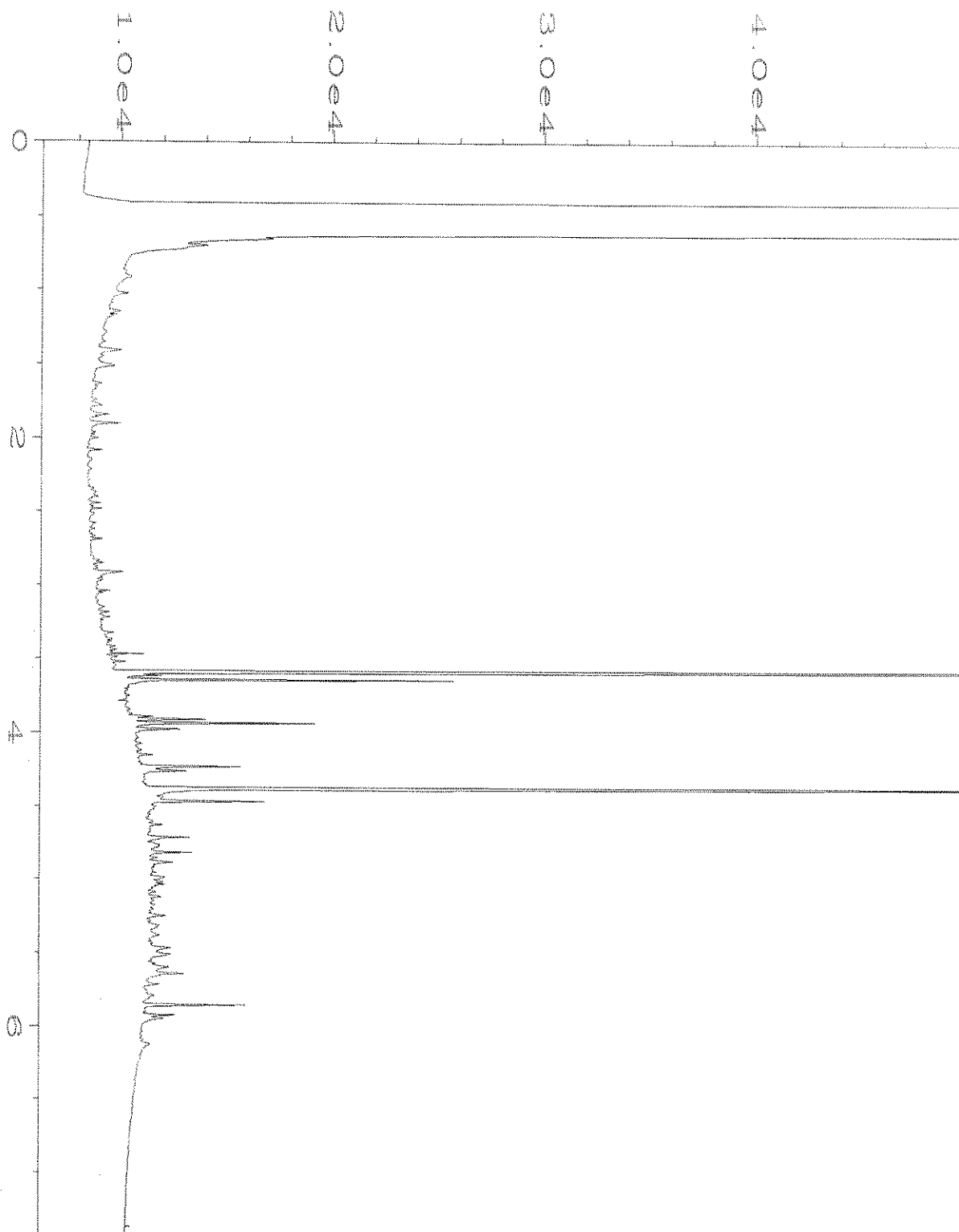
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Operator	: TL	Vial Number	: 23
Instrument	: GC1	Injection Number	: 1
Sample Name	: 104542-03	Sequence Line	: 7
Run Time Bar Code:		Instrument Method	: DX.MTH
Acquired on	: 29 Apr 21 03:52 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	30 Apr 21 08:59 AM		



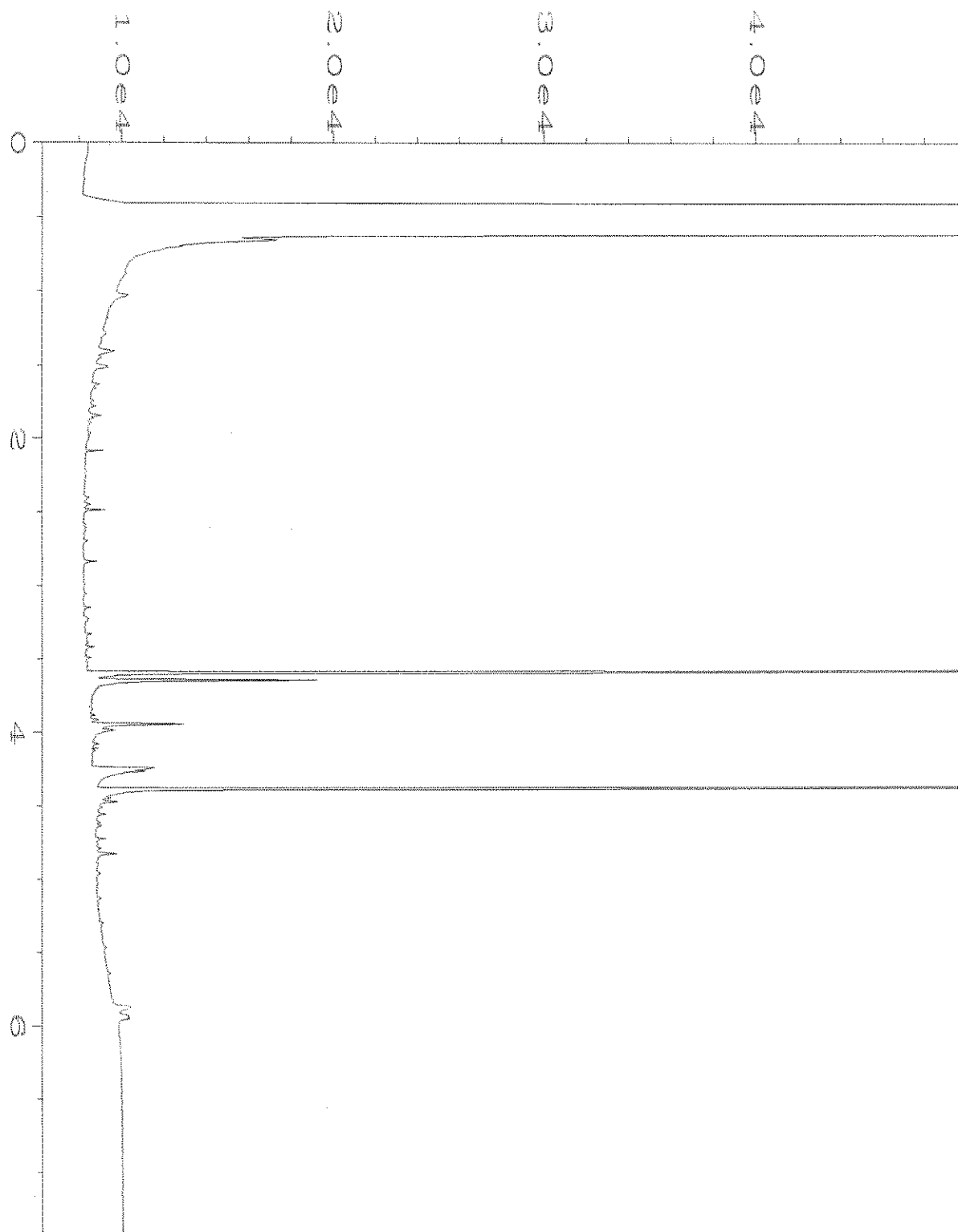
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Instrument	: GC1	Injection Number	: 1
Sample Name	: 104542-04	Sequence Line	: 7
Run Time Bar Code:		Instrument Method:	DX.MTH
Acquired on	: 29 Apr 21 04:04 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	30 Apr 21 08:59 AM		



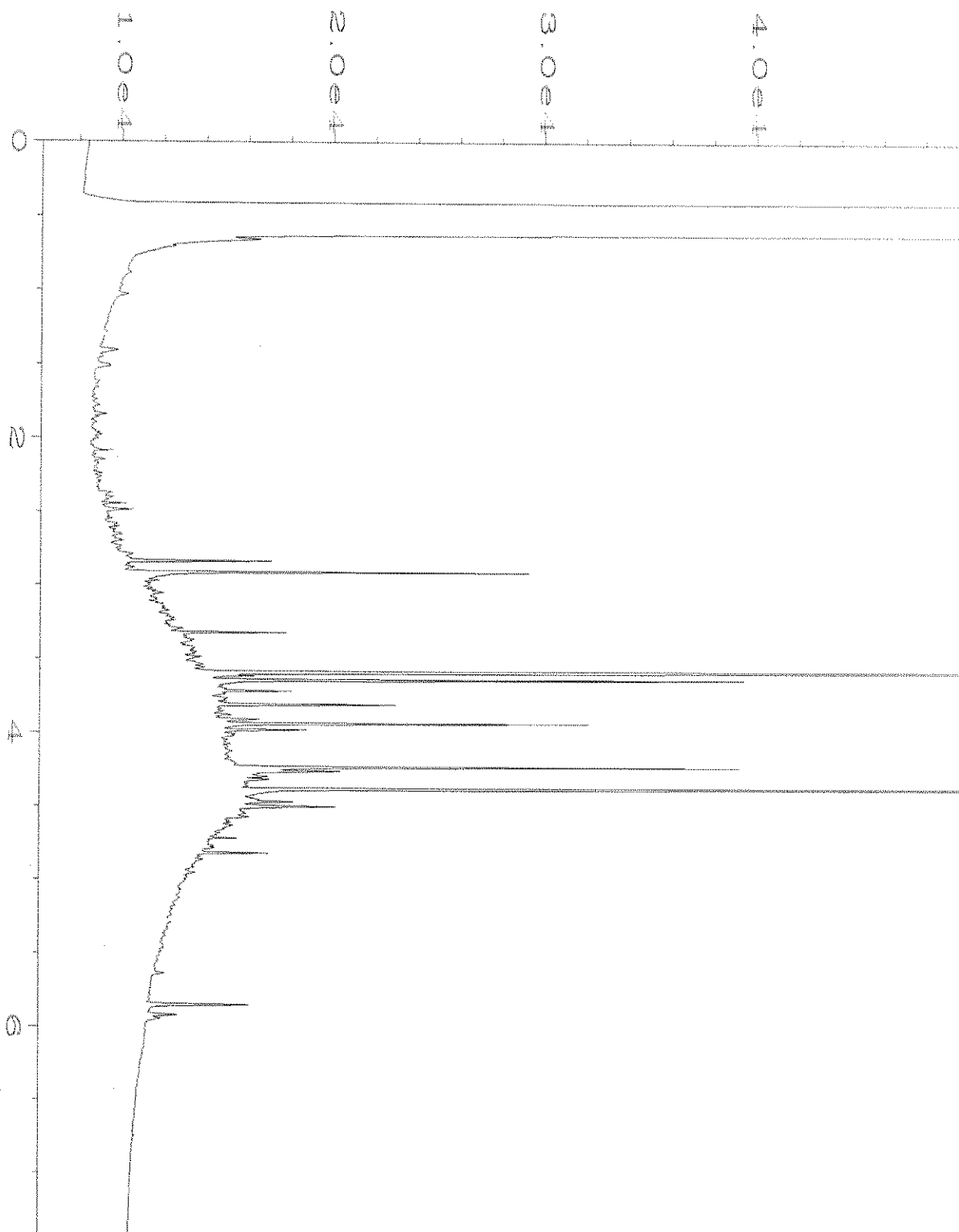
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Sample Name	: 104542-05	Sequence Line	: 7
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Acquired on	: 29 Apr 21 04:16 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	30 Apr 21 08:59 AM		



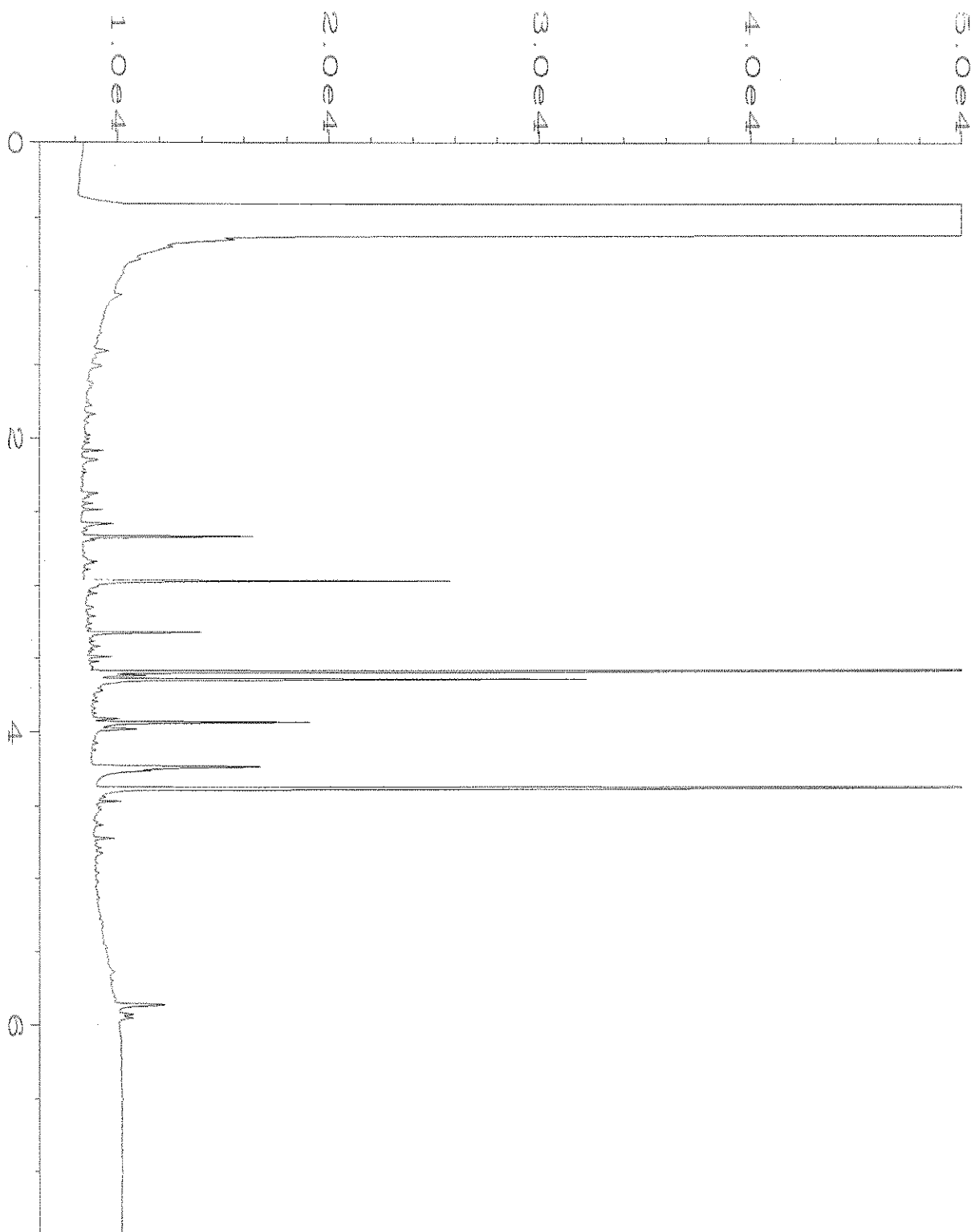
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Instrument	: GC1	Injection Number	: 1
Sample Name	: 104542-06	Sequence Line	: 7
Run Time Bar Code:		Instrument Method:	DX.MTH
Acquired on	: 29 Apr 21 04:27 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	30 Apr 21 08:59 AM		



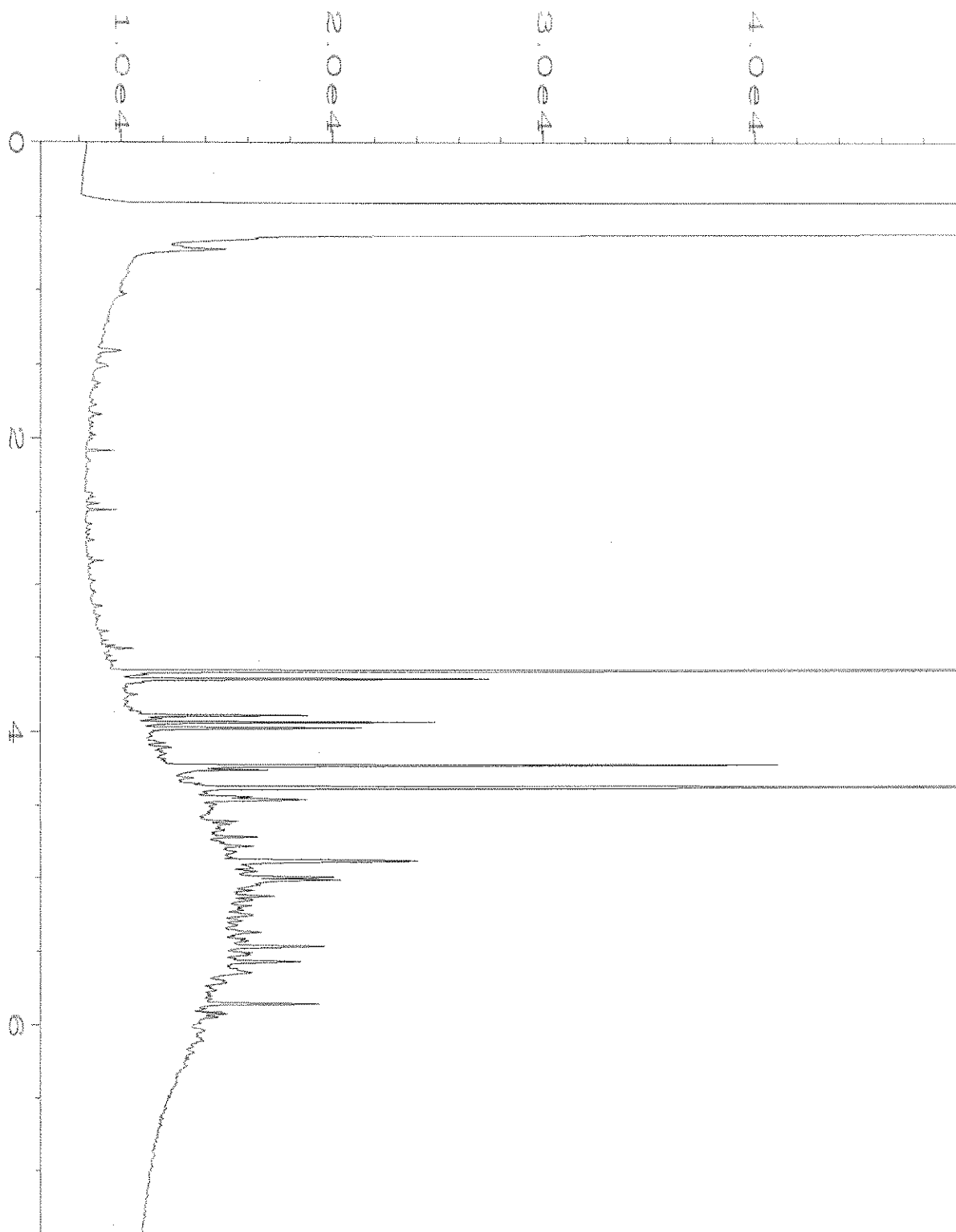
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Report Created on:	: 30 Apr 21 08:59 AM		



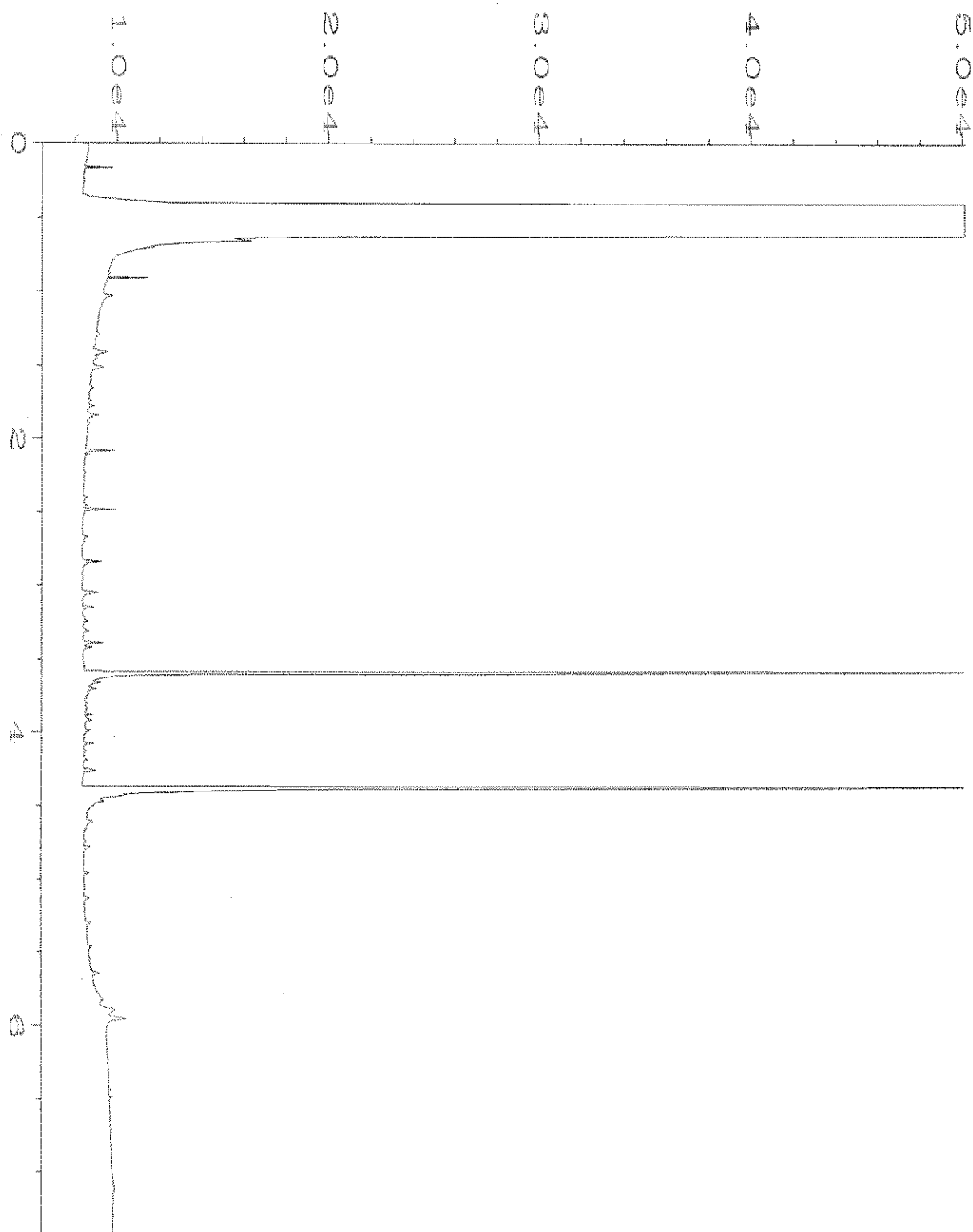
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Sample Name	: 104542-08	Sequence Line	: 7
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Report Created on:	30 Apr 21 08:59 AM		



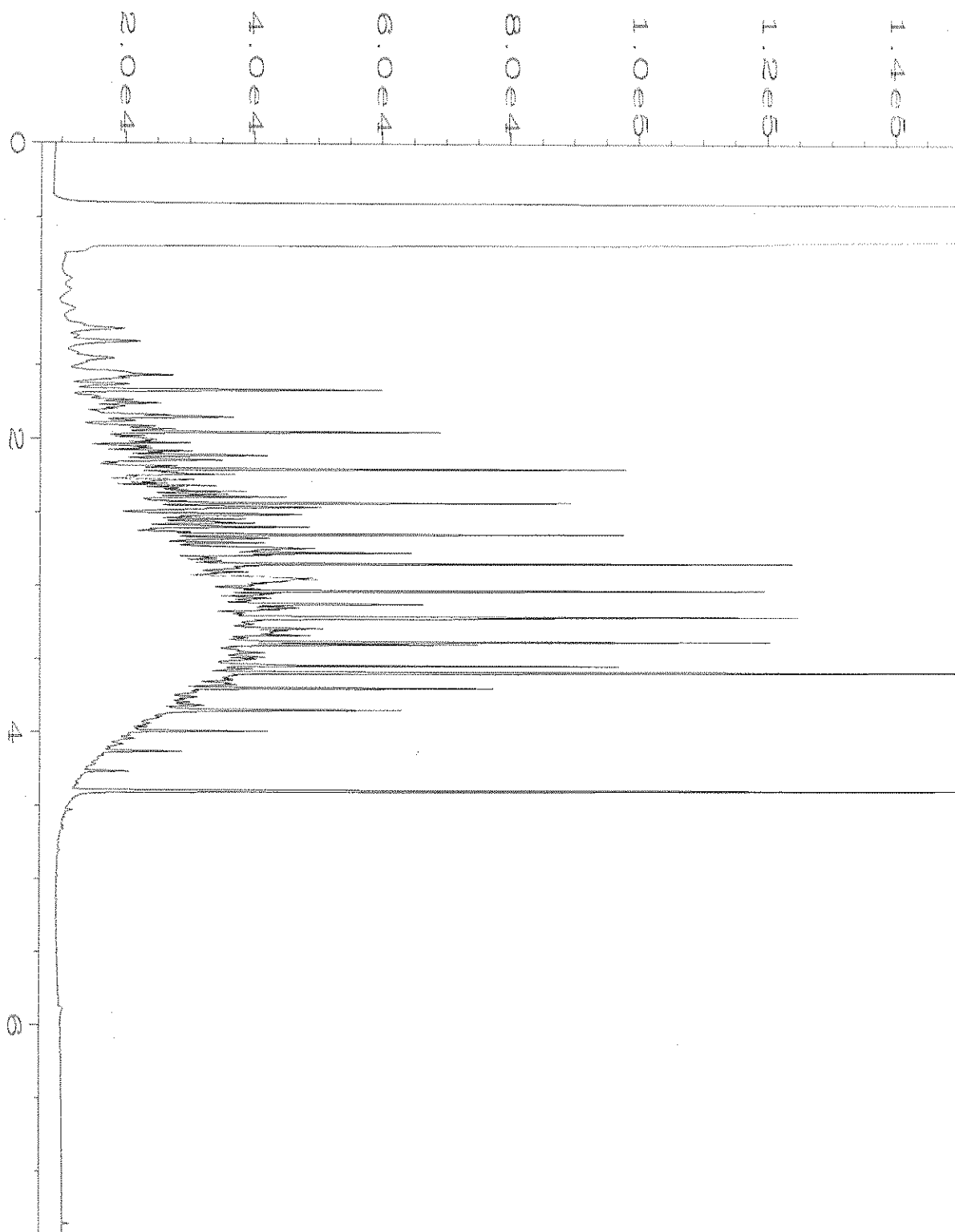
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Instrument	: GC1	Injection Number	: 1
Sample Name	: 104542-09	Sequence Line	: 7
Run Time Bar Code:		Instrument Method	: DX.MTH
Acquired on	: 29 Apr 21 05:02 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	30 Apr 21 09:00 AM		



Data File Name	: C:\HPCHEM\1\DATA\04-29-21\030F0701.D	Page Number	: 1
Operator	: TL	Vial Number	: 30
Instrument	: GC1	Injection Number	: 1
Sample Name	: 104542-10	Sequence Line	: 7
Run Time Bar Code:		Instrument Method	: DX.MTH
Acquired on	: 29 Apr 21 05:14 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	30 Apr 21 09:00 AM		



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Operator	: TL	Vial Number	: 14
Instrument	: GC1	Injection Number	: 1
Sample Name	: 01-1028 mb2	Sequence Line	: 5
Run Time Bar Code:		Instrument Method	: DX.MTH
Acquired on	: 29 Apr 21 12:38 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	: 30 Apr 21 08:58 AM		



Data File Name	: C:\HPCHEM\1\DATA\04-29-21\003F0401.D	Page Number	: 1
Operator	: TL	Vial Number	: 3
Instrument	: GC1	Injection Number	: 1
Sample Name	: 500 Dx 62-142D	Sequence Line	: 4
Run Time Bar Code:		Instrument Method	: DX.MTH
Acquired on	: 29 Apr 21 08:23 AM	Analysis Method	: DEFAULT.MTH
Report Created on:	30 Apr 21 08:58 AM		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

May 5, 2021

Jeremy Porter, Project Manager
Aspect Consulting, LLC
710 2nd Ave S, Suite 550
Seattle, WA 98104

Dear Mr Porter:

Included are the results from the testing of material submitted on April 29, 2021 from the HERS Industrial 140252, F&BI 104543 project. There are 19 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
c: Aspect Data
ASP0505R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on April 29, 2020 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC HERS Industrial 140252, F&BI 104543 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Aspect Consulting, LLC</u>
104543 -01	AB-5-9
104543 -02	AB-5-14
104543 -03	AB-5-16.5
104543 -04	AB-6-11
104543 -05	AB-6-14
104543 -06	AB-7-11
104543 -07	AB-7-14
104543 -08	AB-8-10.5
104543 -09	AB-8-12.5
104543 -10	AB-9-5
104543 -11	AB-9-10.5
104543 -12	AB-9-13.5
104543 -13	AB-10-13
104543 -14	AB-10-16.5

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	AB-5-9	Client:	Aspect Consulting, LLC
Date Received:	04/29/21	Project:	HERS Industrial 140252
Date Extracted:	04/30/21	Lab ID:	104543-01
Date Analyzed:	05/01/21	Data File:	050105.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	120	79	128
Toluene-d8	111	84	121
4-Bromofluorobenzene	119 vo	84	116

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID: AB-5-14	Client: Aspect Consulting, LLC
Date Received: 04/29/21	Project: HERS Industrial 140252
Date Extracted: 04/30/21	Lab ID: 104543-02
Date Analyzed: 05/01/21	Data File: 050106.D
Matrix: Soil	Instrument: GCMS11
Units: mg/kg (ppm) Dry Weight	Operator: JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	107	79	128
Toluene-d8	105	84	121
4-Bromofluorobenzene	102	84	116

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	0.075	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	AB-5-16.5	Client:	Aspect Consulting, LLC
Date Received:	04/29/21	Project:	HERS Industrial 140252
Date Extracted:	04/30/21	Lab ID:	104543-03
Date Analyzed:	05/01/21	Data File:	050107.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	108	79	128
Toluene-d8	104	84	121
4-Bromofluorobenzene	100	84	116

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	0.073	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID: AB-6-11	Client: Aspect Consulting, LLC
Date Received: 04/29/21	Project: HERS Industrial 140252
Date Extracted: 04/30/21	Lab ID: 104543-04
Date Analyzed: 05/01/21	Data File: 050108.D
Matrix: Soil	Instrument: GCMS11
Units: mg/kg (ppm) Dry Weight	Operator: JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	79	128
Toluene-d8	104	84	121
4-Bromofluorobenzene	98	84	116

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	AB-6-14	Client:	Aspect Consulting, LLC
Date Received:	04/29/21	Project:	HERS Industrial 140252
Date Extracted:	04/30/21	Lab ID:	104543-05
Date Analyzed:	05/01/21	Data File:	050109.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	79	128
Toluene-d8	97	84	121
4-Bromofluorobenzene	101	84	116

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	0.088	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID: AB-7-11	Client: Aspect Consulting, LLC
Date Received: 04/29/21	Project: HERS Industrial 140252
Date Extracted: 04/30/21	Lab ID: 104543-06
Date Analyzed: 05/01/21	Data File: 050110.D
Matrix: Soil	Instrument: GCMS11
Units: mg/kg (ppm) Dry Weight	Operator: JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	79	128
Toluene-d8	94	84	121
4-Bromofluorobenzene	102	84	116

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	AB-7-14	Client:	Aspect Consulting, LLC
Date Received:	04/29/21	Project:	HERS Industrial 140252
Date Extracted:	04/30/21	Lab ID:	104543-07
Date Analyzed:	05/01/21	Data File:	050111.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	112	79	128
Toluene-d8	106	84	121
4-Bromofluorobenzene	103	84	116

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	0.064
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	0.24	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	AB-8-10.5	Client:	Aspect Consulting, LLC
Date Received:	04/29/21	Project:	HERS Industrial 140252
Date Extracted:	04/30/21	Lab ID:	104543-08
Date Analyzed:	05/01/21	Data File:	050112.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	117	79	128
Toluene-d8	105	84	121
4-Bromofluorobenzene	101	84	116

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID: AB-8-12.5	Client: Aspect Consulting, LLC
Date Received: 04/29/21	Project: HERS Industrial 140252
Date Extracted: 04/30/21	Lab ID: 104543-09
Date Analyzed: 05/01/21	Data File: 050113.D
Matrix: Soil	Instrument: GCMS11
Units: mg/kg (ppm) Dry Weight	Operator: JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	79	128
Toluene-d8	104	84	121
4-Bromofluorobenzene	102	84	116

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID: AB-9-5	Client: Aspect Consulting, LLC
Date Received: 04/29/21	Project: HERS Industrial 140252
Date Extracted: 04/30/21	Lab ID: 104543-10
Date Analyzed: 05/01/21	Data File: 050114.D
Matrix: Soil	Instrument: GCMS11
Units: mg/kg (ppm) Dry Weight	Operator: JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	110	79	128
Toluene-d8	106	84	121
4-Bromofluorobenzene	99	84	116

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	AB-9-10.5	Client:	Aspect Consulting, LLC
Date Received:	04/29/21	Project:	HERS Industrial 140252
Date Extracted:	04/30/21	Lab ID:	104543-11
Date Analyzed:	05/01/21	Data File:	050115.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	79	128
Toluene-d8	96	84	121
4-Bromofluorobenzene	103	84	116

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID: AB-9-13.5	Client: Aspect Consulting, LLC
Date Received: 04/29/21	Project: HERS Industrial 140252
Date Extracted: 04/30/21	Lab ID: 104543-12
Date Analyzed: 05/01/21	Data File: 050116.D
Matrix: Soil	Instrument: GCMS11
Units: mg/kg (ppm) Dry Weight	Operator: JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	79	128
Toluene-d8	103	84	121
4-Bromofluorobenzene	101	84	116

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	0.050
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	0.43	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	AB-10-13	Client:	Aspect Consulting, LLC
Date Received:	04/29/21	Project:	HERS Industrial 140252
Date Extracted:	04/30/21	Lab ID:	104543-13
Date Analyzed:	05/01/21	Data File:	050117.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	79	128
Toluene-d8	102	84	121
4-Bromofluorobenzene	108	84	116

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	0.032
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	0.046	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	AB-10-16.5	Client:	Aspect Consulting, LLC
Date Received:	04/29/21	Project:	HERS Industrial 140252
Date Extracted:	04/30/21	Lab ID:	104543-14
Date Analyzed:	05/01/21	Data File:	050118.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	93	79	128
Toluene-d8	94	84	121
4-Bromofluorobenzene	101	84	116

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	0.053
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	0.31	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	HERS Industrial 140252
Date Extracted:	04/30/21	Lab ID:	01-853 mb
Date Analyzed:	04/30/21	Data File:	043009.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	90	109
Toluene-d8	103	89	112
4-Bromofluorobenzene	102	84	115

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5 ca	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/05/21

Date Received: 04/29/21

Project: HERS Industrial 140252, F&BI 104543

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: 104570-03 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	1	<0.5	17	17	10-142	0
Chloromethane	mg/kg (ppm)	1	<0.5	51	48	10-126	6
Vinyl chloride	mg/kg (ppm)	1	<0.05	44	45	10-138	2
Bromomethane	mg/kg (ppm)	1	<0.5	58	65	10-163	11
Chloroethane	mg/kg (ppm)	1	<0.5	57	58	10-176	2
Trichlorofluoromethane	mg/kg (ppm)	1	<0.5	49	55	10-176	12
Acetone	mg/kg (ppm)	5	<5	56	61	10-163	9
1,1-Dichloroethene	mg/kg (ppm)	1	<0.05	63	66	10-160	5
Hexane	mg/kg (ppm)	1	<0.25	39	42	10-137	7
Methylene chloride	mg/kg (ppm)	1	<0.5	76	84	10-156	10
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1	<0.05	77	77	21-145	0
trans-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	71	72	14-137	1
1,1-Dichloroethane	mg/kg (ppm)	1	<0.05	72	73	19-140	1
2,2-Dichloropropane	mg/kg (ppm)	1	<0.05	76	77	10-158	1
cis-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	76	77	25-135	1
Chloroform	mg/kg (ppm)	1	<0.05	78	77	21-145	1
2-Butanone (MEK)	mg/kg (ppm)	5	<1	69	73	19-147	6
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1	<0.05	79	81	12-160	2
1,1,1-Trichloroethane	mg/kg (ppm)	1	<0.05	74	74	10-156	0
1,1-Dichloropropene	mg/kg (ppm)	1	<0.05	71	71	17-140	0
Carbon tetrachloride	mg/kg (ppm)	1	<0.05	75	75	9-164	0
Benzene	mg/kg (ppm)	1	<0.03	74	76	29-129	3
Trichloroethene	mg/kg (ppm)	1	<0.02	77	74	21-139	4
1,2-Dichloropropane	mg/kg (ppm)	1	<0.05	78	77	30-135	1
Bromodichloromethane	mg/kg (ppm)	1	<0.05	80	78	23-155	3
Dibromomethane	mg/kg (ppm)	1	<0.05	84	84	23-145	0
4-Methyl-2-pentanone	mg/kg (ppm)	5	<1	79	78	24-155	1
cis-1,3-Dichloropropene	mg/kg (ppm)	1	<0.05	78	78	28-144	0
Toluene	mg/kg (ppm)	1	<0.05	72	75	35-130	4
trans-1,3-Dichloropropene	mg/kg (ppm)	1	<0.05	73	77	26-149	5
1,1,2-Trichloroethane	mg/kg (ppm)	1	<0.05	77	78	10-205	1
2-Hexanone	mg/kg (ppm)	5	<0.5	76	80	15-166	5
1,3-Dichloropropene	mg/kg (ppm)	1	<0.05	75	77	31-137	3
Tetrachloroethene	mg/kg (ppm)	1	<0.025	74	74	20-133	0
Dibromochloromethane	mg/kg (ppm)	1	<0.05	75	77	28-150	3
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1	<0.05	75	78	28-142	4
Chlorobenzene	mg/kg (ppm)	1	<0.05	76	76	32-129	0
Ethylbenzene	mg/kg (ppm)	1	<0.05	74	75	32-137	1
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	78	77	31-143	1
m,p-Xylene	mg/kg (ppm)	2	<0.1	75	75	34-136	0
o-Xylene	mg/kg (ppm)	1	<0.05	75	76	33-134	1
Styrene	mg/kg (ppm)	1	<0.05	76	77	35-137	1
Isopropylbenzene	mg/kg (ppm)	1	<0.05	74	77	31-142	4
Bromoform	mg/kg (ppm)	1	<0.05	76	76	21-156	0
n-Propylbenzene	mg/kg (ppm)	1	<0.05	79	75	23-146	5
Bromobenzene	mg/kg (ppm)	1	<0.05	81	79	34-130	2
1,3,5-Trimethylbenzene	mg/kg (ppm)	1	<0.05	80	76	18-149	5
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	83	80	28-140	4
1,2,3-Trichloropropane	mg/kg (ppm)	1	<0.05	80	77	25-144	4
2-Chlorotoluene	mg/kg (ppm)	1	<0.05	79	77	31-134	3
4-Chlorotoluene	mg/kg (ppm)	1	<0.05	80	78	31-136	3
tert-Butylbenzene	mg/kg (ppm)	1	<0.05	79	76	30-137	4
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	<0.05	78	77	10-182	1
sec-Butylbenzene	mg/kg (ppm)	1	<0.05	77	74	23-145	4
p-Isopropyltoluene	mg/kg (ppm)	1	<0.05	78	76	21-149	3
1,3-Dichlorobenzene	mg/kg (ppm)	1	<0.05	78	75	30-131	4
1,4-Dichlorobenzene	mg/kg (ppm)	1	<0.05	78	77	29-129	1
1,2-Dichlorobenzene	mg/kg (ppm)	1	<0.05	78	78	31-132	0
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	<0.5	72	74	11-161	3
1,2,4-Trichlorobenzene	mg/kg (ppm)	1	<0.25	76	76	22-142	0
Hexachlorobutadiene	mg/kg (ppm)	1	<0.25	73	70	10-142	4
Naphthalene	mg/kg (ppm)	1	<0.05	74	75	14-157	1
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	<0.25	76	72	20-144	5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/05/21

Date Received: 04/29/21

Project: HERS Industrial 140252, F&BI 104543

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	1	58	10-146
Chloromethane	mg/kg (ppm)	1	75	27-133
Vinyl chloride	mg/kg (ppm)	1	80	22-139
Bromomethane	mg/kg (ppm)	1	90	38-114
Chloroethane	mg/kg (ppm)	1	83	9-163
Trichlorofluoromethane	mg/kg (ppm)	1	87	10-196
Acetone	mg/kg (ppm)	5	81	52-141
1,1-Dichloroethene	mg/kg (ppm)	1	92	47-128
Hexane	mg/kg (ppm)	1	85	43-142
Methylene chloride	mg/kg (ppm)	1	102	10-184
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1	97	60-123
trans-1,2-Dichloroethene	mg/kg (ppm)	1	98	67-129
1,1-Dichloroethane	mg/kg (ppm)	1	95	68-115
2,2-Dichloropropane	mg/kg (ppm)	1	106	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	1	98	72-127
Chloroform	mg/kg (ppm)	1	98	66-120
2-Butanone (MEK)	mg/kg (ppm)	5	92	30-197
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1	97	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	1	97	62-131
1,1-Dichloropropene	mg/kg (ppm)	1	97	69-128
Carbon tetrachloride	mg/kg (ppm)	1	100	60-139
Benzene	mg/kg (ppm)	1	95	71-118
Trichloroethene	mg/kg (ppm)	1	98	63-121
1,2-Dichloropropane	mg/kg (ppm)	1	95	72-127
Bromodichloromethane	mg/kg (ppm)	1	98	57-126
Dibromomethane	mg/kg (ppm)	1	101	62-123
4-Methyl-2-pentanone	mg/kg (ppm)	5	100	45-145
cis-1,3-Dichloropropene	mg/kg (ppm)	1	98	67-122
Toluene	mg/kg (ppm)	1	91	66-126
trans-1,3-Dichloropropene	mg/kg (ppm)	1	93	72-132
1,1,2-Trichloroethane	mg/kg (ppm)	1	95	64-115
2-Hexanone	mg/kg (ppm)	5	95	33-152
1,3-Dichloropropene	mg/kg (ppm)	1	95	72-130
Tetrachloroethene	mg/kg (ppm)	1	96	72-114
Dibromochloromethane	mg/kg (ppm)	1	95	55-121
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1	95	74-132
Chlorobenzene	mg/kg (ppm)	1	95	76-111
Ethylbenzene	mg/kg (ppm)	1	94	64-123
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	94	64-121
m,p-Xylene	mg/kg (ppm)	2	94	78-122
o-Xylene	mg/kg (ppm)	1	95	77-124
Styrene	mg/kg (ppm)	1	95	74-126
Isopropylbenzene	mg/kg (ppm)	1	94	76-127
Bromoform	mg/kg (ppm)	1	94	56-132
n-Propylbenzene	mg/kg (ppm)	1	93	74-124
Bromobenzene	mg/kg (ppm)	1	95	72-122
1,3,5-Trimethylbenzene	mg/kg (ppm)	1	93	76-126
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	97	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	1	96	61-137
2-Chlorotoluene	mg/kg (ppm)	1	93	74-121
4-Chlorotoluene	mg/kg (ppm)	1	95	75-122
tert-Butylbenzene	mg/kg (ppm)	1	93	73-130
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	93	76-125
sec-Butylbenzene	mg/kg (ppm)	1	92	71-130
p-Isopropyltoluene	mg/kg (ppm)	1	94	70-132
1,3-Dichlorobenzene	mg/kg (ppm)	1	92	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	1	95	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	1	93	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	93	58-138
1,2,4-Trichlorobenzene	mg/kg (ppm)	1	90	64-135
Hexachlorobutadiene	mg/kg (ppm)	1	90	50-153
Naphthalene	mg/kg (ppm)	1	91	63-140
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	88	63-138

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht - The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

104543

SAMPLE CHAIN OF CUSTODY

ME

04/29/21

823/VSS

Page # 1 of 2

Report To Jeremy FosterCompany Arcadis Consulting

Address _____

City, State, ZIP _____

Phone _____ Email jeremy.foster@arcadis.comSAMPLERS (signature) [Signature]

PROJECT NAME

H&R5 Industrial

PO #

140252

REMARKS

INVOICE TO

TURNAROUND TIME

☒ Standard turnaround☐ RUSH

Rush charges authorized by: _____

SAMPLE DISPOSAL

☐ Archive samples☐ Other

Default: Dispose after 30 days

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED							Notes
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	
AB-5-9	01 A-E	4/28/21	1030	Soil	5					X			401
AB-5-14	02		1035							X			
AB-5-16.5	03		1220 1105							X			
AB-6-11	04		1220							X			
AB-6-14	05		1225							X			
AB-7-11	06		1300							X			
AB-7-14	07		1305							X			
AB-8-10.5	08		1340							X			
AB-8-12.5	09		1345							X			
AB-9-5	10		1415							X			

SIGNATURE

PRINT NAME

COMPANY

DATE

TIME

Friedman & Bruya, Inc.

3012 16th Avenue West

Seattle, WA 98119-2029

Ph. (206) 285-8282

Relinquished by: [Signature]PRINT NAME Daniel SchackCOMPANY ArcadisDATE 4/29/21TIME 0930Received by: [Signature]PRINT NAME Eric [Signature]COMPANY ArcadisDATE 4/29/21TIME 1030

Relinquished by: _____

Received by: _____

Samples received at 4 °C

US3/PT3

SAMPLERS (signature)

PROJECT NAME

H412's Industrial

252041

REMARKS

INVOICE TO

Phone 316.617.0449 Email jester@competitionsoftware.com

Project specific RLS? - Yes / No

TURNAROUND TIME
☒ Standard turnaround
☐ RUSH _____
 Rush charges authorized by: _____

SAMPLE DISPOSAL
☐ Archive samples
☐ Other _____

Default: Dispose after 30 days

ANALYSES REQUESTED

[illegible]

SIGNATURE

PRINT NAME _____

COMPANY

DATE	TIME
------	------

Relinquished by: 20

Zone 1 Babcock

15-29

1670 4/29/21

Relinquished by:

Ph. (206) 285-8282

Received by:

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

May 13, 2021

Jeremy Porter, Project Manager
Aspect Consulting, LLC
710 2nd Ave S, Suite 550
Seattle, WA 98104

Dear Mr Porter:

Included are the results from the testing of material submitted on May 6, 2021 from the Hers Industrial 140252, F&BI 105109 project. There are 14 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
c: Aspect Data
ASP0513R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on May 6, 2020 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC Hers Industrial 140252, F&BI 105109 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID

105109 -01

Aspect Consulting, LLC

MW-23-05062021

The 8260D calibration standard failed the acceptance criteria for several analytes in the method blank. The data were flagged accordingly.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/13/21

Date Received: 05/06/21

Project: Hers Industrial 140252, F&BI 105109

Date Extracted: 05/07/21

Date Analyzed: 05/07/21

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL AND MOTOR OIL
USING METHOD NWTPH-D_x**

Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 41-152)
MW-23-05062021 105109-01	260 x	<250	83
Method Blank 01-1099 MB	<50	<250	74

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-23-05062021	Client:	Aspect Consulting, LLC
Date Received:	05/06/21	Project:	Hers Industrial 140252
Date Extracted:	05/07/21	Lab ID:	105109-01
Date Analyzed:	05/07/21	Data File:	105109-01.075
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Arsenic	3.74
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	NA	Project:	Hers Industrial 140252
Date Extracted:	05/07/21	Lab ID:	I1-303 mb
Date Analyzed:	05/07/21	Data File:	I1-303 mb.048
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
----------	-----------------------------

Arsenic	<1
---------	----

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-23-05062021	Client:	Aspect Consulting, LLC
Date Received:	05/06/21	Project:	Hers Industrial 140252
Date Extracted:	05/07/21	Lab ID:	105109-01
Date Analyzed:	05/07/21	Data File:	105109-01.076
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Arsenic	5.93
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	NA	Project:	Hers Industrial 140252
Date Extracted:	05/07/21	Lab ID:	I1-303 mb
Date Analyzed:	05/07/21	Data File:	I1-303 mb.048
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
----------	-----------------------------

Arsenic	<1
---------	----

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	MW-23-05062021	Client:	Aspect Consulting, LLC
Date Received:	05/06/21	Project:	Hers Industrial 140252
Date Extracted:	05/07/21	Lab ID:	105109-01
Date Analyzed:	05/07/21	Data File:	050727.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	78	126
Toluene-d8	98	87	115
4-Bromofluorobenzene	106	92	112

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	Hers Industrial 140252
Date Extracted:	05/07/21	Lab ID:	01-1062 mb
Date Analyzed:	05/07/21	Data File:	050708.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	86	113
Toluene-d8	102	88	114
4-Bromofluorobenzene	99	88	112

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50 ca	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5 ca	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1 ca
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/13/21

Date Received: 05/06/21

Project: Hers Industrial 140252, F&BI 105109

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER
SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL EXTENDED USING METHOD NWTPH-D_x**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	80	80	63-142	0

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/13/21

Date Received: 05/06/21

Project: Hers Industrial 140252, F&BI 105109

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR DISSOLVED METALS USING EPA METHOD 6020B**

Laboratory Code: 105110-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	5.04	96	96	75-125	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	88	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/13/21

Date Received: 05/06/21

Project: Hers Industrial 140252, F&BI 105109

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR TOTAL METALS USING EPA METHOD 6020B**

Laboratory Code: 105110-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	5.04	96	96	75-125	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	88	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/13/21

Date Received: 05/06/21

Project: Hers Industrial 140252, F&BI 105109

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: 105066-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	10	<1	102	10-172
Chloromethane	ug/L (ppb)	10	<10	91	25-166
Vinyl chloride	ug/L (ppb)	10	<0.2	93	36-166
Bromomethane	ug/L (ppb)	10	<5	116	47-169
Chloroethane	ug/L (ppb)	10	<1	102	46-160
Trichlorofluoromethane	ug/L (ppb)	10	<1	113	44-165
Acetone	ug/L (ppb)	50	<50	55	10-182
1,1-Dichloroethene	ug/L (ppb)	10	<1	94	58-142
Hexane	ug/L (ppb)	10	<5	106	38-152
Methylene chloride	ug/L (ppb)	10	<5	95	50-145
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	<1	103	61-136
trans-1,2-Dichloroethene	ug/L (ppb)	10	<1	96	61-136
1,1-Dichloroethane	ug/L (ppb)	10	<1	99	63-135
2,2-Dichloropropane	ug/L (ppb)	10	<1	112	36-154
cis-1,2-Dichloroethene	ug/L (ppb)	10	<1	96	63-134
Chloroform	ug/L (ppb)	10	<1	98	61-135
2-Butanone (MEK)	ug/L (ppb)	50	<20	78	10-129
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<1	100	48-149
1,1,1-Trichloroethane	ug/L (ppb)	10	<1	97	60-146
1,1-Dichloropropene	ug/L (ppb)	10	<1	97	69-133
Carbon tetrachloride	ug/L (ppb)	10	<1	102	56-152
Benzene	ug/L (ppb)	10	<0.35	99	57-135
Trichloroethene	ug/L (ppb)	10	<1	94	66-135
1,2-Dichloropropane	ug/L (ppb)	10	<1	94	59-136
Bromodichloromethane	ug/L (ppb)	10	<1	92	61-150
Dibromomethane	ug/L (ppb)	10	<1	99	66-141
4-Methyl-2-pentanone	ug/L (ppb)	50	<10	102	10-185
cis-1,3-Dichloropropene	ug/L (ppb)	10	<1	96	52-147
Toluene	ug/L (ppb)	10	<1	93	50-137
trans-1,3-Dichloropropene	ug/L (ppb)	10	<1	92	53-142
1,1,2-Trichloroethane	ug/L (ppb)	10	<1	91	68-131
2-Hexanone	ug/L (ppb)	50	<10	89	10-185
1,3-Dichloropropane	ug/L (ppb)	10	<1	94	60-135
Tetrachloroethene	ug/L (ppb)	10	<1	101	10-226
Dibromochloromethane	ug/L (ppb)	10	<1	88	52-145
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	<1	96	62-135
Chlorobenzene	ug/L (ppb)	10	<1	96	63-130
Ethylbenzene	ug/L (ppb)	10	<1	94	60-133
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	<1	95	56-143
m,p-Xylene	ug/L (ppb)	20	<2	97	69-135
o-Xylene	ug/L (ppb)	10	<1	96	60-140
Styrene	ug/L (ppb)	10	<1	91	60-133
Isopropylbenzene	ug/L (ppb)	10	<1	94	65-142
Bromoform	ug/L (ppb)	10	<5	93	54-148
n-Propylbenzene	ug/L (ppb)	10	<1	95	58-144
Bromobenzene	ug/L (ppb)	10	<1	96	61-130
1,3,5-Trimethylbenzene	ug/L (ppb)	10	<1	94	59-134
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	<1	92	51-154
1,2,3-Trichloropropane	ug/L (ppb)	10	<1	95	53-150
2-Chlorotoluene	ug/L (ppb)	10	<1	93	66-127
4-Chlorotoluene	ug/L (ppb)	10	<1	93	65-130
tert-Butylbenzene	ug/L (ppb)	10	<1	95	65-137
1,2,4-Trimethylbenzene	ug/L (ppb)	10	<1	92	59-146
sec-Butylbenzene	ug/L (ppb)	10	<1	94	64-140
p-Isopropyltoluene	ug/L (ppb)	10	<1	95	65-141
1,3-Dichlorobenzene	ug/L (ppb)	10	<1	97	60-131
1,4-Dichlorobenzene	ug/L (ppb)	10	<1	95	60-129
1,2-Dichlorobenzene	ug/L (ppb)	10	<1	98	60-130
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	<10	92	32-164
1,2,4-Trichlorobenzene	ug/L (ppb)	10	<1	101	52-138
Hexachlorobutadiene	ug/L (ppb)	10	<1	102	60-143
Naphthalene	ug/L (ppb)	10	<1	97	44-164
1,2,3-Trichlorobenzene	ug/L (ppb)	10	<1	104	69-148

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/13/21

Date Received: 05/06/21

Project: Hers Industrial 140252, F&BI 105109

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	10	107	104	25-158	3
Chloromethane	ug/L (ppb)	10	96	92	45-156	4
Vinyl chloride	ug/L (ppb)	10	98	97	50-154	1
Bromomethane	ug/L (ppb)	10	114	117	55-143	3
Chloroethane	ug/L (ppb)	10	108	106	58-146	2
Trichlorofluoromethane	ug/L (ppb)	10	112	108	50-150	4
Acetone	ug/L (ppb)	50	55	55	22-155	0
1,1-Dichloroethene	ug/L (ppb)	10	97	94	67-136	3
Hexane	ug/L (ppb)	10	96	90	57-137	6
Methylene chloride	ug/L (ppb)	10	102	96	19-178	6
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	103	100	64-147	3
trans-1,2-Dichloroethene	ug/L (ppb)	10	98	98	68-128	0
1,1-Dichloroethane	ug/L (ppb)	10	100	97	74-135	3
2,2-Dichloropropane	ug/L (ppb)	10	113	109	55-143	4
cis-1,2-Dichloroethene	ug/L (ppb)	10	100	98	74-136	2
Chloroform	ug/L (ppb)	10	100	97	74-134	3
2-Butanone (MEK)	ug/L (ppb)	50	77	75	37-150	3
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	104	99	66-129	5
1,1,1-Trichloroethane	ug/L (ppb)	10	97	95	74-142	2
1,1-Dichloropropene	ug/L (ppb)	10	101	96	77-129	5
Carbon tetrachloride	ug/L (ppb)	10	104	102	75-158	2
Benzene	ug/L (ppb)	10	100	97	69-134	3
Trichloroethene	ug/L (ppb)	10	97	92	67-133	5
1,2-Dichloropropane	ug/L (ppb)	10	95	94	71-134	1
Bromodichloromethane	ug/L (ppb)	10	95	92	66-126	3
Dibromomethane	ug/L (ppb)	10	100	96	68-132	4
4-Methyl-2-pentanone	ug/L (ppb)	50	100	97	65-138	3
cis-1,3-Dichloropropene	ug/L (ppb)	10	100	95	74-140	5
Toluene	ug/L (ppb)	10	95	97	72-122	2
trans-1,3-Dichloropropene	ug/L (ppb)	10	96	95	80-136	1
1,1,2-Trichloroethane	ug/L (ppb)	10	93	92	75-124	1
2-Hexanone	ug/L (ppb)	50	90	90	60-136	0
1,3-Dichloropropene	ug/L (ppb)	10	95	96	76-126	1
Tetrachloroethene	ug/L (ppb)	10	100	100	76-121	0
Dibromochloromethane	ug/L (ppb)	10	91	91	84-133	0
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	94	97	82-115	3
Chlorobenzene	ug/L (ppb)	10	99	100	83-114	1
Ethylbenzene	ug/L (ppb)	10	96	97	77-124	1
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	95	98	84-127	3
m,p-Xylene	ug/L (ppb)	20	96	98	81-112	2
o-Xylene	ug/L (ppb)	10	96	97	81-121	1
Styrene	ug/L (ppb)	10	96	98	84-119	2
Isopropylbenzene	ug/L (ppb)	10	96	95	80-117	1
Bromoform	ug/L (ppb)	10	95	94	69-121	1
n-Propylbenzene	ug/L (ppb)	10	95	95	74-126	0
Bromobenzene	ug/L (ppb)	10	98	98	80-121	0
1,3,5-Trimethylbenzene	ug/L (ppb)	10	97	94	78-123	3
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	95	94	66-126	1
1,2,3-Trichloropropane	ug/L (ppb)	10	95	94	67-124	1
2-Chlorotoluene	ug/L (ppb)	10	95	93	77-127	2
4-Chlorotoluene	ug/L (ppb)	10	95	94	78-128	1
tert-Butylbenzene	ug/L (ppb)	10	95	96	80-123	1
1,2,4-Trimethylbenzene	ug/L (ppb)	10	93	93	79-122	0
sec-Butylbenzene	ug/L (ppb)	10	95	94	80-116	1
p-Isopropyltoluene	ug/L (ppb)	10	96	95	81-123	1
1,3-Dichlorobenzene	ug/L (ppb)	10	98	97	83-113	1
1,4-Dichlorobenzene	ug/L (ppb)	10	98	97	81-112	1
1,2-Dichlorobenzene	ug/L (ppb)	10	98	99	84-112	1
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	90	90	57-141	0
1,2,4-Trichlorobenzene	ug/L (ppb)	10	104	100	72-130	4
Hexachlorobutadiene	ug/L (ppb)	10	104	101	53-141	3
Naphthalene	ug/L (ppb)	10	101	98	64-133	3
1,2,3-Trichlorobenzene	ug/L (ppb)	10	107	103	65-136	4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht - The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

~~DE~~ 14H
EQ4/A12/W11

TURNAROUND TIME	☒ Standard turnaround ☐ RUSH Rush charges authorized by _____
SAMPLE DISPOSAL	☐ Archive samples ☐ Other _____ Default: Dispose after 30 days

ANALYSES REQUESTED

[illegible]

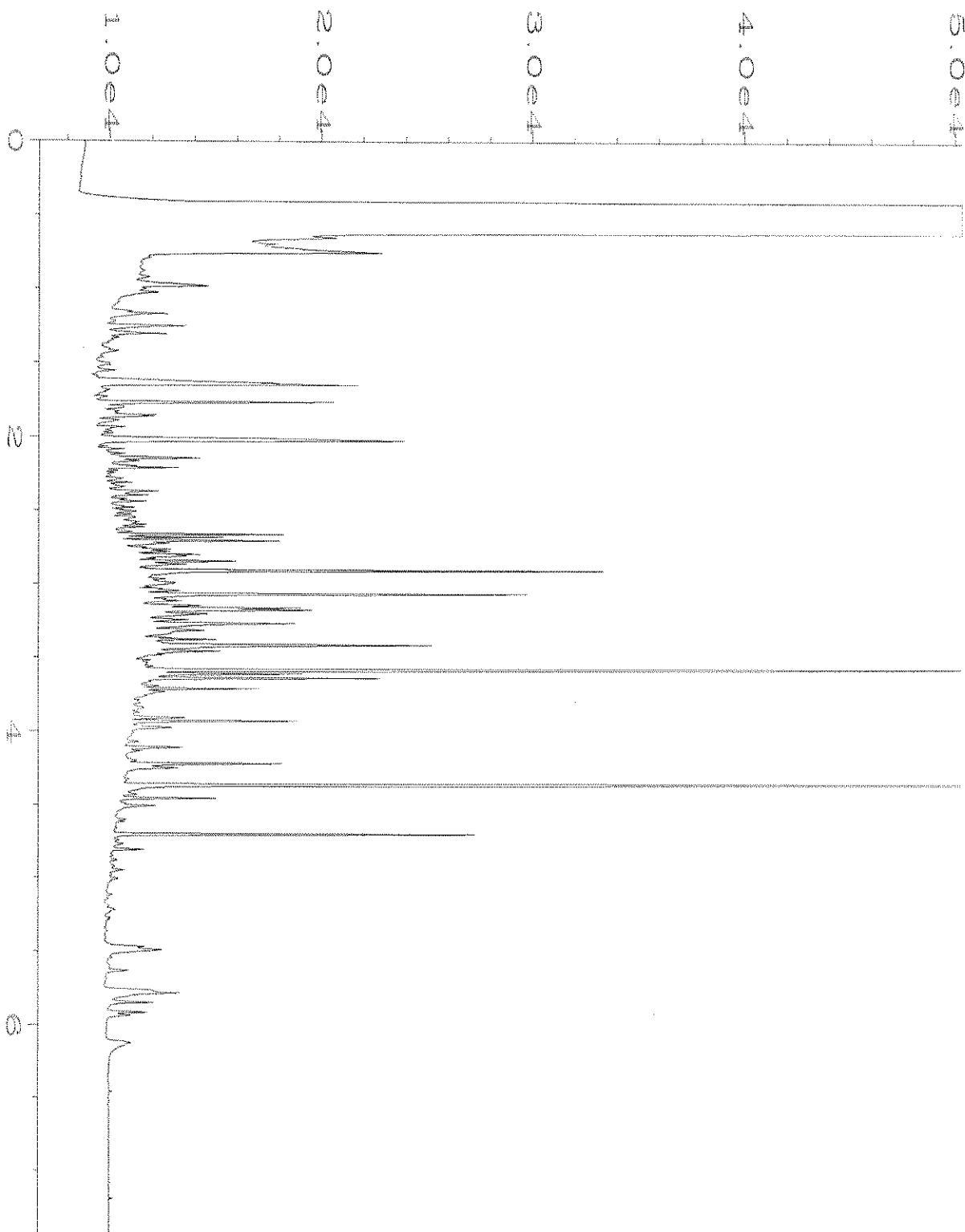
Friedman & Bruya, Inc.

3012 16th Avenue West

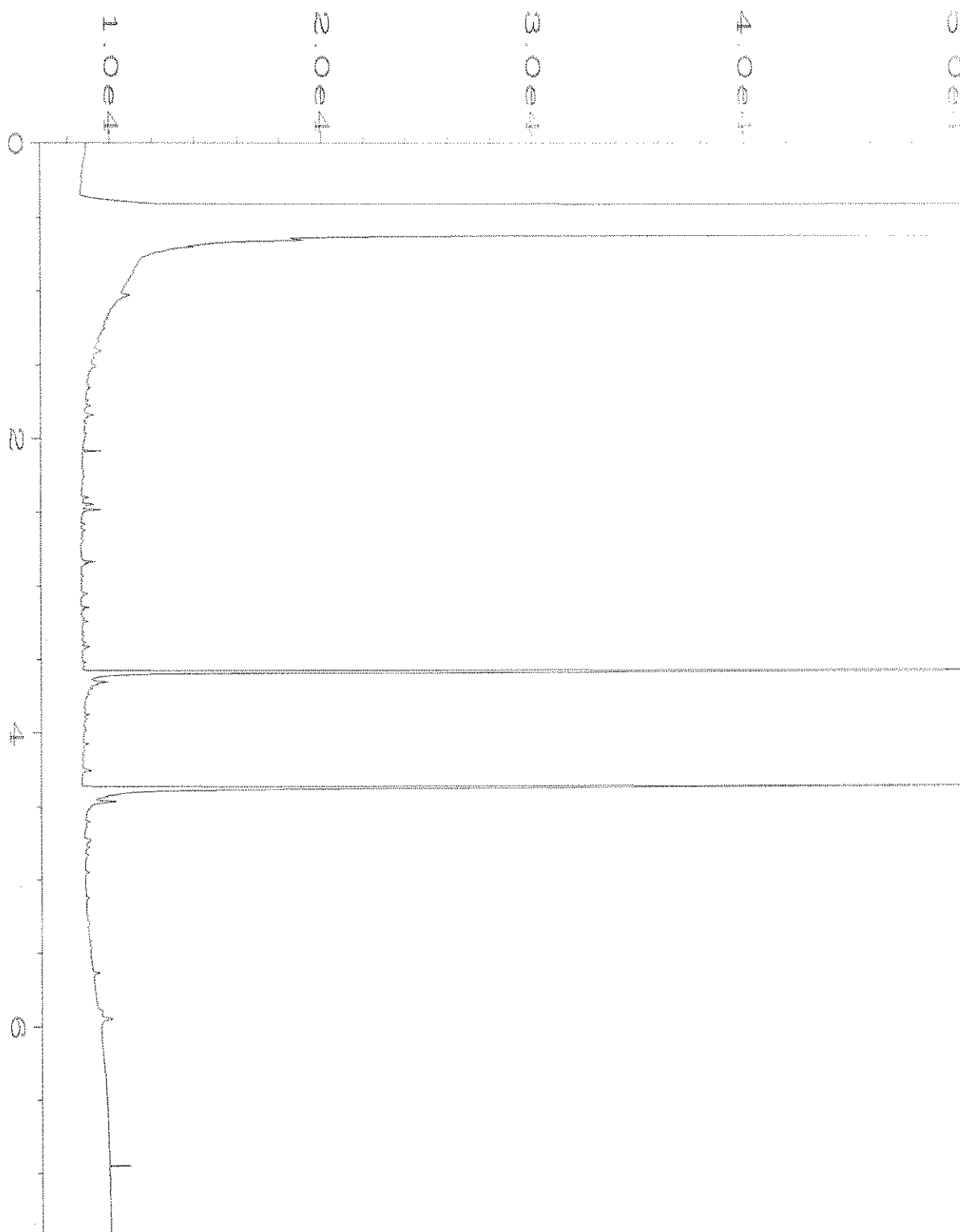
Seattle, WA 98119-2029

Ph. (206) 285-8282

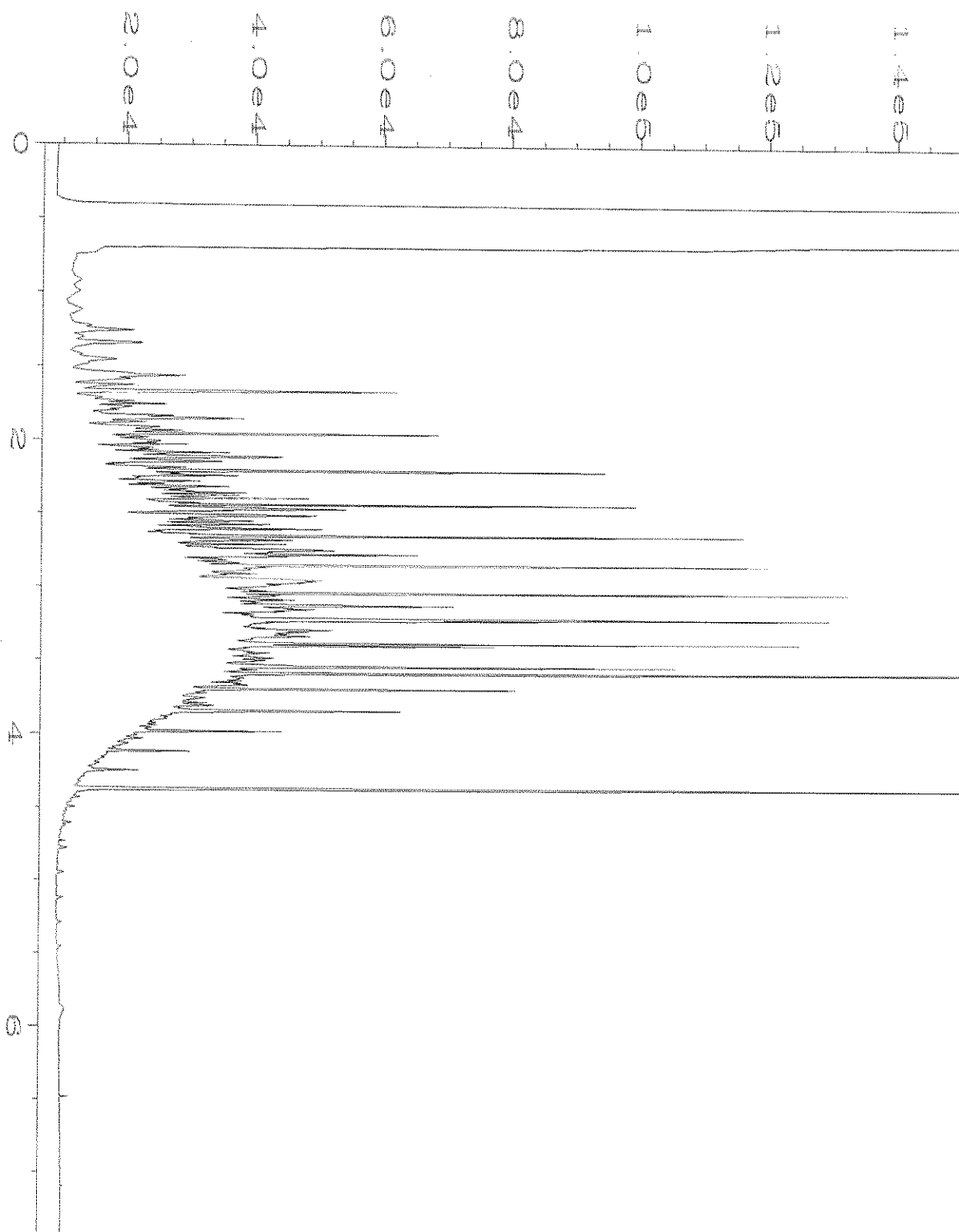
SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Refringed by: 	Chelsea Bush	Aspet	5/6/21	1604
Received by: 	Doug	FRV	5-6-21	16:04
Relinquished by:				
Received by:				



Data File Name	: C:\HPCHEM\1\DATA\05-07-21\043F0701.D	Page Number	: 1
Operator	: TL	Vial Number	: 43
Instrument	: GC1	Injection Number	: 1
Sample Name	: 105109-01	Sequence Line	: 7
Run Time Bar Code:		Instrument Method:	DX.MTH
Acquired on	: 07 May 21 01:26 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	10 May 21 09:11 AM		



Data File Name	: C:\HPCHEM\1\DATA\05-07-21\039F0701.D	Page Number	: 1
Operator	: TL	Vial Number	: 39
Instrument	: GC1	Injection Number	: 1
Sample Name	: 01-1099 mb	Sequence Line	: 7
Run Time Bar Code:		Instrument Method	: DX.MTH
Acquired on	: 07 May 21 12:40 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	10 May 21 09:11 AM		



Data File Name	: C:\HPCHEM\1\DATA\05-07-21\003F0201.D	Page Number	: 1
Operator	: TL	Vial Number	: 3
Instrument	: GC1	Injection Number	: 1
Sample Name	: 500 Dx 62-142D	Sequence Line	: 2
Run Time Bar Code:		Instrument Method	: DX.MTH
Acquired on	: 07 May 21 05:58 AM	Analysis Method	: DEFAULT.MTH
Report Created on:	10 May 21 09:12 AM		

ATTACHMENT 2

Boring Logs and Well Construction Details

Coarse-Grained Soils - More than 50% ¹ Retained on No. 200 Sieve					
	Sands - 50% ¹ or More of Coarse Fraction Passes No. 4 Sieve	Gravels - More than 50% ¹ of Coarse Fraction Retained on No. 4 Sieve			
		≤5% Fines	≥15% Fines		
Fine-Grained Soils - 50% ¹ or More Passes No. 200 Sieve	Silts and Clays Liquid Limit Less than 50%			GW	Well-graded GRAVEL Well-graded GRAVEL WITH SAND
				GP	Poorly-graded GRAVEL Poorly-graded GRAVEL WITH SAND
				GM	SILTY GRAVEL SILTY GRAVEL WITH SAND
				GC	CLAYEY GRAVEL CLAYEY GRAVEL WITH SAND
				SW	Well-graded SAND Well-graded SAND WITH GRAVEL
	Silts and Clays Liquid Limit 50% or More			SP	Poorly-graded SAND Poorly-graded SAND WITH GRAVEL
				SM	SILTY SAND SILTY SAND WITH GRAVEL
				SC	CLAYEY SAND CLAYEY SAND WITH GRAVEL
				ML	SILT SANDY or GRAVELLY SILT SILT WITH SAND SILT WITH GRAVEL
				CL	LEAN CLAY SANDY or GRAVELLY LEAN CLAY LEAN CLAY WITH SAND LEAN CLAY WITH GRAVEL
Highly Organic Soils			OL	ORGANIC SILT SANDY or GRAVELLY ORGANIC SILT ORGANIC SILT WITH SAND ORGANIC SILT WITH GRAVEL	
			MH	ELASTIC SILT SANDY or GRAVELLY ELASTIC SILT ELASTIC SILT WITH SAND ELASTIC SILT WITH GRAVEL	
			CH	FAT CLAY SANDY or GRAVELLY FAT CLAY FAT CLAY WITH SAND FAT CLAY WITH GRAVEL	
			OH	ORGANIC CLAY SANDY or GRAVELLY ORGANIC CLAY ORGANIC CLAY WITH SAND ORGANIC CLAY WITH GRAVEL	
			PT	PEAT and other mostly organic soils	

"WITH SILT" or "WITH CLAY" means 5 to 15% silt and clay, denoted by a "-" in the group name; e.g., SP-SM • "SILTY" or "CLAYEY" means >15% silt and clay • "WITH SAND" or "WITH GRAVEL" means 15 to 30% sand and gravel. • "SANDY" or "GRAVELLY" means >30% sand and gravel. • "Well-graded" means approximately equal amounts of fine to coarse grain sizes • "Poorly graded" means unequal amounts of grain sizes • Group names separated by "/" means soil contains layers of the two soil types; e.g., SM/ML.

Soils were described and identified in the field in general accordance with the methods described in ASTM D2488. Where indicated in the log, soils were classified using ASTM D2487 or other laboratory tests as appropriate. Refer to the report accompanying these exploration logs for details.

1. Estimated or measured percentage by dry weight
2. (SPT) Standard Penetration Test (ASTM D1586)
3. Determined by SPT, DCPT (ASTM STP399) or other field methods. See report text for details.

MC	=	Natural Moisture Content	GEOTECHNICAL LAB TESTS		
PS	=	Particle Size Distribution			
FC	=	Fines Content (% < 0.075 mm)			
GH	=	Hydrometer Test			
AL	=	Atterberg Limits			
C	=	Consolidation Test			
Str	=	Strength Test			
OC	=	Organic Content (% Loss by Ignition)			
Comp	=	Proctor Test			
K	=	Hydraulic Conductivity Test			
SG	=	Specific Gravity Test			
<u>Organic Chemicals</u>			CHEMICAL LAB TESTS		
BTEX	=	Benzene, Toluene, Ethylbenzene, Xylenes			
TPH-Dx	=	Diesel and Oil-Range Petroleum Hydrocarbons			
TPH-G	=	Gasoline-Range Petroleum Hydrocarbons			
VOCs	=	Volatile Organic Compounds			
SVOCs	=	Semi-Volatile Organic Compounds			
PAHs	=	Polycyclic Aromatic Hydrocarbon Compounds			
PCBs	=	Polychlorinated Biphenyls			
<u>Metals</u>					
RCRA8	=	As, Ba, Cd, Cr, Pb, Hg, Se, Ag, (d = dissolved, t = total)			
MTCAS	=	As, Cd, Cr, Hg, Pb (d = dissolved, t = total)			
PP-13	=	Ag, As, Be, Cd, Cr, Cu, Hg, Ni, Pb, Sb, Se, Tl, Zn (d=dissolved, t=total)			
<u>PID</u>			FIELD TESTS		
Sheen	=	Oil Sheen Test			
SPT ²	=	Standard Penetration Test			
NSPT	=	Non-Standard Penetration Test			
DCPT	=	Dynamic Cone Penetration Test			
<u>Descriptive Term</u>			COMPONENT DEFINITIONS		
<u>Size Range and Sieve Number</u>					
Boulders	=	Larger than 12 inches			
Cobbles	=	3 inches to 12 inches			
Coarse Gravel	=	3 inches to 3/4 inches			
Fine Gravel	=	3/4 inches to No. 4 (4.75 mm)			
Coarse Sand	=	No. 4 (4.75 mm) to No. 10 (2.00 mm)			
Medium Sand	=	No. 10 (2.00 mm) to No. 40 (0.425 mm)			
Fine Sand	=	No. 40 (0.425 mm) to No. 200 (0.075 mm)			
Silt and Clay	=	Smaller than No. 200 (0.075 mm)			
<u>% by Weight</u>			ESTIMATED ¹ PERCENTAGE		
<u>Modifier</u>					
<u>% by Weight</u>					
<u>Modifier</u>					
<1	=	Subtrace	15 to 25	=	Little
1 to <5	=	Trace	30 to 45	=	Some
5 to 10	=	Few	>50	=	Mostly
<u>Dry</u>			MOISTURE CONTENT		
<u>Slightly Moist</u>					
<u>Moist</u>					
<u>Very Moist</u>					
<u>Wet</u>					
<u>Non-Cohesive or Coarse-Grained Soils</u>			RELATIVE DENSITY		
<u>Density³</u>					
<u>SPT² Blows/Foot</u>					
<u>Penetration with 1/2" Diameter Rod</u>					
Very Loose	=	0 to 4		≥ 2'	
Loose	=	5 to 10		1' to 2'	
Medium Dense	=	11 to 30		3" to 1'	
Dense	=	31 to 50		1" to 3"	
Very Dense	=	> 50		< 1"	
<u>Cohesive or Fine-Grained Soils</u>				CONSISTENCY	
<u>Consistency³</u>					
<u>SPT² Blows/Foot</u>					
<u>Manual Test</u>					
Very Soft	=	0 to 1	Penetrated >1" easily by thumb. Extrudes between thumb & fingers.		
Soft	=	2 to 4	Penetrated 1/4" to 1" easily by thumb. Easily molded.		
Medium Stiff	=	5 to 8	Penetrated >1/4" with effort by thumb. Molded with strong pressure.		
Stiff	=	9 to 15	Indented ~1/4" with effort by thumb.		
Very Stiff	=	16 to 30	Indented easily by thumbnail.		
Hard	=	> 30	Indented with difficulty by thumbnail.		
<u>Observed and Distinct</u>			GEOLOGIC CONTACTS		
<u>Observed and Gradual</u>					
<u>Inferred</u>					
			Exploration Log Key		

HERS Industrial Park - 140252

Project Address & Site Specific Location

17600 147th Street SE PMB 222, Monroe, WA 98275, Unknown

Environmental Exploration Log

Coordinates

NA

Exploration Number

AB-10

Contractor

Holt

Equipment

Direct push rig

Sampling Method

Grab

Ground Surface Elev.

100' (est)

Operator

Exploration Method(s)

Direct push

Work Start/Completion Dates

4/28/2021

Top of Casing Elev.

NA

Depth to Water (Below GS)

No Water Encountered

Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
							ASPHALT; with base coarse	
							No recovery	
5	95	Backfilled with 3/8" bentonite chips			PID=0.0		SILT WITH SAND (ML); very moist, gray; fine to medium sand; low plasticity fines	5
					PID=0.0			
					PID=0.0			
					PID=0.0		SILTY SAND WITH GRAVEL (SM); very moist, brown; fine to medium sand; fine, subrounded gravel; low plasticity fines	
10	90				PID=0.0			10
					PID=0.0		Becomes wet; sand becomes fine to coarse	
					PID=0.0			
					PID=0.0 Sheen=No sheen		SANDY SILT WITH GRAVEL (ML); dense, moist, brown; fine to medium sand; fine to coarse, subrounded to subangular gravel; low plasticity fines	
					PID=0.0			
15	85				PID=0.0			15
					PID=0.0 Sheen=No sheen			
							Bottom of exploration at 17 ft. bgs.	

Legend

No Soil Sample Recovery

Continuous core 1.85" ID

Grab sample

Water Level

No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: DRB

Approved by:

Exploration Log

AB-10

Sheet 1 of 1

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINT\PROJECTS\140252 - HERS INDUSTRIAL PARK.GPJ May 13, 2021

Review Stage: DRAFT Rev.0

**HERS Industrial Park - 140252****Environmental Exploration Log**

Project Address & Site Specific Location

Coordinates

Exploration Number

17600 147th Street SE PMB 222, Monroe, WA 98275, Unknown

NA

AB-5

Contractor

Equipment

Sampling Method

Ground Surface Elev.

Holt

Direct push rig

Grab

100' (est)

Operator

Exploration Method(s)

Work Start/Completion Dates

Top of Casing Elev.

Depth to Water (Below GS)

Direct push

4/28/2021

NA

No Water Encountered

Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
						ASPHALT	ASPHALT; asphalt	
					PID=0.0 Sheen=No sheen		SILT WITH SAND (ML); moist, dark brown; fine sand; fine, subangular gravel; low plasticity fines; woody debris present; no odor	
					PID=0.0			
					PID=0.1 Sheen=No sheen			
					PID=0.1		SILT WITH SAND (ML); very moist, gray; fine to medium sand; low plasticity fines; no odor	
5	95				PID=0.0 Sheen=No sheen			5
					PID=0.1			
					PID=0.0 Sheen=No sheen		SILTY SAND WITH GRAVEL (SM); very moist, brown; fine to medium sand; fine to coarse, subrounded to subangular gravel; low plasticity fines	
					PID=0.0			
					PID=0.0 Sheen=No sheen		Becomes gray	
10	90			AB-05-9	PID=0.0		SANDY SILT WITH GRAVEL (ML); very moist, brown; fine sand; fine to coarse, subrounded to subangular gravel; low plasticity fines	10
					PID=0.0			
					PID=0.1			
					PID=0.0			
					PID=0.1			
					PID=0.0			
15	85			AB-05-14	PID=0.6 Sheen=No sheen		SILTY SAND WITH GRAVEL (SM); wet, brown; fine to medium sand; fine to coarse, subrounded gravel	15
					PID=0.1		SILTY GRAVEL WITH SAND (GM); wet, brown; fine to medium sand; fine, subrounded gravel	
							SILTY SAND WITH GRAVEL (SM); wet, brown; fine to coarse sand; fine to coarse, subrounded gravel	
				AB-05-16.5	PID=0.5 Sheen=No sheen		SANDY SILT WITH GRAVEL (ML); moist, gray	
							Bottom of exploration at 17 ft. bgs.	

Legend

- No Soil Sample Recovery
- Continuous core 1.85" ID
- Grab sample

Water Level

No Water Encountered

See Exploration Log Key for explanation of symbols

 Logged by: DRB
 Approved by:

Exploration Log
AB-5

Sheet 1 of 1



HERS Industrial Park - 140252

Environmental Exploration Log

Project Address & Site Specific Location

17600 147th Street SE PMB 222, Monroe, WA 98275, Unknown

Coordinates

NA

Exploration Number

AB-6

Contractor

Holt

Operator

Equipment

Direct push rig

Exploration Method(s)

Direct push

Sampling Method

Grab

Work Start/Completion Dates

4/28/2021

Ground Surface Elev.

100' (est)

Top of Casing Elev.

NA

Depth to Water (Below GS)

No Water Encountered

Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
							ASPHALT; with base coarse	
					PID=0.0 Sheen=No sheen		SILT WITH SAND (ML); moist, dark brown; fine sand; fine to coarse, sunrounded to subangular gravel; low plasticity fines; woody debris present	
					PID=0.0			
					PID=0.0 Sheen=No sheen		SILT WITH SAND (ML); very moist, gray; fine to medium sand; low plasticity fines	
5	95				PID=0.0			5
					PID=0.0 Sheen=No sheen		SILTY SAND WITH GRAVEL (SM); very moist, brown; fine to medium sand; fine to coarse, subrounded gravel; low plasticity fines	
10	90				PID=0.6 Sheen=No sheen		Becomes wet	10
				AB-06-11			SANDY SILT WITH GRAVEL (ML); very moist, brown; fine to medium sand; fine to coarse, subrounded to subangular gravel	
					PID=0.2 Sheen=No sheen		SILTY SAND WITH GRAVEL (SM); very moist, brown	
				AB-06-14			SILTY GRAVEL WITH SAND (GM); very moist, brown	
15	85						Bottom of exploration at 14 ft. bgs.	15

Legend

- No Soil Sample Recovery
- Continuous core 1.85" ID
- Grab sample

Water Level

No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: DRB
Approved by:

Exploration Log
AB-6

Sheet 1 of 1

**HERS Industrial Park - 140252****Environmental Exploration Log**

Project Address & Site Specific Location

17600 147th Street SE PMB 222, Monroe, WA 98275, Unknown

Coordinates

NA

Exploration Number

AB-7

Contractor

Holt

Equipment

Direct push rig

Sampling Method

Grab

Ground Surface Elev.

100' (est)

Operator

Exploration Method(s)

Direct push

Work Start/Completion Dates

4/28/2021

Top of Casing Elev.

NA

Depth to Water (Below GS)

No Water Encountered

Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
							ASPHALT; with base coarse	
					PID=0.0 Sheen=No sheen		SILT WITH SAND (ML); moist, dark brown; fine sand; fine to coarse, sunrounded to subangular gravel; low plasticity fines; woody debris present	
					PID=0.0 Sheen=No sheen		SANDY SILT (ML); very moist, gray; fine to medium sand; low plasticity fines	
5	95				PID=0.0 Sheen=No sheen			5
					PID=0.0 Sheen=No sheen		SILTY SAND WITH GRAVEL (SM); very moist, brown; fine to medium sand; fine, subrounded gravel; low plasticity fines	
10	90				PID=0.0 Sheen=No sheen			10
				AB-07-11	PID=0.1 Sheen=No sheen		SANDY SILT WITH GRAVEL (ML); very moist, brown	
					PID=0.0 Sheen=No sheen		SILTY SAND WITH GRAVEL (SM); very moist, brown	
				AB-07-14	PID=0.0 Sheen=No sheen		SILTY GRAVEL WITH SAND (GM); very moist, brown	
15	85						Bottom of exploration at 14.5 ft. bgs.	15

Legend

- Continuous core 1.85" ID
- Grab sample

Water Level

No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: DRB
Approved by:**Exploration Log**
AB-7

Sheet 1 of 1

**HERS Industrial Park - 140252****Environmental Exploration Log**

Project Address & Site Specific Location

17600 147th Street SE PMB 222, Monroe, WA 98275, Unknown

Coordinates

NA

Exploration Number

AB-8

Contractor

Holt

Equipment

Direct push rig

Sampling Method

Grab

Ground Surface Elev.

100' (est)

Operator

Exploration Method(s)

Direct push

Work Start/Completion Dates

4/28/2021

Top of Casing Elev.

NA

Depth to Water (Below GS)

No Water Encountered

Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
							ASPHALT; with base coarse	
					PID=0.0		SILT WITH SAND (ML); moist, dark brown; fine sand; fine to coarse, subrounded to subangular gravel; low plasticity fines; woody debris present	
					PID=0.0		SILT WITH SAND (ML); very moist, gray; fine to medium sand; low plasticity fines	
5	95	Backfilled with 3/8" hydrated bentonite chips			PID=0.0			5
					PID=0.0		SILTY SAND WITH GRAVEL (SM); very moist, brown; fine to medium sand; fine, subrounded gravel; low plasticity fines	
					PID=0.0		Becomes wet	
10	90			AB-08-10.5	PID=0.3		SANDY SILT WITH GRAVEL (ML); dense, moist, brown	10
					PID=0.0		SILTY SAND WITH GRAVEL (SM); moist, brown	
				AB-08-12.5	PID=0.2		SANDY SILT WITH GRAVEL (ML); moist, brown	
							Bottom of exploration at 13 ft. bgs.	
15	85							15

Legend

- Continuous core 1.85" ID
- Grab sample

Water Level

No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: DRB
Approved by:**Exploration Log**
AB-8

Sheet 1 of 1

**HERS Industrial Park - 140252****Environmental Exploration Log**

Project Address & Site Specific Location

Coordinates

Exploration Number

17600 147th Street SE PMB 222, Monroe, WA 98275, Unknown

NA

AB-9

Contractor

Equipment

Sampling Method

Ground Surface Elev.

Holt

Direct push rig

Grab

100' (est)

Operator

Exploration Method(s)

Work Start/Completion Dates

Top of Casing Elev.

Depth to Water (Below GS)

Direct push

4/28/2021

NA

No Water Encountered

Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
							ASPHALT; with base coarse	
					PID=0.0		SILT WITH SAND (ML); moist, dark brown; fine sand; fine to coarse, subrounded to subangular gravel; low plasticity fines; woody debris present	
					PID=0.0		SILT WITH SAND (ML); very moist, gray; fine to medium sand; low plasticity fines	
5	95	Backfilled with 3/8" hydrated bentonite chips	AB-09-5		PID=0.0 Sheen=No sheen			5
					PID=0.0		SILTY SAND WITH GRAVEL (SM); very moist, brown; fine to medium sand; fine, subrounded gravel; low plasticity fines	
					PID=0.0		Becomes wet	
10	90		AB-09-10.5		PID=0.3 Sheen=No sheen		SANDY SILT WITH GRAVEL (ML); moist, brown	10
							SILTY SAND WITH GRAVEL (SM); moist, brown	
							SANDY SILT WITH GRAVEL (ML); moist, brown	
15	85		AB-09-13.5		PID=7.6 Sheen=No sheen		Bottom of exploration at 14 ft. bgs.	15

Legend

- Continuous core 1.85" ID
- Grab sample

Water Level

No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: DRB
Approved by:

Exploration Log
AB-9

Sheet 1 of 1

**HERS Industrial Park - 140252****Environmental Exploration Log**

Project Address & Site Specific Location

17600 147th Street SE PMB 222, Monroe, WA 98275, Unknown

Coordinates

NA

Exploration Number

MW-23

Contractor

Holt

Equipment

Direct push rig

Sampling Method

Grab

Ground Surface Elev.

100' (est)

Operator

Exploration Method(s)

Direct push

Work Start/Completion Dates

4/21/2021

Top of Casing Elev.

NA

Depth to Water (Below GS)

11.5' (ATD)

Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
		Flush monument in concrete					ASPHALT; with base course	
		3/8" hydrated bentonite chips			PID=0.0 Sheen=No Sheen		SILTY SAND WITH GRAVEL (SM); loose, moist, brown; fine to medium sand; fine to coarse, subangular to subrounded gravel; low plasticity fines; some cobbles	
					PID=0.0		SANDY SILT WITH GRAVEL (ML); dense, moist, brown; fine to medium sand; fine to coarse, subrounded to subangular gravel; low plasticity fines; no odor	
					PID=0.1 Sheen=No Sheen			
					PID=0.1			
5	95				PID=0.1 Sheen=No Sheen			5
					PID=0.0			
					PID=0.0 Sheen=No Sheen			
					PID=0.1		SILTY SAND WITH GRAVEL (SM); dense, moist, brown; fine to medium sand; fine to coarse, subrounded gravel; low plasticity fines; no odor	
					PID=0.0 Sheen=No Sheen			
10	90	10" slotted screen in 12/20 silica sand			PID=0.0			10
		4/21/2021		MW-23-10.5	PID=0.2 Sheen=No Sheen		SANDY SILT WITH GRAVEL (ML); moist, brown; fine to medium sand; fine, subrounded gravel; low plasticity fines	
				MW-23-12	PID=1.2 Sheen=No sheen		SILTY SAND WITH GRAVEL (SM); wet, brown; fine to medium sand; fine to coarse, subrounded gravel; low plasticity fines	
				MW-23-13	PID=0.3 Sheen=No Sheen		SANDY SILT WITH GRAVEL (ML); dense, moist, gray; fine sand; fine to coarse, subrounded to subangular gravel; low plasticity fines	
					PID=0.0			
15	85				PID=0.0 Sheen=No Sheen			15
							Bottom of exploration at 15 ft. bgs.	

Legend

Continuous core 1.85" ID

Water Level

Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: DRB
Approved by:**Exploration Log**
MW-23

Sheet 1 of 1