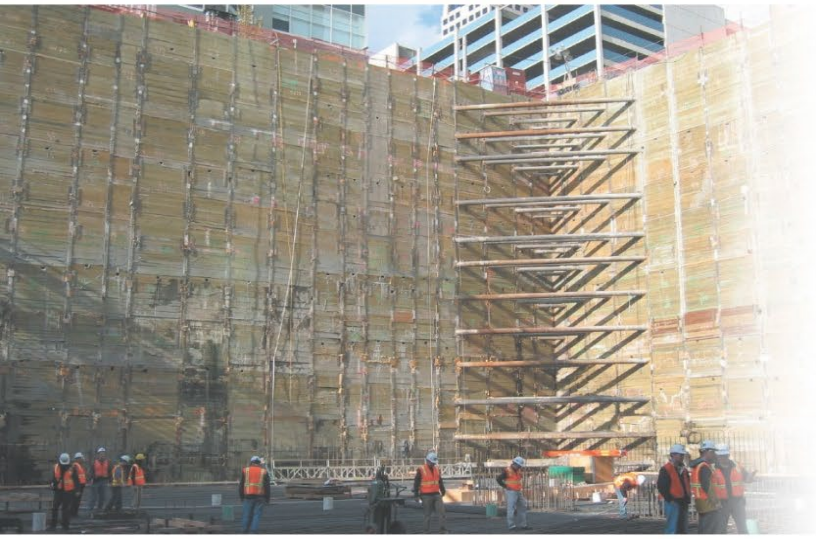

CONTAMINATED MEDIA MANAGEMENT PLAN
ON
SEATTLE DOT MERCER PARCELS SITE
800 MERCER STREET
SEATTLE, WASHINGTON

by
Haley & Aldrich, Inc.
Seattle, Washington

for
800 Mercer, LLC
Seattle, Washington

File No. 0202738-100 (19409-06)
September 2023

HALEY ALDRICH

SIGNATURE PAGE FOR

CONTAMINATED MEDIA MANAGEMENT PLAN ON
SEATTLE DOT MERCER PARCELS SITE
800 MERCER STREET
SEATTLE, WASHINGTON

PREPARED FOR
800 MERCER, LLC
SEATTLE, WASHINGTON

PREPARED BY:

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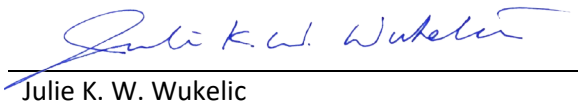

Julie K. W. Wukelic
Senior Principal Engineer
Haley & Aldrich, Inc.

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5	Stormwater and Dewatering Treatment System Schematic
6	Administrative Order No. 21321

List of Abbreviations

Abbreviation	Definition
µg/L	Microgram per liter
bgs	Below ground surface
BMP	Best management practice
CAP	Cleanup Action Plan
CESF	Chemically enhanced sand filtration
CFR	Code of Federal Regulations
CID	Contained-In Determination
cis-1,2-DCE	cis-1,2-dichloroethene
CMMP	Contaminated Media Management Plan
COC	Constituent of concern
cPAH	Carcinogenic Polycyclic Aromatic Hydrocarbon
CSID	Cleanup Site ID
CSO	Combined Sewer Overflow
CSWGP	Construction Stormwater General Permit
CUL	Cleanup Level
CVOC	Chlorinated Volatile Organic Compound
DOSH	Division of Occupational Safety and Health
DRO	Diesel-range organics
Ecology	Washington State Department of Ecology
EIN	EPA Identification Number
EPA	Environmental Protection Agency
eV	Electron volt
gpm	Gallons per minute
GAC	Granular activated carbon
GRO	Gasoline-range organics
HASP	Health and Safety Plan
HO	Heavy oil-range organics
HS	Heavy sheen
HWTR	Hazardous Waste and Toxics Reduction
LDR	Land Disposal Restrictions
mg/kg	Milligram per kilogram
mg/L	Milligram per liter
MS	Moderate sheen
MTCA	Model Toxics Control Act
NS	No sheen
OER	Owner's environmental representative
PCE	Tetrachloroethene
PID	Photoionization detector
PPE	Personal protective equipment
ppm	Parts per million
PSCAA	Puget Sound Clean Air Agency
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
ROW	Right-of-way

SAP/QAPP	Sampling and Analysis Plan/Quality Assurance Project Plan
SFD	Seattle Fire Department
SL	Screening level
SS	Slight sheen
SWPPP	Stormwater Pollution Prevention Plan
TCE	Trichloroethene
TCLP	Toxicity Characteristic Leaching Procedure
TSDF	Treatment, storage, and disposal facility
UST	Underground storage tank
UTS	Universal Treatment Standard
VC	Vinyl chloride
VOC	Volatile organic carbon
WAC	Washington Administrative Code
WPQ	Waste Profile Questionnaire
WQP	Water Quality Program

1. Introduction

Haley & Aldrich, Inc. (Haley & Aldrich) has prepared this Contaminated Media Management Plan (CMMP) on behalf of 800 Mercer, LLC for the Seattle DOT Mercer Parcels site (Site; Cleanup Site ID [CSID] No. 14784), which is primarily located at 800 Mercer Street in Seattle, Washington (Property). The Property is shown on Figure 1-1.

The purpose of this CMMP is to document the handling and disposal protocols for impacted soil and groundwater during redevelopment at the Property. The CMMP also provides information on the location and sources and types of impacted and contaminated media present on the Property.

The Property is planned to be redeveloped with two 13-story towers – one on the western half and one on the eastern half of the Property – separated above grade by the vacated Eighth Avenue North right-of-way (ROW). The two separate towers will share a below-grade parking garage that will underlie the Property footprint, aside from the King County Combined Sewer Overflow (CSO) infrastructure in the north-central part of the Property and small areas in the northwest corner and along the southern Property boundary. Four levels of below-grade parking are planned, resulting in a uniform lowest finished floor elevation of approximately 10.75 feet[1] (approximately 23 to 48 feet below ground surface [bgs]). The foundation for the buildings and garage will consist of a 3- to 8-foot-thick concrete mat, resulting in a bottom of excavation ranging from elevation 1.75 to 7.75 feet. A vapor barrier shall be installed beneath the slab and along the below-grade walls of the new building structures at the Property per the Cleanup Action Plan (CAP, Washington State Department [Ecology], 2022) and the Engineering Design Report (Haley & Aldrich, 2023). Redevelopment is expected to begin in approximately 2024.

Contamination on the Property includes constituents of concern (COCs) associated with the Site, and hazardous substances at concentrations exceeding screening levels (SLs) originating from other sites. COCs associated with the Site include gasoline-range organics (GRO) and lead in soil, and GRO, diesel-range organics (DRO), and benzene in groundwater. The GRO, DRO, and benzene impacts are attributed to historical fuel releases from a former gas and auto repair station. The GRO soil impacts are generally located in the northwest quadrant of the Property at depths of up to approximately 25 feet bgs, above the water table. Impacts and contaminants on and beneath the Property originating from other sites include carcinogenic polycyclic aromatic hydrocarbons (cPAHs) and arsenic in soil from the Broad Street Alignment Contaminated Fill site (Broad Street Fill Site; CSID No. 15446), and chlorinated volatile organic compounds (CVOCs) in saturated soil and groundwater from the American Linen Supply Co Dexter Ave site (American Linen Site; CSID No. 12004). The CVOC soil impacts are located at or below the average water table elevation and are not commingled with other COC soil impacts.

The CAP (Ecology, 2022) contains additional information on the concentrations and the nature and extent of COCs associated with the Site, as well as the nature and extent of hazardous substances on and beneath the Property originating from other sites.

[1] All elevations in this CMMP are referenced to the North American Vertical Datum of 1988 (NAVD88).

2. Impacted and Contaminated Soil Management

2.1 IMPACTED AND CONTAMINATED SOIL

Site COCs (GRO and lead). GRO concentrations in soil that exceed the cleanup level (CUL) are located in a limited area within the northwest corner of the Property (Figure 2-1). These impacts are present at depths ranging from 5 to 25 feet bgs, corresponding to elevations between approximately 48.7 to 29.8 feet. Detections of lead in soil above the CUL are present in two areas of the Property: an exceedance of lead in fill material in the north-central portion of the Property at a depth of 10 feet bgs corresponding to an elevation of approximately 40.5 feet; and an exceedance of lead in native material near the northeast corner of the Property at a depth of 22 feet bgs corresponding to an elevation of approximately 17.1 feet (Figure 2-2).

Non-Site related hazardous substances (cPAHs and arsenic). cPAH and arsenic concentrations in soil that exceed the Remedial Investigation (RI, Haley & Aldrich, 2022) SLs are attributed to contaminated fill that was placed within the Broad Street alignment that was located on the Property between 1958 to 2012, and are generally located within that former roadway. cPAHs in soil at concentrations that exceed the RI SLs are in two areas of the Property: in the southwest corner of the Property; and in the east-central area of the Property (Figure 2-3). In the southwest corner of the Property, cPAH exceedances are present at depths ranging from 7.5 to 15 feet bgs (approximate elevations 51 to 44 feet). In the east-central area of the Property, two cPAH exceedances are present at 5 feet bgs and 10 feet bgs, both of which correspond to an approximate elevation of 37 feet. Arsenic concentrations in soil that exceed the RI SL are located in the central and southwest areas of the Property (Figure 2-4). These exceedances are present in the fill material at depths ranging from 5 to 25 feet bgs (approximate elevations 54 to 34 feet). One arsenic exceedance is also located on the eastern side of the Property, at 28 feet bgs (elevation 10 feet).

Non-Site related hazardous substances (CVOCs). CVOC detections in deeper saturated soil on the Property are attributed to releases from historical laundry and dry-cleaning operations on the American Linen Site, originating at 700 Dexter Avenue North. CVOC detections in saturated soil from the American Linen Site include, but are not limited to, tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), and vinyl chloride (VC). These compounds have been detected in saturated soil at various locations on the Property at depths between approximately 25 and 50 feet bgs, corresponding to elevations between approximately 23 and -12 feet (Figure 2-5). CVOCs were not detected in shallow soils above the water table on the Property.

2.1.1 Supplemental Disposal Pre-Characterization Investigation

Haley & Aldrich conducted a Supplemental Disposal Pre-Characterization Investigation on the Property in May and June 2022 to sample soils below the water table to support off-site disposal under a future contained-in determination (Section 2.2.4) and minimize delineation sampling of CVOCs during construction. Twenty borings were advanced (MBB-27 through MBB-46) with a sonic or hollow-stem auger drill rig, one location was not sampled due to refusal (MMB-34), and 64 soil samples (includes four duplicate samples collected for quality control purposes) were collected and submitted for chemical analysis from 19 of the borings. Soil samples were collected from approximately 19 to 55 feet bgs, corresponding to elevations ranging from 27.5 to 2.5 feet, and analyzed for CVOCs. Results include detections of PCE in 20 samples ranging from 0.03 to 4.5 milligrams per kilogram (mg/kg), TCE in

17 samples ranging from 0.023 to 0.53 mg/kg, cis-1,2-DCE in 12 samples ranging from 0.058 to 1.3 mg/kg, and VC in four samples ranging from 0.054 to 0.53 mg/kg. No groundwater samples were collected from these borings.

Boring locations from the Supplemental Disposal Pre-Characterization Investigation are shown on Figure 2-6 and soil sample analytical results are presented in Table 2-1 attached. Boring logs are provided in Attachment 1. Laboratory analytical reports and a review of chemical data quality are provided in Attachment 2.

2.2 SOIL DISPOSAL CATEGORIES

Several soil disposal categories have been defined for guiding the soil management procedures during Property development and implementation of the cleanup action. The five main soil disposal categories are summarized below.

2.2.1 Class I Soil

Class I soil is generally defined as non-impacted fill or native soil having no evidence of environmental impacts visually or from field screening and low (e.g., below background) or no detections above laboratory reporting limits. Class I soil does not contain construction debris, extensive organics, or wood waste. Clean disposal facilities have site-specific criteria and permit requirements that must be met and that may be lower than cleanup or background levels. Class I soil shall be disposed of at an owner-approved facility or site. Cedar Mountain was selected as an example Class I soil disposal facility to create the soil classification plans (Figures 2-7A through 2-7K), and its acceptance criteria are summarized in Table 2-2.

Table 2-2. Class I Soil Disposal Facility Acceptance Criteria

Compounds	Cedar Mountain Limit in mg/kg
GRO	15 (benzene present)/30 (benzene not present)
Lead	36
cPAHs	Not detected at or above laboratory reporting limits
Arsenic	9
Heavy oil-range organics (HO)[1]	200
Benzene[2]	0.015

Notes:

1. *Although not detected at concentrations exceeding the RI SL, HO was detected in soil on the Property at concentrations requiring disposal as Class II or III.*
2. *Although not detected at concentrations exceeding the SL in the RI, benzene was detected in soil on the Property during subsequent investigations at concentrations requiring disposal as Class III.*

2.2.2 Class II Soil

Class II soil is generally defined as marginally impacted fill or native soil with low concentrations of constituents below Class II disposal facility limits, but above published regional metals background concentrations or with visual or olfactory evidence of contaminants. Disposal facilities that accept Class II soil have specific permit requirements and acceptance criteria, though some may allow minor visual or olfactory evidence of contaminants with laboratory result backup. Potential Class II disposal facilities identified for the project are Heidelberg Materials and Iron Mountain and their acceptance criteria are

summarized in Table 2-3. Heidelberg Materials was selected as an example Class II soil disposal facility to create the soil classification plans (Figures 2-7A through 2-7K).

Table 2-3. Class II Soil Disposal Facility Acceptance Criteria

Compounds	Heidelberg Materials Limit in mg/kg	Iron Mountain Limit in mg/kg
GRO	100	100
Lead	250	250
cPAHs	0.1	0.1
Arsenic	20	20
HO[1]	460	2,000
Benzene[2]	0.03	0.03

Notes:

1. *Although not detected at concentrations exceeding the RI SL, HO was detected in soil on the Property at concentrations requiring disposal as Class II or III.*
2. *Although not detected at concentrations exceeding the SL in the RI, benzene was detected in soil on the Property during subsequent investigations at concentrations requiring disposal as Class III.*

2.2.3 Class III Soil

Class III soil is generally defined as impacted fill or native soil with concentrations of constituents exceeding Class II disposal facility criteria, but below dangerous waste criteria and may exhibit evidence of contamination (e.g., odors, sheen, staining). Class III soil can be disposed of at a permitted Subtitle D landfill or thermal desorption facility. Potential Class III disposal facilities identified for the project are Heidelberg Materials, Iron Mountain, Waste Management, and Republic Services and their acceptance criteria are summarized in Table 2-4. Waste Management was selected as an example Class III soil disposal facility to create the soil classification plans (Figures 2-7A through 2-7K).

Table 2-4. Class III Soil Disposal Facility Acceptance Criteria

Compounds	Heidelberg Materials Limit in mg/kg	Iron Mountain Limit in mg/kg	Waste Management[1] Limit in mg/kg	Republic Services Limit in mg/kg
GRO	15,000	15,000	2,000	N/A
Lead	250	250	100[2]	100[2]
cPAHs	5	0.1	10,000	N/A
Arsenic	20	20	100[3]	100[3]
HO[4]	20,000	20,000	29,100	N/A
Benzene[5]	1	0.03	10[6]	10[6]

Notes:

1. *Assumes Duwamish Reload Facility.*
2. *Soil samples with total lead concentrations above 100 mg/kg will be analyzed for Toxicity Characteristic Leaching Procedure (TCLP). If the TCLP analysis is less than 5 milligrams per liter (mg/L), the soil is acceptable for disposal as Class III regardless of the total lead concentration. If TCLP analysis is greater than 5 mg/L, the soil will be disposed of as Class V.*
3. *Soil samples with total arsenic concentrations above 100 mg/kg will be analyzed for TCLP. If the TCLP analysis is less than 5 mg/L, the soil is acceptable for disposal as Class III regardless of the total arsenic concentration. If the TCLP analysis is greater than 5 mg/L, the soil will be disposed of as Class V. The maximum arsenic concentration detected in soil at the Property is 25.6 mg/kg.*
4. *Although not detected at concentrations exceeding the RI SL, HO was detected in soil on the Property at concentrations requiring disposal as Class II or III.*
5. *Although not detected at concentrations exceeding the SL in the RI, benzene was detected in soil on the Property during subsequent investigations at concentrations requiring disposal as Class III.*
6. *Soil samples with benzene concentrations above 10 mg/kg will be analyzed for TCLP. If the TCLP analysis is less than 0.5 mg/L, the soil is acceptable for disposal as Class III regardless of the benzene concentration. If the TCLP analysis is greater than 0.5 mg/L, the soil will be disposed of as Class V. The maximum benzene concentration detected in soil at the Property is 0.08 mg/kg.*

2.2.4 Class IV Soil (Contained-In Soil)

Contained-in soil is typically defined as soil with detectable concentrations of a Resource Conservation and Recovery Act (RCRA) "listed" waste from a known source (i.e., CVOCs on the Property from former off-site dry-cleaning operations) that meets the contained-in determination (CID) requirements. Subject to Ecology approval, the site-specific CID requirements are based on the Subtitle D landfill maximum allowable levels or the Model Toxics Control Act (MTCA) Method B CULs for direct contact if no limit for Subtitle D landfill (Table 2-5).

Table 2-5. Contained-In Determination Maximum Allowable Site-Specific Criteria

Compounds	Maximum Allowable Level (mg/kg)	Source
PCE	14	Subtitle D Landfill
TCE	10	Subtitle D Landfill
cis-1,2-DCE	160	MTCA Method B CUL for Direct Contact
VC	4	Subtitle D Landfill

Notes:

Subtitle D Landfill limit concentrations are based on the "20 times rule."

Maximum allowable limits based on the Subtitle D landfill limit are also below MTCA screening level for direct contact for adult exposure, which is applicable to workers disposing of CID soil.

Ecology approves a CID request after they determine that the soil meets contained-in criteria; and therefore, this soil is planned to be disposed of as non-hazardous solid waste at a permitted landfill. Potential contained-in soil disposal facilities include Waste Management's solid waste landfill in Eastern Washington and Republic Services' transfer facility in Seattle, Washington.

2.2.5 Class V Soil (Dangerous Waste)

Dangerous waste soil contains detectable concentrations of a RCRA "listed" waste from a known source that exceeds CID requirements. Data collected to date from the Property indicates there is no soil contamination confirmed to be in the Dangerous Waste category, nor is any expected. However, if any soil is discovered and confirmed to contain dangerous waste concentrations and/or characteristics, the material will be segregated, managed, and disposed of at an appropriate permitted facility. If Class V soil is encountered during construction, soil concentrations will be evaluated under the Land Disposal Restrictions (LDR) of 40 Code of Federal Regulations (CFR) 268 and compared to ten times the Universal Treatment Standard (UTS). Soil with concentrations less than ten times the UTS does not require alternative treatment under 40 CFR 268.49 and may be disposed of directly at an appropriate permitted Subtitle C landfill. Soil with concentrations above ten times the UTS requires treatment prior to landfill disposal.

2.3 SPOILS FROM SHORING ELEMENTS, DEWATERING WELLS, AND DRILLED SHAFTS

Spoils from shoring elements (soldier and secant piles), dewatering wells, and drilled shafts will be managed differently, depending on their proximity to known areas of impacts and contamination on the Property (Figure 2-6).

- Spoils from shoring elements, dewatering wells, and drilled shafts located within CID areas will be disposed of off site as CID (Class IV).

- Spoils from shoring elements, dewatering wells, and drilled shafts located outside the CID areas will be disposed of based on the associated soil classification.
- If there is field screening evidence of potential impacts (Section 2.8) or suspected contamination of COCs or other hazardous substances during installation of shoring elements, dewatering wells, and drilled shafts which are outside the known impacted areas, the spoils are planned to be stockpiled or placed in plastic-lined roll-off bins and sampled and analyzed for characterization purposes (in accordance with the Ecology-approved Sampling and Analysis Plan/Quality Assurance Project Plan [SAP/QAPP][2]). If the soil contains detectable concentrations of CVOCs above the laboratory reporting limits that do not exceed the contained-in criteria, it shall be segregated as contained-in soil, which will require an "add-on" contained-in approval by Ecology prior to off-site transportation to the disposal facility. If CVOCs are not detected at or above laboratory reporting limits, the soil in the stockpiles/roll-off bins shall be disposed of off site at an appropriate soil disposal facility according to the other contaminants that may be present.

2.4 MASS EXCAVATION

Following installation of the temporary support of excavation system, the mass excavation for the parking garage and mat foundation will commence. The excavation will extend laterally across the Property, with the exception of the King County CSO infrastructure in the north-central part of the Property, small areas in the northwest corner, and along the southern Property boundary (Figure 2-6). The vertical excavation extent will range from approximately elevation 7.75 to 1.75 feet (approximately 26 to 57 feet bgs). Soil excavation will generally occur in 5-foot lifts across the Property. Figures 2-7A through 2-7L present the estimated extents of soil classifications within these 5-foot lift intervals. Observations, field screening results, Ecology approval of CID soil areas, disposal facility criteria, and characterization and verification sampling and chemical analyses during excavation activities may modify the extent of soil classifications shown on the figures.

The data indicates that Class II and III soil will be encountered in localized areas in the west half of the Property, and within the former Broad Street alignment from approximately 0 to 30 feet bgs, with additional localized areas of Class II and III soil in the eastern half of the Property.

Based on the data collected to date, soil with CVOC detections (Class IV) will be encountered within soils below the water table at approximately 25 feet bgs in the northern portion of the Property, as well as other areas below the groundwater table. Where soil meets the contained-in criteria and upon approval from Ecology, the soil within known CID areas will be excavated and exported off site as contained-in to the appropriate permitted facility.

If there is field screening evidence of potential impacts (Section 2.8) or suspected contamination containing COCs or other hazardous substances during excavations outside the delineated impacted areas, the soils will be segregated, sampled, and analyzed for characterization purposes in accordance with the SAP/QAPP. If the soil contains detectable concentrations of CVOCs above the laboratory reporting limits and below the contained-in criteria, it shall be segregated as contained-in soil which will require an "add-on" contained-in approval by Ecology prior to off-site transportation to the disposal facility (Section 2.2.4). If CVOCs are not detected at or above laboratory reporting limits and reporting

[2] The SAP/QAPP is included in the Engineering Design Report (Haley & Aldrich, 2023) as Appendix D.

limits are below CID threshold criteria, the segregated soil shall be disposed of at an appropriate soil disposal facility according to the other contaminants that may be present.

Soils from areas with known non-CVOC impacts and contamination, including GRO, HO[3], cPAHs[4], and/or metals (lead and arsenic)[5], will be direct hauled to an appropriate soil disposal facility. The SAP/QAPP contains information on performance sampling locations and procedures to confirm the extent of impacted and contaminated soil has been removed. Soils suspected of contamination should not be stored or mixed with other soils.

2.5 SOIL BERM REMOVAL

A soil berm with a 2:1 horizontal to vertical slope, located in the north-central part of the Property (Figure 2-6), is planned to temporarily remain during the mass excavation due to the presence of the King County CSO infrastructure which precludes tiebacks from being installed in this area. The berm is planned to remain in place until diagonal rakers are installed and will therefore be excavated last in the excavation sequencing. Based on data collected to date, areas of the soil berm are considered contained-in and therefore characterized as Class IV. Where impacted or contaminated soil is exposed on the face of the berm during the berm excavation process, the soil will be covered with Visqueen, or another appropriate cover, to prevent wind erosion and runoff during precipitation.

2.6 SOIL STOCKPILES

Extensive pre-characterization of soil for disposal should minimize the need for stockpiling. However, it may be necessary to temporarily store soil with a potentially different classification from the surrounding area or from newly discovered unknown soil impacts. These stockpiles will be located within the limits of the excavation and be coordinated with the contractor based on construction logistics.

Soils or materials from the Property suspected of containing hazardous substances and designated for stockpiling will be excavated and separated from other soil and debris by the contractor, and will be controlled in a way that prevents mixing with non-impacted soil at the Property. Suspected hazardous materials will be segregated based on their compatibility with other suspected hazardous materials and their physical properties using the criteria provided in Section 3.2, field screening instruments (Section 2.7), and results of chemical analyses provided by the owner's environmental representative (OER).

The soil shall be stockpiled on plastic sheeting (e.g., Visqueen) in piles that do not spill over the edge of the plastic. Alternatively, the contractor may store stockpiles without plastic sheeting underneath as approved by the OER, but may require overexcavating the stockpile approximately 6 to 12 inches when moving or exporting the material. The stockpiles shall be marked by the OER with wooden stakes or other comparable methods using a unique numbering system, or through other means to reference the

[3] Although not detected at concentrations exceeding the RI SL, HO was detected in soil on the Property at concentrations requiring disposal as Class II or III.
[4] The total cPAH concentration will be determined by summing the concentration percentages of each PAH compound, in accordance with WAC 173-303-100(6)(c).
[5] Disposal of waste soils containing arsenic and/or lead will comply with WAC 173-303-90(8)(c).

point of origin of the material on the Property. The contractor shall maintain stockpile stakes until the stockpiles are removed from the Property.

The contactor shall cover all soil stockpiles with plastic sheeting (e.g., Visqueen) or other means as necessary to prevent wind erosion and runoff during precipitation. Any free liquids leaching from soil stockpiles shall be contained with sorbent berms and absorbed by applying granular sorbent or absorbent pads or booms. No vehicular traffic shall be allowed on or directly adjacent to soil stockpiles, as traffic might cause erosion of the stockpiles.

If necessary, the contractor (in conjunction with the transporter designated to remove the soil from the Property) may identify an interim off-property storage location for temporary storage of soil stockpiles awaiting characterization or designated as Class II and III before disposal. Stockpiling protocols for interim off-property locations are the same as those for on-property stockpiling. The contractor and transporter shall maintain the numbered stockpile stakes at the interim storage locations until the soil is transported off-property for appropriate disposal. Interim off-property storage locations shall be approved in writing by the OER and owner before the materials are transported to an off-property location. The contractor and transporter shall continue to track stockpiles and associated truck trip numbers during temporary off-property storage. Stockpiles shall not be mixed in common truckloads unless approved in advance by the OER.

Suspected hazardous material from the excavation and stockpiles will not be removed from the Property or interim off-property storage location for final disposition (i.e., disposal) until samples are collected and chemical analyses are completed to characterize hazardous substances and concentrations. The decision to move impacted or contaminated material from the Property to an off-property disposal facility shall be submitted for approval in a written memorandum from the contractor to the OER and owner. Samples shall be collected from soil stockpiles and submitted to a laboratory for chemical analyses to characterize the soil for appropriate off-property disposal in accordance with the SAP/QAPP.

2.7 ODOR AND DUST CONTROL

If nuisance odors are detected during impacted and contaminated soil excavation activities, the contractor shall take measures to control odors. These measures may include but are not limited to:

- Sprinkle the site with water as needed to minimize odor.
- Cover exposed areas with nuisance odors with plastic sheeting at the end of each day and when excavation activities are not being performed.
- Cover stockpiles with nuisance odors with plastic sheeting when not in use.

As noted in the Stormwater Pollution Prevention Plan (SWPPP; Clear Water Services, 2023), dust controls will be implemented as required throughout the duration of the project, using best management practices (BMP) C140. These BMPs are noted in the Stormwater Management Manual for Western Washington (Ecology, 2019), and may include but are not limited to:

- Limit dust generation by clearing only those areas where immediate activity will take place, leaving the remaining area(s) in the original condition. Maintain the original ground cover as long as practical.
- Sprinkle the site with water until the surface is wet. Repeat as needed.
- Use vacuum street sweepers.

- Remove mud and other dirt promptly so it does not dry and then turn into dust.
- Lower speed limits. High vehicle speed increases the amount of dust stirred up from unpaved roads and lots.

2.8 FIELD SCREENING

Known and suspected impacted soil shall be field screened for contamination through physical observation, by using a photoionization detector (PID), and by performing sheen tests. The effectiveness of field screening varies with temperature, moisture content, organic content, soil type, and age of constituent(s) release. These field screening techniques are discussed below.

2.8.1 Observation

For soil with relatively high concentrations, there will likely be observable indicators of contamination. Soil may be stained or discolored so that it is visibly noticeable compared to surrounding soils. Sheens may also cause the soil to have a shiny or glossy appearance. Odors may also be present ranging from very faint to strong, and from sweet smelling to pungent. Odors are usually detected inadvertently during field activities and are usually noticeably different than typical odors in the air.

2.8.2 PID Headspace Measurements

Headspace vapor measurements shall be collected from soil samples using a PID with 10.4 electron volt (eV) lamp to assess the possible presence of VOCs. The PID is not compound-specific and only provides a semi-quantitative indication of the presence of VOCs. The PID measures concentrations in parts per million (ppm). Soil is placed in a Ziploc® bag (filled less than half full), sealed with some air, and allowed to warm to ambient temperatures. PID measurements are made within 30 minutes of collection by opening the bag slightly and inserting the probe into the air space in the bag. The highest PID measurement for each sample is recorded. In addition, the PID can be used to detect VOCs released directly from impacted or contaminated materials during excavation and from stockpiled materials.

2.8.3 Sheen Tests

A sheen test is a visual test to assess if a sheen is produced on water by the soil. A small portion of the soil sample is placed on a pan partially filled with deionized water and the water surface is observed for signs of sheen. Sheens will be classified as follows:

- **No sheen (NS)**. No visible sheen on water surface.
- **Slight sheen (SS)**. Light colorless film, spotty to globular; spread is irregular, not rapid; areas of no sheen remain; film dissipates rapidly.
- **Moderate sheen (MS)**. Light to heavy film, may have some color or iridescence; globular to stringy; spread is irregular to flowing; few remaining areas of no sheen on water surface.
- **Heavy sheen (HS)**. Heavy colorful film with iridescence; stringy; spread is rapid; sheen flows off the sample; most of the water surface may be covered with sheen.

2.9 IMPACTED AND CONTAMINATED SOIL LOAD-OUT, TRANSPORT, AND MANIFESTING

Impacted and contaminated soil load-out is planned to occur along the northern Property boundary adjacent to Roy Street. The load-out facility is planned to consist of a surge pile and two conveyor belts located on the Property. Impacted and contaminated soil generated during construction activities will be transported to the surge pile where it will be staged until it is loaded into transport containers/trucks by an excavator. Once the conveyor belts are installed, impacted and contaminated soil will be transported directly to the conveyor belts and directly loaded into transport containers/trucks. The contractor shall put measures in place to ensure soil from different classifications (including Class I) is appropriately segregated, managed, and disposed of at the appropriate facility.

Containers/trucks transporting contained-in soil will be lined. After each container/truck is loaded, an inspection will be made to verify that there is no free water in the load, the soil is securely covered, and that the tires of the haul trucks are free of accumulated soil prior to leaving the load-out area.

All loads of impacted and contaminated soil shall be accompanied by the appropriate shipping papers before leaving for the disposal facility. Impacted and contaminated soil will be accompanied by a properly completed bill of lading provided by the receiving disposal facility. The appropriate shipping documentation will be provided to truck drivers hauling the affected soil.

2.10 IMPACTED AND CONTAMINATED SOIL DISPOSAL

The OER will make preliminary arrangements to gain approval and authorization from off-property facilities for disposal of impacted soil (i.e., Class II through V soil). After owner authorization, the OER will implement the recommendations for disposal options and submit required letters and forms to the appropriate off-property facilities for approval.

2.10.1 Disposal of Class II and III Soil

For the disposal of Class II and III soil, the following procedure shall be used to notify appropriate parties and allow expedient handling, transportation, and disposal of the impacted soil.

A letter and/or completed waste profile questionnaire (WPQ) shall be sent to the disposal facility to arrange for disposal of the impacted soil. The letter will include:

- the name of the owner and the locations of the material;
- the characteristics of the soil, including analytical results;
- the name of the intended transporter of the material;
- the quantity to be shipped from the Property to the disposal facility; and
- the billing arrangement for all fees for disposing of the material.

Further information needed in the letter may be determined at the time of disposal. The disposal facility operator may require additional information on the nature and concentration of constituents. When preparing to ship impacted soil, the contractor shall contact the disposal facility to verify schedule and confirm that the disposal facility expects the delivery.

2.10.2 Disposal of Class IV (Contained-In) Soil

Prior to construction, the OER will submit a CID request to Ecology's Hazardous Waste and Toxics Reduction (HWTR) program for review and approval. The purpose of a CID is to exempt qualifying F002 listed soil (dangerous waste constituents) from being managed as dangerous waste. The CID is obtained by testing contaminated soil to show that it is below toxicity thresholds and can, therefore, manage it as solid (non-hazardous) waste. The contained-in soil will be disposed of in accordance with Ecology HWTR CID letter requirements, including, but not limited to:

- Use lined trucks and roll-off bins.
- Ensure that no standing water is present within each of the containers (roll-off bins) holding the contaminated soils.
- Verify extents of CVOC-impacted soil with analytical analyses, as necessary.
- Transport directly to a Subtitle D landfill.
- Notify Ecology before disposal of the soil if the amount exceeds the approved amount in the CID letter.
- Provide copies of signed landfill receipts or a certificate of disposal to Ecology within 15 days of receipt.
- Take measures to prevent unauthorized contact with the CID soils at all times.
- Take adequate measures to prevent spills and dispersion due to wind erosion during transport.
- Provide instructions to the landfill operator that these soils are not to be used for daily, intermediate, or final cover.
- Provide copies of all soil analytical data to the landfill operator, upon request.
- Do not send these contaminated soils to any incinerator, thermal desorption unit, or recycling facility unless that facility is a RCRA Subtitle C permitted dangerous waste treatment, storage, and disposal facility (TSDF).

2.10.3 Disposal of Class V (Dangerous Waste) Soil

Although dangerous waste has not been encountered at the Property to date and none is expected, the following applies in the event dangerous waste is encountered during construction. Similar load out procedures shall apply for Class V soil as for other impacted soil classifications. For the treatment or disposal of a designated hazardous or dangerous waste at a TSDF, the steps below will be followed for compliance with TSDF and regulatory requirements:

- The owner (as the hazardous/dangerous waste generator) and the OER will designate the waste as specified in Washington Administrative Code (WAC) 173-303-070. Designation may require laboratory analysis if sufficient generator knowledge is not available.
- The generator (owner) will complete a WPQ and LDR form provided by the TSDF.
- The owner will obtain a U.S. Environmental Protection Agency (EPA) Identification Number (EIN) from Ecology (if not already obtained).
- An EPA-licensed transporter who complies with Ecology's Dangerous Waste Regulations will be contracted to transport the waste to the TSDF. The owner will complete and sign a uniform

hazardous waste manifest (manifest). Transporter contract arrangements will be coordinated through the owner.

- The receiving TSDF will return a signed copy of the manifest to the generator (owner) within 35 days of the waste shipment leaving the Property.
- If the generator (owner) does not receive the signed manifest within 35 days, the generator will formally ask the TSDF how the material was disposed and document the inquiry.
- If the generator (owner) does not receive the signed manifest within 45 days, the generator will submit an exception report to Ecology.

2.11 HEALTH AND SAFETY

Occupational Safety and Health Administration 40-hour Hazardous Waste Operations and Emergency Response training, with current annual 8-hour refresher, will be required for all onsite workers that may be potentially exposed to contaminated media per 29 CFR 1910.120(e).

The general contractor and each subcontractor are responsible for preparing and maintaining their Health and Safety Plan (HASP) in accordance with WAC 296-843, WAC 173-340-810, and 29 CFR 1910-120 to identify potential physical and chemical hazards associated with their own work practices, and for conducting their work in accordance with the HASP. A copy of the HASP to be used by Haley & Aldrich to perform excavation oversight and environmental sampling activities is included as Appendix A of the Engineering Design Report (Haley & Aldrich, 2023).

The HASP in the Engineering Design Report (Haley & Aldrich, 2023) also summarizes air monitoring that will be conducted to provide worker exposure data for Haley & Aldrich site workers. A separate Air Monitoring Plan summarizing perimeter air monitoring to provide community protection will be prepared and submitted to Ecology prior to construction.

2.12 EQUIPMENT DECONTAMINATION PROCEDURES

Equipment that contacts contaminated soil or water shall undergo decontamination prior to leaving the Property. Uncontrolled soil shall be managed with mechanical street sweepers or manual push broom sweeping. If sediment track out cannot be effectively prevented with use of existing BMPs, a wheel wash shall be installed. The wheel wash shall be maintained as recommended by the manufacturer and inspected daily. Water from the wheel wash and other decontamination water shall be processed through the construction dewatering treatment system (Clear Water Services, 2021).

Decontamination procedures for non-disposable sampling equipment are discussed in the SAP/QAPP.

3. Contingency Action Plan

During excavation, there is the potential for unanticipated discoveries including impacted or contaminated soil or other hazardous substances outside of the known areas, or historical underground storage tanks (USTs) and piping from former gas station operations. Details on how the discoveries shall be managed are summarized below.

3.1 USTS

Because of the historical use of the Property, unknown USTs and/or piping may be discovered during excavation and construction activities.

If any unknown USTs and/or piping are discovered during excavation, the contractor shall notify the owner and OER upon discovery. The OER shall notify the Ecology cleanup site manager and shall follow UST notification protocol. Ecology currently requires a 30-day notification period before removal of regulated USTs but may approve expedited closure in emergency situations in which product may be released. USTs used for storing heating oil that is used solely for the purpose of heating structures on a property are exempt from the Ecology UST notification requirements. A City of Seattle Fire Department (SFD) temporary permit application form must also be submitted before USTs, including fuel oil USTs, are removed from the Property. The Ecology notification form and the SFD permit application form are in Attachments 3 and 4, respectively.

A licensed UST decommissioner shall remove the USTs and complete closure in accordance with applicable and current UST regulations. A UST site assessment will be conducted under the oversight of a Washington State certified UST site assessor. The UST decommissioner will follow the protocols established under the following regulations and guidance documents for removal or closure of USTs:

- UST regulations (WAC Chapter 173-360A).
- Site Assessment Guidance for Underground Storage Tank Systems (Ecology 2021).
- Site Check/Site Assessments Checklist for Underground Storage Tanks (Ecology 2018).
- International Fire Code 3404.2.13.1.
- Washington Division of Occupational Safety and Health (DOSH) Confined Space Regulations (WAC 296-155-203).

The UST decommissioner shall provide copies of all notifications, UST disposal documentation, and other UST closure records to the owner and the OER. The UST site assessor shall observe the contractor's activities during closure of USTs and shall collect representative soil samples for chemical analyses to document subsurface conditions per the Site Assessment Guidance for UST Systems (Ecology 2021). The UST site assessor will complete the site assessment checklist, the decommissioner will complete the permanent closure checklist, and these documents will be submitted to Ecology within 30 days.

If a release from a UST or its associated piping is discovered that poses a threat to human health or the environment, the release must be reported to Ecology within 24 hours, whether or not the UST is regulated under the UST regulations. If impacts to soils are observed, soil within the planned excavation limits will be excavated and disposed of off site, and verification soil samples will be collected and

analyzed in accordance with the SAP/QAPP. A site characterization report will be submitted to Ecology within 90 days.

If no contamination is present, a site assessment sampling report will be submitted to Ecology within 30 days.

3.2 UNKNOWN SOIL IMPACTS OR CONTAMINATION

Unanticipated soil impacts or contamination may be encountered outside of the known areas during the planned excavation activities at the Property. Materials that may be state or federal hazardous or regulated substances can be identified by a wide range of properties, including appearance, odor, or field screening results. Site personnel will use these indicators to evaluate whether impacts or contamination may be present in soil or other media such as groundwater.

Soil and other materials encountered during excavation shall be suspected of containing potentially hazardous or regulated substances if they clearly have one or more of the characteristics discussed below. Personnel will examine soil for:

- Oily or greasy appearance with visible oil droplets, film, or sheen.
- Tar, chemical sludge, or gummy resinous substance.
- Distinct unnatural color changes.
- Foam, scum, gel, slime, or soapy liquid material.
- Fibrous material, particularly white or gray.
- Powder, grit, or machine-formed pellets indicative of chemicals.
- Pipelines or abandoned containers such as drums or tanks.
- Molten slag with glassy, metallic, rock-like, or clinker appearances.
- Electrical equipment such as transformers, batteries, or capacitors.
- Mist or smoky discharge.
- Unnatural color flecks or smears in the soil.
- Unusual odors, including gasoline, paint thinner, furniture polish, “magic marker” pen, rotten eggs or “skunky” odor, mothballs, sewage, or other solvent or chemical-like odors.

This CMMP does not imply that field personnel should purposely smell suspected hazardous substances, as doing so could present a health and safety hazard. However, if odors are inadvertently detected, field personnel will immediately notify the OER because it may indicate potential adverse environmental conditions.

At the time any suspected hazardous material is discovered, normal excavation and construction activities involving the suspected material will cease, pending evaluation by the OER in consultation with the owner and other affected parties. The suspected hazardous material will not be further disturbed or touched without appropriate worker protection (personal protective equipment [PPE] and/or engineering controls) and environmental precautions. The Ecology cleanup site manager will be notified of the discovery of hazardous material outside of the known areas within 24 to 72 hours of its presence being confirmed. Table 3-1 describes the responsibilities for notification, field procedures, and

coordination of off-site disposal efforts for unknown soil contamination encountered during Property excavation and construction.

Table 3-1. Notification and Follow-Up Actions		
Steps	**Action**	**Responsible Parties**
1	Initiate notification sequence.	Any person who discovers potential environmental issue
2	Field screen soil with PID instrument.	OER
3	Segregate and stockpile suspected hazardous materials for observation and sampling (or otherwise isolate area of concern).	General contractor
3A	Sample and analyze water with suspected contaminants from excavation areas (if encountered) and once characterized, dispose of off site via vacuum truck or route to stormwater and construction dewatering treatment system.	General contractor and OER
4	Stake out and number/label suspected hazardous material soil stockpiles, and collect characterization samples in accordance with the SAP/QAPP for chemical analyses at a laboratory.	OER and analytical lab
4A	Maintain stockpile in a protected manner until transported off site for disposal. Maintain staked identification numbers.	Excavation contractor
5	Collect and analyze verification samples in accordance with the SAP/QAPP to characterize soils adjacent to the excavation area from which suspected hazardous material soils were removed and stockpiled.	OER and analytical lab
6	Select off-site disposal facilities for regulated hazardous materials, construction debris, and non-regulated solid waste.	Owner
7	Prepare a letter to disposal facility with compiled laboratory testing results, as needed, and prepare agency officiations (including “add-on” CID request if needed) and annual report(s) for owner’s signature as required.	OER
8	Sign uniform hazardous waste manifest or other shipping documentation (e.g., bill of lading) and/or WPQ, as needed.	Owner
9	Coordinate shipment of regulated waste for off-site treatment, storage, or disposal (including stockpiling at interim off-site storage facility, if necessary).	Excavation contractor, hazardous waste contractor, and transporter
10	Provide truck trip tickets to OER (cc’s to owner and excavation contractor) that document delivery to off-site disposal facility.	Transporter

Soil, groundwater, debris, other materials with suspected contamination, or other environmental conditions may be discovered by the contractor, subcontractor, OER, or other personnel during site excavation activities. The owner and OER shall be notified by whoever makes the discovery. The owner shall promptly notify the OER, if the OER has not already been notified, for further assessment and chemical analyses. The owner or OER shall promptly notify the contractor of the potential extent of the issue. Table 3-2 summarizes contact information for the responsible parties.

Table 3-2. Contact Information for Responsible Parties			
Party	**Address**	**Contact**	**Contact Numbers**
Owner/Property developer – 800 Mercer, LLC	400 Dexter Avenue North, Suite 200 Seattle, WA 98109	Christian Gunter	206-408-1550
Contractor (general) – Howard S. Wright	415 1st Avenue North, Suite 400 Seattle, WA 98109	Ahren Boettger	303-901-6780
Subcontractor (excavation) – City Transfer Inc.	11222 E Marginal Way S Tukwila, WA 98168	Keith Benson	TBD
Regulated soil disposal facility (non-hazardous) – TBD			
Non-regulated soil disposal facility – TBD			
Subcontractor (non-regulated and regulated soil trucking [non-hazardous]) – TBD			
Subcontractor (regulated soil trucking [hazardous]) – TBD			
Hazardous soil disposal facility – TBD			
Regulated water trucking – TBD			
Regulated water disposal facility – TBD			
OER – Haley & Aldrich, Inc.	3131 Elliott Avenue, Suite 600 Seattle, WA 98121	Julie Wukelic Marissa Goodman	206-255-2852 (Julie) 206-826-4221 (Marissa)
Ecology cleanup oversight – NWRO Toxics Cleanup Program	15700 Dayton Avenue N, Shoreline, WA 98133	Tena Seeds	425-457-3143 tena.seeds@ecy.wa.gov
Ecology contained-in determinations – NWRO Hazardous Waste & Toxics Reduction	15700 Dayton Avenue N, Shoreline, WA 98133	Paul Bianco	425-466-5161 paul.bianco@ecy.wa.gov
Ecology stormwater discharge permitting – NWRO Water Quality Program	15700 Dayton Avenue N, Shoreline, WA 98133	Charles Hackel	425-213-9832 charles.hackel@ecy.wa.gov
Note: *The responsible parties and any updates will be filled in as information becomes available.*			

4. Contaminated Stormwater and Groundwater Management

The SWPPP by Clear Water Services (2023) describes the methods that shall be used to protect and manage stormwater that may contact impacted or contaminated soil during the redevelopment construction. Stormwater that has contacted impacted or contaminated soil within the limits of the excavation shall be collected via sumps and pumps as needed. Stormwater shall then be treated, as needed, sequentially using a chemically enhanced sand filtration (CESF) system and granular activated carbon (GAC) to meet surface water discharge standards. The stormwater treatment system was designed for a flow rate of 250 gallons per minute (gpm). A Request for Chemical Treatment shall be completed and submitted to Ecology's Water Quality Program (WQP) prior to system set-up.

A temporary construction dewatering system shall be installed to remove water from the construction area throughout the excavation activities. Water captured by the dewatering system via dewatering wells, wellpoints, and/or sumps and pumps shall be conveyed to the construction dewatering treatment system. Dewatering discharge shall be treated, as needed, to reduce concentrations of hazardous substances in groundwater, including CVOCs, using bag filters and GAC to meet surface water discharge standards and prevent unauthorized discharge. The dewatering treatment system was designed for a flow rate of 250 gpm. If initial sampling of vinyl chloride exceeds 30 micrograms per liter (µg/L), an air stripper may be added to the dewatering treatment system prior to GAC treatment to extend the life of the carbon media or following GAC treatment as a polishing step. Vapors from the air stripper would be treated by GAC. Remediation projects that emit less than 15 pounds per year of vinyl chloride, less than 500 pounds per year of PCE, and less than 1,000 pounds per year of total toxic air contaminants are exempt from Puget Sound Clean Air Agency (PSCAA) regulations under Regulation I Section 6.03 (c)(94). If an air stripper is added to the dewatering treatment system and if the estimated concentrations are above these thresholds, the discharge of air stripper vapors will require that a Notice of Construction Application be prepared and submitted to PSCAA, and an Order of Approval received. This permit will require the treatment and sampling of vapor streams prior to discharge. The SAP/QAPP will be updated to include sampling of vapor streams in accordance with the permit, as necessary.

When the lead GAC vessel is replaced, it will be profiled for disposal (e.g., TCLP analysis). If classified as dangerous waste, it will be disposed of at a Subtitle C landfill, or other appropriate TSDF. If not classified as dangerous waste, the GAC will be disposed of at a Subtitle D landfill, or other appropriate TSDF. The regulatory disposal requirements for disposal of soil at Subtitle C and D facilities outlined in Section 2.10 also apply to disposal of GAC.

A schematic of the stormwater and construction dewatering treatment system is shown in Attachment 5. The stormwater and construction dewatering treatment system will discharge to an approved City of Seattle catch basin that will discharge into Lake Union. Stormwater structures downstream of the discharge point shall be monitored to verify that the design capacity is not exceeded by discharge from the treatment system.

Discharge limits and sampling requirements are stipulated in the discharge authorization permit issued to Alexandria Real Estate Equities for discharge to Lake Union (i.e., Construction Stormwater General Permit [CSWGP] and Administrative Order No. 21321) and presented in Attachment 6. Per Administrative Order No. 21321, no water from the treatment system can be discharged until it is sampled for the indicated parameters and meets compliance with the indicator levels. This shall be completed for the first two batches of accumulated water in the system. During the batch sampling

process, water from the treatment system will be re-routed to the treatment system tanks until indicator levels are met for surface water discharge. Additional storage tanks will be mobilized as necessary if indicator levels are not met. If samples from the first two batches meet indicator levels, a request will be made to Ecology's WQP to begin continuous discharging and weekly sampling. If effluent concentrations exceed the CSWGP discharge limits, contingency actions (e.g., off-site disposal, King County Industrial Waste discharge to the combined sewer system) will be evaluated. The SAP/QAPP and SWPPP provide information on sample collection procedures.

References

1. Clear Water Services, 2023. Stormwater Pollution Prevention Plan, 816 Mercer Street, Seattle, WA. Prepared for Howard S. Wright, 1 May 2023.

2. Ecology, 2016. Guidance for Remediation of Petroleum Contaminated Sites. Publication No. 10-09-057. Prepared by Washington Department of Ecology, Toxics Cleanup Program, Olympia, WA. Revised June 2016.

3. Ecology, 2018. Site Check/Site Assessment Checklist for Underground Storage Tanks. Form No. ECY 010-158. Washington State Department of Ecology. Published June 1999; revised October 2018.

4. Ecology, 2019. Stormwater Management Manual for Western Washington. Publication No. 19-10-021. Washington State Department of Ecology. July 2019.

5. Ecology, 2021. Site Assessment Guidance for Underground Storage Tank Systems. Publication No. 21-09-050. Washington State Department of Ecology, Olympia, WA. January 2021.

6. Ecology, 2022. Cleanup Action Plan, Seattle DOT Mercer Parcels Site, Seattle, WA. Prepared by Washington Department of Ecology, 8 February 2022.

7. Haley & Aldrich, 2023. Engineering Design Report on Seattle DOT Mercer Parcels Site, 800 Mercer Street, Seattle, Washington. Prepared by Haley & Aldrich, Inc. for 800 Mercer, LLC, September 2023.

8. Hart Crowser, a division of Haley & Aldrich, 2022. Remedial Investigation, Seattle DOT Mercer Parcels, 800 Mercer Street, Seattle, Washington. 3 February 2022.

TABLE

TABLE 2-1
SUMMARY OF SOIL ANALYTICAL RESULTS -
SUPPLEMENTAL DISPOSAL
PRE-CHARACTERIZATION INVESTIGATION
800 MERCER STREET
SEATTLE, WA

Location Name	MBB-27	MBB-27	MBB-27	MBB-28	MBB-28	MBB-28	MBB-28	MBB-29	MBB-29	MBB-29	MBB-29	MBB-30	MBB-30	MBB-30	MBB-30	MBB-31	MBB-31
Sample Date	05/25/2022	05/25/2022	05/25/2022	05/25/2022	05/25/2022	05/25/2022	05/25/2022	05/25/2022	05/25/2022	05/25/2022	05/25/2022	05/25/2022	05/25/2022	05/25/2022	05/25/2022	05/24/2022	05/24/2022
Sample Type	Primary	Primary	Primary	Primary	Primary	Duplicate	Primary	Primary	Primary	Primary	Primary	Primary	Duplicate	Primary	Primary	Primary	Primary
Sample Depth (bgs)	39 - 40 (ft)	44 - 45 (ft)	49 - 50 (ft)	34 - 35 (ft)	39 - 40 (ft)	39 - 40 (ft)	45 - 46 (ft)	29 - 30 (ft)	34 - 35 (ft)	39 - 40 (ft)	44 - 45 (ft)	39 - 40 (ft)	39 - 40 (ft)	44 - 45 (ft)	46 - 47 (ft)	44 - 45 (ft)	49 - 50 (ft)
Sample Elevation (ft NAVD88)	18.69 to 17.69	13.69 to 12.69	8.69 to 7.69	19.88 to 18.88	14.88 to 13.88	14.88 to 13.88	8.88 to 7.88	22.43 to 21.43	17.43 to 16.43	12.43 to 11.43	7.43 to 6.43	15.1 to 14.1	15.1 to 14.1	10.1 to 9.1	8.1 to 7.1	13.22 to 12.22	8.22 to 7.22
Latitude	47.6252372	47.6252372	47.6252372	47.62523557	47.62523557	47.62523557	47.62523557	47.6252284	47.6252284	47.6252284	47.6252284	47.62516598	47.62516598	47.62516598	47.62516598	47.62502822	47.62502822
Longitude	-122.342069	-122.342069	-122.342069	-122.3417969	-122.3417969	-122.3417969	-122.3417969	-122.3415653	-122.3415653	-122.3415653	-122.3415653	-122.3418304	-122.3418304	-122.3418304	-122.3418304	-122.3419888	-122.3419888
Volatile Organic Compounds (mg/kg)																	
1,1,1,2-Tetrachloroethane	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
1,1,2,2-Tetrachloroethane	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
1,1-Dichloroethene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	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	0.25 U	0.25 U	0.25 U
1,2,3-Trichloropropane	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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-Trimethylbenzene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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 (DBCP)	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	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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-Chlorotoluene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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-Chlorotoluene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Carbon tetrachloride	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	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	0.1 U	0.1 U	0.1 U
Chloroform (Trichloromethane)	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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 (Methyl Chloride)	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	0.5 U	0.5 U	0.5 U
cis-1,2-Dichloroethene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	**1.3**	0.05 U	**0.072**	**0.86**	**0.66**	0.05 U	0.05 U	**0.52**	0.05 U	0.05 U	0.05 U
Dibromochloromethane	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Hexachlorobutadiene	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	0.25 U	0.25 U	0.25 U
Methylene chloride (Dichloromethane)	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Tetrachloroethene	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	**0.56**	0.025 U	**0.22**	**2**	**4.5**	0.025 U	0.025 U	**0.17**	**0.043**	0.025 U	0.025 U
trans-1,2-Dichloroethene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	**0.04**	0.02 U	**0.027**	**0.18**	**0.53**	0.02 U	0.02 U	**0.09**	**0.033**	0.02 U	0.02 U
Trichlorofluoromethane (CFC-11)	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	0.5 U	0.5 U	0.5 U
Vinyl chloride	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	**0.19**	0.05 U	0.05 U	**0.089**	0.05 U	0.05 U	0.05 U	**0.53**	**0.054**	0.05 U	0.05 U

ABBREVIATIONS AND NOTES:
bgs: below ground surface
ft: feet
mg/kg: milligram per kilogram
NAVD88: North American Vertical Datum of 1988
U: Not detected, value is the laboratory reporting limit
Bold values indicate a concentration detected above the laboratory reporting limit

TABLE 2-1
SUMMARY OF SOIL ANALYTICAL RESULTS -
SUPPLEMENTAL DISPOSAL
PRE-CHARACTERIZATION INVESTIGATION
800 MERCER STREET
SEATTLE, WA

Location Name	MBB-32	MBB-32	MBB-32	MBB-32	MBB-33	MBB-33	MBB-33	MBB-35	MBB-35	MBB-36	MBB-36	MBB-36	MBB-37	MBB-37	MBB-37	MBB-37	MBB-38
Sample Date	05/24/2022	05/24/2022	05/24/2022	05/24/2022	05/24/2022	05/24/2022	05/24/2022	05/31/2022	05/31/2022	06/02/2022	06/02/2022	06/02/2022	06/01/2022	06/01/2022	06/01/2022	06/01/2022	06/01/2022
Sample Type	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
Sample Depth (bgs)	39 - 40 (ft)	44 - 45 (ft)	49 - 50 (ft)	54 - 55 (ft)	44 - 45 (ft)	49 - 50 (ft)	51 - 52 (ft)	34 - 35 (ft)	39 - 40 (ft)	34 - 35 (ft)	39 - 40 (ft)	43 - 43.5 (ft)	34 - 35 (ft)	39 - 40 (ft)	44 - 45 (ft)	46 - 46.5 (ft)	34 - 35 (ft)
Sample Elevation (ft NAVD88)	18.53 to 17.53	13.53 to 12.53	8.53 to 7.53	3.53 to 2.53	11.43 to 10.43	6.43 to 5.43	4.43 to 3.43	18.49 to 17.49	13.49 to 12.49	19.06 to 18.06	14.06 to 13.06	10.06 to 9.56	16.99 to 15.99	11.99 to 10.99	6.99 to 5.99	4.99 to 4.49	15.75 to 14.75
Latitude	47.62487346	47.62487346	47.62487346	47.62487346	47.6248064	47.6248064	47.6248064	47.62508841	47.62508841	47.62489439	47.62489439	47.62489439	47.62501096	47.62501096	47.62501096	47.62501096	47.62514782
Longitude	-122.3418975	-122.3418975	-122.3418975	-122.3418975	-122.3416585	-122.3416585	-122.3416585	-122.3415435	-122.3415435	-122.3414293	-122.3414293	-122.3414293	-122.3412221	-122.3412221	-122.3412221	-122.3412221	-122.3412395
Volatile Organic Compounds (mg/kg)																	
1,1,1,2-Tetrachloroethane	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
1,1,2,2-Tetrachloroethane	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
1,1-Dichloroethene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	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	0.25 U	0.25 U	0.25 U
1,2,3-Trichloropropane	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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-Trimethylbenzene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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 (DBCP)	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	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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-Chlorotoluene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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-Chlorotoluene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Carbon tetrachloride	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	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	0.1 U	0.1 U	0.1 U
Chloroform (Trichloromethane)	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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 (Methyl Chloride)	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	0.5 U	0.5 U	0.5 U
cis-1,2-Dichloroethene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	**0.14**	0.05 U	0.05 U	**0.091**	**0.26**	**0.14**	0.05 U	0.05 U	0.05 U
Dibromochloromethane	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Hexachlorobutadiene	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	0.25 U	0.25 U	0.25 U
Methylene chloride (Dichloromethane)	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Tetrachloroethene	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	**0.22**	0.025 U	0.025 U	0.025 U	**1.2**	**0.12**	**0.17**	**0.059**	**0.55**
trans-1,2-Dichloroethene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	**0.039**	0.02 U	0.02 U	0.02 U	**0.11**	**0.023**	**0.031**	0.02 U	**0.056**
Trichlorofluoromethane (CFC-11)	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	0.5 U	0.5 U	0.5 U
Vinyl chloride	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U

ABBREVIATIONS AND NOTES:
bgs: below ground surface
ft: feet
mg/kg: milligram per kilogram
NAVD88: North American Vertical Datum of 1988
U: Not detected, value is the laboratory reporting limit
Bold values indicate a concentration detected above the laboratory reporting limit

TABLE 2-1
SUMMARY OF SOIL ANALYTICAL RESULTS -
SUPPLEMENTAL DISPOSAL
PRE-CHARACTERIZATION INVESTIGATION
800 MERCER STREET
SEATTLE, WA

Location Name	MBB-38	MBB-38	MBB-38	MBB-38	MBB-39	MBB-39	MBB-39	MBB-40	MBB-40	MBB-40	MBB-40	MBB-41	MBB-41	MBB-41	MBB-42	MBB-42	MBB-42
Sample Date	06/01/2022	06/01/2022	06/01/2022	06/01/2022	06/03/2022	06/03/2022	06/03/2022	06/02/2022	06/02/2022	06/02/2022	06/02/2022	05/24/2022	05/24/2022	05/24/2022	06/03/2022	06/03/2022	06/03/2022
Sample Type	Primary	Duplicate	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Duplicate	Primary	Primary	Primary	Primary	Primary	Primary
Sample Depth (bgs)	39 - 40 (ft)	39 - 40 (ft)	44 - 45 (ft)	46 - 47 (ft)	29 - 30 (ft)	34 - 35 (ft)	37 - 38 (ft)	29 - 30 (ft)	34 - 35 (ft)	39 - 40 (ft)	39 - 40 (ft)	29 - 30 (ft)	34 - 35 (ft)	39 - 40 (ft)	29 - 30 (ft)	34 - 35 (ft)	39 - 40 (ft)
Sample Elevation (ft NAVD88)	10.75 to 9.75	10.75 to 9.75	5.75 to 4.75	3.75 to 2.75	20.15 to 19.15	15.15 to 14.15	12.15 to 11.15	18.96 to 17.96	13.96 to 12.96	8.96 to 7.96	8.96 to 7.96	18.84 to 17.84	13.84 to 12.84	8.84 to 7.84	18.55 to 17.55	13.55 to 12.55	8.55 to 7.55
Latitude	47.62514782	47.62514782	47.62514782	47.62514782	47.62485044	47.62485044	47.62485044	47.62508913	47.62508913	47.62508913	47.62508913	47.6252402	47.6252402	47.6252402	47.62501663	47.62501663	47.62501663
Longitude	-122.3412395	-122.3412395	-122.3412395	-122.3412395	-122.3409957	-122.3409957	-122.3409957	-122.340995	-122.340995	-122.340995	-122.340995	-122.3409049	-122.3409049	-122.3409049	-122.3408737	-122.3408737	-122.3408737
Volatile Organic Compounds (mg/kg)																	
1,1,1,2-Tetrachloroethane	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
1,1,2,2-Tetrachloroethane	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
1,1-Dichloroethene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	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	0.25 U	0.25 U	0.25 U
1,2,3-Trichloropropane	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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-Trimethylbenzene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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 (DBCP)	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	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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-Chlorotoluene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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-Chlorotoluene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Carbon tetrachloride	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	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	0.1 U	0.1 U	0.1 U
Chloroform (Trichloromethane)	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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 (Methyl Chloride)	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	0.5 U	0.5 U	0.5 U
cis-1,2-Dichloroethene	0.05 U	0.05 U	**0.064**	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	**0.058**
Dibromochloromethane	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Hexachlorobutadiene	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	0.25 U	0.25 U	0.25 U
Methylene chloride (Dichloromethane)	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Tetrachloroethene	**0.43 J**	**0.085 J**	**1.2**	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	**0.19**	**0.18**	**0.03**	0.025 U	0.025 U	0.025 U	0.025 U	**0.052**
trans-1,2-Dichloroethene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	**0.08 J**	0.02 UJ	**0.2**	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	**0.029**	**0.03**	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	**0.048**
Trichlorofluoromethane (CFC-11)	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	0.5 U	0.5 U	0.5 U
Vinyl chloride	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U

ABBREVIATIONS AND NOTES:
bgs: below ground surface
ft: feet
mg/kg: milligram per kilogram
NAVD88: North American Vertical Datum of 1988
U: Not detected, value is the laboratory reporting limit
Bold values indicate a concentration detected above the laboratory reporting limit

TABLE 2-1
SUMMARY OF SOIL ANALYTICAL RESULTS -
SUPPLEMENTAL DISPOSAL
PRE-CHARACTERIZATION INVESTIGATION
800 MERCER STREET
SEATTLE, WA

Location Name	MBB-42	MBB-43	MBB-43	MBB-43	MBB-44	MBB-44	MBB-44	MBB-45	MBB-45	MBB-45	MBB-46	MBB-46	MBB-46
Sample Date	06/03/2022	06/06/2022	06/06/2022	06/06/2022	05/23/2022	05/23/2022	05/23/2022	05/23/2022	05/23/2022	05/23/2022	05/23/2022	05/23/2022	05/23/2022
Sample Type	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
Sample Depth (bgs)	44 - 45 (ft)	29 - 30 (ft)	39 - 40 (ft)	43 - 44 (ft)	29 - 30 (ft)	34 - 35 (ft)	37 - 38 (ft)	19 - 20 (ft)	23 - 25 (ft)	29 - 30 (ft)	34 - 35 (ft)	39 - 40 (ft)	42 - 43 (ft)
Sample Elevation (ft NAVD88)	3.55 to 2.55	17.75 to 16.75	7.75 to 6.75	3.75 to 2.75	17.2 to 16.2	12.2 to 11.2	9.2 to 8.2	27.49 to 26.49	23.49 to 21.49	17.49 to 16.49	13.08 to 12.08	8.08 to 7.08	5.08 to 4.08
Latitude	47.62501663	47.62492947	47.62492947	47.62492947	47.62511148	47.62511148	47.62511148	47.6252076	47.6252076	47.6252076	47.62509565	47.62509565	47.62509565
Longitude	-122.3408737	-122.340744	-122.340744	-122.340744	-122.3407631	-122.3407631	-122.3407631	-122.3404839	-122.3404839	-122.3404839	-122.3401786	-122.3401786	-122.3401786
Volatile Organic Compounds (mg/kg)													
1,1,1,2-Tetrachloroethane	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
1,1,2,2-Tetrachloroethane	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
1,1-Dichloroethene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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-Trimethylbenzene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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 (DBCP)	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-Dichlorobenzene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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-Chlorotoluene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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-Chlorotoluene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Carbon tetrachloride	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	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
Chloroform (Trichloromethane)	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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 (Methyl Chloride)	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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	**0.1**	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dibromochloromethane	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Hexachlorobutadiene	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
Methylene chloride (Dichloromethane)	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Tetrachloroethene	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	**0.12**	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
trans-1,2-Dichloroethene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	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	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	**0.031**	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Trichlorofluoromethane (CFC-11)	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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U

ABBREVIATIONS AND NOTES:
bgs: below ground surface
ft: feet
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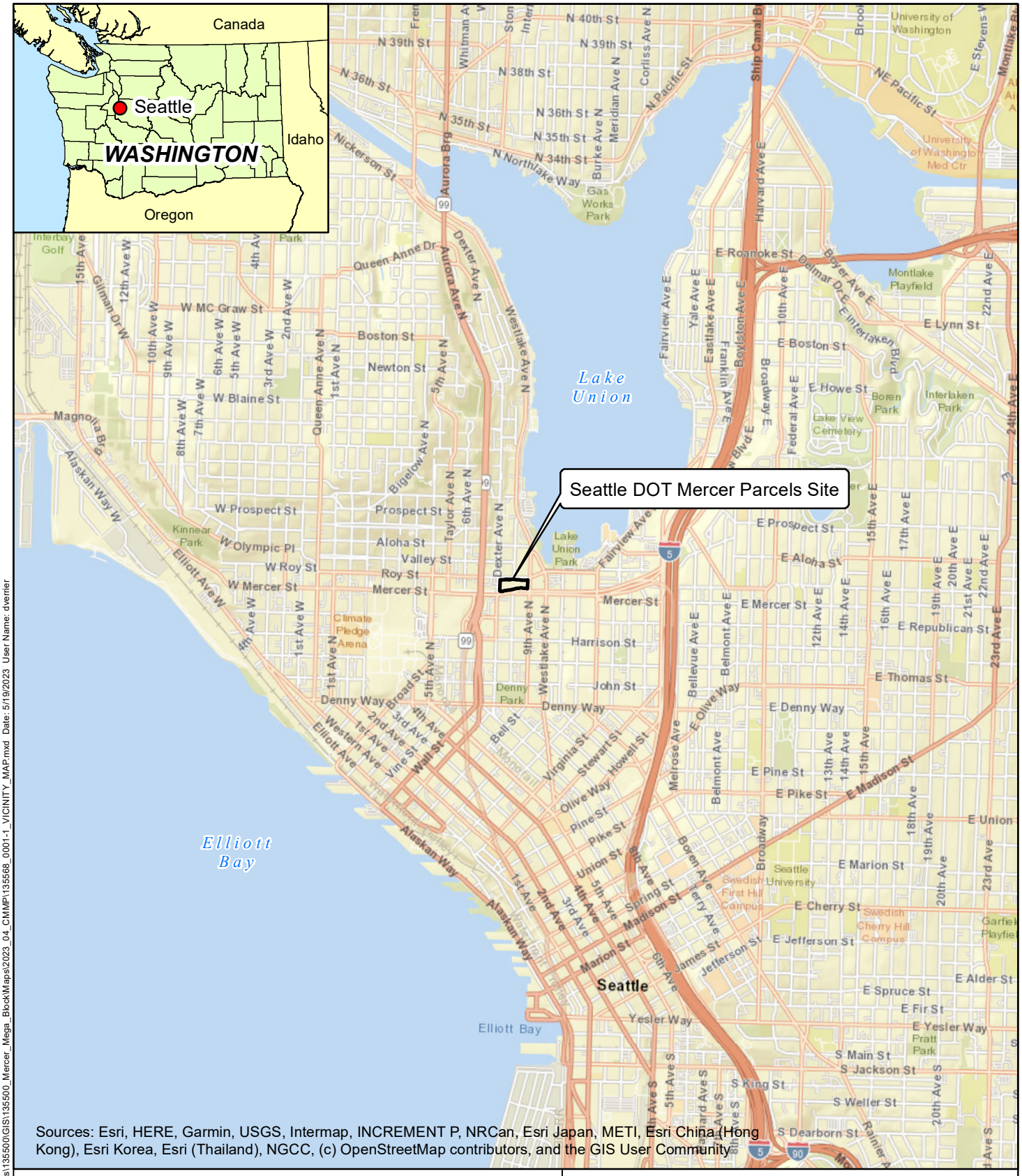
NAVD88: North American Vertical Datum of 1988
U: Not detected, value is the laboratory reporting limit
Bold values indicate a concentration detected above the laboratory reporting limit

FIGURES



0 0.25 0.5 1 Miles

N

Seattle DOT Mercer Parcels Site
Seattle, Washington

Vicinity Map

0202738-100 05/23

HALEY ALDRICH

Figure
1-1

Document Path: \\haleyaldrich.com\share\CF\Projects\135500\GIS\135500_Mercer_Mega_BlockMaps\2023_04_CMMP\135568_0001-1_VICINITY_MAP.mxd Date: 5/19/2023 User Name: dverrier

MBB-1	02/27/2020 5 ft el 50.02	02/27/2020 10 ft el 45.02	02/27/2020 15 ft el 40.02	02/27/2020 20 ft el 35.02	02/27/2020 25 ft el 30.02
GRO	5 U	5 U	7.7	570	5 U

MBGW-13	03/14/2019 5 ft el 49.47	03/14/2019 10 ft el 44.47	03/14/2019 15 ft el 39.47	03/14/2019 20 ft el 34.47
GRO	5 U	730 J	16	5 U

MBB-16	09/02/2020 5 ft el 48.7	09/02/2020 10 ft el 43.7	09/02/2020 15 ft el 38.7	09/02/2020 20 ft el 33.7
GRO	1200	200	20	5 U

HMW-18S	09/03/2020 5 ft el 52.61	09/03/2020 10 ft el 47.61	09/03/2020 15 ft el 42.61	09/03/2020 20 ft el 37.61	09/03/2020 25 ft el 32.61
GRO	5 U	45	5 U	5 U	5 U

MBB-3	02/27/2020 5 ft el 49.84	02/27/2020 10 ft el 44.84	02/27/2020 15 ft el 39.84	02/27/2020 20 ft el 34.84	02/27/2020 25 ft el 29.84
GRO	5 U	350	5 U	5 U	52

MBB-4	02/27/2020 5 ft el 49.61	02/27/2020 10 ft el 44.61	02/27/2020 15 ft el 39.61	02/27/2020 20 ft el 34.61	02/27/2020 25 ft el 29.61
GRO	5 U	5 U/7.3	5 U	210	5 U

DEXTER AVE N

8TH AVE N

ROY ST

MERCER ST

BB-8 EL 43.7
BB-10 EL 57.4
GP-9 EL 58.0
GP-8 EL 58.3
GP-7 EL 58.5
21417-MB1 EL 55.4
MBGW-12 EL 54.0
HMW-17S EL 57.7
MBB-1 EL 55.0
21417-MB2 EL 54.7
MBGW-13 EL 54.7
MBB-16 EL 53.7
MBB-2 EL 55.5
MBB-4 EL 54.6
HMW-3IA EL 55.0
MBB-3 EL 54.8
MBGW-6 EL 52.5
MBPP-7 EL 49.8
MBB-7 EL 49.4
MBGW-5 EL 49.9
MBB-5 EL 50.5
MBB-6 EL 50.3
MBB-8 EL 49.7
HMW-18S EL 57.5
HMW-19S EL 58.4
HMW-5IB EL 58.4
MBB-24 EL 54.1
HMW-20S EL 53.6
21417-MB5 EL 51.9
MBB-18 EL 51.3
HMW-9S EL 55.4
HMW-9IA EL 55.3
HMW-9D EL 55.3
HMW-9IB EL 55.4
MBB-17 EL 54.9
MBPP-6 EL 52.3
MBB-19 EL 51.7
MBPP-8 EL 57.5
HMW-6IA EL 58.6
HMW-6IB EL 58.7
HMW-6D EL 58.6
HMW-4IA EL 58.7
HMW-8IB EL 58.0
MBGW-9 EL 56.8
21417-MB3 EL 58.6
HMW-7IB EL 58.7
21417-MB4 EL 57.2
MBGW-11 EL 57.5
MBGW-10 EL 55.3
MBGW-16 EL 52.1
MBPP-5 EL 45.9
21417-MB8 EL 45.3
21417-MB6 EL 48.2
MBB-10 EL 49.7
MBB-20 EL 47.5
MBGW-3 EL 47.8
MBGW-4 EL 47.3
MBGW-1 EL 40.0
MBB-23 EL 47.2
MBGW-2 EL 46.1
21417-MB9 EL 39.0
HMW-1IB EL 38.3
21417-MB10 EL 38.1
MBB-9 EL 47.5
HMW-2IB EL 47.4
MBB-22 EL 42.0
MBPP-1 EL 45.3
MBPP-4 EL 48.3
BB-5 EL 49.5
21417-MB7 EL 47.4
MBGW-8 EL 47.1
MBB-21 EL 47.6
HMW-10S EL 48.2
HMW-10D EL 48.2
MBPP-3 EL 45.9
MBPP-2 EL 44.5
MBGW-14 EL 46.1
21417-MB11 EL 39.0
HMW-11S EL 41.5
HMW-11IB EL 39.7

0 20 40 80 Feet

N

SAMPLE DEPTH INTERVALS

- ≤ 5 FT BELOW GROUND SURFACE (BGS)
- 5 TO 10
- 10 TO 15
- 15 TO 20
- 20 TO 25
- > 25

- EXCAVATION LIMITS; TO BE EXCAVATED TO ELEVATIONS RANGING FROM 7.75 TO 1.75 FT
- PROPERTY BOUNDARY
- APPROXIMATE LIMTS OF 2H:1V SOIL BERM THAT WILL BE EXCAVATED LAST
- FORMER BROAD STREET 1958-2012

SOME SAMPLING LOCATIONS MAY HAVE BEEN SLIGHTLY OFFSET ON THIS MAP TO REDUCE SYMBOL OVERLAP

RED TEXT INDICATES EXCEEDANCE OF PROTECTIVE OF GROUNDWATER SCREENING LEVELS

SCREENING LEVELS PROVIDED BY ECOLOGY (NOVEMBER 17, 2020)

CONCENTRATIONS IN MILLIGRAMS PER KILOGRAM (mg/kg)

DEPTH IN FEET BELOW GROUND SURFACE (BGS)

ELEVATION IN FEET (NAVD 88); EL. = GROUND SURFACE ELEVATION

U = NON-DETECT AT DETECTION LIMIT AS INDICATED
J = ESTIMATED VALUE
/ = MULTIPLE RESULTS INDICATE THAT A FIELD DUPLICATE WAS TAKEN

SAMPLE DEPTHS AND ELEVATIONS REFER TO THE TOP OF THE SAMPLE

AERIAL IMAGERY SOURCE: EAGLEVIEW

SCREENING LEVELS FOR GASOLINE RANGE ORGANICS (GRO) IN SOIL (mg/kg)	
ZONE	PROTECTIVE OF GW
Vadose (0 to 25 ft bgs) and Saturated (>25 ft bgs)	30

Seattle DOT Mercer Parcels Site
Seattle, Washington

GRO Distribution in Soil

0202738-100 05/23

HALEY ALDRICH

Figure **2-1**

GIS FILE PATH: \\haleyaldrich.com\share\CP\Projects\135500\GIS\135500_Mercer_Mega_Block\Maps\2023_04_CMMP\135568_00MB_BB_SOIL_SMARTIES_CMMP.mxd - USER: diverner - LAST SAVED: 5/19/2023 2:17:06 PM

MBB-5	03/02/2020 5 ft el 45.53	03/02/2020 10 ft el 40.53	03/02/2020 15 ft el 35.53	03/02/2020 20 ft el 30.53	03/02/2020 25 ft el 25.53
Lead	17.6	591	1.57	1.24	1.29

21417-MB9	05/11/2017 13 ft el 26.05	05/11/2017 22 ft el 17.05
Lead	19.3	279

ROY ST

8TH AVE N

DEXTER AVE N

MERCER ST

21417-MB1 EL 55.4
MBGW-12 EL 54.0
HMW-17S EL 57.7
MBB-1 EL 55.0
MBB-16 EL 53.7
MBGW-6 EL 52.5
MBB-2 EL 55.5
MBB-4 EL 54.6
HMW-18S EL 57.5
HMW-3IA EL 55.0
MBB-3 EL 54.8
GP-9 EL 58.0
HMW-19S EL 58.4
MBB-24 EL 54.1
HMW-20S EL 53.6
HMW-5IB EL 58.4
MBGW-7 EL 53.8
HMW-9S EL 55.4
HMW-9IA EL 55.3
HMW-9D EL 55.3
GP-8 EL 58.3
HMW-9IB EL 55.4
MBPP-8 EL 57.5
MBB-17 EL 54.9
GP-7 EL 58.5
HMW-8IB EL 58.0
MBGW-9 EL 56.8
HMW-6IA EL 58.6
HMW-6IB EL 58.7
HMW-6D EL 58.6
21417-MB4 EL 57.2
MBGW-10 EL 55.3
HMW-7IB EL 58.7
MBGW-11 EL 57.5
MBPP-7 EL 49.8
MBGW-5 EL 49.9
MBB-5 EL 50.5
MBB-6 EL 50.3
MBB-18 EL 51.3
MBB-19 EL 51.7
MBB-7 EL 49.4
MBB-8 EL 49.7
MBPP-4 EL 48.3
MBPP-5 EL 45.9
21417-MB6 EL 48.2
MBGW-3 EL 47.8
MBB-10 EL 49.7
MBB-20 EL 47.5
21417-MB8 EL 45.3
MBGW-4 EL 47.3
MBB-9 EL 47.5
HMW-2IB EL 47.4
MBB-23 EL 47.2
MBGW-1 EL 40.0
MBB-12 EL 33.7
21417-MB9 EL 39.0
MBB-13 EL 36.0
MBGW-2 EL 46.1
MBB-11 EL 46.4
MBB-22 EL 42.0
MBPP-1 EL 45.3
21417-MB10 EL 38.1
MBPP-3 EL 45.9
MBGW-8 EL 47.1
HMW-10S EL 48.2
HMW-10D EL 48.2
MBB-21 EL 47.6
MBPP-2 EL 44.5
21417-MB11 EL 39.0
HMW-11S EL 41.5
MBGW-15 EL 40.9
HMW-11IB EL 39.7

N

0 20 40 80 Feet

LEAD IN SOIL (mg/kg)

- ≥ 2,500
- ≥ 500 TO 2,500
- ≥ 250 TO 500
- ND/0 TO < 250
- NO DATA

SAMPLE DEPTH INTERVALS

- ≤ 5 FT BELOW GROUND SURFACE (BGS)
- 5 TO 10
- 10 TO 15
- 15 TO 20
- 20 TO 25
- > 25

- EXCAVATION LIMITS; TO BE EXCAVATED TO ELEVATIONS RANGING FROM 7.75 TO 1.75 FT
- PROPERTY BOUNDARY
- APPROXIMATE LIMTS OF 2H:1V SOIL BERM THAT WILL BE EXCAVATED LAST
- FORMER BROAD STREET 1958-2012

SOME SAMPLING LOCATIONS MAY HAVE BEEN SLIGHTLY OFFSET ON THIS MAP TO REDUCE SYMBOL OVERLAP

RED TEXT INDICATES EXCEEDANCE OF DIRECT CONTACT OR PROTECTIVE OF GROUNDWATER SCREENING LEVELS

SCREENING LEVELS PROVIDED BY ECOLOGY (NOVEMBER 17, 2020)

CONCENTRATIONS IN MILLIGRAMS PER KILOGRAM (mg/kg)

DEPTH IN FEET BELOW GROUND SURFACE (BGS)

ELEVATION IN FEET (NAVD 88); EL. = GROUND SURFACE ELEVATION

U = NON-DETECT AT DETECTION LIMIT AS INDICATED
J = ESTIMATED VALUE
/ = MULTIPLE RESULTS INDICATE THAT A FIELD DUPLICATE WAS TAKEN

SAMPLE DEPTHS AND ELEVATIONS REFER TO THE TOP OF THE SAMPLE

AERIAL IMAGERY SOURCE: EAGLEVIEW

SCREENING LEVELS FOR LEAD (mg/kg) IN SOIL		
ZONE	DIRECT CONTACT	PROTECTIVE OF GW
Vadose (0 to 25 ft bgs)	250	3000
Saturated (>25 ft bgs)	250	150

Seattle DOT Mercer Parcels Site
Seattle, Washington

Lead Distribution in Soil

0202738-100 05/23

HALEY ALDRICH

Figure **2-2**

GIS FILE PATH: \\haleyaldrich.com\share\CP\Projects\135500\GIS\135500_Mercer_Mega_Block\Maps\2023_04_CMMP\135568_00MB_BB_SOIL_SMARTIES_CMMP.mxd - USER: dverner - LAST SAVED: 4/27/2023 12:25:35 PM

MBB-25	10/30/2020 5 ft el 53.63	10/30/2020 10 ft el 48.63	10/30/2020 15 ft el 43.63	10/30/2020 20 ft el 38.63	10/30/2020 25 ft el 33.63
cPAHs-TEQ	0.002 U	0.09	0.002 U	0.00041 U/0.00041 U	0.32

HMW-4IA	03/07/2019 7.5 ft el 51.2
cPAHs-TEQ	0.36

MBB-23	09/21/2020 5 ft el 42.18	09/21/2020 10 ft el 37.18	09/21/2020 15 ft el 32.18	09/21/2020 20 ft el 27.18	09/21/2020 25 ft el 22.18
cPAHs-TEQ	0.0097 U	2.4	0.0019 U	0.0019 U	0.0019 U

MBB-22	09/21/2020 5 ft el 37.05	09/21/2020 15 ft el 27.05	09/21/2020 20 ft el 22.05	09/21/2020 25 ft el 17.05
cPAHs-TEQ	0.42	0.0019 U	0.0019 U	0.0019 U

HMW-7IB	02/28/2020 5 ft el 53.69	02/28/2020 10 ft el 48.69	02/28/2020 15 ft el 43.69	02/28/2020 20 ft el 38.69	02/28/2020 25 ft el 33.69
cPAHs-TEQ	0.089	0.017	0.44	0.016	0.072

HMW-17S EL 57.7
MBB-1 EL 55.0
21417-MB2 EL 54.7
MBB-2 EL 55.5
MBB-4 EL 54.6
MBB-3 EL 54.8
MBB-16 EL 53.7
HMW-18S EL 57.5
HMW-19S EL 58.4
MBB-24 EL 54.1
HMW-20S EL 53.6
MBB-18 EL 51.3
HMW-5IB EL 58.4
MBB-17 EL 54.9
MBB-19 EL 51.7
HMW-4IA EL 58.7
HMW-8IB EL 58.0
HMW-6IA EL 58.6
HMW-6IB EL 58.7
HMW-6D EL 58.6
21417-MB3 EL 58.6
MBB-25 EL 58.6
HMW-7IB EL 58.7
MBB-26 EL 58.8
MBGW-3 EL 47.8
MBB-20 EL 47.5
MBB-21 EL 47.6
MBGW-1 EL 40.0
MBB-23 EL 47.2
MBGW-2 EL 46.1
MBB-22 EL 42.0
MBB-14 EL 47.1
MBB-15 EL 37.7

DEXTER AVE N
8TH AVE N
ROY ST
MERCER ST

N
0 20 40 80
Feet

cPAHs-TEQ IN SOIL (mg/kg)
- ≥ 1.90
- ≥ 0.38 TO 1.90
- ≥ 0.19 - 0.38
- ND/0 TO < 0.19
- NO DATA

SAMPLE DEPTH INTERVALS
- ≤ 5 FT BELOW GROUND SURFACE (BGS)
- 5 TO 10
- 10 TO 15
- 15 TO 20
- 20 TO 25
- > 25

- EXCAVATION LIMITS; TO BE EXCAVATED TO ELEVATIONS RANGING FROM 7.75 TO 1.75 FT
- PROPERTY BOUNDARY
- APPROXIMATE LIMTS OF 2H:1V SOIL BERM THAT WILL BE EXCAVATED LAST
- FORMER BROAD STREET 1958-2012

U = NON-DETECT AT DETECTION LIMIT AS INDICATED
J = ESTIMATED VALUE
/ = MULTIPLE RESULTS INDICATE THAT A FIELD DUPLICATE WAS TAKEN
cPAH = CARCINOGENIC POLYCYCLIC AROMATIC HYDROCARBON
cPAHs-TEQ = CARCINOGENIC POLYCYCLIC AROMATIC HYDROCARBON TOXIC EQUIVALENCY

SOME SAMPLING LOCATIONS MAY HAVE BEEN SLIGHTLY OFFSET ON THIS MAP TO REDUCE SYMBOL OVERLAP
RED TEXT INDICATES EXCEEDANCE OF DIRECT CONTACT OR PROTECTIVE OF GROUNDWATER SCREENING LEVELS
SCREENING LEVELS PROVIDED BY ECOLOGY (NOVEMBER 17, 2020)
CONCENTRATIONS IN MILLIGRAMS PER KILOGRAM (mg/kg)
DEPTH IN FEET BELOW GROUND SURFACE (BGS)
ELEVATION IN FEET (NAVD 88)
EL. = GROUND SURFACE ELEVATION
SAMPLE DEPTHS AND ELEVATIONS REFER TO THE TOP OF THE SAMPLE
AERIAL IMAGERY SOURCE: EAGLEVIEW

SCREENING LEVELS FOR cPAHs-TEQ IN SOIL (mg/kg)		
ZONE	DIRECT CONTACT	PROTECTIVE OF GW
Vadose (0 to 25 ft bgs)	0.19	0.45
Saturated (>25 ft bgs)	0.19	0.022

Seattle DOT Mercer Parcels Site
Seattle, Washington

cPAH Distribution in Soil

0202738-100 05/23

HALEY ALDRICH

Figure **2-3**

HMW-6D	03/02/2020 5 ft el 53.58	03/02/2020 10 ft el 48.58	03/02/2020 15 ft el 43.58	03/02/2020 25 ft el 33.58	03/02/2020 30 ft el 28.58
As	16.4	21.8	24.4	18	1.61/1.42

HMW-6IB	03/03/2020 5 ft el 53.67	03/03/2020 10 ft el 48.67	03/03/2020 15 ft el 43.67	03/03/2020 20 ft el 38.67	03/03/2020 25 ft el 33.67
As	13.4	15.9/14.9	22.2	25.6	2.23

MBPP-8	03/08/2019 15 ft el 42.52
As	16

MBB-5	03/02/2020 5 ft el 45.53	03/02/2020 10 ft el 40.53	03/02/2020 15 ft el 35.53	03/02/2020 20 ft el 30.53	03/02/2020 25 ft el 25.53
As	23.2	6.56	1.81	1.34	1.51

MBB-18	09/01/2020 5 ft el 46.33	09/01/2020 10 ft el 41.33	09/01/2020 15 ft el 36.33	09/01/2020 20 ft el 31.33
As	14.2	6.2	1.13	1.61

MBB-6	03/03/2020 5 ft el 45.33	03/03/2020 10 ft el 40.33	03/03/2020 15 ft el 35.33	03/03/2020 20 ft el 30.33	03/03/2020 25 ft el 25.33
As	21.2	9.18	1.84	2.08	1.6

MBB-8	02/26/2020 5 ft el 44.66	02/26/2020 10 ft el 39.66	02/26/2020 15 ft el 34.66	02/26/2020 20 ft el 29.66	02/26/2020 25 ft el 24.66
As	21.9	1.75	1.7/1.6	1.6	1.13

MBB-9	02/26/2020 5 ft el 42.55	02/26/2020 10 ft el 37.55	02/26/2020 15 ft el 32.55	02/26/2020 20 ft el 27.55	02/26/2020 25 ft el 22.55
As	9.58	1.94	1.72	1.7	1.27

21417-MB10	05/11/2017 28 ft el 10.08
As	7.75

HMW-6IA	03/02/2020 5 ft el 53.65	03/02/2020 10 ft el 48.65	03/02/2020 15 ft el 43.65	03/02/2020 20 ft el 38.65	03/02/2020 30 ft el 28.65
As	15.6	13.6	18.6	18.3	3.1

HMW-7IB	02/28/2020 5 ft el 53.69	02/28/2020 10 ft el 48.69	02/28/2020 15 ft el 43.69	02/28/2020 20 ft el 38.69	02/28/2020 25 ft el 33.69
As	15.3	13.8	19.9	25.6	8.13/8.49

HMW-9IB	02/28/2020 5 ft el 50.36	02/28/2020 13 ft el 42.36	02/28/2020 15 ft el 40.36	02/28/2020 20 ft el 35.36	02/28/2020 25 ft el 30.36
As	7.75	1.64	17.8	1.6	1.26

HMW-8IB	03/02/2020 5 ft el 52.97	03/02/2020 10 ft el 47.97	03/02/2020 15 ft el 42.97	03/02/2020 20 ft el 37.97	03/02/2020 25 ft el 32.97
As	21.4	19.5	17.1	4.86	1.12/1.06

HMW-9D	02/27/2020 5 ft el 50.32	02/27/2020 10 ft el 45.32	02/27/2020 15 ft el 40.32	02/27/2020 20 ft el 35.32	02/27/2020 25 ft el 30.32
As	1.78	1.38	15.3	2.55	1.46

HMW-9S	03/02/2020 5 ft el 50.39	03/02/2020 14 ft el 41.39	03/02/2020 17 ft el 38.39	03/02/2020 20 ft el 35.39	03/02/2020 25 ft el 30.39
As	2.64	14.5	17.7	1.3	1.36

DEXTER AVE N

8TH AVE N

ROY ST

MERCER ST

21417-MB1 EL 55.4
MBGW-12 EL 54.0
HMW-17S EL 57.7
MBB-1 EL 55.0
MBB-16 EL 53.7
MBGW-6 EL 52.5
MBB-2 EL 55.5
MBB-4 EL 54.6
HMW-3IA EL 55.0
MBB-3 EL 54.8
HMW-18S EL 57.5
HMW-19S EL 58.4
MBB-24 EL 54.1
HMW-20S EL 53.6
HMW-5IB EL 58.4
MBGW-7 EL 53.8
HMW-9S EL 55.4
HMW-9IA EL 55.3
HMW-9D EL 55.3
MBB-17 EL 54.9
MBPP-8 EL 57.5
HMW-9IB EL 55.4
HMW-8IB EL 58.0
MBGW-9 EL 56.8
HMW-6IA EL 58.6
HMW-6IB EL 58.7
HMW-6D EL 58.6
21417-MB4 EL 57.2
MBGW-10 EL 55.3
HMW-7IB EL 58.7
MBGW-11 EL 57.5
MBPP-7 EL 49.8
MBGW-5 EL 49.9
MBB-5 EL 50.5
MBB-6 EL 50.3
MBB-18 EL 51.3
MBB-19 EL 51.7
MBB-7 EL 49.4
MBB-8 EL 49.7
MBPP-4 EL 48.3
21417-MB6 EL 48.2
MBGW-3 EL 47.8
MBPP-5 EL 45.9
MBB-10 EL 49.7
MBB-20 EL 47.5
MBB-9 EL 47.5
HMW-2IB EL 47.4
21417-MB8 EL 45.3
MBGW-4 EL 47.3
MBB-23 EL 47.2
MBGW-1 EL 40.0
MBGW-2 EL 46.1
21417-MB9 EL 39.0
MBB-22 EL 42.0
MBPP-1 EL 45.3
21417-MB10 EL 38.1
MBPP-3 EL 45.9
MBGW-8 EL 47.1
MBB-21 EL 47.6
HMW-10D EL 48.2
HMW-10S EL 48.2
MBPP-2 EL 44.5
21417-MB11 EL 39.0
HMW-11S EL 41.5
MBGW-15 EL 40.9
HMW-11IB EL 39.7

0 20 40 80 Feet

N

ARSENIC IN SOIL (mg/kg)
- ≥ 14.6 TO 73
- ≥ 7.3 TO 14.6
- ND/0 TO < 7.3
- NO DATA

SAMPLE DEPTH INTERVALS
- ≤ 5 FT BELOW GROUND SURFACE (BGS)
- 5 TO 10
- 10 TO 15
- 15 TO 20
- 20 TO 25
- > 25

- EXCAVATION LIMITS; TO BE EXCAVATED TO ELEVATIONS RANGING FROM 7.75 TO 1.75 FT
- PROPERTY BOUNDARY
- APPROXIMATE LIMTS OF 2H:1V SOIL BERM THAT WILL BE EXCAVATED LAST
- FORMER BROAD STREET 1958-2012

SOME SAMPLING LOCATIONS MAY HAVE BEEN SLIGHTLY OFFSET ON THIS MAP TO REDUCE SYMBOL OVERLAP

RED TEXT INDICATES EXCEEDANCE OF PROTECTIVE OF GROUNDWATER SCREENING LEVELS ADJUSTED UP TO NATURAL BACKGROUND

SCREENING LEVELS PROVIDED BY ECOLOGY (NOVEMBER 17, 2020)

CONCENTRATIONS IN MILLIGRAMS PER KILOGRAM (mg/kg)

DEPTH IN FEET BELOW GROUND SURFACE (BGS)

ELEVATION IN FEET (NAVD 88); EL. = GROUND SURFACE ELEVATION

U = NON-DETECT AT DETECTION LIMIT AS INDICATED
J = ESTIMATED VALUE
/ = MULTIPLE RESULTS INDICATE THAT A FIELD DUPLICATE WAS TAKEN

SAMPLE DEPTHS AND ELEVATIONS REFER TO THE TOP OF THE SAMPLE

AERIAL IMAGERY SOURCE: EAGLEVIEW

SCREENING LEVELS FOR ARSENIC IN SOIL (mg/kg) All levels adjusted up to natural background	
ZONE	PROTECTIVE OF GW
Vadose (0 to 25 ft bgs) and Saturated (>25 ft bgs)	7.3

Seattle DOT Mercer Parcels Site
Seattle, Washington

Arsenic Distribution in Soil

0202738-100 05/23

HALEY ALDRICH

Figure **2-4**

MBB-28	05/25/2022 45 ft el 8.88
PCE	0.56
TCE	0.04
cis-1,2-DCE	1.3
VC	0.19

MBB-29	05/25/2022 34 ft el 17.43	05/25/2022 39 ft el 12.43	05/25/2022 44 ft el 7.43
PCE	0.22	2	4.5
TCE	0.027	0.18	0.53
cis-1,2-DCE	0.072	0.86	0.66
VC	0.05 U	0.089	0.05 U

MW-346	05/19/2021 41.5 ft el 10.28	05/19/2021 47 ft el 4.78
PCE	4.43	1.98
TCE	0.415	0.228
cis-1,2-DCE	0.661	0.148
VC	0.124	0.0149

MBGW-5	03/11/2019 45 ft el 4.87
PCE	3.4
TCE	0.47
cis-1,2-DCE	0.26
VC	0.05 U

MBB-38	06/01/2022 34 ft el 15.75	06/01/2022 39 ft el 10.75	06/01/2022 44 ft el 5.75
PCE	0.55	0.43 J/0.085 J	1.2
TCE	0.056	0.08 J/0.02 UJ	0.2
cis-1,2-DCE	0.05 U	0.05 U/0.05 U	0.064
VC	0.05 U	0.05 U/0.05 U	0.05 U

MBB-41	05/24/2022 29 ft el 18.84
PCE	0.03
TCE	0.02 U
cis-1,2-DCE	0.05 U
VC	0.05 U

21417-MB8	05/11/2017 27 ft el 18.28
PCE	0.0238
TCE	0.0152 U
cis-1,2-DCE	0.0152 U
VC	0.00152 U

MBB-40	06/02/2022 39 ft el 8.96
PCE	0.19/0.18
TCE	0.029/0.03
cis-1,2-DCE	0.05 U/0.05 U
VC	0.05 U/0.05 U

MW-345	05/20/2021 41 ft el 11.85	05/20/2021 47 ft el 5.85
PCE	0.275	0.0228 J/0.00622 J
TCE	0.0273	0.00257/0.00105 J
cis-1,2-DCE	0.984	0.0973/0.122
VC	0.189	0.181/0.136

MBGW-3	03/07/2019 25 ft el 22.77
PCE	0.074
TCE	0.02 U
cis-1,2-DCE	0.05 U
VC	0.05 U

MBB-23	09/21/2020 30 ft el 17.18
PCE	0.025 U
TCE	0.03 U
cis-1,2-DCE	0.014
VC	0.005 U

MBB-30	05/25/2022 44 ft el 10.1	05/25/2022 46 ft el 8.1
PCE	0.17	0.043
TCE	0.09	0.033
cis-1,2-DCE	0.52	0.05 U
VC	0.53	0.054

MBB-44	05/23/2022 34 ft el 12.2
PCE	0.12
TCE	0.031
cis-1,2-DCE	0.1
VC	0.05 U

IWS-03	03/21/2022 39 ft el 13.3
PCE	0.511 J-
TCE	0.736
cis-1,2-DCE	2.99 J-
VC	0.479

MBB-35	05/31/2022 39 ft el 13.49
PCE	0.22
TCE	0.039
cis-1,2-DCE	0.14
VC	0.05 U

IWS-02	03/22/2022 41.5 ft el 11.79
PCE	0.453 J-
TCE	0.0164
cis-1,2-DCE	1.53
VC	0.887

IWS-05	03/16/2022 46 ft el 8.69
PCE	0.28
TCE	0.0215
cis-1,2-DCE	0.913
VC	0.0948

IWS-01	03/16/2022 48.5 ft el 7.15
PCE	0.294
TCE	0.155
cis-1,2-DCE	1.77
VC	0.408

IWS-06	03/15/2022 45.5 ft el 8.72
PCE	6.06
TCE	0.444
cis-1,2-DCE	12.6
VC	0.888

IWS-09	03/24/2022 47 ft el 7.97
PCE	1.54
TCE	0.911
cis-1,2-DCE	5.05
VC	0.542

MW-349	05/17/2021 49 ft el 6.84
PCE	1.05
TCE	0.209
cis-1,2-DCE	0.572
VC	0.0752

IWS-10	03/23/2022 46 ft el 8.28
PCE	8.75
TCE	0.648
cis-1,2-DCE	1.93
VC	0.351

MW-348	05/18/2021 41 ft el 12.96
PCE	0.749
TCE	0.249
cis-1,2-DCE	6.55
VC	0.569

MBB-36	06/02/2022 43 ft el 10.06
PCE	0.025 U
TCE	0.02 U
cis-1,2-DCE	0.091
VC	0.05 U

IWS-07	03/14/2022 40.5 ft el 12.68
PCE	1.37
TCE	0.211
cis-1,2-DCE	4.14
VC	1.18

MW-347	05/19/2021 44.5 ft el 8.29
PCE	1.36/1.08
TCE	0.699 J/0.509 J
cis-1,2-DCE	0.954/0.753
VC	0.466 J/0.321 J

MBB-37	06/01/2022 34 ft el 16.99	06/01/2022 39 ft el 11.99	06/01/2022 44 ft el 6.99	06/01/2022 46 ft el 4.99
PCE	1.2	0.12	0.17	0.059
TCE	0.11	0.023	0.031	0.02 U
cis-1,2-DCE	0.26	0.14	0.05 U	0.05 U
VC	0.05 U	0.05 U	0.05 U	0.05 U

MBB-42	06/03/2022 39 ft el 8.55
PCE	0.052
TCE	0.048
cis-1,2-DCE	0.058
VC	0.05 U

MW-153 EL 54.84; MBGW-12 EL 54.00; 21417-MB1 EL 55.43; MW-147 EL 52.49; MW-106 EL 52.90; MBPP-7 EL 49.77; MBPP-7I EL 49.41; MBPP-5 EL 45.92; MW-148 EL 44.29; MBGW-1 EL 39.95; HMW-17S EL 57.70; MBB-27 EL 57.40; MBB-28 EL 53.88; MBB-29 EL 51.43; MBB-1 EL 55.02; MBB-16 EL 53.70; 21417-MB2 EL 54.72; MBGW-13 EL 54.72; MBB-4 EL 54.61; MBB-2 EL 55.45; MW-345 EL 52.85; MBGW-6 EL 52.50; 21417-MB6 EL 48.22; MBB-41 EL 47.84; MBB-10 EL 49.66; MBB-20 EL 47.53; MBGW-3 EL 47.77; MBGW-4 EL 47.30; 21417-MB8 EL 45.28; MBB-45 EL 46.49; MBB-23 EL 47.18; MBGW-2 EL 46.11; HMW-18S EL 57.46; MBB-30 EL 54.10; MBGW-5 EL 49.87; MBB-38 EL 49.75; MBB-5 EL 50.53; MBB-6 EL 50.33; MW-346 EL 51.78; IWS-03 EL 52.30; HMW-3IA EL 55.02; MBB-3 EL 54.84; MBB-35 EL 52.49; IWS-02 EL 53.29; MW-114 EL 42.43; MBB-8 EL 49.66; MBB-40 EL 47.96; MBB-9 EL 47.55; HMW-2IB EL 47.41; MBB-44 EL 46.20; 21417-MB9 EL 39.05; MW-119 EL 37.66; HMW-19S EL 58.41; MBB-24 EL 54.10; MBB-31 EL 57.22; IWS-07 EL 53.18; IWS-05 EL 54.69; MW-347 EL 52.79; MW-350 EL 57.77; HMW-20S EL 53.57; 21417-MB5 EL 51.91; MBB-18 EL 51.33; MBB-37 EL 50.99; MBB-22 EL 42.05; MBPP-1 EL 45.28; MBB-46 EL 47.08; HMW-1IB EL 38.29; IWS-01 EL 55.65; MBGW-7 EL 53.76; IWS-06 EL 54.22; MBPP-4 EL 48.34; MBB-42 EL 47.55; 21417-MB10 EL 38.08; HMW-5IB EL 58.44; HMW-9S EL 55.39; HMW-9IA EL 55.26; HMW-9D EL 55.32; IWS-10 EL 54.28; MBPP-6 EL 52.26; MBB-19 EL 51.68; MBGW-14 EL 46.09; IWS-09 EL 54.97; MW-348 EL 53.96; BB-5 EL 49.48; 21417-MB7 EL 47.38; MBB-43 EL 46.75; MBPP-3 EL 45.89; 21417-MB11 EL 39.04; MBPP-8 EL 57.52; MBB-32 EL 57.53; IWS-04 EL 55.70; IWS-08 EL 55.79; MBB-17 EL 54.88; MBB-36 EL 53.06; HMW-9IB EL 55.36; MW-349 EL 55.84; MBGW-8 EL 47.08; MBB-21 EL 47.60; HMW-10D EL 48.16; MBPP-2 EL 44.46; HMW-11S EL 41.47; HMW-4IA EL 58.70; HMW-8IB EL 57.97; MBB-39 EL 49.15; HMW-10S EL 48.21; HMW-11IB EL 39.70; HMW-6IA EL 58.65; HMW-6IB EL 58.67; HMW-6D EL 58.58; MBGW-9 EL 56.84; MBB-33 EL 55.43; 21417-MB3 EL 58.63; 21417-MB4 EL 57.24; MBGW-16 EL 52.14; MW-316 EL 49.71; MW-326 EL 41.31; HMW-7IB EL 58.69; MBGW-11 EL 57.55; MBGW-10 EL 55.25

0 20 40 80 Feet

N

CVOCs in SOIL

- CVOC DETECTION WITHIN EXCAVATION LIMITS
- CVOC NON-DETECT WITHIN EXCAVATION LIMITS
- CVOC DETECTION, PRE-2017 AND/OR OUTSIDE EXCAVATION LIMITS
- CVOC NON-DETECT, PRE-2017 AND/OR OUTSIDE EXCAVATION LIMITS
- NO DATA

SAMPLE DEPTH INTERVALS

- ≤ 10 FT BELOW GROUND SURFACE (BGS)
- 10 TO 20
- 20 TO 30
- 30 TO 40
- 40 TO 50
- > 50

- EXCAVATION LIMITS; TO BE EXCAVATED TO ELEVATIONS RANGING FROM 7.75 TO 1.75 FT
- PROPERTY BOUNDARY
- APPROXIMATE LIMTS OF 2H:1V SOIL BERM THAT WILL BE EXCAVATED LAST

CVOC = CHLORINATED VOLATILE ORGANIC COMPOUND
U = NON-DETECT AT DETECTION LIMIT AS INDICATED
J = ESTIMATED VALUE
J- = ESTIMATED VALUE, BUT THE RESULT MAY BE BIASED LOW
/ = MULTIPLE RESULTS INDICATE THAT A FIELD DUPLICATE WAS TAKEN

CVOCs CONSIST OF:
PCE = TETRACHLOROETHENE
TCE = TRICHLOROETHENE
cis-1,2-DCE = cis-1,2-DICHLOROETHENE
VC = VINYL CHLORIDE

SOME SAMPLING LOCATIONS HAVE BEEN SLIGHTLY OFFSET ON THIS MAP TO REDUCE SYMBOL OVERLAP

RED TEXT INDICATES DETECTION OF CONSTITUENT(S)

DATA BOXES ARE ONLY SHOWN FOR SOIL SAMPLES WITH DETECTIONS OF CVOCs WITHIN EXCAVATION LIMITS. REFER TO THE REMEDIAL INVESTIGATION REPORT FOR ADDITIONAL SAMPLE RESULTS

CONCENTRATIONS IN MILLIGRAMS PER KILOGRAM (mg/kg)

DEPTH IN FEET BELOW GROUND SURFACE (BGS)

ELEVATION IN FEET (NAVD 88); EL = GROUND SURFACE ELEVATION

SAMPLE DEPTHS AND ELEVATIONS REFER TO THE TOP OF THE SAMPLE

EXCAVATION BOUNDARY SOURCE: DIGITIZED FROM PLAN TITLED "ARE - MERCER BLOCKS," NBBJ, 11 NOVEMBER 2020

AERIAL IMAGERY SOURCE: EAGLEVIEW

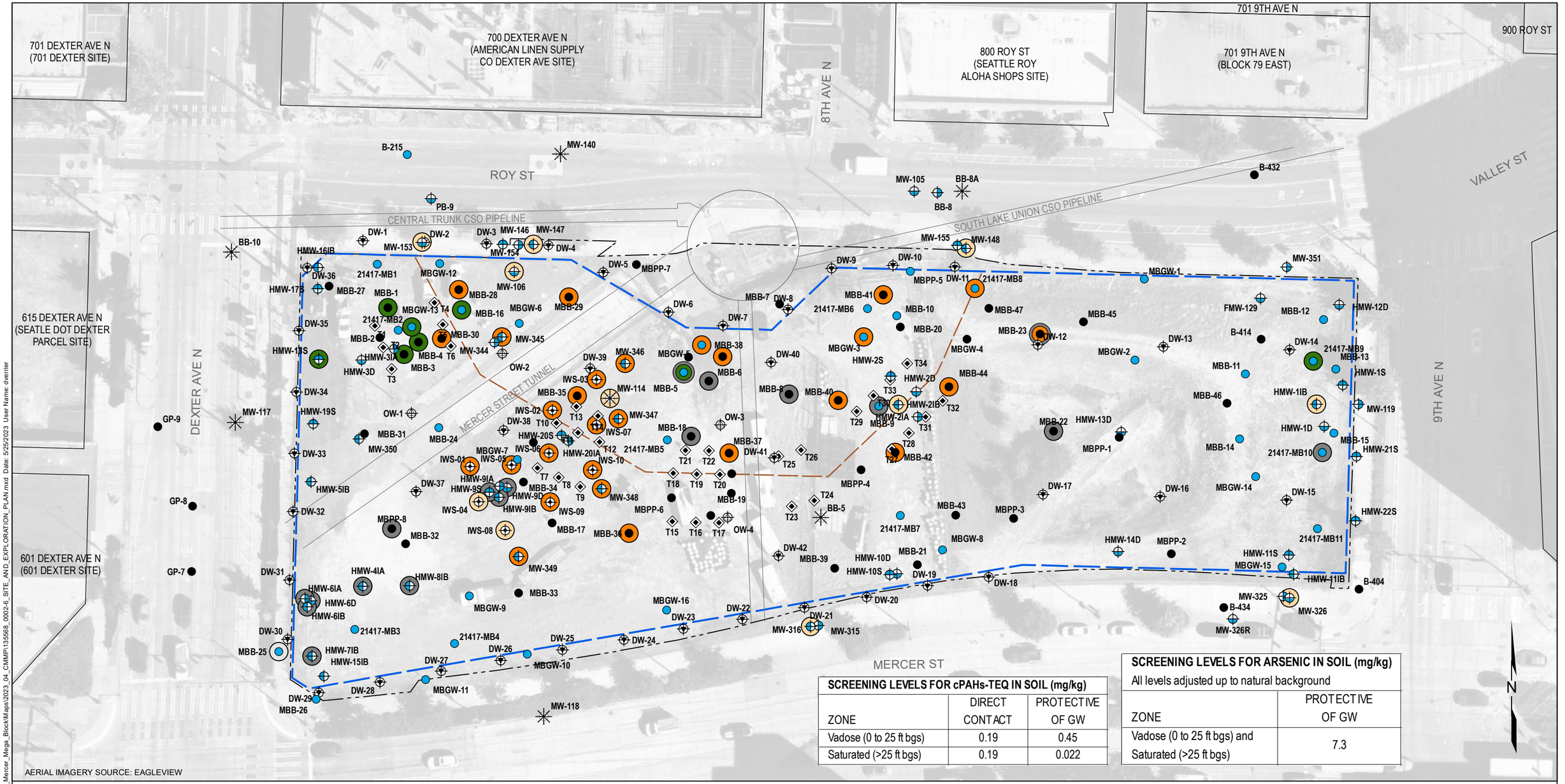
Seattle DOT Mercer Parcels
Seattle, Washington

CVOCs Distribution in Soil

0202738-100 05/23

HALEY ALDRICH

Figure
2-5



SCREENING LEVELS FOR cPAHs-TEQ IN SOIL (mg/kg)

ZONE	DIRECT CONTACT	PROTECTIVE OF GW
Vadose (0 to 25 ft bgs)	0.19	0.45
Saturated (>25 ft bgs)	0.19	0.022

SCREENING LEVELS FOR ARSENIC IN SOIL (mg/kg)
All levels adjusted up to natural background

ZONE	PROTECTIVE OF GW
Vadose (0 to 25 ft bgs) and Saturated (>25 ft bgs)	7.3

LEGEND

- SOIL BORING
- SOIL BORING WITH GRAB GROUNDWATER SAMPLE
- SHALLOW ZONE MONITORING WELL
- INTERMEDIATE A ZONE MONITORING WELL
- INTERMEDIATE B ZONE MONITORING WELL
- DEEP ZONE MONITORING WELL
- INJECTION WELL
- FUTURE OBSERVATION WELL
- ABANDONED OR DECOMMISSIONED MONITORING WELL
- FUTURE DEWATERING WELL
- FUTURE DRILLED SHAFT
- DETECTIONS OF CVOCS IN SOIL FROM AMERICAN LINEN
- DETECTIONS OF CVOCS IN SOIL FROM AMERICAN LINEN SITE OUTSIDE OF EXCAVATION LIMITS AND/OR DATA PRE-2017
- EXCEEDANCES OF SCREENING LEVELS OF ARSENIC AND/OR CPAHS IN SOIL FROM BROAD STREET FILL SITE
- EXCEEDANCES OF SCREENING LEVELS OF ARSENIC AND/OR CPAHS IN SOIL FROM BROAD STREET FILL SITE OUTSIDE OF EXCAVATION LIMITS
- EXCEEDANCES OF CULS OF COCS (GRO & LEAD) IN SOIL FROM SEATTLE DOT MERCER PARCELS SITE
- KING COUNTY MAIN FACILITY STRUCTURES
- OTHER PARCEL BOUNDARY
- EXCAVATION LIMITS; TO BE EXCAVATED TO ELEVATIONS RANGING FROM 7.75 TO 1.75 FT
- APPROXIMATE LIMTS OF 2H:1V SOIL BERM THAT WILL BE EXCAVATED LAST

DEFINITIONS:
GRO = GASOLINE RANGE ORGANICS
CUL = CLEANUP LEVEL
COC = CONSTITUENT OF CONCERN
CVOC = CHLORINATED VOLATILE ORGANIC COMPOUND
CPAH = CARCINOGENIC POLYCYCLIC AROMATIC HYDORCARBON

CVOCS CONSIST OF:
PCE = TETRACHLOROETHENE
TCE = TRICHLOROETHENE
CIS-1,2-DCE = CIS-1,2-DICHLOROETHENE
VC = VINYL CHLORIDE

CLEANUP LEVELS FOR GASOLINE RANGE ORGANICS (GRO) IN SOIL (mg/kg)

ZONE	PROTECTIVE OF GW
Vadose (0 to 25 ft bgs) and Saturated (>25 ft bgs)	30

CLEANUP LEVELS FOR LEAD (mg/kg) IN SOIL

ZONE	DIRECT CONTACT	PROTECTIVE OF GW
Vadose (0 to 25 ft bgs)	250	3000
Saturated (>25 ft bgs)	250	150

0 25 50 100 Feet

Seattle DOT Mercer Parcels Site
Seattle, Washington

Site and Exploration Plan

0202738-100 05/23

HALEY ALDRICH

Figure **2-6**

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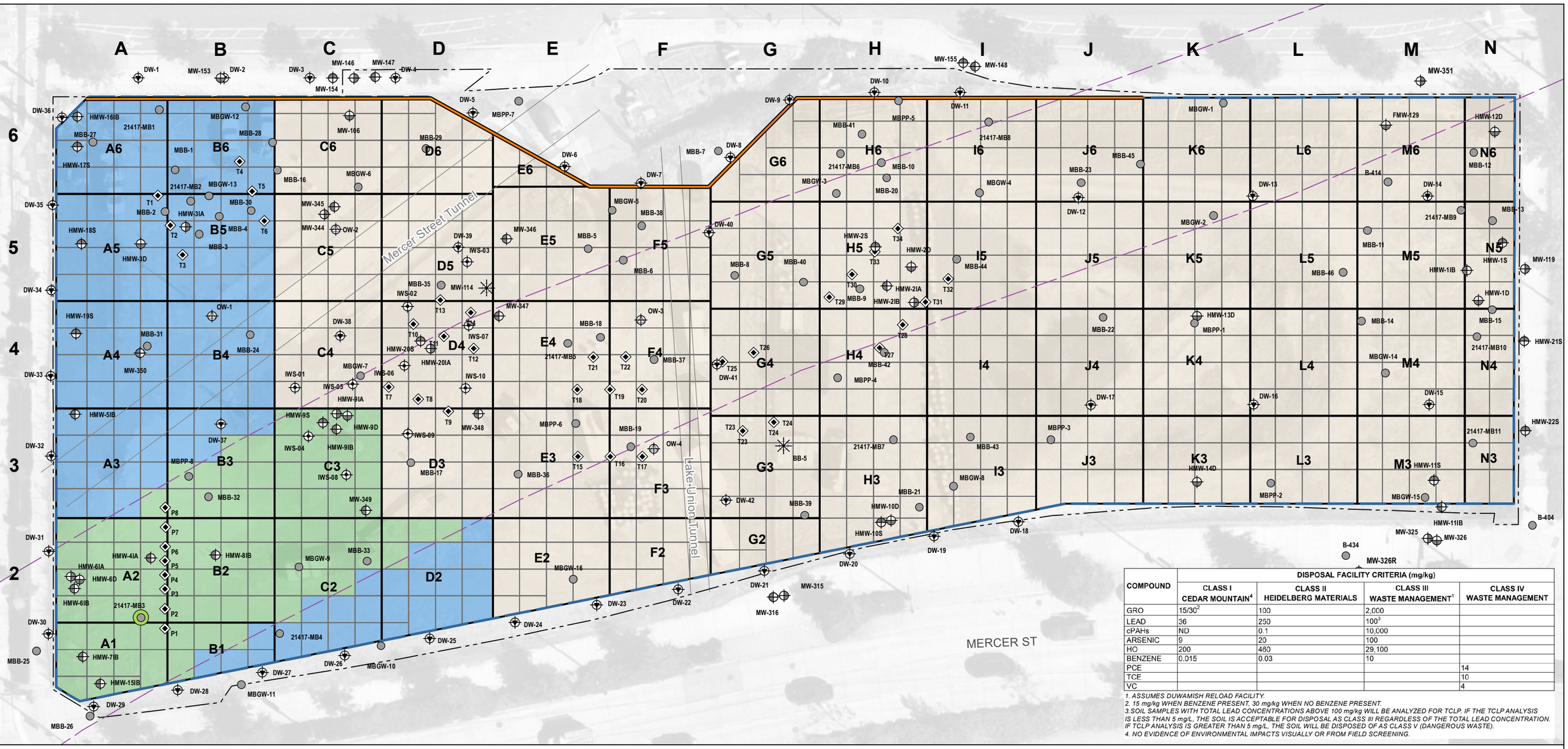

COMPOUND	DISPOSAL FACILITY CRITERIA (mg/kg)			
	CLASS I CEDAR MOUNTAIN[4]	CLASS II HEIDELBERG MATERIALS	CLASS III WASTE MANAGEMENT[1]	CLASS IV WASTE MANAGEMENT
GRO	15/30[2]	100	2,000	
LEAD	36	250	100[3]	
cPAHs	ND	0.1	10,000	
ARSENIC	9	20	100	
HO	200	460	29,100	
BENZENE	0.015	0.03	10	
PCE				14
TCE				10
VC				4

1. ASSUMES DUWAMISH RELOAD FACILITY.
2. 15 mg/kg WHEN BENZENE PRESENT, 30 mg/kg WHEN NO BENZENE PRESENT.
3.SOIL SAMPLES WITH TOTAL LEAD CONCENTRATIONS ABOVE 100 mg/kg WILL BE ANALYZED FOR TCLP. IF THE TCLP ANALYSIS IS LESS THAN 5 mg/L, THE SOIL IS ACCEPTABLE FOR DISPOSAL AS CLASS III REGARDLESS OF THE TOTAL LEAD CONCENTRATION. IF TCLP ANALYSIS IS GREATER THAN 5 mg/L, THE SOIL WILL BE DISPOSED OF AS CLASS V (DANGEROUS WASTE).
4. NO EVIDENCE OF ENVIRONMENTAL IMPACTS VISUALLY OR FROM FIELD SCREENING.

LEGEND

- SHALLOW ZONE MONITORING WELL
- INTERMEDIATE A ZONE MONITORING WELL
- INTERMEDIATE B ZONE MONITORING WELL
- DEEP ZONE MONITORING WELL
- ABANDONED/DECOMMISSIONED MONITORING WELL
- INJECTION WELL
- SOIL BORING
- FUTURE OBSERVATION WELL
- FUTURE DEWATERING WELL
- FUTURE DRILLED SHAFT
- FORMER BROAD STREET 1958-2012
- UTILITIES TUNNEL

SOIL SAMPLE CLASSIFICATION

- CLASS II - MARGINALLY IMPACTED OR EXCEEDS CLASS I CRITERIA

SOIL CLASSIFICATION (FACILITY ASSUMED FOR CRITERIA)

- CLASS I - NON-ENVIRONMENTALLY IMPACTED (CEDAR MOUNTAIN)
- CLASS II - MARGINALLY IMPACTED OR EXCEEDS CLASS I CRITERIA (HEIDELBERG MATERIALS)
- NOT APPLICABLE; GROUND SURFACE BELOW EL. 55 FEET
- SOLDIER AND SECANT SPOILS, CLASS IV (CONTAINED-IN)
- PROPERTY BOUNDARY
- EXCAVATION LIMITS; TO BE EXCAVATED TO ELEVATION 8 FT OR LOWER
- SOIL PRECHARACTERIZATION GRID - 40 FT (APPROXIMATELY)
- SOIL PRECHARACTERIZATION GRID - 10 FT (APPROXIMATELY)

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

2. ALL AREAS ARE ESTIMATED AND ARE SUBJECT TO CHANGE BASED ON NEW DATA COLLECTED PRIOR TO AND DURING CONSTRUCTION. SPOILS FROM DEWATERING WELLS, SHORING ELEMENTS, AND DRILLED SHAFTS WILL BE MANAGED CONSISTENT WITH ADJACENT SOIL CLASSIFICATIONS. CLASS IV AREAS ARE PRELIMINARY AND SUBJECT TO APPROVAL BY ECOLOGY'S HAZARDOUS WASTE AND TOXICS REDUCTION PROGRAM.

3. DISPOSAL FACILITY NOTED IN TABLE IS SHOWN AS EXAMPLE OF A FACILITY WHERE THE SOIL MAY BE ACCEPTED. THE FACILITY WHERE SOIL WILL ACTUALLY BE DISPOSED OF IS SUBJECT TO CHANGE.

4. ABBREVIATIONS:
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mg/kg = MILLIGRAMS PER KILOGRAM
mg/L = MILLIGRAMS PER LITER
TCLP = TOXICITY CHARACTERISTIC LEACHING PROCEDURE

5. DRILLED SHAFTS DATA SOURCE: DIGITIZED FROM PLAN TITLED "800 MERCER STREET, SEATTLE, WA, TEMPORARY SHORING WALL PLANS." MALCOLM DRILLING COMPANY INC, 17 DECEMBER 2020.

6. EXCAVATION BOUNDARY DATA SOURCE: DIGITIZED FROM PLAN TITLED "ARE - MERCER BLOCKS." NBBJ, 11 NOVEMBER 2020.

7. AERIAL IMAGERY SOURCE: NEARMAP, 28 AUGUST 2020

0 15 30 60 Feet

N

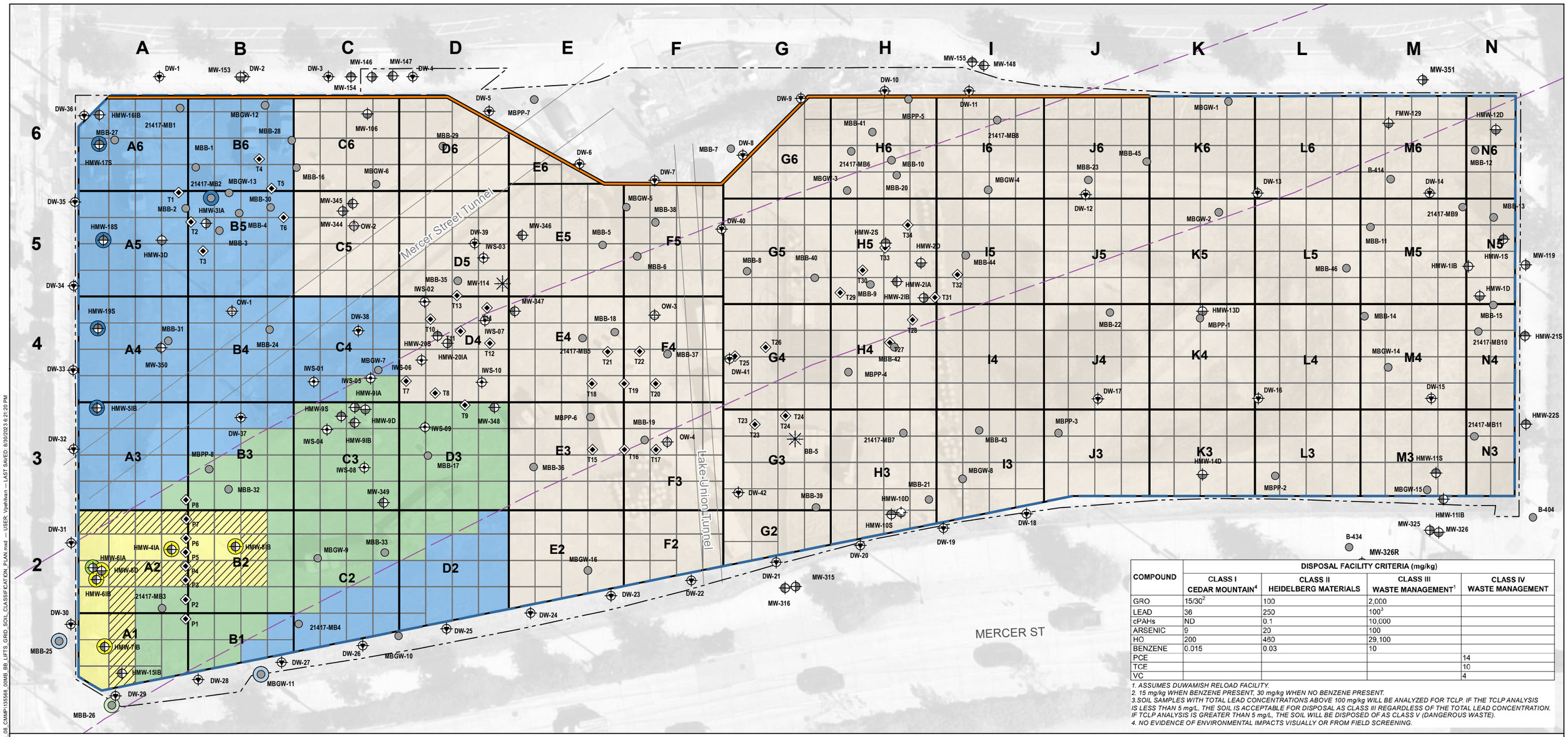
Seattle DOT Mercer Parcels
Seattle, Washington

Soil Classification Plan
Elevation 60 to 55 Feet
Zone A

0202738-100 08/23

HALEY ALDRICH

Figure
2-7A



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LEGEND

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7. AERIAL IMAGERY SOURCE: NEARMAP, 28 AUGUST 2020

0 15 30 60 Feet

N

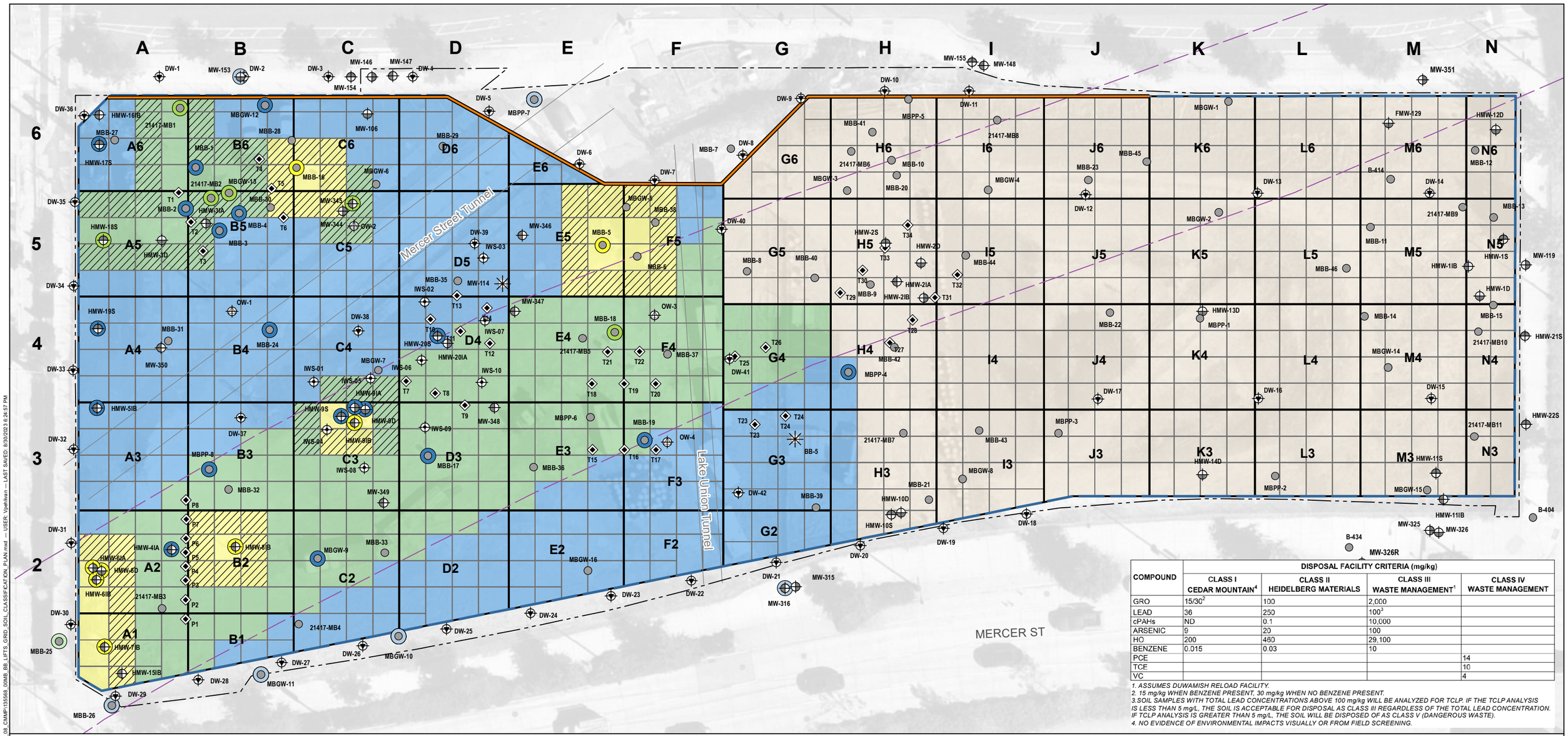
Seattle DOT Mercer Parcels
Seattle, Washington

Soil Classification Plan
Elevation 55 to 50 Feet
Zone B

0202738-100 08/23

HALEY ALDRICH

Figure
2-7B



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7. AERIAL IMAGERY SOURCE: NEARMAP, 28 AUGUST 2020

N

0 15 30 60 Feet

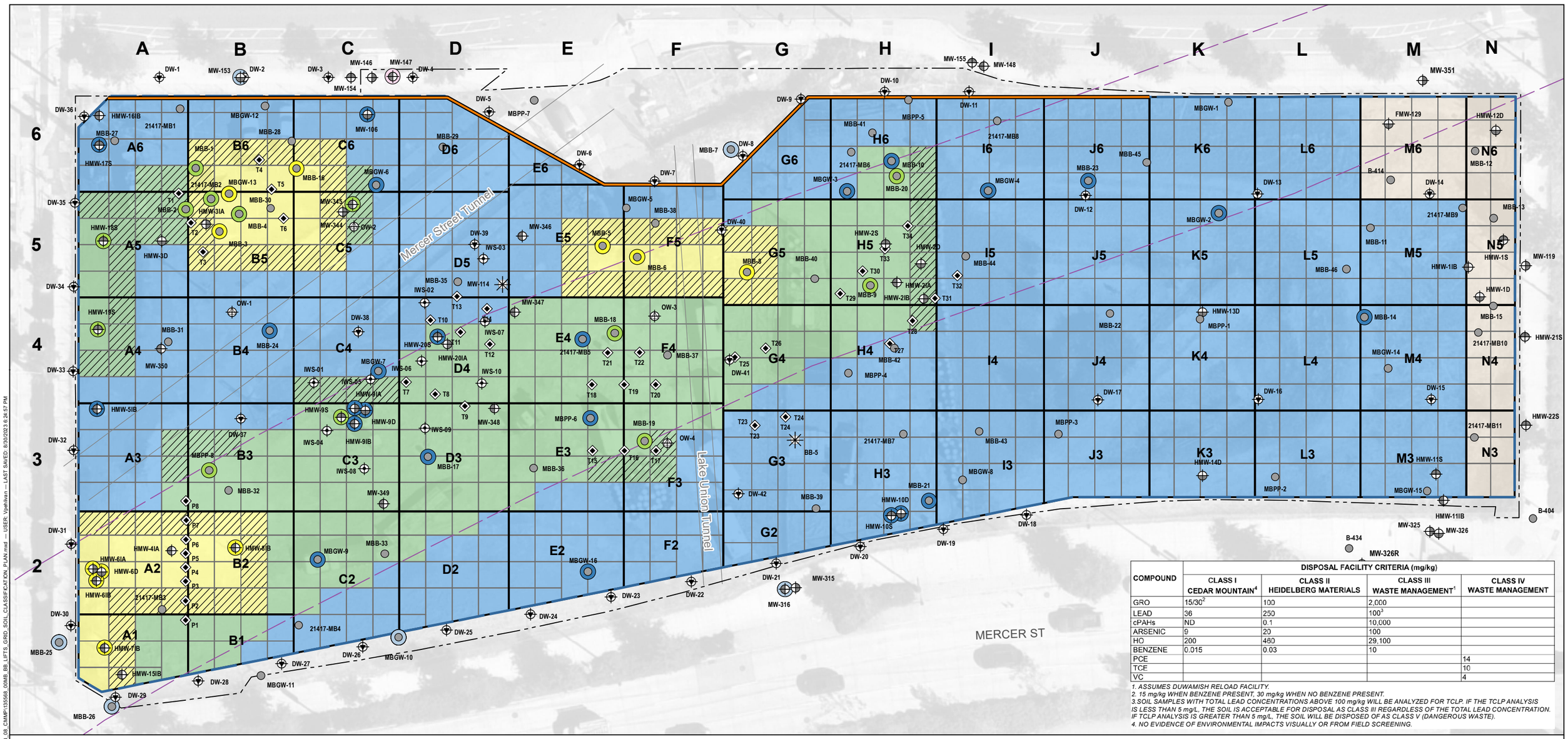
Seattle DOT Mercer Parcels
Seattle, Washington

Soil Classification Plan
Elevation 50 to 45 Feet
Zone C

0202738-100 08/23

HALEY ALDRICH

Figure
2-7C



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7. AERIAL IMAGERY SOURCE: NEARMAP, 28 AUGUST 2020

N

0 15 30 60 Feet

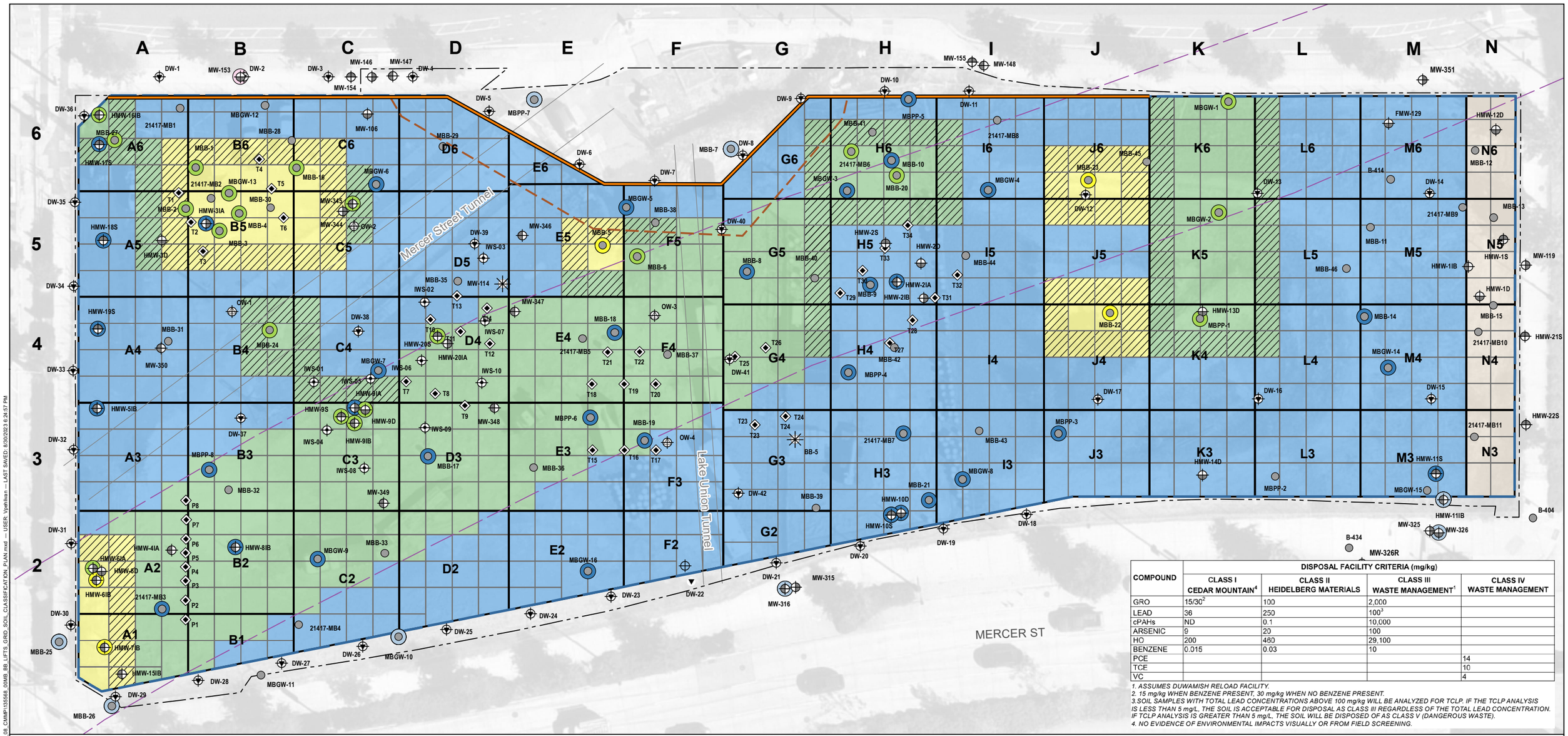
Seattle DOT Mercer Parcels
Seattle, Washington

Soil Classification Plan
Elevation 45 to 40 Feet
Zone D

0202738-100 08/23

HALEY ALDRICH

Figure
2-7D



COMPOUND	DISPOSAL FACILITY CRITERIA (mg/kg)			
	CLASS I CEDAR MOUNTAIN[4]	CLASS II HEIDELBERG MATERIALS	CLASS III WASTE MANAGEMENT[1]	CLASS IV WASTE MANAGEMENT
GRO	15/30[2]	100	2,000	
LEAD	36	250	100[3]	
cPAHs	ND	0.1	10,000	
ARSENIC	9	20	100	
HO	200	460	29,100	
BENZENE	0.015	0.03	10	
PCE				14
TCE				10
VC				4

1. ASSUMES DUWAMISH RELOAD FACILITY.
2. 15 mg/kg WHEN BENZENE PRESENT, 30 mg/kg WHEN NO BENZENE PRESENT.
3.SOIL SAMPLES WITH TOTAL LEAD CONCENTRATIONS ABOVE 100 mg/kg WILL BE ANALYZED FOR TCLP. IF THE TCLP ANALYSIS IS LESS THAN 5 mg/L, THE SOIL IS ACCEPTABLE FOR DISPOSAL AS CLASS III REGARDLESS OF THE TOTAL LEAD CONCENTRATION. IF TCLP ANALYSIS IS GREATER THAN 5 mg/L, THE SOIL WILL BE DISPOSED OF AS CLASS V (DANGEROUS WASTE).
4. NO EVIDENCE OF ENVIRONMENTAL IMPACTS VISUALLY OR FROM FIELD SCREENING.

LEGEND

- SHALLOW ZONE MONITORING WELL
- INTERMEDIATE A ZONE MONITORING WELL
- INTERMEDIATE B ZONE MONITORING WELL
- DEEP ZONE MONITORING WELL
- ABANDONED/DECOMMISSIONED MONITORING WELL
- INJECTION WELL
- SOIL BORING
- FUTURE OBSERVATION WELL
- FUTURE DEWATERING WELL
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- FORMER BROAD STREET 1958-2012
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SOIL SAMPLE CLASSIFICATION

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- CLASS III - IMPACTED, EXCEEDS CLASS II CRITERIA (WASTE MANAGEMENT)
- NOT APPLICABLE; GROUND SURFACE BELOW EL. 35 FEET

- SOLDIER AND SECANT SPOILS, CLASS IV (CONTAINED-IN)
- BUFFER ZONE BETWEEN TWO CLASSIFICATIONS; CLASSIFICATION TO BE DETERMINED DURING CONSTRUCTION PENDING FIELD SCREENING AND/OR ADDITIONAL SAMPLING
- EXTENT OF 2H: 1V SOIL BERM TO BE EXCAVATED LAST, AT ELEVATION 35 FEET
- PROPERTY BOUNDARY
- EXCAVATION LIMITS; TO BE EXCAVATED TO ELEVATION 8 FT OR LOWER
- SOIL PRECHARACTERIZATION GRID - 40 FT (APPROXIMATELY)
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NOTES

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7. AERIAL IMAGERY SOURCE: NEARMAP, 28 AUGUST 2020

0 15 30 60 Feet

N

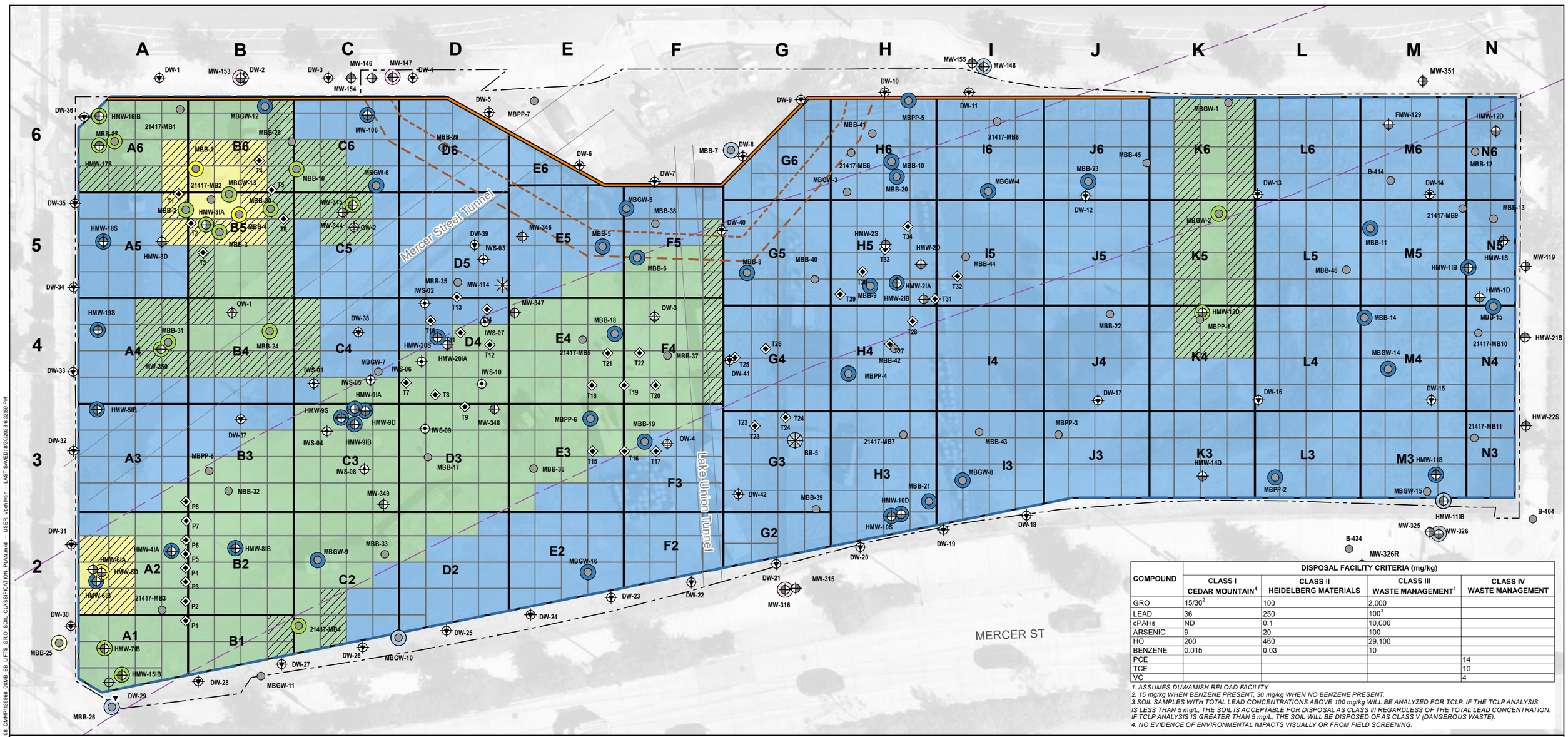
Seattle DOT Mercer Parcels
Seattle, Washington

Soil Classification Plan
Elevation 40 to 35 Feet
Zone E

0202738-100 08/23

HALEY ALDRICH

Figure
2-7E



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- ☐ PROPERTY BOUNDARY
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N

0 15 30 60
Feet

Seattle DOT Mercer Parcels
Seattle, Washington

Soil Classification Plan
Elevation 35 to 30 Feet
Zone F

0202738-100
08/23

HALEY ALDRICH

Figure
2-7F

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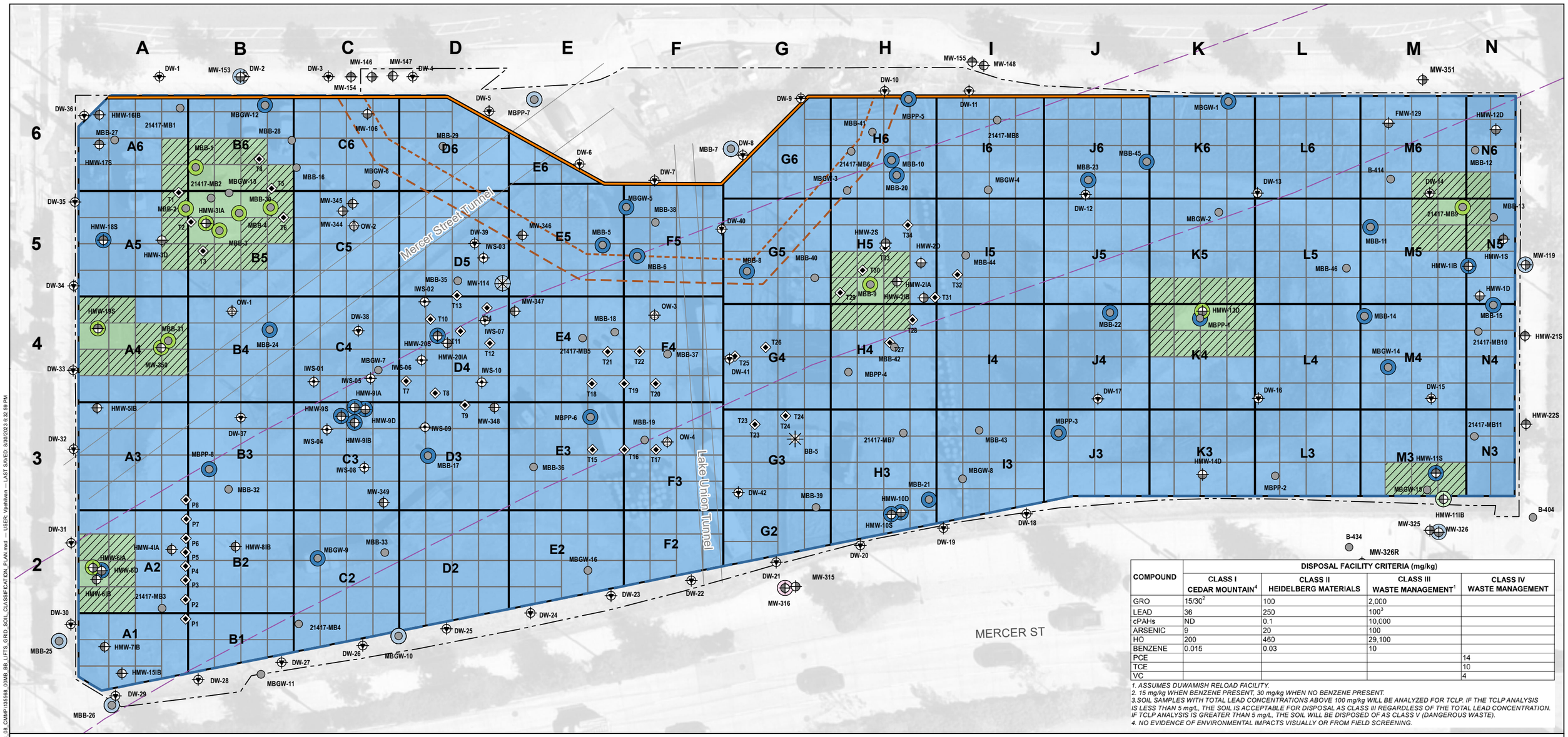

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7. AERIAL IMAGERY SOURCE: NEARMAP, 28 AUGUST 2020

0 15 30 60 Feet

N

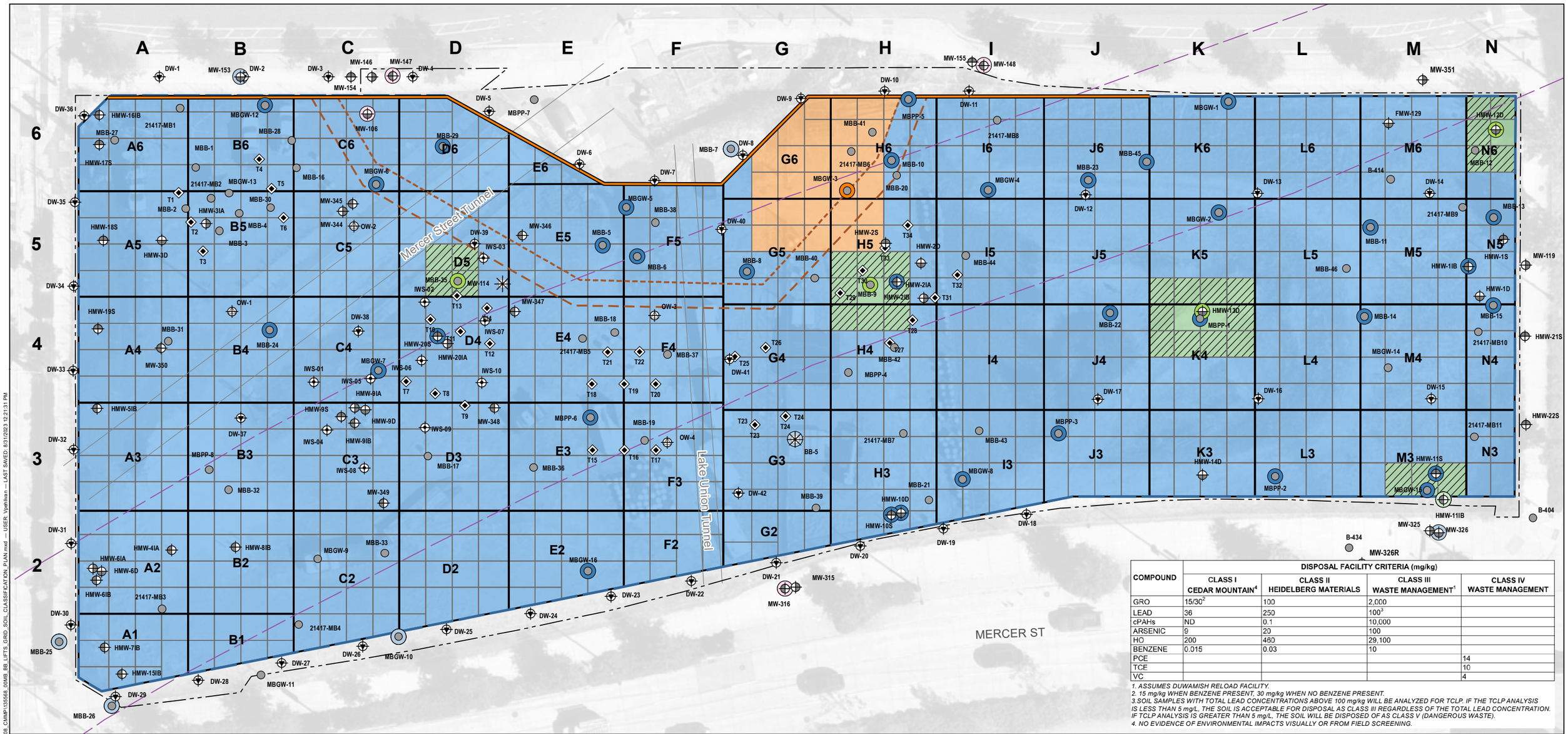
Seattle DOT Mercer Parcels
Seattle, Washington

Soil Classification Plan
Elevation 30 to 25 Feet
Zone G

0202738-100 08/23

HALEY ALDRICH

Figure
2-7G



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0 15 30 60 Feet

Seattle DOT Mercer Parcels
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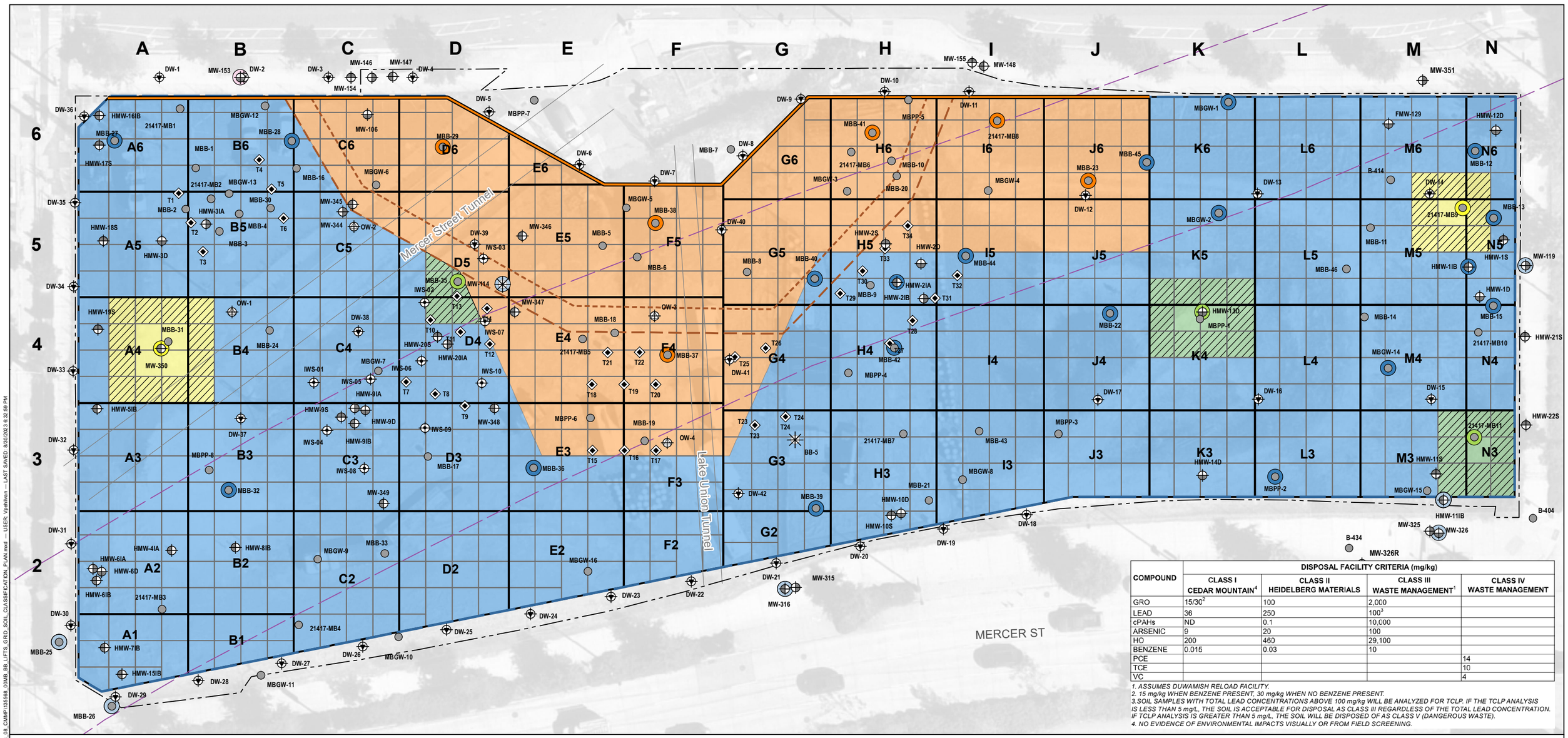
0202738-100 08/23

HALEY ALDRICH

Figure
2-7H



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NOTES

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2. ALL AREAS ARE ESTIMATED AND ARE SUBJECT TO CHANGE BASED ON NEW DATA COLLECTED PRIOR TO AND DURING CONSTRUCTION. SPOILS FROM DEWATERING WELLS, SHORING ELEMENTS, AND DRILLED SHAFTS WILL BE MANAGED CONSISTENT WITH ADJACENT SOIL CLASSIFICATIONS. CLASS IV AREAS ARE PRELIMINARY AND SUBJECT TO APPROVAL BY ECOLOGY'S HAZARDOUS WASTE AND TOXICS REDUCTION PROGRAM.

3. DISPOSAL FACILITY NOTED IN TABLE IS SHOWN AS EXAMPLE OF A FACILITY WHERE THE SOIL MAY BE ACCEPTED. THE FACILITY WHERE SOIL WILL ACTUALLY BE DISPOSED OF IS SUBJECT TO CHANGE.

4. ABBREVIATIONS:
GRO = GASOLINE-RANGE ORGANICS
cPAHs = CARCINOGENIC POLYCYCLIC AROMATIC HYDROCARBONS
HO = HEAVY OIL-RANGE ORGANICS
PCE = TETRACHLOROETHENE
TCE = TRICHLOROETHENE
VC = VINYL CHLORIDE
ND = NON-DETECT
mg/kg = MILLIGRAMS PER KILOGRAM
mg/L = MILLIGRAMS PER LITER
TCLP = TOXICITY CHARACTERISTIC LEACHING PROCEDURE

5. DRILLED SHAFTS DATA SOURCE: DIGITIZED FROM PLAN TITLED "800 MERCER STREET, SEATTLE, WA, TEMPORARY SHORING WALL PLANS." MALCOLM DRILLING COMPANY INC, 17 DECEMBER 2020.

6. EXCAVATION BOUNDARY DATA SOURCE: DIGITIZED FROM PLAN TITLED "ARE - MERCER BLOCKS." NBBJ, 11 NOVEMBER 2020.

7. AERIAL IMAGERY SOURCE: NEARMAP, 28 AUGUST 2020

N

0 15 30 60 Feet

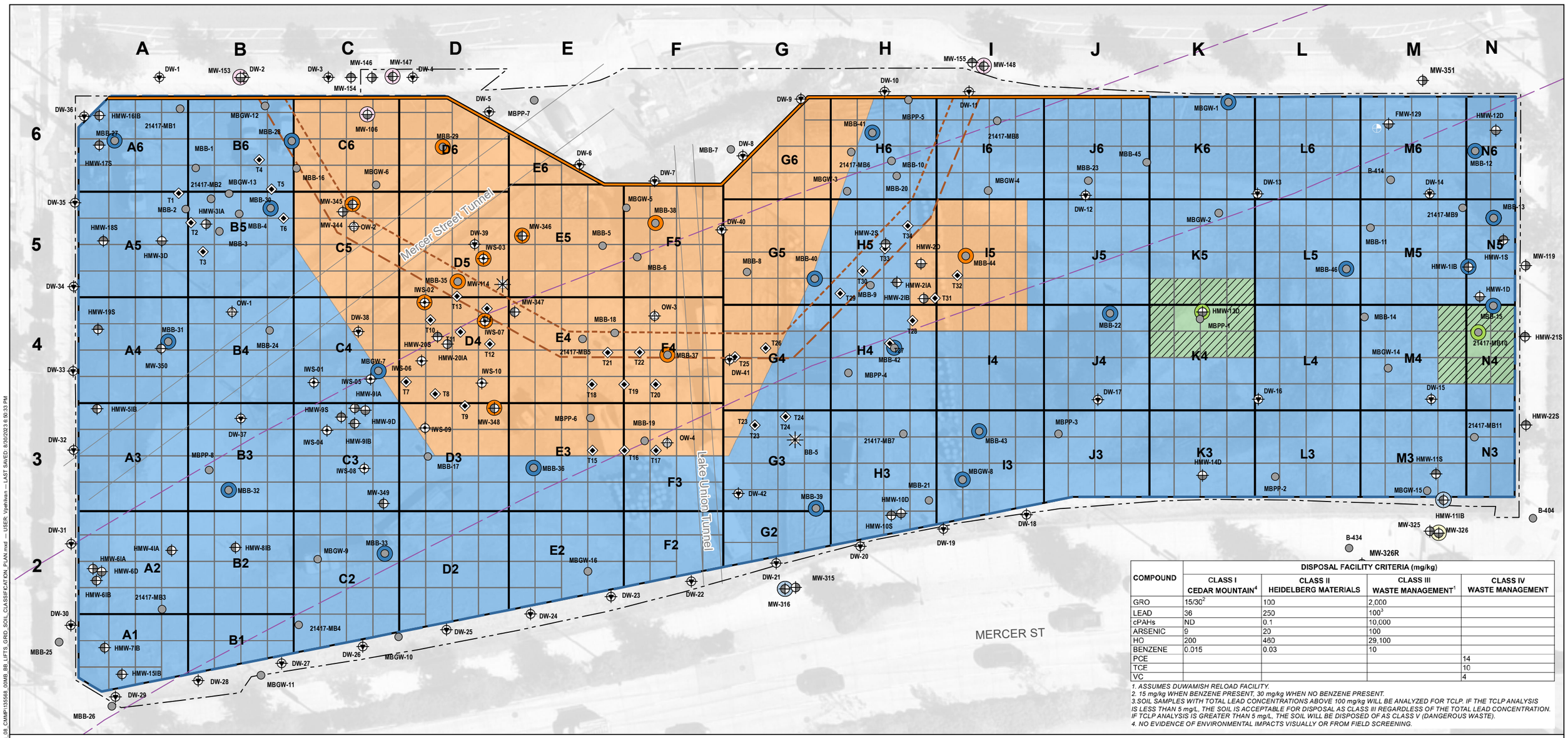
Seattle DOT Mercer Parcels
Seattle, Washington

Soil Classification Plan
Elevation 20 to 15 Feet
Zone I

0202738-100 08/23

HALEY ALDRICH

Figure
2-7I



COMPOUND	DISPOSAL FACILITY CRITERIA (mg/kg)			
	CLASS I CEDAR MOUNTAIN[4]	CLASS II HEIDELBERG MATERIALS	CLASS III WASTE MANAGEMENT[1]	CLASS IV WASTE MANAGEMENT
GRO	15/30[2]	100	2,000	
LEAD	36	250	100[3]	
cPAHs	ND	0.1	10,000	
ARSENIC	9	20	100	
HO	200	460	29,100	
BENZENE	0.015	0.03	10	
PCE				14
TCE				10
VC				4

1. ASSUMES DUWAMISH RELOAD FACILITY.
2. 15 mg/kg WHEN BENZENE PRESENT, 30 mg/kg WHEN NO BENZENE PRESENT.
3.SOIL SAMPLES WITH TOTAL LEAD CONCENTRATIONS ABOVE 100 mg/kg WILL BE ANALYZED FOR TCLP. IF THE TCLP ANALYSIS IS LESS THAN 5 mg/L, THE SOIL IS ACCEPTABLE FOR DISPOSAL AS CLASS III REGARDLESS OF THE TOTAL LEAD CONCENTRATION. IF TCLP ANALYSIS IS GREATER THAN 5 mg/L, THE SOIL WILL BE DISPOSED OF AS CLASS V (DANGEROUS WASTE).
4. NO EVIDENCE OF ENVIRONMENTAL IMPACTS VISUALLY OR FROM FIELD SCREENING.

LEGEND

- SHALLOW ZONE MONITORING WELL
- INTERMEDIATE A ZONE MONITORING WELL
- INTERMEDIATE B ZONE MONITORING WELL
- DEEP ZONE MONITORING WELL
- ABANDONED/DECOMMISSIONED MONITORING WELL
- INJECTION WELL
- SOIL BORING
- FUTURE OBSERVATION WELL
- FUTURE DEWATERING WELL
- FUTURE DRILLED SHAFT
- FORMER BROAD STREET 1958-2012
- UTILITIES TUNNEL

SOIL SAMPLE CLASSIFICATION

- CLASS I - NON-ENVIRONMENTALLY IMPACTED
- CLASS I - NON-ENVIRONMENTALLY IMPACTED (PRE-2017 OR OUTSIDE EXCAVATION)
- CLASS II - MARGINALLY IMPACTED OR EXCEEDS CLASS I CRITERIA
- CLASS III - IMPACTED (PRE-2017 OR OUTSIDE EXCAVATION)
- CLASS IV - IMPACTED, CONTAINED-IN
- CLASS IV - IMPACTED, CONTAINED-IN (PRE-2017 OR OUTSIDE EXCAVATION)

SOIL CLASSIFICATION (FACILITY ASSUMED FOR CRITERIA)

- CLASS I - NON-ENVIRONMENTALLY IMPACTED (CEDAR MOUNTAIN)
- CLASS II - MARGINALLY IMPACTED OR EXCEEDS CLASS I CRITERIA (HEIDELBERG MATERIALS)
- CLASS IV - IMPACTED, CONTAINED-IN (WASTE MANAGEMENT)

- SOLDIER AND SECANT SPOILS, CLASS IV (CONTAINED-IN)
- BUFFER ZONE BETWEEN TWO CLASSIFICATIONS; CLASSIFICATION TO BE DETERMINED DURING CONSTRUCTION PENDING FIELD SCREENING AND/OR ADDITIONAL SAMPLING
- EXTENT OF 2H: 1V SOIL BERM TO BE EXCAVATED LAST, AT ELEVATION 15 FEET
- EXTENT OF 2H: 1V SOIL BERM TO BE EXCAVATED LAST, AT ELEVATION 10 FEET
- PROPERTY BOUNDARY
- EXCAVATION LIMITS; TO BE EXCAVATED TO ELEVATION 8 FT OR LOWER
- SOIL PRECHARACTERIZATION GRID - 40 FT (APPROXIMATELY)
- SOIL PRECHARACTERIZATION GRID - 10 FT (APPROXIMATELY)

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

2. ALL AREAS ARE ESTIMATED AND ARE SUBJECT TO CHANGE BASED ON NEW DATA COLLECTED PRIOR TO AND DURING CONSTRUCTION. SPOILS FROM DEWATERING WELLS, SHORING ELEMENTS, AND DRILLED SHAFTS WILL BE MANAGED CONSISTENT WITH ADJACENT SOIL CLASSIFICATIONS. CLASS IV AREAS ARE PRELIMINARY AND SUBJECT TO APPROVAL BY ECOLOGY'S HAZARDOUS WASTE AND TOXICS REDUCTION PROGRAM.

3. DISPOSAL FACILITY NOTED IN TABLE IS SHOWN AS EXAMPLE OF A FACILITY WHERE THE SOIL MAY BE ACCEPTED. THE FACILITY WHERE SOIL WILL ACTUALLY BE DISPOSED OF IS SUBJECT TO CHANGE.

4. ABBREVIATIONS:
GRO = GASOLINE-RANGE ORGANICS
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HO = HEAVY OIL-RANGE ORGANICS
PCE = TETRACHLOROETHENE
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VC = VINYL CHLORIDE
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mg/kg = MILLIGRAMS PER KILOGRAM
mg/L = MILLIGRAMS PER LITER
TCLP = TOXICITY CHARACTERISTIC LEACHING PROCEDURE

5. DRILLED SHAFTS DATA SOURCE: DIGITIZED FROM PLAN TITLED "800 MERCER STREET, SEATTLE, WA, TEMPORARY SHORING WALL PLANS." MALCOLM DRILLING COMPANY INC, 17 DECEMBER 2020.

6. EXCAVATION BOUNDARY DATA SOURCE: DIGITIZED FROM PLAN TITLED "ARE - MERCER BLOCKS." NBBJ, 11 NOVEMBER 2020.

7. AERIAL IMAGERY SOURCE: NEARMAP, 28 AUGUST 2020

N

0 15 30 60 Feet

Seattle DOT Mercer Parcels
Seattle, Washington

Soil Classification Plan
Elevation 15 to 10 Feet
Zone J

0202738-100 08/23

HALEY ALDRICH

Figure
2-7J

ROY ST

MERCER ST

DEXTER AVE N

9TH AVE N

Mercer Street Tunnel

Lake Union Tunnel

BOE RANGES FROM ELEVATION 7.75 TO 6.25 FT (2.75 TO 3.75 FT EXCAVATION DEPTH FROM ELEVATION 10FT)

BOE RANGES FROM ELEVATION 6.75 TO 4.75 FT (3.25-5.25FT EXCAVATION DEPTH FROM ELEVATION 10FT)

BOE RANGES FROM ELEVATION 7.75 TO 6.25 FT (2.25-3.75 FT EXCAVATION DEPTH FROM ELEVATION 10FT)

BOE RANGES FROM ELEVATION 7.25 TO 6.25 FT (2.75-3.75 FT EXCAVATION DEPTH FROM ELEVATION 10FT)

BOE RANGES FROM ELEVATION 7.75 TO 6.25 FEET (2.25-3.75 FT EXCAVATION DEPTH FROM ELEVATION 10FT)

COMPOUND	DISPOSAL FACILITY CRITERIA (mg/kg)			
	CLASS I CEDAR MOUNTAIN[4]	CLASS II HEIDELBERG MATERIALS	CLASS III WASTE MANAGEMENT[1]	CLASS IV WASTE MANAGEMENT
GRO	15/30[2]	100	2,000	
LEAD	36	250	100[3]	
cPAHs	ND	0.1	10,000	
ARSENIC	9	20	100	
HO	200	460	29,100	
BENZENE	0.015	0.03	10	
PCE				14
TCE				10
VC				4

1. ASSUMES DUWAMISH RELOAD FACILITY.
2. 15 mg/kg WHEN BENZENE PRESENT, 30 mg/kg WHEN NO BENZENE PRESENT.
3.SOIL SAMPLES WITH TOTAL LEAD CONCENTRATIONS ABOVE 100 mg/kg WILL BE ANALYZED FOR TCLP. IF THE TCLP ANALYSIS IS LESS THAN 5 mg/L, THE SOIL IS ACCEPTABLE FOR DISPOSAL AS CLASS III REGARDLESS OF THE TOTAL LEAD CONCENTRATION. IF TCLP ANALYSIS IS GREATER THAN 5 mg/L, THE SOIL WILL BE DISPOSED OF AS CLASS V (DANGEROUS WASTE).
4. NO EVIDENCE OF ENVIRONMENTAL IMPACTS VISUALLY OR FROM FIELD SCREENING.

LEGEND

- SHALLOW ZONE MONITORING WELL
- INTERMEDIATE A ZONE MONITORING WELL
- INTERMEDIATE B ZONE MONITORING WELL
- DEEP ZONE MONITORING WELL
- ABANDONED/DECOMMISSIONED MONITORING WELL
- INJECTION WELL
- SOIL BORING
- FUTURE OBSERVATION WELL
- FUTURE DEWATERING WELL
- FUTURE DRILLED SHAFT
- FORMER BROAD STREET 1958-2012
- UTILITIES TUNNEL

SOIL SAMPLE CLASSIFICATION

- CLASS I - NON-ENVIRONMENTALLY IMPACTED
- CLASS I - NON-ENVIRONMENTALLY IMPACTED (PRE-2017 OR OUTSIDE EXCAVATION)
- CLASS II - MARGINALLY IMPACTED OR EXCEEDS CLASS I CRITERIA
- CLASS IV - IMPACTED, CONTAINED-IN
- CLASS IV - IMPACTED, CONTAINED-IN (PRE-2017 OR OUTSIDE EXCAVATION)

SOIL CLASSIFICATION (FACILITY ASSUMED FOR CRITERIA)

- CLASS IV - IMPACTED, CONTAINED-IN (WASTE MANAGEMENT)
- CLASS II - MARGINALLY IMPACTED OR EXCEEDS CLASS I CRITERIA (HEIDELBERG MATERIALS)
- CLASS I - NON-ENVIRONMENTALLY IMPACTED (CEDAR MOUNTAIN)
- FOLLOWS FOUNDATION DEPTH TRANSITION
- SOLDIER AND SECANT SPOILS, CLASS IV (CONTAINED-IN)

- BUFFER ZONE BETWEEN TWO CLASSIFICATIONS; CLASSIFICATION TO BE DETERMINED DURING CONSTRUCTION PENDING FIELD SCREENING AND/OR ADDITIONAL SAMPLING
- EXTENT OF 2H: 1V SOIL BERM TO BE EXCAVATED LAST, AT 5 FEET
- PROPERTY BOUNDARY
- AREA OF DEEPER EXCAVATION TO EL. 2.75 TO 1.75 (APPROXIMATELY)
- EXCAVATION LIMITS; TO BE EXCAVATED TO ELEVATION 8 FT OR LOWER
- SOIL PRECHARACTERIZATION GRID - 40 FT (APPROXIMATELY)
- SOIL PRECHARACTERIZATION GRID - 10 FT (APPROXIMATELY)

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

2. ALL AREAS ARE ESTIMATED AND ARE SUBJECT TO CHANGE BASED ON NEW DATA COLLECTED PRIOR TO AND DURING CONSTRUCTION. SPOILS FROM DEWATERING WELLS, SHORING ELEMENTS, DRILLED SHAFTS, AND GROUND IMPROVEMENT ELEMENTS WILL BE MANAGED CONSISTENT WITH ADJACENT SOIL CLASSIFICATIONS.

3. DISPOSAL FACILITY NOTED IN TABLE IS SHOWN AS EXAMPLE OF A FACILITY WHERE THE SOIL MAY BE ACCEPTED. THE FACILITY WHERE SOIL WILL ACTUALLY BE DISPOSED OF IS SUBJECT TO CHANGE.

4. ABBREVIATIONS:
BOE = BOTTOM OF EXCAVATION
EL = ELEVATION
GRO = GASOLINE-RANGE ORGANICS
CPAHS = CARCINOGENIC POLYCYCLIC AROMATIC HYDROCARBONS
HO = HEAVY OIL-RANGE ORGANICS
PCE = TETRACHLOROETHENE
TCE = TRICHLOROETHENE
VC = VINYL CHLORIDE
ND = NON-DETECT
MG/KG = MILLIGRAMS PER KILOGRAM
MG/L = MILLIGRAMS PER LITER
TCLP = TOXICITY CHARACTERISTIC LEACHING PROCEDURE

5. LIMITS OF PROPOSED MAT FOUNDATIONS OBTAINED FROM FOUNDATION PLAN PREPARED BY KPFF, 6 JUNE 2022.

6. DRILLED SHAFTS (T-1 TO T-34) DATA SOURCE: DIGITIZED FROM PLAN TITLED "800 MERCER STREET, SEATTLE, WA, TEMPORARY SHORING WALL PLANS." MALCOLM DRILLING COMPANY INC, 17 DECEMBER 2020.

7. EXCAVATION BOUNDARY DATA SOURCE: DIGITIZED FROM PLAN TITLED "ARE - MERCER BLOCKS." NBBJ, 11 NOVEMBER 2020.

8. AERIAL IMAGERY SOURCE: NEARMAP, 28 AUGUST 2020

0 20 40 80 Feet

N

Seattle DOT Mercer Parcels
Seattle, Washington

Soil Classification Plan
Elevation 10 Feet to BOE
Zone K

0202738-100 08/23

HALEY ALDRICH

Figure **2-7K**

GIS FILE PATH: \\haleyaldrich.com\share\CP\Projects\135500\GIS\135500_Mercer_Mega_Block\Maps\2023_08_CMMP\135568_0002-7K_BB_LFTS_GRID_SOIL_CLASSIFICATION_PLAN.mxd — USER: Vpehlivan — LAST SAVED: 8/31/2023 12:10:50 PM

ATTACHMENT 1
Boring Logs for Supplemental Disposal Pre-Characterization Investigation

Sample Description

Identification of soils in this report is based on visual field and laboratory observations which include density/consistency, moisture condition, grain size, and plasticity estimates and should not be construed to imply field nor laboratory testing unless presented herein. ASTM D 2488 visual-manual identification methods were used as a guide. Where laboratory testing confirmed visual-manual identifications, then ASTM D 2487 was used to classify the soils.

Relative Density/Consistency

Soil density/consistency in borings is related primarily to the standard penetration resistance (N). Soil density/consistency in test pits and probes is estimated based on visual observation and is presented parenthetically on the logs.

SAND or GRAVEL Relative Density	N (Blows/Foot)	SILT or CLAY Consistency	N (Blows/Foot)
Very loose	0 to 4	Very soft	0 to 1
Loose	5 to 10	Soft	2 to 4
Medium dense	11 to 30	Medium stiff	5 to 8
Dense	31 to 50	Stiff	9 to 15
Very dense	>50	Very stiff	16 to 30
		Hard	>30

Moisture

Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

USCS Soil Classification Chart (ASTM D 2487)

Major Divisions			Symbols: Graph	Symbols: USCS	Typical Descriptions
Coarse Grained Soils: More than 50% of Material Retained on No. 200 Sieve	Gravel and Gravelly Soils: More than 50% of Coarse Fraction Retained on No. 4 Sieve	Clean Gravels (<5% fines)		GW	Well-Graded Gravel; Well-Graded Gravel with Sand
				GP	Poorly Graded Gravel; Poorly Graded Gravel with Sand
		Gravels (5-12% fines)		GW-GM	Well-Graded Gravel with Silt; Well-Graded Gravel with Silt and Sand
				GW-GC	Well-Graded Gravel with Clay; Well-Graded Gravel with Clay and Sand
				GP-GM	Poorly Graded Gravel with Silt; Poorly Graded Gravel with Silt and Sand
				GP-GC	Poorly Graded Gravel with Clay; Poorly Graded Gravel with Clay and Sand
		Gravels with Fines (>12% fines)		GM	Silty Gravel; Silty Gravel with Sand
				GC	Clayey Gravel; Clayey Gravel with Sand
	Sand and Sandy Soils: More than 50% of Coarse Fraction Passing No. 4 Sieve	Sands with few Fines (<5% fines)		SW	Well-Graded Sand; Well-Graded Sand with Gravel
				SP	Poorly Graded Sand; Poorly Graded Sand with Gravel
		Sands (5-12% fines)		SW-SM	Well-Graded Sand with Silt Well-Graded Sand with Silt and Gravel
				SW-SC	Well-Graded Sand with Clay; Well-Graded Sand with Clay and Gravel
				SP-SM	Poorly Graded Sand with Silt; Poorly Graded Sand with Silt and Gravel
				SP-SC	Poorly Graded Sand with Clay; Poorly Graded Sand with Clay and Gravel
		Sands with Fines (>12% fines)		SM	Silty Sand; Silty Sand with Gravel
				SC	Clayey Sand; Clayey Sand with Gravel
Fine Grained Soils: More than 50% of Material Passing No. 200 Sieve	Silts			ML	Silt; Silt with Sand or Gravel; Sandy or Gravelly Silt
				MH	Elastic Silt; Elastic Silt with Sand or Gravel; Sandy or Gravelly Elastic Silt
	Silty Clay (based on Atterberg Limits)			CL-ML	Silty Clay; Silty Clay with Sand or Gravel; Gravelly or Sandy Silty Clay
	Clays			CL	Lean Clay; Lean Clay with Sand or Gravel; Sandy or Gravelly Lean Clay
				CH	Fat Clay; Fat Clay with Sand or Gravel; Sandy or Gravelly Fat Clay
	Organics			OL/OH	Organic Soil; Organic Soil with Sand or Gravel; Sandy or Gravelly Organic Soil
Highly Organic (>50% organic material)				PT	Peat - Decomposing Vegetation - Fibrous to Amorphous Texture

Minor Constituents

	Estimated Percentage
Sand, Gravel	
Trace	<5
Few	5 - 15
Cobbles, Boulders	
Trace	<5
Few	5 - 10
Little	15 - 25
Some	30 - 45

Soil Test Symbols

%F	Percent Passing No. 200 Sieve
AL	Atterberg Limits (%)
	Liquid Limit (LL)
	Water Content (WC)
	Plastic Limit (PL)
CA	Chemical Analysis
CAUC	Consolidated Anisotropic Undrained Compression
CAUE	Consolidated Anisotropic Undrained Extension
CBR	California Bearing Ratio
CIDC	Consolidated Drained Isotropic Triaxial Compression
CIUC	Consolidated Isotropic Undrained Compression
CK0DC	Consolidated Drained k0 Triaxial Compression
CK0DSS	Consolidated k0 Undrained Direct Simple Shear
CK0UC	Consolidated k0 Undrained Compression
CK0UE	Consolidated k0 Undrained Extension
CRSCN	Constant Rate of Strain Consolidation
DS	Direct Shear
DSS	Direct Simple Shear
DT	In Situ Density
GS	Grain Size Classification
HYD	Hydrometer
ILCN	Incremental Load Consolidation
K0CN	k0 Consolidation
kc	Constant Head Permeability
kf	Falling Head Permeability
MD	Moisture Density Relationship
OC	Organic Content
OT	Tests by Others
P	Pressuremeter
PID	Photoionization Detector Reading
PP	Pocket Penetrometer
SG	Specific Gravity
TRS	Torsional Ring Shear
TV	Torvane
UC	Unconfined Compression
UUC	Unconsolidated Undrained Triaxial Compression
VS	Vane Shear
WC	Water Content (%)

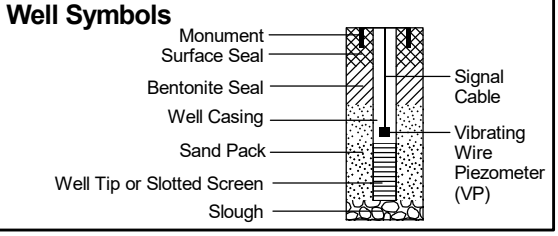
Groundwater Indicators

- Groundwater Level on Date or At Time of Drilling (ATD)
- Groundwater Level on Date Measured in Piezometer
- Groundwater Seepage (Test Pits)

Sample Symbols

- 1.5" I.D. Split Spoon
- 3.0" I.D. Split Spoon
- Modified California Sampler
- Rock Core Run
- Sonic Core
- Thin-walled Sampler
- Grab
- Cuttings
- Push Probe

Well Symbols



HALEY ALDRICH	Project: 800 Mercer St. Location: Seattle, Washington Project No.: 0202738-100	**Key to Exploration Logs**	Figure **A-0** Sheet **1 of 1**

Date Started: 05/24/2022	Date Completed: 05/24/2022	Contractor/Crew: Holt Services, Inc. / Marlin, Javier, David	
Logged by: B. Lytle-Goldstein	Checked by: B. Dozier	Rig Model/Type: TSi 150CC / Track-mounted drill rig	
Location: Lat: 47.625237 Long: -122.342090 (WGS 84)		Hole Diameter: 6 inches	Well Casing Diameter: NA
Ground Surface Elevation: 57.40 feet (NAVD 88)		Total Depth: 50 feet	Depth to Groundwater: Not Identified
Comments:			

Elevation (feet)	Depth (feet)	Sample Data: Type	Length (inches)	Number / Tests	PID (ppm)	Sheen	Graphic Log	Material Description	Depth (feet)
57	0							Vacuum excavated to 5 ft. bgs Soil not logged from 0 to 15 ft. bgs	0
55	5								5
50	10								10
45	15							SILTY SAND (SM), few subrounded to subangular gravel, (dense), moist, gray-brown, strong hydrocarbon-like odor.	15
40	20			MBB-27-S1-20	5.6	SS		becomes gray with occasional iron oxide staining	20
35	25			MBB-27-S2-25	0.0	SS		occasional pockets of brown silt, trace cobble from 23 to 24 ft. bgs becomes gray-brown, moderate hydrocarbon odor POORLY GRADED SAND WITH SILT (SP-SM), (dense), wet, gray-brown.	25
30	30			MBB-27-S3-30	0.0	NS		SANDY SILT (ML), few gravel, (stiff), moist, gray-brown. no odor POORLY GRADED SAND (SP-SM), (loose), wet, gray-brown, fine to medium sand, iron oxide staining.	30
25								SILTY SAND (SM), few subrounded to subangular gravel, (dense), moist, gray-brown.	
20	35			MBB-27-S4-35	0.0	SS		SANDY SILT (ML), few gravel, (stiff), moist, gray-brown. becomes gray SILTY SAND (SM), trace gravel, (dense), moist, gray, medium sand from 34 to 34.5 ft. bgs, then fine sand from 34.5 to 35.75 ft. bgs, no odor. POORLY GRADED SAND (SP), (loose), wet, gray-brown, medium sand.	35
15	40			MBB-27-S5-40	0.0	NS		SANDY SILT (ML), trace subangular to subrounded gravel, trace subangular to subrounded cobble, (hard), moist, gray-brown to gray. no odor	40
10	45			MBB-27-S6-45	0.0	NS		no odor	45
5	50			MBB-27-S7-50	0.0	NS		no odor Bottom of Borehole at 50.0 feet.	50
55									55

General Notes:
1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Material stratum lines are interpretive and actual changes may be gradual. Solid lines indicate distinct contacts and dashed lines indicate gradual or approximate contacts.
3. USCS designations are based on visual-manual identification (ASTM D 2488), unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling/excavation (ATD) or for date specified. Level may vary with time.
5. Location and ground surface elevations are approximate.

HALEY ALDRICH

Project: 800 Mercer St.
Location: Seattle, Washington
Project No.: 0202738-100

Boring Log
MBB-27

Figure **A-1**
Sheet **1 of 1**

Date Started: 05/25/2022	Date Completed: 05/25/2022	Contractor/Crew: Holt Services, Inc.	
Logged by: B. Lytle-Goldstein	Checked by: B. Dozier	Rig Model/Type: TSi 150CC / Track-mounted drill rig	
Location: Lat: 47.625236 Long: -122.341797 (WGS 84)		Hole Diameter: 6 inches	Well Casing Diameter: NA
Ground Surface Elevation: 53.88 feet (NAVD 88)		Total Depth: 50 feet	Depth to Groundwater: Not Identified
Comments:			

Elevation (feet)	Depth (feet)	Sample Data: Type	Length (inches)	Number / Tests	PID (ppm)	Sheen	Graphic Log	Material Description
	0							Vacuum excavated to 5 ft. bgs Soil not logged from 0 to 15 ft. bgs
50	5							
45	10							
40	15							POORLY GRADED SAND WITH SILT (SP-SM), few subangular to subrounded gravel, trace cobble, (loose), moist, gray-brown.
35		X		MBB-28-S1-20	0.0	NS		no odor
	20							SILTY SAND (SM), trace gravel, (dense), moist, gray-brown.
30								SILT (ML), (hard), moist, gray-brown, no odor.
	25	X		MBB-28-S2-25	0.0	NS		becomes gray becomes gray-brown, frequent iron oxide staining
								SILTY SAND (SM), few subrounded to subangular gravel, (dense), moist, gray to gray-brown. fine sand with lens of meidum sand from 25 to 26.5 ft. bgs
25								SANDY SILT (ML), few gravel, (hard), moist, gray.
	30	X		MBB-28-S3-30	0.0	SS		no odor
20	35	X		MBB-28-S4-35	0.0	NS		no odor
								trace cobble from 37 to 40 ft. bgs
15		X		MBB-28-S5-40	0.0	NS		no odor
	40							SILTY SAND (SM), few gravel, (dense), moist, gray, fine to medium sand.
10								SANDY SILT (ML), few subrounded to subangular gravel, (hard), moist, gray, occasional red-brown pockets of silt.
	45	X		MBB-28-S6-46	5.3	NS		no odor
5	50	X		MBB-28-S7-50	0.0	NS		no odor
								Bottom of Borehole at 50.0 feet.
0	55							

General Notes:
1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Material stratum lines are interpretive and actual changes may be gradual. Solid lines indicate distinct contacts and dashed lines indicate gradual or approximate contacts.
3. USCS designations are based on visual-manual identification (ASTM D 2488), unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling/excavation (ATD) or for date specified. Level may vary with time.
5. Location and ground surface elevations are approximate.

HALEY ALDRICH	Project: 800 Mercer St. Location: Seattle, Washington Project No.: 0202738-100	Boring Log **MBB-28**	Figure **A-2** Sheet **1 of 1**

Date Started: 05/25/2022	Date Completed: 05/25/2022	Contractor/Crew: Holt Services, Inc. / Marlin, Javier, David	
Logged by: B. Lytle-Goldstein	Checked by: B. Dozier	Rig Model/Type: TSi 150CC / Track-mounted drill rig	
Location: Lat: 47.625228 Long: -122.341565 (WGS 84)		Hole Diameter: 6 inches	Well Casing Diameter: NA
Ground Surface Elevation: 51.43 feet (NAVD 88)		Total Depth: 45 feet	Depth to Groundwater: Not Identified
Comments:			

Elevation (feet)	Depth (feet)	Sample Data: Type	Length (inches)	Number / Tests	PID (ppm)	Sheen	Graphic Log	Material Description	Depth (feet)
50	0							Vacuum excavated to 5 ft. bgs Soil not logged from 0 to 15 ft. bgs	0
45	5								5
40	10								10
35	15							POORLY GRADED SAND WITH SILT (SP-SM), few subrounded to subangular gravel, (dense), moist, gray-brown, fine sand.	15
30	20			MBB-29-S1-20	0.0	NS		no odor	20
								SILT WITH SAND (ML), trace gravel, (hard), moist, gray-brown.	
25	25			MBB-29-S2-25	0.0	SS		POORLY GRADED SAND WITH SILT (SP-SM), (dense), moist, gray-brown, fine to medium sand, no odor. SANDY SILT (ML), few subrounded to subangular gravel, trace subrounded cobble, (hard), moist, gray to gray-brown.	25
20	30			MBB-29-S3-30	0.4	SS		no odor, becomes gray-brown, with brown silt pockets	30
15	35			MBB-29-S4-35	1.8	NS		SILTY SAND (SM), trace gravel, (dense), moist, gray, no odor.	35
10	40			MBB-29-S5-40	24.1	NS		POORLY GRADED SAND WITH SILT (SP-SM), (loose), wet, gray, fine to medium sand. SANDY SILT (ML), few subrounded to subangular gravel, (hard), moist, gray, no odor.	40
5	45			MBB-29-S6-45	42.0	NS		SILT (ML), (hard), moist, gray, no odor. Bottom of Borehole at 45.0 feet.	45
0	50								50
	55								55

General Notes:
1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Material stratum lines are interpretive and actual changes may be gradual. Solid lines indicate distinct contacts and dashed lines indicate gradual or approximate contacts.
3. USCS designations are based on visual-manual identification (ASTM D 2488), unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling/excavation (ATD) or for date specified. Level may vary with time.
5. Location and ground surface elevations are approximate.

HALEY ALDRICH

Project: 800 Mercer St.
Location: Seattle, Washington
Project No.: 0202738-100

Boring Log
MBB-29

Figure **A-3**
Sheet **1 of 1**

Date Started: 05/25/2022	Date Completed: 05/25/2022	Contractor/Crew: Holt Services, Inc.	
Logged by: B. Lytle-Goldstein	Checked by: B. Dozier	Rig Model/Type: TSi 150CC / Track-mounted drill rig	
Location: Lat: 47.625166 Long: -122.341830 (WGS 84)		Hole Diameter: 6 inches	Well Casing Diameter: NA
Ground Surface Elevation: 54.10 feet (NAVD 88)		Total Depth: 50 feet	Depth to Groundwater: Not Identified
Comments:			

Elevation (feet)	Depth (feet)	Sample Data: Type	Length (inches)	Number / Tests	PID (ppm)	Sheen	Graphic Log	Material Description	Depth (feet)
	0							Vacuum excavated from 0 to 5 ft. bgs Soil not logged from 0 to 15 ft. bgs	0
50	5								5
45	10								10
40	15							SILTY SAND (SM), few subrounded gravel, (dense), moist, gray-brown, fine sand, occasional pockets of gray to red-brown silt. medium sand from 18 to 19 ft. bgs	15
35	20	⊠		MBB-30-S1-20	6.0	NS		strong solvent/hydrocarbon-like odor	20
30	25	⊠		MBB-30-S2-25	1.7	NS		strong solvent-like odor	25
								POORLY GRADED SAND (SP), (loose), wet, gray-brown, occasional pockets of gray silt.	
								SILTY SAND (SM), trace gravel, (dense), wet, gray-brown to gray. becomes gray	
25	30	⊠		MBB-30-S3-30	0.0	SS		no odor	30
								SANDY SILT (ML), few subrounded to subangular gravel, (hard), moist, gray.	
								SILTY SAND (SM), few gravel, (dense), moist, gray, no odor.	
20	35	⊠		MBB-30-S4-35	0.7	NS		SANDY SILT (ML), trace gravel, trace cobble, (hard), moist, gray.	35
								POORLY GRADED SAND WITH SILT (SP-SM), (loose), wet, gray. medium sand from 37.5 to 38.25 ft. bgs medium to coarse sand from 38.25 to 38.5 ft. bgs	
15	40	⊠		MBB-30-S5-40	1.0	SS		fine to medium sand from 38.5 to 41 ft. bgs no odor	40
								SILTY SAND (SM), trace gravel, (dense), wet, gray.	
10	45	⊠		MBB-30-S6-45	7.0	NS		SILT (ML), occasional pockets of medium sand, (hard), moist, gray, no odor.	45
								POORLY GRADED SAND (SP), (loose), wet, gray.	
		⊠		MBB-30-S7-47	8.9	SS		SILTY SAND (SM), trace subangular to subrounded gravel, (dense), moist, gray, no odor.	
5	50							Bottom of Borehole at 50.0 feet.	50
0	55								55

General Notes:
1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Material stratum lines are interpretive and actual changes may be gradual. Solid lines indicate distinct contacts and dashed lines indicate gradual or approximate contacts.
3. USCS designations are based on visual-manual identification (ASTM D 2488), unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling/excavation (ATD) or for date specified. Level may vary with time.
5. Location and ground surface elevations are approximate.

HALEY ALDRICH	Project: 800 Mercer St. Location: Seattle, Washington Project No.: 0202738-100	Boring Log **MBB-30**	Figure **A-4** Sheet **1 of 1**

Date Started: 05/24/2022 Date Completed: 05/24/2022 Contractor/Crew: Holt Services, Inc. / Marlin, Javier, David
Logged by: B. Lytle-Goldstein Checked by: B. Dozier Rig Model/Type: TSi 150CC / Track-mounted drill rig
Location: Lat: 47.625028 Long: -122.341989 (WGS 84) Hole Diameter: 6 inches Well Casing Diameter: NA
Ground Surface Elevation: 57.22 feet (NAVD 88) Total Depth: 50 feet Depth to Groundwater: Not Identified
Comments:

Elevation (feet)	Depth (feet)	Sample Data: Type	Length (inches)	Number Tests	PID (ppm)	Sheen	Graphic Log	Material Description	Depth (feet)
	0							Vacuum excavated to 5 ft. bgs Soil not logged from 0 to 20 ft. bgs	0
55									
	5								5
50									
	10								10
45									
	15								15
40									
	20							SILTY SAND (SM), few subrounded to subangular gravel, (dense), moist, gray-brown, fine sand, solvent-like odor. [TILL-LIKE]	20
35								becomes gray strong solvent-like odor	
	25			MBB-31-S1-25 MBB-31-S100-25	9.8	NS			25
30								iron-oxide staining from 27.5 to 29 ft. bgs lens of silty medium sand from 28.5 to 29 ft. bgs	
	30			MBB-31-S2-30	111.0	SS		becomes wet, strong solvent-like odor lens of silty medium sand from 31 to 31.25 ft. bgs	30
25								SILTY SAND (SM), trace subrounded gravel, (dense), wet, gray to gray-brown, varied lenses of gray and brown silt (ml), and gray to gray-brown silty sand (sm), no odor.	
	35			MBB-31-S3-35	0.0	SS		SANDY SILT (ML), trace subrounded to subangular gravel, (stiff), moist, gray.	35
20									
	40			MBB-31-S4-40	0.0	SS		SILTY SAND (SM), (dense), wet, gray. SANDY SILT (ML), trace subrounded gravel, (stiff), moist, gray. POORLY GRADED SAND (SP), (loose), wet, gray. SILT WITH SAND (ML), trace subrounded cobble, (stiff), moist, gray, subrounded to subangular gravel. no odor	40
15									
	45			MBB-31-S5-45	0.0	NS		SILTY SAND (SM), few subrounded and subangular gravel, (dense), moist, gray, fine sand.	45
10								medium sand lens from 48.5 to 49 ft. bgs fine sand from 49 to 50 ft. bgs, no odor	
	50			MBB-31-S6-50	0,0	NS		Bottom of Borehole at 50.0 feet.	50
5									
	55								55

General Notes:
1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Material stratum lines are interpretive and actual changes may be gradual. Solid lines indicate distinct contacts and dashed lines indicate gradual or approximate contacts.
3. USCS designations are based on visual-manual identification (ASTM D 2488), unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling/excavation (ATD) or for date specified. Level may vary with time.
5. Location and ground surface elevations are approximate.

Date Started: 05/24/2022	Date Completed: 05/24/2022	Contractor/Crew: Holt Services, Inc. / Marlin, Javier, David	
Logged by: B. Lytle-Goldstein/ M. Dodo	Checked by: B. Dozier	Rig Model/Type: TSi 150CC / Track-mounted drill rig	
Location: Lat: 47.624874 Long: -122.341898 (WGS 84)		Hole Diameter: 6 inches	Well Casing Diameter: NA
Ground Surface Elevation: 57.53 feet (NAVD 88)		Total Depth: 55 feet	Depth to Groundwater: Not Identified
Comments:			

Elevation (feet)	Depth (feet)	Sample Data: Type	Length (inches)	Number / Tests	PID (ppm)	Sheen	Graphic Log	Material Description	Depth (feet)
57.5	0							Vacuum excavated to 5 ft. bgs Soil not logged from 0 to 20 ft. bgs	0
55	5								5
50	10								10
45	15								15
40	20							POORLY GRADED SAND WITH SILT (SP-SM), (dense), moist, light brown to gray.	20
35	25	⊠		MBB-32-S1-25	0.0	SS		no odor POORLY GRADED GRAVEL WITH SILT (GP-GM), (dense), moist, gray. POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM), (loose), moist, light brown.	25
30	30	⊠		MBB-32-S2-30	0.0	SS		slight white sheen, no odor grades to wet	30
25	35	⊠		MBB-32-S3-35	0.0	SS		POORLY GRADED SAND WITH SILT AND GRAVEL (SP-SM), (dense), moist, gray, slight white sheen, no odor. SILT WITH SAND (ML), (dense), moist, dark gray.	35
20	40	⊠		MBB-32-S4-40	0.0	NS		POORLY GRADED SAND WITH SILT (SP-SM), (medium dense), moist, dark gray, no odor. SILTY SAND WITH GRAVEL (SM), (dense), moist, dark gray.	40
15	45	⊠		MBB-32-S5-45	0.0	NS		no odor SILT WITH SAND (ML), few gravel, (dense), moist, dark gray.	45
10	50	⊠		MBB-32-S6-50	0.0	NS		POORLY GRADED SAND WITH SILT AND GRAVEL (SP-SM), (dense), moist, dark gray, no odor. SILT WITH SAND (ML), few gravel, (dense), moist, gray, frequent lenses of medium sand.	50
5	55	⊠		MBB-32-S7-55	0.0	NS		no odor Bottom of Borehole at 55.0 feet.	55

General Notes:
1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Material stratum lines are interpretive and actual changes may be gradual. Solid lines indicate distinct contacts and dashed lines indicate gradual or approximate contacts.
3. USCS designations are based on visual-manual identification (ASTM D 2488), unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling/excavation (ATD) or for date specified. Level may vary with time.
5. Location and ground surface elevations are approximate.

HALEY ALDRICH

Project: 800 Mercer St.
Location: Seattle, Washington
Project No.: 0202738-100

Boring Log
MBB-32

Figure **A-6**
Sheet **1 of 1**

Date Started: 05/24/2022 | Date Completed: 05/24/2022 | Contractor/Crew: Holt Services, Inc. / Marlin, Javier, David
Logged by: B. Lytle-Goldstein | Checked by: B. Dozier | Rig Model/Type: TSi 150CC / Track-mounted drill rig
Location: Lat: 47.624806 Long: -122.341659 (WGS 84) | Hole Diameter: 6 inches | Well Casing Diameter: NA
Ground Surface Elevation: 55.43 feet (NAVD 88) | Total Depth: 55 feet | Depth to Groundwater: Not Identified
Comments:

Elevation (feet)	Depth (feet)	Type	Length (inches)	Number Tests	PID (ppm)	Sheen	Graphic Log	Material Description	Depth (feet)
55	0							Vacuum excavated to 5 ft. bgs Soil not logged from 0 to 20 ft. bgs	0
35	20							SILTY SAND (SM), few subangular gravel, (dense), moist, gray to gray-brown.	20
								SILT WITH SAND (ML), trace subangular gravel, (hard), moist, gray.	
30	25			MBB-33-S1-25	0.0	SS		SILTY SAND (SM), trace subrounded to subangular gravel, (dense), moist, gray to gray-brown, no odor. [TILL-LIKE]	25
25	30			MBB-33-S2-30	0.0	SS		no odor	30
								SILT (ML), (hard), moist, gray.	
20	35			MBB-33-S3-36	0.0	SS		SILTY SAND (SM), trace subrounded to subangular gravel, (dense), moist, gray, fine sand. [TILL-LIKE] fine sand layer of medium sand-matrix from 33 to 33.5 ft. bgs, no odor fine and medium sand from 35 to 36.5 ft. bgs fine sand from 36.5 to 38 ft. bgs	35
15	40			MBB-33-S4-40	0.0	NS		SANDY SILT (ML), trace subangular to subrounded gravel, (hard), moist, gray, no odor. layer of silty medium sand from 40.5 to 40.7 ft. bgs	40
								SILTY SAND (SM), trace subrounded to subangular gravel, (very dense), moist, gray.	
10	45			MBB-33-S5-45	0.0	SS		no odor	45
								SILT (ML), (hard), moist, gray. trace subround to subangular gravel from 47.5 to 48.2 ft. bgs	
								SILT WITH SAND (ML), trace gravel, (hard), moist, gray, no odor.	
5	50			MBB-33-S6-50	0.0	NS		SILTY SAND (SM), trace subrounded to subangular gravel, (dense), moist, gray.	50
				MBB-33-S7-52	0.0	NS		no odor	
0	55							Bottom of Borehole at 55.0 feet.	55

General Notes:
1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Material stratum lines are interpretive and actual changes may be gradual. Solid lines indicate distinct contacts and dashed lines indicate gradual or approximate contacts.
3. USCS designations are based on visual-manual identification (ASTM D 2488), unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling/excavation (ATD) or for date specified. Level may vary with time.
5. Location and ground surface elevations are approximate.

Date Started: 06/06/2022	Date Completed: 06/06/2022
Logged by: A. Nakahara	Checked by: B. Dozier
Location: Lat: 47.624965 Long: -122.341653 (WGS 84)	
Ground Surface Elevation: 55.11 feet (NAVD 88)	
Comments:	
Drilling Contractor/Crew: Holt Services, Inc. / Abe	
Drilling Method: Hollow Stem Auger	
Rig Model/Type: Mobile B-57 / Track-mounted drill rig	
Hammer Type: Auto-hammer	
Hammer Weight (pounds): 140	Hammer Drop Height (inches): 30
Measured Hammer Efficiency (%): Not Available	
Hole Diameter: 10 inches	Well Casing Diameter: NA
Total Depth: 17.5 feet	Depth to Groundwater: Not Identified

Elevation (feet)	Depth (feet)	Graphic Log	Material Description	Depth (feet)
55	0		Vacuum excavated to 5 ft. bgs Soil not logged from 0 to 17.5 ft bgs.	0
50	5			5
45	10			10
40	15			15
			Refusal at 17.5 feet.	
35	20			20
30	25			25
25	30			30
20	35			35
15	40			40
10	45			45
5	50			50
0	55			55

General Notes:
1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Material stratum lines are interpretive and actual changes may be gradual. Solid lines indicate distinct contacts and dashed lines indicate gradual or approximate contacts.
3. USCS designations are based on visual-manual identification (ASTM D 2488), unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling/excavation (ATD) or for date specified. Level may vary with time.
5. Location and ground surface elevations are approximate.

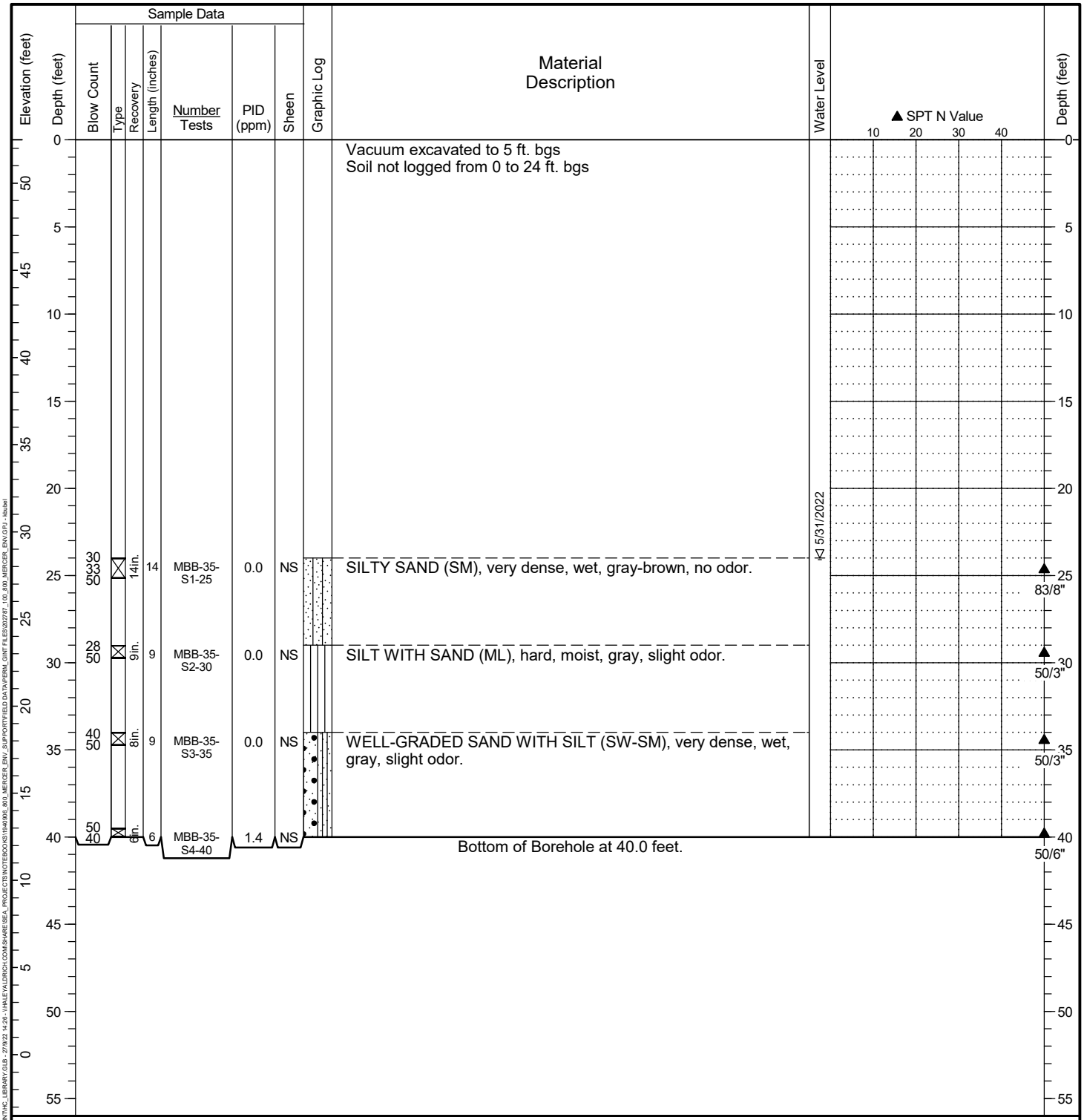
HALEY ALDRICH

Project: 800 Mercer St.
Location: Seattle, Washington
Project No.: 0202738-100

Boring Log
MBB-34

Figure **A-8**
Sheet **1 of 1**

Date Started: 05/31/2022	Date Completed: 05/31/2022	Drilling Contractor/Crew: Holt Services, Inc. / Abe	
Logged by: M. Bradshaw	Checked by: B. Dozier	Drilling Method: Hollow Stem Auger	
Location: Lat: 47.625088 Long: -122.341544 (WGS 84)		Rig Model/Type: Mobile B-57 / Track-mounted drill rig	
Ground Surface Elevation: 52.49 feet (NAVD 88)		Hammer Type: Auto-hammer	
Comments:		Hammer Weight (pounds): 140	Hammer Drop Height (inches): 30
		Measured Hammer Efficiency (%): Not Available	
		Hole Diameter: 10 inches	Well Casing Diameter: NA
		Total Depth: 40 feet	Depth to Groundwater: 24 feet



General Notes:
1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Material stratum lines are interpretive and actual changes may be gradual. Solid lines indicate distinct contacts and dashed lines indicate gradual or approximate contacts.
3. USCS designations are based on visual-manual identification (ASTM D 2488), unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling/excavation (ATD) or for date specified. Level may vary with time.
5. Location and ground surface elevations are approximate.

HALEY ALDRICH	Project: 800 Mercer St. Location: Seattle, Washington Project No.: 0202738-100	Boring Log **MBB-35**	Figure **A-9** Sheet **1 of 1**

Date Started: 06/02/2022	Date Completed: 06/02/2022	Drilling Contractor/Crew: Holt Services, Inc. / Abe	
Logged by: M. Elias	Checked by: B. Dozier	Drilling Method: Hollow Stem Auger	
Location: Lat: 47.624894 Long: -122.341429 (WGS 84)		Rig Model/Type: Mobile B-57 / Track-mounted drill rig	
Ground Surface Elevation: 53.06 feet (NAVD 88)		Hammer Type: Auto-hammer	
Comments:		Hammer Weight (pounds): 140	Hammer Drop Height (inches): 30
		Measured Hammer Efficiency (%): Not Available	
		Hole Diameter: 10 inches	Well Casing Diameter: NA
		Total Depth: 43.5 feet	Depth to Groundwater: 25 feet

Elevation (feet)	Depth (feet)	Sample Data: Blow Count	Type	Recovery	Length (inches)	Number / Tests	PID (ppm)	Sheen	Graphic Log	Material Description	Water Level	SPT N Value	Depth (feet)
50	0									Vacuum excavated to 5 ft. bgs Soil not logged from 0 to 24.5 ft. bgs			0
45	5												5
40	10												10
35	15												15
30	20												20
25	25	45 50	☒	12in.	12	MBB-36-S1-25	0.0	NS		WELL-GRADED SAND WITH SILT (SW-SM), dense, dry, brown, no odor.	▽ 6/2/2022	50/6"	25
20	30	40 50	☒	11in.	11	MBB-36-S2-30	0.0	NS		SILT WITH SAND (ML), hard, moist, brown, no odor.		50/5"	30
15	35	50	☒	5in.	5	MBB-36-S3-35	0.0	NS		becomes wet, no odor		50/5"	35
10	40	50	☒	5in.	5	MBB-36-S4-40	0.0	NS		becomes gray, no odor		50/5"	40
5	45	60	☒	6in.	6	MBB-36-S5-43.5	0.0	NS		no odor Bottom of Borehole at 43.5 feet.		60/6"	45
0	50												50
	55												55

General Notes:
1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Material stratum lines are interpretive and actual changes may be gradual. Solid lines indicate distinct contacts and dashed lines indicate gradual or approximate contacts.
3. USCS designations are based on visual-manual identification (ASTM D 2488), unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling/excavation (ATD) or for date specified. Level may vary with time.
5. Location and ground surface elevations are approximate.

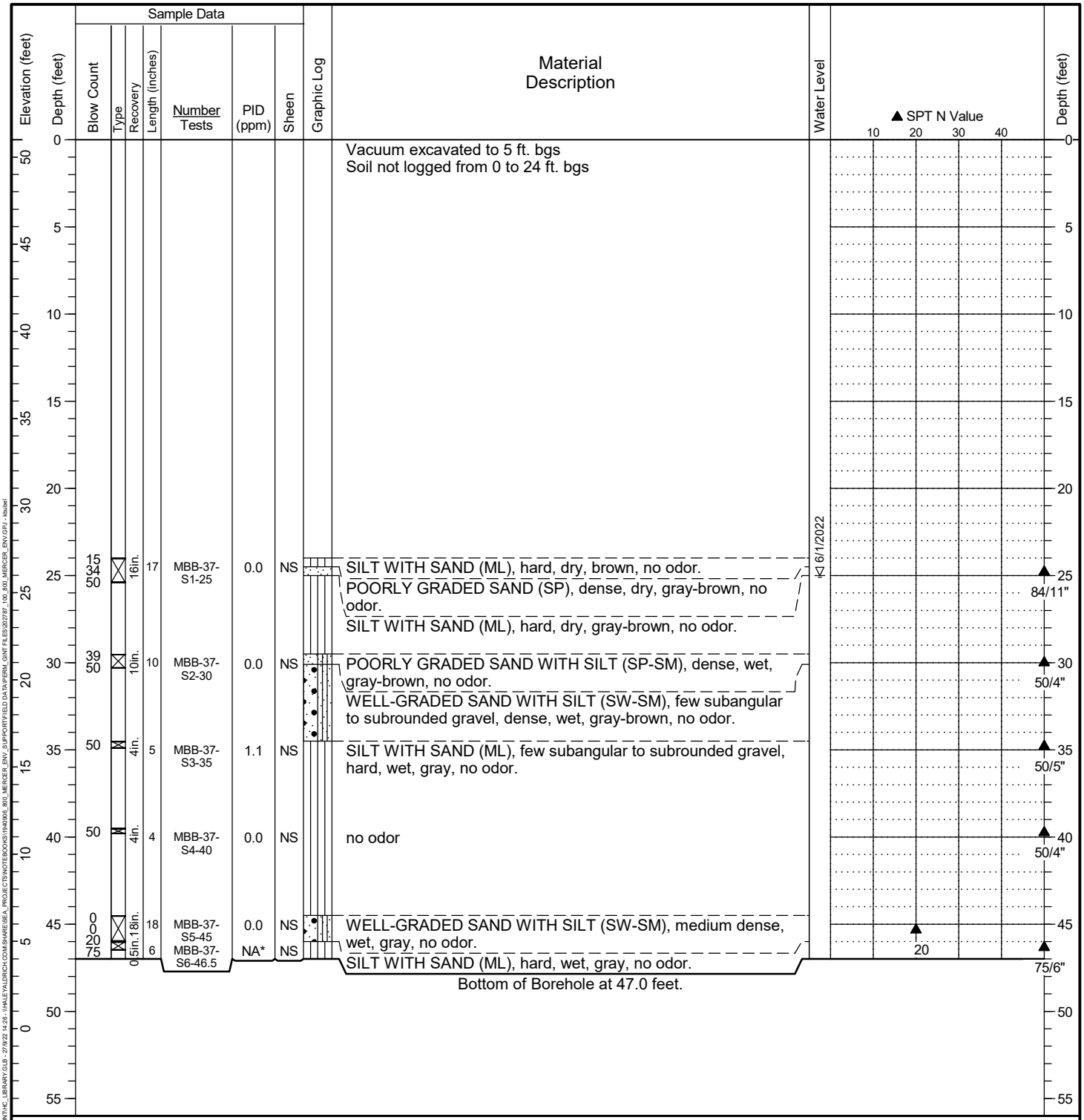
HALEY ALDRICH

Project: 800 Mercer St.
Location: Seattle, Washington
Project No.: 0202738-100

Boring Log
MBB-36

Figure **A-10**
Sheet **1 of 1**

Date Started: 06/01/2022	Date Completed: 06/01/2022	Drilling Contractor/Crew: Holt Services, Inc. / Abe	
Logged by: M. Elias	Checked by: B. Dozier	Drilling Method: Hollow Stem Auger	
Location: Lat: 47.625011 Long: -122.341222 (WGS 84)		Rig Model/Type: Mobile B-57 / Track-mounted drill rig	
Ground Surface Elevation: 50.99 feet (NAVD 88)		Hammer Type: Auto-hammer	
Comments: *Limited recovery due to rock in tip of split spoon, insufficient volume for PID headspace test		Hammer Weight (pounds): 140	Hammer Drop Height (inches): 30
		Measured Hammer Efficiency (%): Not Available	
		Hole Diameter: 10 inches	Well Casing Diameter: NA
		Total Depth: 47 feet	Depth to Groundwater: 25 feet



General Notes:
1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Material stratum lines are interpretive and actual changes may be gradual. Solid lines indicate distinct contacts and dashed lines indicate gradual or approximate contacts.
3. USCS designations are based on visual-manual identification (ASTM D 2488), unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling/excavation (ATD) or for date specified. Level may vary with time.
5. Location and ground surface elevations are approximate.

HALEY ALDRICH	Project: 800 Mercer St. Location: Seattle, Washington Project No.: 0202738-100	Boring Log **MBB-37**	Figure **A-11** Sheet **1 of 1**

Date Started: 05/31/2022	Date Completed: 05/31/2022	Drilling Contractor/Crew: Holt Services, Inc. / Abe	
Logged by: M. Elias	Checked by: B. Dozier	Drilling Method: Hollow Stem Auger	
Location: Lat: 47.625148 Long: -122.341240 (WGS 84)		Rig Model/Type: Mobile B-57 / Track-mounted drill rig	
Ground Surface Elevation: 49.75 feet (NAVD 88)		Hammer Type: Auto-hammer	
Comments:		Hammer Weight (pounds): 140	Hammer Drop Height (inches): 30
		Measured Hammer Efficiency (%): Not Available	
		Hole Diameter: 10 inches	Well Casing Diameter: NA
		Total Depth: 47 feet	Depth to Groundwater: 24 feet

Elevation (feet)	Depth (feet)	Blow Count	Type	Recovery	Length (inches)	Number Tests	PID (ppm)	Sheen	Graphic Log	Material Description	Water Level	SPT N Value
49.75	0									Vacuum excavated to 5 ft. bgs Soil not logged from 0 to 24 ft. bgs		
25	24–25	50	⊠	4.5in.	6	MBB-38-S1-25	0.0	NS		WELL-GRADED SAND WITH SILT (SW-SM), very dense, dry, gray-brown, no odor.	▽ 6/1/2022	50/6"
20	30	40 50	⊠	7in.	11	MBB-38-S2-30	0.0	NS		SILT WITH SAND (ML), hard, moist, gray-brown, no odor.		50/5"
15	35	50	⊠	4in.	6	MBB-38-S3-35	0.0	NS		WELL-GRADED SAND WITH SILT (SW-SM), very dense, wet, gray, no odor.		50/6"
10	40	29 50	⊠	12in.	12	MBB-38-S4-40	0.0	NS		no odor		50/6"
5	45	16 40 50	⊠	6in.	15	MBB-38-S5-45	0.5	NS		SILT WITH SAND (ML), hard, moist, gray, no odor.		90/9"
	47	50	⊠	3in.	6	MBB-38-S6-47	0.0	NS		becomes wet, no odor		50/6"

Bottom of Borehole at 47.0 feet.

General Notes:
1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Material stratum lines are interpretive and actual changes may be gradual. Solid lines indicate distinct contacts and dashed lines indicate gradual or approximate contacts.
3. USCS designations are based on visual-manual identification (ASTM D 2488), unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling/excavation (ATD) or for date specified. Level may vary with time.
5. Location and ground surface elevations are approximate.

Date Started: 06/03/2022	Date Completed: 06/03/2022	Drilling Contractor/Crew: Holt Services, Inc. / Abe	
Logged by: M. Elias/ B. Arveson	Checked by: B. Dozier	Drilling Method: Hollow Stem Auger	
Location: Lat: 47.624850 Long: -122.340996 (WGS 84)		Rig Model/Type: Mobile B-57 / Track-mounted drill rig	
Ground Surface Elevation: 49.15 feet (NAVD 88)		Hammer Type: Auto-hammer	
Comments:		Hammer Weight (pounds): 140	Hammer Drop Height (inches): 30
		Measured Hammer Efficiency (%): Not Available	
		Hole Diameter: 10 inches	Well Casing Diameter: NA
		Total Depth: 45 feet	Depth to Groundwater: 24 feet

Elevation (feet)	Depth (feet)	Sample Data: Blow Count	Type	Recovery	Length (inches)	Number / Tests	PID (ppm)	Sheen	Graphic Log	Material Description	Water Level	SPT N Value	Depth (feet)
49	0									Vacuum excavated to 5 ft. bgs Soil not logged from 0 to 24.5 ft. bgs			0
45	5												5
40	10												10
35	15												15
30	20												20
25	25	36 40 46		16in.	18	MBB-39-S1-25	0.0	NS		SANDY SILT (ML), hard, moist, brown, no odor.	▽ 6/3/2022	86	25
20	30	50		4in.	4	MBB-39-S2-30	0.0	NS		trace gravel, becomes gray-brown, no odor		50/4"	30
15	35	50		3.5in.	4	MBB-39-S3-35	0.0	NS		becomes gray, no odor		50/3.5"	35
10	40	50		6in.	6	MBB-39-S4-38	0.0	NS		SILT WITH SAND (ML), hard, moist, gray, no odor.		50/6"	40
5	45									Bottom of Borehole at 45.0 feet.			45
0	50												50
-5	55												55

General Notes:
1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Material stratum lines are interpretive and actual changes may be gradual. Solid lines indicate distinct contacts and dashed lines indicate gradual or approximate contacts.
3. USCS designations are based on visual-manual identification (ASTM D 2488), unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling/excavation (ATD) or for date specified. Level may vary with time.
5. Location and ground surface elevations are approximate.

HALEY ALDRICH

Project: 800 Mercer St.
Location: Seattle, Washington
Project No.: 0202738-100

Boring Log
MBB-39

Figure **A-13**
Sheet **1 of 1**

Date Started: 06/02/2022	Date Completed: 06/02/2022	Drilling Contractor/Crew: Holt Services, Inc. / Abe	
Logged by: M. Elias	Checked by: B. Dozier	Drilling Method: Hollow Stem Auger	
Location: Lat: 47.625089 Long: -122.340995 (WGS 84)		Rig Model/Type: Mobile B-57 / Track-mounted drill rig	
Ground Surface Elevation: 47.96 feet (NAVD 88)		Hammer Type: Auto-hammer	
Comments:		Hammer Weight (pounds): 140	Hammer Drop Height (inches): 30
		Measured Hammer Efficiency (%): Not Available	
		Hole Diameter: 10 inches	Well Casing Diameter: NA
		Total Depth: 40.2 feet	Depth to Groundwater: 23 feet

Elevation (feet)	Depth (feet)	Sample Data: Blow Count	Type	Recovery	Length (inches)	Number / Tests	PID (ppm)	Sheen	Graphic Log	Material Description	Water Level	SPT N Value (10 20 30 40)	Depth (feet)
47.96	0									Vacuum excavated to 5 ft. bgs Soil not logged from 0 to 25 ft. bgs			0
22.96	25	50		6in.	6	MBB-40-S1-25	0.0	NS		SILTY SAND (SM), very dense, wet, brown, no odor.		50/6"	25
17.96	30	50		5in.	6	MBB-40-S2-30	0.0	NS		no odor		50/5.5"	30
12.96	35	50		4in.	4	MBB-40-S3-35	0.0	NS		SILT WITH SAND (ML), hard, moist, gray, no odor.		50/4"	35
7.96	40	37 50		6in.	8	MBB-40-S4-40	0.0	NS		no odor Bottom of Borehole at 40.2 feet.	⊲ 6/2/2022	50/2"	40

General Notes:
1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Material stratum lines are interpretive and actual changes may be gradual. Solid lines indicate distinct contacts and dashed lines indicate gradual or approximate contacts.
3. USCS designations are based on visual-manual identification (ASTM D 2488), unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling/excavation (ATD) or for date specified. Level may vary with time.
5. Location and ground surface elevations are approximate.

HALEY ALDRICH

Project: 800 Mercer St.
Location: Seattle, Washington
Project No.: 0202738-100

Boring Log
MBB-40

Figure **A-14**
Sheet **1 of 1**

Date Started: 05/24/2022 Date Completed: 05/24/2022 Contractor/Crew: Holt Services, Inc. / Marlin, Javier, David

Logged by: B. Lytle-Goldstein/ M. Dodo Checked by: B. Dozier Rig Model/Type: TSi 150CC / Track-mounted drill rig

Location: Lat: 47.625240 Long: -122.340905 (WGS 84) Hole Diameter: 6 inches Well Casing Diameter: NA

Ground Surface Elevation: 47.84 feet (NAVD 88) Total Depth: 45 feet Depth to Groundwater: Not Identified

Comments:

Elevation (feet)	Depth (feet)	Sample Data: Type	Length (inches)	Number / Tests	PID (ppm)	Sheen	Graphic Log	Material Description	Depth (feet)
	0							Vacuum excavated to 5 ft. bgs Soil not logged from 0 to 15 ft. bgs	0
	15			MBB-41-S1-15	0.0	NS		POORLY GRADED SAND WITH SILT (SP-SM), few gravel, (dense), moist, light brown to gray, no odor.	15
	20							SILTY SAND (SM), few gravel, trace cobble, (dense), moist, light brown to gray, no odor. becomes gray, frequent iron oxide staining from 22 to 25 ft. bgs	20
	25			MBB-41-S2-25	0.0	NS			25
	30			MBB-41-S3-30	0.0	NS		POORLY GRADED SAND WITH SILT (SP-SM), few subrounded gravel, (dense), moist, gray, no odor. SILTY SAND (SM), trace gravel, (dense), moist, gray.	30
	35			MBB-41-S4-35	0.0	NS		SILTY SAND WITH GRAVEL (SM), (dense), moist, gray. no odor POORLY GRADED SAND WITH SILT (SP-SM), few subangular gravel, trace cobble, (medium dense), moist, gray.	35
	40			MBB-41-S5-40	0.0	NS		SILTY SAND WITH GRAVEL (SM), (dense), moist, gray. no odor	40
	45							Bottom of Borehole at 45.0 feet.	45

General Notes:

1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Material stratum lines are interpretive and actual changes may be gradual. Solid lines indicate distinct contacts and dashed lines indicate gradual or approximate contacts.
3. USCS designations are based on visual-manual identification (ASTM D 2488), unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling/excavation (ATD) or for date specified. Level may vary with time.
5. Location and ground surface elevations are approximate.

HALEY ALDRICH

Project: 800 Mercer St.
Location: Seattle, Washington
Project No.: 0202738-100

Boring Log
MBB-41

Figure **A-15**
Sheet **1 of 1**

Date Started: 06/03/2022	Date Completed: 06/03/2022	Drilling Contractor/Crew: Holt Services, Inc. / Abe	
Logged by: M. Elias	Checked by: B. Dozier	Drilling Method: Hollow Stem Auger	
Location: Lat: 47.625017 Long: -122.340874 (WGS 84)		Rig Model/Type: Mobile B-57 / Track-mounted drill rig	
Ground Surface Elevation: 47.55 feet (NAVD 88)		Hammer Type: Auto-hammer	
Comments:		Hammer Weight (pounds): 140	Hammer Drop Height (inches): 30
		Measured Hammer Efficiency (%): Not Available	
		Hole Diameter: 10 inches	Well Casing Diameter: NA
		Total Depth: 45 feet	Depth to Groundwater: 24 feet

Elevation (feet)	Depth (feet)	Blow Count	Type	Recovery	Length (inches)	Number Tests	PID (ppm)	Sheen	Graphic Log	Material Description	Water Level	SPT N Value	Depth (feet)
	0									Vacuum excavated to 5 ft. bgs Soil not logged from 0 to 24.5 ft. bgs			0
	5												5
	10												10
	15												15
	20												20
	25	50	M	5in.	5	MBB-42-S1-25	0.0	NS		WELL-GRADED SAND (SW-SM), very dense, moist, brown, no odor.	▽ 6/3/2022	50/5"	25
	30	50	M	5in.	5	MBB-42-S2-30	0.0	NS		SANDY SILT (ML), trace gravel, hard, moist, gray-brown. becomes gray, no odor		50/5"	30
	35	50	M	4in.	4	MBB-42-S3-35	0.0	NS		no odor		50/4"	35
	40	50	M	4in.	4	MBB-42-S4-40	0.0	NS		SILT WITH SAND (ML), hard, moist, gray, no odor, 4-inch recovery with 14-inches of heave.		50/4"	40
	45	50	M	3in.	3	MBB-42-S5-45	0.0	NS		SILTY SAND (SM), trace gravel, very dense, wet, gray, no odor, 6-inches of heave. Bottom of Borehole at 45.0 feet.		50/3"	45
	50												50
	55												55

General Notes:
1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Material stratum lines are interpretive and actual changes may be gradual. Solid lines indicate distinct contacts and dashed lines indicate gradual or approximate contacts.
3. USCS designations are based on visual-manual identification (ASTM D 2488), unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling/excavation (ATD) or for date specified. Level may vary with time.
5. Location and ground surface elevations are approximate.

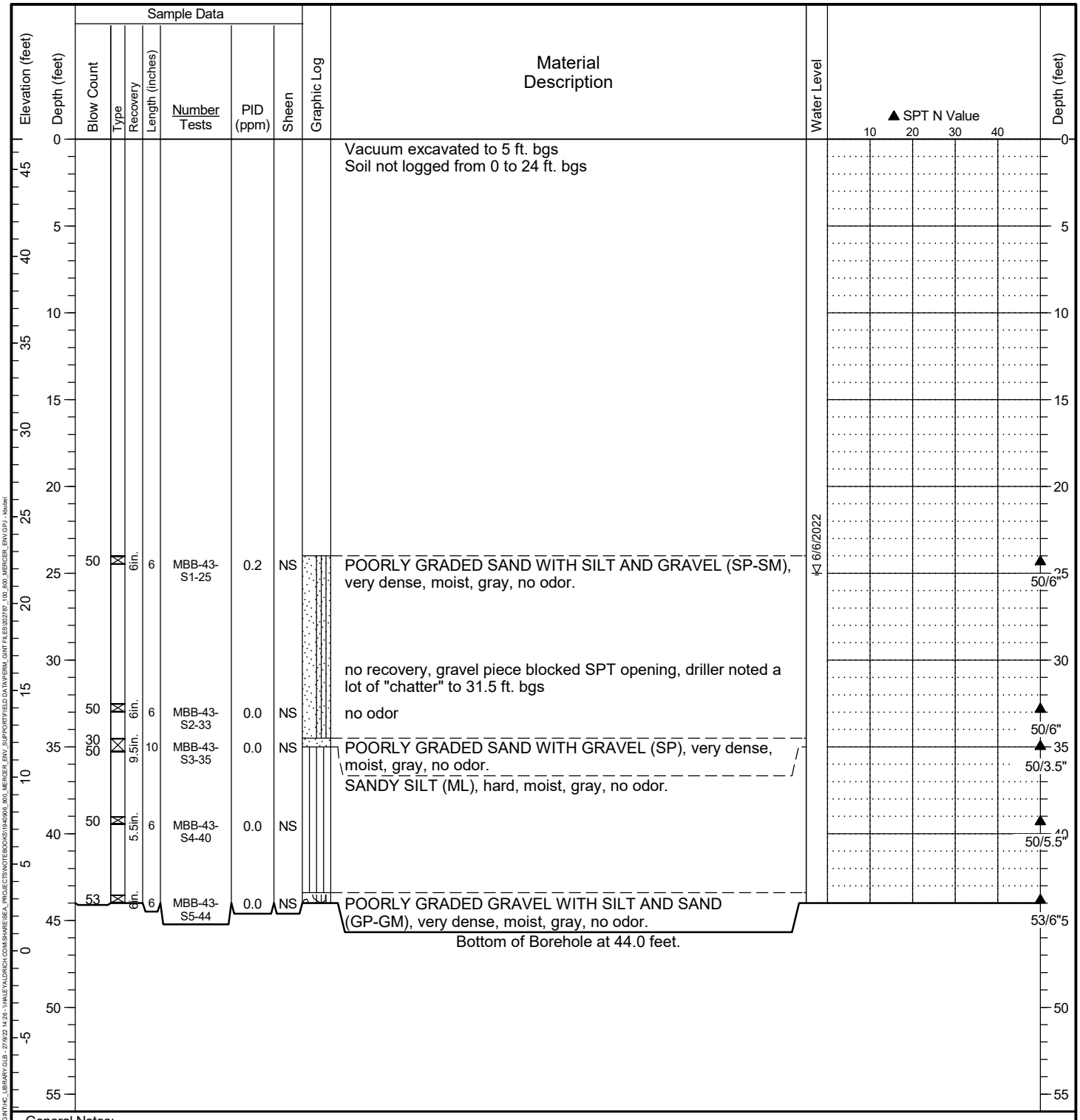
HALEY ALDRICH

Project: 800 Mercer St.
Location: Seattle, Washington
Project No.: 0202738-100

Boring Log
MBB-42

Figure **A-16**
Sheet **1 of 1**

Date Started: 06/06/2022	Date Completed: 06/06/2022	Drilling Contractor/Crew: Holt Services, Inc. / Abe & Cameron	
Logged by: A. Nakahara	Checked by: B. Dozier	Drilling Method: Hollow Stem Auger	
Location: Lat: 47.624930 Long: -122.340744 (WGS 84)		Rig Model/Type: Mobile B-57 / Track-mounted drill rig	
Ground Surface Elevation: 46.75 feet (NAVD 88)		Hammer Type: Auto-hammer	
Comments:		Hammer Weight (pounds): 140	Hammer Drop Height (inches): 30
		Measured Hammer Efficiency (%): Not Available	
		Hole Diameter: 10 inches	Well Casing Diameter: NA
		Total Depth: 44 feet	Depth to Groundwater: 25 feet



General Notes:
1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Material stratum lines are interpretive and actual changes may be gradual. Solid lines indicate distinct contacts and dashed lines indicate gradual or approximate contacts.
3. USCS designations are based on visual-manual identification (ASTM D 2488), unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling/excavation (ATD) or for date specified. Level may vary with time.
5. Location and ground surface elevations are approximate.

HALEY ALDRICH	Project: 800 Mercer St. Location: Seattle, Washington Project No.: 0202738-100	Boring Log **MBB-43**	Figure **A-17** Sheet **1 of 1**

Date Started: 05/23/2022	Date Completed: 05/23/2022	Contractor/Crew: Holt Services, Inc. / Marlin, Javier, David	
Logged by: B. Lytle-Goldstein	Checked by: B. Dozier	Rig Model/Type: TSi 150CC / Track-mounted drill rig	
Location: Lat: 47.625112 Long: -122.340763 (WGS 84)		Hole Diameter: 6 inches	Well Casing Diameter: NA
Ground Surface Elevation: 46.20 feet (NAVD 88)		Total Depth: 40 feet	Depth to Groundwater: Not Identified
Comments:			

Elevation (feet)	Depth (feet)	Sample Data: Type	Length (inches)	Number / Tests	PID (ppm)	Sheen	Graphic Log	Material Description	Depth (feet)
46	0							Vacuum excavated to 2 ft. through angular cobble fill Soil not logged from 0 to 10 ft. bgs	0
41	5								5
36	10							POORLY GRADED SAND WITH SILT (SP-SM), few subrounded to subangular gravel, (dense), moist, gray-brown.	10
								SILTY SAND (SM), few gravel, (dense), moist, gray-brown, frequent gray silt pockets.	
31	15								15
26	20							hard drilling	20
21	25			MBB-44-S1-25	0.0	NS		no odor trace cobble from 25 to 30 ft. bgs becomes gray	25
16	30			MBB-44-S2-30	0.0	NS		no odor POORLY GRADED SAND WITH SILT (SP-SM), trace gravel, (dense), wet, gray, fine to medium sand, occasional pockets of medium sand.	30
11	35			MBB-44-S3-35	0.0	NS		no odor POORLY GRADED SAND (SP), (dense), wet, gray, fine to medium sand.	35
6	40			MBB-44-S4-38	0.0	NS		SANDY SILT (ML), trace gravel, (hard), moist, gray, no odor. Bottom of Borehole at 40.0 feet.	40
1	45								45
-4	50								50
-9	55								55

General Notes:
1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Material stratum lines are interpretive and actual changes may be gradual. Solid lines indicate distinct contacts and dashed lines indicate gradual or approximate contacts.
3. USCS designations are based on visual-manual identification (ASTM D 2488), unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling/excavation (ATD) or for date specified. Level may vary with time.
5. Location and ground surface elevations are approximate.

HALEY ALDRICH

Project: 800 Mercer St.
Location: Seattle, Washington
Project No.: 0202738-100

Boring Log
MBB-44

Figure **A-18**
Sheet **1 of 1**

Date Started: 05/23/2022	Date Completed: 05/23/2022
Logged by: B. Lytle-Goldstein	Checked by: B. Dozier
Location: Lat: 47.625208 Long: -122.340484 (WGS 84)	
Ground Surface Elevation: 46.49 feet (NAVD 88)	
Contractor/Crew: Holt Services, Inc. / Marlin, Javier, David	
Rig Model/Type: TSi 150CC / Track-mounted drill rig	
Hole Diameter: 6 inches	Well Casing Diameter: NA
Total Depth: 35 feet	Depth to Groundwater: Not Identified
Comments:	

Elevation (feet)	Depth (feet)	Type	Length (inches)	Number / Tests	PID (ppm)	Sheen	Material Description
46.49	0						Vacuum excavated to 5 ft. bgs Soil not logged from 0 to 12.5 ft. bgs
	12.5						SILTY SAND WITH GRAVEL (SM), (dense), moist, gray-brown, subrounded to subangular gravel, occasional pockets of gray silt.
	15	X		MBB-45-S1-15	0.0	NS	no odor
	18.5						POORLY GRADED SAND (SP), (dense), moist, gray-brown to red-brown, fine sand, no odor.
	19.5	X		MBB-45-S2-20	0.0	NS	
	24.5	X		MBB-45-S3-25	0.0	NS	no odor
	27.5						becomes wet, trace cobble
	28						POORLY GRADED SAND WITH GRAVEL (SP), (dense), wet, gray-brown.
	29						SILTY SAND (SM), few gravel, trace subrounded to subangular cobble, (dense), moist, gray-brown, no odor. [TILL-LIKE]
	29.5	X		MBB-45-S4-30	0.0	NS	
	35						Bottom of Borehole at 35.0 feet.

General Notes:
1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Material stratum lines are interpretive and actual changes may be gradual. Solid lines indicate distinct contacts and dashed lines indicate gradual or approximate contacts.
3. USCS designations are based on visual-manual identification (ASTM D 2488), unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling/excavation (ATD) or for date specified. Level may vary with time.
5. Location and ground surface elevations are approximate.

HALEY ALDRICH

Project: 800 Mercer St.
Location: Seattle, Washington
Project No.: 0202738-100

Boring Log
MBB-45

Figure **A-19**
Sheet **1 of 1**

Date Started: 05/23/2022 Date Completed: 05/23/2022 Contractor/Crew: Holt Services, Inc. / Marlin, Javier, David

Logged by: B. Lytle-Goldstein Checked by: B. Dozier Rig Model/Type: TSi 150CC / Track-mounted drill rig

Location: Lat: 47.625096 Long: -122.340179 (WGS 84) Hole Diameter: 6 inches Well Casing Diameter: NA

Ground Surface Elevation: 47.08 feet (NAVD 88) Total Depth: 45 feet Depth to Groundwater: Not Identified

Comments:

Elevation (feet)	Depth (feet)	Sample Data: Type	Length (inches)	Number / Tests	PID (ppm)	Sheen	Graphic Log	Material Description	Depth (feet)
47	0							Vacuum excavated to 5 ft. bgs Soil not logged from 0 to 15 ft. bgs	0
42	5								5
37	10							encountered suspected metal debris, slow drilling	10
32	15			MBB-46-S1-15	0.0	SS		SILTY SAND WITH GRAVEL (SP-SM), moist, light brown-gray, no odor, 2-inch long trace wood debris.	15
27	20							CLAYEY SAND WITH GRAVEL (SC), trace subangular cobble, (dense), moist, gray, trace metal debris (nails).	20
22	25			MBB-46-S2-30	0.0	SS		no odor	25
17	30							POORLY GRADED SAND (SP), (loose), wet, gray.	30
12	35			MBB-46-S3-35	0.0	NS		no odor	35
7	40			MBB-46-S4-40	0.0	NS		no odor becomes gray-brown	40
2	45			MBB-46-S5-44	0.0	NS		no odor	45
								Bottom of Borehole at 45.0 feet.	

General Notes:

1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Material stratum lines are interpretive and actual changes may be gradual. Solid lines indicate distinct contacts and dashed lines indicate gradual or approximate contacts.
3. USCS designations are based on visual-manual identification (ASTM D 2488), unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling/excavation (ATD) or for date specified. Level may vary with time.
5. Location and ground surface elevations are approximate.

HALEY ALDRICH

Project: 800 Mercer St.
Location: Seattle, Washington
Project No.: 0202738-100

Boring Log
MBB-46

Figure **A-20**
Sheet **1 of 1**

ATTACHMENT 2
Laboratory Reports and Data Usability Summary Report for Supplemental Disposal Pre-Characterization Investigation

Haley & Aldrich, Inc.
600 South Meyer Ave
Suite 100
Tucson, AZ 85701
520.289.8621

Data Usability Summary Report

Project Name: Mercer Mega Block

Project Description: Soil Samples

Sample Date(s): May and June 2022

Analytical Laboratory: Friedman & Bruya, Inc. Seattle, WA

Validation Performed by: Katherine Miller

Validation Date: 21 June 2022

Haley & Aldrich, Inc. prepared this Data Usability Summary Report (DUSR) to summarize the review and validation of the analytical results for Sample Delivery Group(s) (SDG) listed. This DUSR is organized into the following sections:

1. **Sample Delivery Group Numbers 205399, 205414, 205441, 205503, 206019, 206060, 206088, and 206099**
2. **Explanations**
3. **Glossary**
4. **Abbreviations**
5. **Qualifiers**

References

This data validation and usability assessment was performed per the guidance and requirements established by the United States Environmental Protection Agency's (USEPA) using the following reference materials:

- National Functional Guidelines (NFG) for Inorganic Data Review.
- National Functional Guidelines (NFG) for Organic Data Review.

Data reported in this sampling event were reported to the laboratory reporting limit (RL).

Sample data were qualified in accordance with the laboratory's standard operating procedures (SOP). The results presented in each laboratory report were found to be compliant with the data quality objectives for the project and therefore usable; any exceptions are noted in the following pages.

1. Sample Delivery Group Numbers 205399, 205414, 205441, 205503, 206019, 206060, 206088, and 206099

1.1 SAMPLE MANAGEMENT

This DUSR summarizes the review of SDG numbers 205399, 205414, 205441, 205503, 206019, 206060, 206088, and 206099. Samples were collected, preserved, and shipped following standard chain of custody (COC) protocol. Samples were also received appropriately, identified correctly, and analyzed according to the COC.

Analyses were performed on the following samples:

Sample ID	Sample Type	Lab ID	Sample Date	Matrix	Methods
MBB-46-S2-35	N	205399-02	05/23/2022	SO	A
MBB-46-S3-40	N	205399-03	05/23/2022	SO	A
MBB-46-S4-43	N	205399-04	05/23/2022	SO	A
MBB-45-S1-20	N	205399-05	05/23/2022	SO	A
MBB-45-S2-25	N	205399-06	05/23/2022	SO	A
MBB-45-S3-30	N	205399-07	05/23/2022	SO	A
MBB-44-S2-30	N	205399-09	05/23/2022	SO	A
MBB-44-S3-35	N	205399-10	05/23/2022	SO	A
MBB-44-S4-38	N	205399-11	05/23/2022	SO	A
MBB-41-S2-30	N	205414-02	05/24/2022	SO	A
MBB-41-S3-35	N	205414-03	05/24/2022	SO	A
MBB-41-S4-40	N	205414-04	05/24/2022	SO	A
MBB-32-S4-40	N	205414-08	05/24/2022	SO	A
MBB-32-S5-45	N	205414-09	05/24/2022	SO	A
MBB-32-S6-50	N	205414-10	05/24/2022	SO	A
MBB-32-S7-55	N	205414-11	05/24/2022	SO	A
MBB-33-S5-45	N	205414-16	05/24/2022	SO	A
MBB-33-S6-50	N	205414-17	05/24/2022	SO	A
MBB-33-S7-52	N	205414-18	05/24/2022	SO	A
MBB-31-S5-45	N	205414-24	05/24/2022	SO	A
MBB-31-S6-50	N	205414-25	05/24/2022	SO	A
MBB-27-S5-40	N	205441-06	05/25/2022	SO	A
MBB-27-S6-45	N	205441-07	05/25/2022	SO	A
MBB-27-S7-50	N	205441-08	05/25/2022	SO	A
MBB-28-S3-35	N	205441-11	05/25/2022	SO	A
MBB-28-S4-40	N	205441-12	05/25/2022	SO	A
MBB-28-S400-40	FD	205441-13	05/25/2022	SO	A
MBB-28-S5-46	N	205441-14	05/25/2022	SO	A
MBB-30-S5-40	N	205441-20	05/25/2022	SO	A
MBB-30-S500-40	FD	205441-21	05/25/2022	SO	A
MBB-30-S6-45	N	205441-22	05/25/2022	SO	A

Sample ID	Sample Type	Lab ID	Sample Date	Matrix	Methods
MBB-30-S7-47	N	205441-23	05/25/2022	SO	A
MBB-29-S2-30	N	205441-25	05/25/2022	SO	A
MBB-29-S3-35	N	205441-26	05/25/2022	SO	A
MBB-29-S4-40	N	205441-27	05/25/2022	SO	A
MBB-29-S5-45	N	205441-28	05/25/2022	SO	A
MBB-35-S3-35	N	205503-03	05/31/2022	SO	A
MBB-35-S4-40	N	205503-04	05/31/2022	SO	A
MBB-38-S3-35	N	206019-02	06/01/2022	SO	A
MBB-38-S4-40	N	206019-03	06/01/2022	SO	A
MBB-38-S400-40	FD	206019-04	06/01/2022	SO	A
MBB-38-S5-45	N	206019-05	06/01/2022	SO	A
MBB-38-S6-47	N	206019-06	06/01/2022	SO	A
MBB-37-S3-35	N	206019-09	06/01/2022	SO	A
MBB-37-S4-40	N	206019-10	06/01/2022	SO	A
MBB-37-S5-45	N	206019-11	06/01/2022	SO	A
MBB-37-S6-46.5	N	206019-12	06/01/2022	SO	A
MBB-36-S3-35	N	206060-03	06/02/2022	SO	A
MBB-36-S4-40	N	206060-04	06/02/2022	SO	A
MBB-36-S5-43.5	N	206060-05	06/02/2022	SO	A
MBB-40-S2-30	N	206060-07	06/02/2022	SO	A
MBB-40-S3-35	N	206060-08	06/02/2022	SO	A
MBB-40-S4-40	N	206060-09	06/02/2022	SO	A
MBB-40-S400-40	FD	206060-10	06/02/2022	SO	A
MBB-42-S2-30	N	206088-02	06/03/2022	SO	A
MBB-42-S3-35	N	206088-03	06/03/2022	SO	A
MBB-42-S4-40	N	206088-04	06/03/2022	SO	A
MBB-42-S5-45	N	206088-05	06/03/2022	SO	A
MBB-39-S2-30	N	206088-07	06/03/2022	SO	A
MBB-39-S3-35	N	206088-08	06/03/2022	SO	A
MBB-39-S4-38	N	206088-09	06/03/2022	SO	A
MBB-43-S2	N	206099-02	06/06/2022	SO	A
MBB-43-S4	N	206099-04	06/06/2022	SO	A
MBB-43-S5	N	206099-05	06/06/2022	SO	A

Method Holding Times			
A.	SW8260D	Volatile Organic Compounds (VOCs)	14 days for solid, preserved 14 days for solid unpreserved

1.2 CASE NARRATIVE

The laboratory report case narrative lists various quality control exceedances (e.g., continuing calibration blank) not required by this review and no qualifiers were therefore applied.

1.3 HOLDING TIMES/PRESERVATION

The samples arrived at the laboratory at the proper temperature and were prepared and analyzed within the holding time and preservation criteria specified per method protocol with the following exceptions:

Method	Matrix	Holding Time	Preservation	Sample ID, Violation, Qualification
ALL	Water	Various	Cool to ≤ 6 °C	The cooler containing the following sample was received warm at 9 degrees Celsius (°C): 0202787 However, the cooler was delivered same day as sample collection and there is evidence chilling had begun.

1.4 REPORTING BASIS (WET/DRY)

Refer to section E 1.1. Soil data in this SDG were reported on a dry weight basis.

1.5 SURROGATE RECOVERY COMPLIANCE

Refer to section E 1.2. The percent recovery (%R) for each surrogate compound added to each project sample were determined to be within the laboratory specified quality control limits.

1.6 LABORATORY CONTROL SAMPLES

Refer to section E 1.3. Compounds associated with the laboratory control samples/laboratory control sample duplicates (LCS/LCSD) analyses exhibited recoveries and RPDs within the specified limits with the following exceptions:

Sample Type	Method	Batch ID	Analyte	%R	Qualifier	Affected Samples
LCS	8260C	206019	1,1-Dichloroethane	123%	J/UJ	None, samples are ND

1.7 MATRIX SPIKE SAMPLES

Refer to section E 1.4. No client samples were used for matrix spike/matrix spike duplicate (MS/MSD) analysis in this SDG.

1.8 BLANK SAMPLE ANALYSIS

Refer to section E 1.5. Method blank samples had no detections, indicating that no contamination from laboratory activities occurred.

1.9 DUPLICATE SAMPLE ANALYSIS

Refer to section E 1.6. No client samples were used for laboratory duplicate analysis.

The following sample(s) were used for field duplicate analysis. The RPD comparison for detections in either the parent or duplicate sample(s) is shown below. RPDs were all below 50 percent for soil (or the absolute difference rule was satisfied if detects were less than 5 times the RL). Any exceptions are noted below and qualified.

Primary Sample ID	Duplicate Sample ID	Method(s)
MBB-40-S4-40	MBB-40-S4-S400-40	8260D
MBB-28-S4-40	MBB-28-S400-40	8260D
MBB-30-S5-40	MBB-30-S500-40	8260D
MBB-38-S4-40	MBB-38-S400-40	8260D

Field Duplicate RPD Calculations:

Analyte (µg/L)	Primary Sample ID	Duplicate Sample ID	% RPD	Qualification
	MBB-38-S4-40	MBB-38-S400-40		
Tetrachloroethene	0.43	0.085	134%	J/UJ, RPD > 50%
Trichloroethene	0.08	ND	120%	J/UJ, RPD > 50%

1.10 PRECISION AND ACCURACY

Refer to section E 1.7. Where required by the method, some measurement of analytical accuracy and precision was reported for each method with the site samples.

1.11 SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

The results presented in this report were found to comply with the data quality objectives for the project and the guidelines specified by the analytical method. Based on the review of this report, the data are useable and acceptable as no data was rejected. The qualifiers applied to this data set are summarized in the table below.

Sample ID	Analyte	Reported Result	Validated Result	Reason for Qualifier
MBB-38-S4-40	Tetrachloroethene	0.43	0.43 J	Field Duplicate calculations
MBB-38-S400-40	Tetrachloroethene	0.085	0.085 J	Field Duplicate calculations
MBB-38-S4-40	Trichloroethene	0.08	0.08 J	Field Duplicate calculations
MBB-38-S400-40	Trichloroethene	0.02 U	0.02 UJ	Field Duplicate calculations

2. Explanations

The following explanations include more detailed information regarding each of the sections in the DUSR above. Not all sections in the Explanations are represented:

- E 1.1 Reporting Basis (Wet/Dry)
  - Soil samples can be reported on either a wet (as received) or dry weight basis. Dry weight data indicate calculations were made to compensate for the moisture content of the soil sample.
  - Percent (%) solids should be appropriately considered when evaluating analytical results for non-aqueous samples. Sediments with high moisture content may or may not be successfully analyzed by routine analytical methods. Samples should have greater than or equal to 30 percent solids to be appropriately quantified.
- E 1.2 Surrogate Recovery Compliance
  - Surrogates, also known as system monitoring compounds, are compounds added to each sample prior to sample preparation to determining the efficiency of the extraction procedure by evaluating the percent recovery (%R) of the compounds.
- E 1.3 Laboratory Control Samples
  - The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) analyses are used to assess the precision and accuracy of the analytical method independent of matrix interferences.
- E 1.4 Matrix Spike Samples
  - Matrix spike/matrix spike duplicate (MS/MSD) data are used to assess the precision and accuracy of the analytical method and evaluate the effects of the sample matrix on the sample preparation procedures and measurement methodologies.
- E 1.5 Blank Sample Analysis
  - Method blanks are prepared by the analytical laboratory and analyzed concurrently with the project samples to assess possible laboratory contamination.
- E 1.6 Laboratory and Field Duplicate Sample Analysis
  - The laboratory duplicate sample analysis is used by the laboratory at the time of the analysis to demonstrate acceptable method precision. The RPD or absolute difference was evaluated for each duplicate sample pair to monitor the reproducibility of the data.
  - The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. The relative percent difference (RPD) or absolute difference was evaluated for each duplicate sample pair to monitor the reproducibility of the data.
- E 1.7 Precision and Accuracy
  - Precision measures the reproducibility of repetitive measurements. In a laboratory environment, this will be measured by determining the relative percent difference (%RPD) found between a primary and a duplicate sample. This can be an LCS/LCSD pair, a MS/MSD pair, a laboratory duplicate performed on a site sample, or a field duplicate collected and analyzed concurrently with a site sample.

- Accuracy is a statistical measurement of the correctness of a measured value and includes components of random error (variability caused by imprecision) and systematic error. In a laboratory environment, this will be measured by determining the percent recovery (%Rec) of certain spiked compounds. This can be assessed using LCS, BS, MS, and/or surrogate recoveries.

3. Glossary

Not all of the following symbols, acronyms, or qualifiers occur in this document.

- Sample Types:
  - EB Equipment Blank Sample
  - FB Field Blank Sample
  - FD Field Duplicate Sample
  - N Primary Sample
  - TB Trip Blank Sample
- Units:
  - µg/kg microgram per kilogram
  - µg/L microgram per liter
  - µg/m3 microgram per cubic meter
  - mg/kg milligram per kilogram
  - mg/L milligram per liter
  - ppb v/v parts per billion volume/volume
  - pCi/L picocuries per liter
  - pg/g picograms per gram
- Matrices:
  - AA Ambient Air
  - GS Soil Gas
  - GW/WG Groundwater
  - QW Water Quality
  - IA Indoor Air
  - SE Sediment
  - SO Soil
  - WQ Water Quality control matrix
  - WS Surface Water
- Table Footnotes:
  - NA Not applicable
  - ND Non-detect
  - NR Not reported
- Common Symbols:
  - % percent
  - < less than
  - ≤ less than or equal to
  - > greater than
  - ≥ greater than or equal to
  - = equal
  - °C degrees Celsius
  - ± plus or minus
  - ~ approximately
  - x times (multiplier)

4. Abbreviations

%D	Percent Difference
%R	Percent Recovery
%RSD	Percent Relative Standard Deviation
%v/v	Percent volume by volume
µg/L	micrograms per liter
2s	2 sigma
4,4-DDT	4 4-dichlorodiphenyltrichloroethane
Abs Diff	Absolute Difference
BPJ	Best Professional Judgement
BS	Blank Spike
CCB	Continuing Calibration Blank
CCV	Continuing Calibration Verification
CCVL	Continuing Calibration Verification Low
COC	Chain of Custody
COM	Combined Isotope Calculation
Cr (VI)	Hexavalent Chromium
CRI	Collision Reaction Interface
DoD	Department of Defense
DUSR	Data Usability Summary Report
EMPC	Estimated Maximum Possible Concentration
FBK	Field Blank Contamination
FDP	Field Duplicate
GC	Gas Chromatograph
GC/MS	Gas Chromatography/Mass Spectrometry
GPC	Gel Permeation Chromatography
H2	Hydrogen gas
HCl	Hydrochloric Acid
ICAL	Initial Calibration
ICB	Initial Calibration Blank
ICP/MS	Inductively Coupled Plasma/ Mass Spectrometry
ICV	Initial Calibration Verification
ICVL	Initial Calibration Verification Low
IPA	Isopropyl Alcohol
LC	Laboratory Control
LCS/LCSD	Laboratory Control Sample/Laboratory Control Sample Duplicate
MBK	Method Blank Contamination
MDC	Minimum Detectable Concentration
MDL	Laboratory Method Detection Limit
mg/kg	milligrams per kilogram
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NA	not applicable
ND	Non-Detect
NFG	National Functional Guidelines
NH_3	Ammonia
NYSDEC	New York State Department of Environmental Conservation
PAH	polycyclic aromatic hydrocarbon
PCB	Polychlorinated Biphenyl
PDS	Post Digestion Spike
PEM	Performance Evaluation Mixture
PFAS	Per- and Polyfluoroalkyl Substances
PFBA	Perfluorbutanoic Acid
PFD	Perfluorodecalin
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctanoic Acid
PFPeA	nonafluorovaleric acid
QAPP	Quality Assurance Project Plan
QC	Quality Control
QSM	Quality Systems Manual
R^2	R-squared value
Ra-226	Radium-226
Ra-228	Radium-228
RESC	Resolution Check Measure
RL	Laboratory Reporting Limit
RPD	Relative Percent Difference
RRF	Relative Response Factors
RT	Retention Time
SAP	sampling analysis plan
SDG	Sample Delivery Group
SIM	Selected ion monitoring
SOP	Laboratory Standard Operating Procedures
SPE	Solid Phase Extraction
SVOC	Semi-Volatile Organic Compounds
TIC	Tentatively Identified Compound
TKN	Total Kjeldahl Nitrogen
TPH	Total Petroleum Hydrocarbon
TPU	Total Propagated Uncertainty
u	atomic mass unit
USEPA	U.S. Environmental Protection Agency
VOC	Volatile Organic Compounds
WP	Work Plan

5. Qualifiers

The qualifiers below are from the USEPA National Functional Guidelines and the data in the DUSR may contain these qualifiers:

- Concentration (C) Qualifiers:

  U The compound was analyzed for but not detected. The associated value is either the compound quantitation limit if not detected by the analytical instrument or could be the reported or blank concentration if qualified by blank contamination. This can also be displayed as less than the associated compound quantitation limit (<RL or <MDL), or "ND".

  B The compound was found in the sample and its associated blank. Its presence in the sample may be suspect.

- Quantitation (Q) Qualifiers:

  E The compound was quantitated above the calibration range.

  D The concentration is based on a diluted sample analysis.

- Validation Qualifiers:

  J The compound was positively identified; however, the associated numerical value is an estimated concentration only.

  J+ The result is an estimated quantity, but the result may be biased high.

  J- The result is an estimated quantity, but the result may be biased low.

  J/UJ as listed in exception tables J applies to detected data and UJ applies to non-detected data as reported by the laboratory.

  UJ The compound was not detected above the reported sample quantitation limit; however, the reported limit is estimated and may or may not represent the actual limit of quantitation.

  NJ The analysis indicated the presence of a compound for which there is presumptive evidence to make a tentative identification; the associated numerical value is an estimated concentration only.

  R The sample results were rejected as unusable; the compound may or may not be present in the sample.

  S Result is suspect. See DUSR for details.

References

1. United States Environmental Protection Agency, 2020 National Functional Guidelines for Organic Superfund Methods Data Review. EPA-540-R-20-005. November 2020.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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June 2, 2022

Becca Dozier, Project Manager
Haley & Aldrich, Inc
3131 Elliott Ave, Suite 600
Seattle, WA 98121

Dear Ms Dozier:

Included are the results from the testing of material submitted on May 23, 2022 from the MMB, F&BI 205399 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 should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Marissa Goodman
HNA0602R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on May 23, 2022 by Friedman & Bruya, Inc. from the Haley & Aldrich, Inc MMB, F&BI 205399 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Haley & Aldrich, Inc
205399 -01	MMB-46-S1-30
205399 -02	MMB-46-S2-35
205399 -03	MMB-46-S3-40
205399 -04	MMB-46-S4-43
205399 -05	MMB-45-S1-20
205399 -06	MMB-45-S2-25
205399 -07	MMB-45-S3-30
205399 -08	MMB-44-S1-25
205399 -09	MMB-44-S2-30
205399 -10	MMB-44-S3-35
205399 -11	MMB-44-S4-38

All quality control requirements were acceptable.

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MMB-46-S2-35	Client:	Haley & Aldrich, Inc
Date Received:	05/23/22	Project:	MMB, F&BI 205399
Date Extracted:	05/28/22	Lab ID:	205399-02 1/0.25
Date Analyzed:	05/29/22	Data File:	052846.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	79	128
Toluene-d8	97	84	121
4-Bromofluorobenzene	96	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MMB-46-S3-40	Client:	Haley & Aldrich, Inc
Date Received:	05/23/22	Project:	MMB, F&BI 205399
Date Extracted:	05/28/22	Lab ID:	205399-03 1/0.25
Date Analyzed:	05/29/22	Data File:	052847.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	88	79	128
Toluene-d8	92	84	121
4-Bromofluorobenzene	96	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MMB-46-S4-43	Client:	Haley & Aldrich, Inc
Date Received:	05/23/22	Project:	MMB, F&BI 205399
Date Extracted:	05/28/22	Lab ID:	205399-04 1/0.25
Date Analyzed:	05/29/22	Data File:	052848.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	109	79	128
Toluene-d8	102	84	121
4-Bromofluorobenzene	98	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MMB-45-S1-20	Client:	Haley & Aldrich, Inc
Date Received:	05/23/22	Project:	MMB, F&BI 205399
Date Extracted:	05/28/22	Lab ID:	205399-05 1/0.25
Date Analyzed:	05/29/22	Data File:	052849.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	79	128
Toluene-d8	109	84	121
4-Bromofluorobenzene	101	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MMB-45-S2-25	Client:	Haley & Aldrich, Inc
Date Received:	05/23/22	Project:	MMB, F&BI 205399
Date Extracted:	05/28/22	Lab ID:	205399-06 1/0.25
Date Analyzed:	05/29/22	Data File:	052850.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

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

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MMB-45-S3-30	Client:	Haley & Aldrich, Inc
Date Received:	05/23/22	Project:	MMB, F&BI 205399
Date Extracted:	05/28/22	Lab ID:	205399-07 1/0.25
Date Analyzed:	05/29/22	Data File:	052851.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	83	79	128
Toluene-d8	94	84	121
4-Bromofluorobenzene	98	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MMB-44-S2-30	Client:	Haley & Aldrich, Inc
Date Received:	05/23/22	Project:	MMB, F&BI 205399
Date Extracted:	05/28/22	Lab ID:	205399-09 1/0.25
Date Analyzed:	05/29/22	Data File:	052852.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	108	79	128
Toluene-d8	104	84	121
4-Bromofluorobenzene	95	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MMB-44-S3-35	Client:	Haley & Aldrich, Inc
Date Received:	05/23/22	Project:	MMB, F&BI 205399
Date Extracted:	05/28/22	Lab ID:	205399-10 1/0.25
Date Analyzed:	05/29/22	Data File:	052853.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	79	128
Toluene-d8	101	84	121
4-Bromofluorobenzene	95	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	0.12
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	0.10
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	0.031
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MMB-44-S4-38	Client:	Haley & Aldrich, Inc
Date Received:	05/23/22	Project:	MMB, F&BI 205399
Date Extracted:	05/28/22	Lab ID:	205399-11 1/0.25
Date Analyzed:	05/29/22	Data File:	052854.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	106	79	128
Toluene-d8	107	84	121
4-Bromofluorobenzene	95	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	Method Blank	Client:	Haley & Aldrich, Inc
Date Received:	Not Applicable	Project:	MMB, F&BI 205399
Date Extracted:	05/28/22	Lab ID:	02-1291 mb 1/0.25
Date Analyzed:	05/29/22	Data File:	052845.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	79	128
Toluene-d8	111	84	121
4-Bromofluorobenzene	95	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.025
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Date of Report: 06/02/22
Date Received: 05/23/22
Project: MMB, F&BI 205399

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

Laboratory Code: 205337-28 1/0.25 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet wt)	Duplicate Result (Wet wt)	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	<1	<1	nm
Vinyl chloride	mg/kg (ppm)	<0.002	<0.002	nm
Chloroethane	mg/kg (ppm)	<0.2	<0.2	nm
Trichlorofluoromethane	mg/kg (ppm)	<1	<1	nm
1,1-Dichloroethene	mg/kg (ppm)	<0.002	<0.002	nm
Methylene chloride	mg/kg (ppm)	<0.4	<0.4	nm
trans-1,2-Dichloroethene	mg/kg (ppm)	<0.004	<0.004	nm
1,1-Dichloroethane	mg/kg (ppm)	<0.004	<0.004	nm
2,2-Dichloropropane	mg/kg (ppm)	<0.1	<0.1	nm
cis-1,2-Dichloroethene	mg/kg (ppm)	<0.002	<0.002	nm
Chloroform	mg/kg (ppm)	<0.1	<0.1	nm
1,1,1-Trichloroethane	mg/kg (ppm)	<0.004	<0.004	nm
1,1-Dichloropropene	mg/kg (ppm)	<0.1	<0.1	nm
Carbon tetrachloride	mg/kg (ppm)	<0.1	<0.1	nm
Trichloroethene	mg/kg (ppm)	<0.002	<0.002	nm
1,2-Dichloropropane	mg/kg (ppm)	<0.1	<0.1	nm
Bromodichloromethane	mg/kg (ppm)	<0.1	<0.1	nm
1,3-Dichloropropane	mg/kg (ppm)	<0.1	<0.1	nm
Tetrachloroethene	mg/kg (ppm)	<0.002	<0.002	nm
Dibromochloromethane	mg/kg (ppm)	<0.1	<0.1	nm
Chlorobenzene	mg/kg (ppm)	<0.1	<0.1	nm
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	<0.1	<0.1	nm
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	<0.1	<0.1	nm
1,2,3-Trichloropropane	mg/kg (ppm)	<0.1	<0.1	nm
2-Chlorotoluene	mg/kg (ppm)	<0.1	<0.1	nm
4-Chlorotoluene	mg/kg (ppm)	<0.1	<0.1	nm
1,2,4-Trimethylbenzene	mg/kg (ppm)	<0.1	<0.1	nm
1,3-Dichlorobenzene	mg/kg (ppm)	<0.1	<0.1	nm
1,4-Dichlorobenzene	mg/kg (ppm)	<0.1	<0.1	nm
1,2-Dichlorobenzene	mg/kg (ppm)	<0.1	<0.1	nm
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	<1	<1	nm
Hexachlorobutadiene	mg/kg (ppm)	<0.5	<0.5	nm
1,2,3-Trichlorobenzene	mg/kg (ppm)	<0.5	<0.5	nm

Date of Report: 06/02/22
Date Received: 05/23/22
Project: MMB, F&BI 205399

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	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	1.0	68	65	21-140	5
Vinyl chloride	mg/kg (ppm)	1.0	76	74	35-135	3
Chloroethane	mg/kg (ppm)	1.0	85	82	21-147	4
Trichlorofluoromethane	mg/kg (ppm)	1.0	88	86	47-143	2
1,1-Dichloroethene	mg/kg (ppm)	1.0	85	83	49-138	2
Methylene chloride	mg/kg (ppm)	1.0	94	89	25-146	5
trans-1,2-Dichloroethene	mg/kg (ppm)	1.0	91	89	62-126	2
1,1-Dichloroethane	mg/kg (ppm)	1.0	90	88	64-131	2
2,2-Dichloropropane	mg/kg (ppm)	1.0	102	96	76-150	6
cis-1,2-Dichloroethene	mg/kg (ppm)	1.0	97	95	62-127	2
Chloroform	mg/kg (ppm)	1.0	96	91	67-129	5
1,1,1-Trichloroethane	mg/kg (ppm)	1.0	95	93	66-125	2
1,1-Dichloropropene	mg/kg (ppm)	1.0	88	85	70-131	3
Carbon tetrachloride	mg/kg (ppm)	1.0	93	93	53-135	0
Trichloroethene	mg/kg (ppm)	1.0	97	93	62-116	4
1,2-Dichloropropane	mg/kg (ppm)	1.0	92	97	70-130	5
Bromodichloromethane	mg/kg (ppm)	1.0	97	95	70-130	2
1,3-Dichloropropane	mg/kg (ppm)	1.0	99	94	70-130	5
Tetrachloroethene	mg/kg (ppm)	1.0	100	97	69-131	3
Dibromochloromethane	mg/kg (ppm)	1.0	91	87	61-137	4
Chlorobenzene	mg/kg (ppm)	1.0	96	91	70-130	5
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1.0	89	86	56-134	3
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1.0	89	90	70-130	1
1,2,3-Trichloropropane	mg/kg (ppm)	1.0	95	95	70-130	0
2-Chlorotoluene	mg/kg (ppm)	1.0	90	87	70-130	3
4-Chlorotoluene	mg/kg (ppm)	1.0	95	93	70-130	2
1,2,4-Trimethylbenzene	mg/kg (ppm)	1.0	91	89	70-130	2
1,3-Dichlorobenzene	mg/kg (ppm)	1.0	98	94	70-130	4
1,4-Dichlorobenzene	mg/kg (ppm)	1.0	96	95	70-130	1
1,2-Dichlorobenzene	mg/kg (ppm)	1.0	94	90	70-130	4
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1.0	94	93	70-130	1
Hexachlorobutadiene	mg/kg (ppm)	1.0	88	89	67-141	1
1,2,3-Trichlorobenzene	mg/kg (ppm)	1.0	90	86	66-138	5

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.

205399

SAMPLE CHAIN OF CUSTODY 05-23-22

Page # 1 of 2   403/VSB3

Report To: Haley & Aldrich
Company:
Address: 3131 Elliot Ave #600
City, State, ZIP: Seattle, WA
Phone: ______ Email: BGoldstein@haleyaldrich.com; Mwoodward@haleyaldrich.com

SAMPLERS (*signature*):

PROJECT NAME: MMB | PO #:

REMARKS: | INVOICE TO:

Project specific RLs? - Yes / No

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

SAMPLE DISPOSAL
☐ Archive samples
☐ Other
Default: Dispose after 30 days

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					Notes (*HVOCs by EPA 8260)
MBB-46-51-30	01 A-E	5/23/22	1125	Soil	5												Hold for analysis
MBB-46-52-35	02	5/23/22	1140							X							
MBB-46-53-40	03		1155							X							
MBB-46-54-43	04		1200							X							
MBB-45-51-20	05		1320							X							
MBB-45-52-25	06		1330							X							
MBB-45-53-30	07		1335							X							
MBB-44-51-25	08		1420														Hold for analysis
MBB-44-52-30	09		1425							X							
MBB-44-53-35	10	↓	1430	↓	↓					X							

Friedman & Bruya, Inc.
Ph. (206) 285-8282

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Blake Lyle-Goldstein	Haley & Aldrich	5/23/22	1641
Received by: W. Madden	Windy Madden	F+BI	5/23/22	1641
Relinquished by:		Samples received at 3 °C		
Received by:				

205399

SAMPLE CHAIN OF CUSTODY

05-23-22

Page # 2 of 2 AD3 | V503

Report To Haley & Aldrich

Company

Address

City, State, ZIP

Phone Email

SAMPLERS (*signature*)

PROJECT NAME	PO #
MMB	
REMARKS	INVOICE TO
Project specific RLs? - Yes / No	

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

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other
- Default: Dispose after 30 days

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					Notes
MBS-44-54-38	11A-E	5/23/22	1440	SOIL	5					X							* HVOCs by EPA 8260

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Burke Lytle-Bowerman	Haley & Aldrich	5/23/22	1641
Received by: W. Madden	Windy Madden	F+BI	5/23/22	1641
Relinquished by:				
Received by:		Samples received at 3°C		

Friedman & Bruya, Inc.
Ph. (206) 285-8282

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

June 3, 2022

Marissa Goodman, Project Manager
Haley & Aldrich, Inc
3131 Elliott Ave, Suite 600
Seattle, WA 98121

Dear Ms Goodman:

Included are the results from the testing of material submitted on May 24, 2022 from the MMB 0202787-100, F&BI 205414 project. There are 17 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 should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Becca Dozier
HNA0603R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on May 24, 2022 by Friedman & Bruya, Inc. from the Haley & Aldrich, Inc MMB 0202787-100, F&BI 205414 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Haley & Aldrich, Inc
205414 -01	MBB-41-S1-25
205414 -02	MBB-41-S2-30
205414 -03	MBB-41-S3-35
205414 -04	MBB-41-S4-40
205414 -05	MBB-32-S1-25
205414 -06	MBB-32-S2-30
205414 -07	MBB-32-S3-35
205414 -08	MBB-32-S4-40
205414 -09	MBB-32-S5-45
205414 -10	MBB-32-S6-50
205414 -11	MBB-32-S7-55
205414 -12	MBB-33-S1-25
205414 -13	MBB-33-S2-30
205414 -14	MBB-33-S3-35
205414 -15	MBB-33-S4-40
205414 -16	MBB-33-S5-45
205414 -17	MBB-33-S6-50
205414 -18	MBB-33-S7-52
205414 -19	MBB-31-S1-25
205414 -20	MBB-31-S1-S100-25
205414 -21	MBB-31-S2-30
205414 -22	MBB-31-S3-35
205414 -23	MBB-31-S4-40
205414 -24	MBB-31-S5-45
205414 -25	MBB-31-S6-50

All quality control requirements were acceptable.

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-41-S2-30	Client:	Haley & Aldrich, Inc
Date Received:	05/24/22	Project:	MMB 0202787-100, F&BI 205414
Date Extracted:	05/29/22	Lab ID:	205414-02 1/0.25
Date Analyzed:	05/30/22	Data File:	052945.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	87	79	128
Toluene-d8	101	84	121
4-Bromofluorobenzene	98	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	0.030
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-41-S3-35	Client:	Haley & Aldrich, Inc
Date Received:	05/24/22	Project:	MMB 0202787-100, F&BI 205414
Date Extracted:	05/29/22	Lab ID:	205414-03 1/0.25
Date Analyzed:	05/30/22	Data File:	052946.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	79	128
Toluene-d8	98	84	121
4-Bromofluorobenzene	96	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-41-S4-40	Client:	Haley & Aldrich, Inc
Date Received:	05/24/22	Project:	MMB 0202787-100, F&BI 205414
Date Extracted:	05/29/22	Lab ID:	205414-04 1/0.25
Date Analyzed:	05/30/22	Data File:	052947.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	79	128
Toluene-d8	104	84	121
4-Bromofluorobenzene	97	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-32-S4-40	Client:	Haley & Aldrich, Inc
Date Received:	05/24/22	Project:	MMB 0202787-100, F&BI 205414
Date Extracted:	05/29/22	Lab ID:	205414-08 1/0.25
Date Analyzed:	05/30/22	Data File:	052935.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	79	128
Toluene-d8	93	84	121
4-Bromofluorobenzene	98	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-32-S5-45	Client:	Haley & Aldrich, Inc
Date Received:	05/24/22	Project:	MMB 0202787-100, F&BI 205414
Date Extracted:	05/29/22	Lab ID:	205414-09 1/0.25
Date Analyzed:	05/30/22	Data File:	052936.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	92	79	128
Toluene-d8	92	84	121
4-Bromofluorobenzene	99	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-32-S6-50	Client:	Haley & Aldrich, Inc
Date Received:	05/24/22	Project:	MMB 0202787-100, F&BI 205414
Date Extracted:	05/29/22	Lab ID:	205414-10 1/0.25
Date Analyzed:	05/30/22	Data File:	052937.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	79	128
Toluene-d8	109	84	121
4-Bromofluorobenzene	97	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-32-S7-55	Client:	Haley & Aldrich, Inc
Date Received:	05/24/22	Project:	MMB 0202787-100, F&BI 205414
Date Extracted:	05/29/22	Lab ID:	205414-11 1/0.25
Date Analyzed:	05/30/22	Data File:	052938.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	79	128
Toluene-d8	99	84	121
4-Bromofluorobenzene	99	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-33-S5-45	Client:	Haley & Aldrich, Inc
Date Received:	05/24/22	Project:	MMB 0202787-100, F&BI 205414
Date Extracted:	05/29/22	Lab ID:	205414-16 1/0.25
Date Analyzed:	05/30/22	Data File:	052939.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	79	128
Toluene-d8	91	84	121
4-Bromofluorobenzene	98	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-33-S6-50	Client:	Haley & Aldrich, Inc
Date Received:	05/24/22	Project:	MMB 0202787-100, F&BI 205414
Date Extracted:	05/29/22	Lab ID:	205414-17 1/0.25
Date Analyzed:	05/30/22	Data File:	052940.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	107	79	128
Toluene-d8	107	84	121
4-Bromofluorobenzene	97	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-33-S7-52	Client:	Haley & Aldrich, Inc
Date Received:	05/24/22	Project:	MMB 0202787-100, F&BI 205414
Date Extracted:	05/29/22	Lab ID:	205414-18 1/0.25
Date Analyzed:	05/30/22	Data File:	052941.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	79	128
Toluene-d8	104	84	121
4-Bromofluorobenzene	94	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-31-S5-45	Client:	Haley & Aldrich, Inc
Date Received:	05/24/22	Project:	MMB 0202787-100, F&BI 205414
Date Extracted:	05/29/22	Lab ID:	205414-24 1/0.25
Date Analyzed:	05/30/22	Data File:	052942.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	79	128
Toluene-d8	112	84	121
4-Bromofluorobenzene	99	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-31-S6-50	Client:	Haley & Aldrich, Inc
Date Received:	05/24/22	Project:	MMB 0202787-100, F&BI 205414
Date Extracted:	05/29/22	Lab ID:	205414-25 1/0.25
Date Analyzed:	05/30/22	Data File:	052943.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	79	128
Toluene-d8	109	84	121
4-Bromofluorobenzene	101	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	Method Blank	Client:	Haley & Aldrich, Inc
Date Received:	Not Applicable	Project:	MMB 0202787-100, F&BI 205414
Date Extracted:	05/29/22	Lab ID:	02-1292 mb 1/0.25
Date Analyzed:	05/29/22	Data File:	052908.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	90	79	128
Toluene-d8	102	84	121
4-Bromofluorobenzene	99	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Date of Report: 06/03/22
Date Received: 05/24/22
Project: MMB 0202787-100, F&BI 205414

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

Laboratory Code: 205414-25 1/0.25 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet wt)	Duplicate Result (Wet wt)	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	<0.5	<0.5	nm
Vinyl chloride	mg/kg (ppm)	<0.05	<0.05	nm
Chloroethane	mg/kg (ppm)	<0.1	<0.1	nm
Trichlorofluoromethane	mg/kg (ppm)	<0.5	<0.5	nm
1,1-Dichloroethene	mg/kg (ppm)	<0.05	<0.05	nm
Methylene chloride	mg/kg (ppm)	<0.2	<0.2	nm
trans-1,2-Dichloroethene	mg/kg (ppm)	<0.05	<0.05	nm
1,1-Dichloroethane	mg/kg (ppm)	<0.05	<0.05	nm
2,2-Dichloropropane	mg/kg (ppm)	<0.05	<0.05	nm
cis-1,2-Dichloroethene	mg/kg (ppm)	<0.05	<0.05	nm
Chloroform	mg/kg (ppm)	<0.05	<0.05	nm
1,1,1-Trichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,1-Dichloropropene	mg/kg (ppm)	<0.05	<0.05	nm
Carbon tetrachloride	mg/kg (ppm)	<0.05	<0.05	nm
Trichloroethene	mg/kg (ppm)	<0.02	<0.02	nm
1,2-Dichloropropane	mg/kg (ppm)	<0.05	<0.05	nm
Bromodichloromethane	mg/kg (ppm)	<0.05	<0.05	nm
1,3-Dichloropropane	mg/kg (ppm)	<0.05	<0.05	nm
Tetrachloroethene	mg/kg (ppm)	<0.025	<0.025	nm
Dibromochloromethane	mg/kg (ppm)	<0.05	<0.05	nm
Chlorobenzene	mg/kg (ppm)	<0.05	<0.05	nm
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	<0.05	<0.05	nm
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	<0.05	<0.05	nm
1,2,3-Trichloropropane	mg/kg (ppm)	<0.05	<0.05	nm
2-Chlorotoluene	mg/kg (ppm)	<0.05	<0.05	nm
4-Chlorotoluene	mg/kg (ppm)	<0.05	<0.05	nm
1,2,4-Trimethylbenzene	mg/kg (ppm)	<0.05	<0.05	nm
1,3-Dichlorobenzene	mg/kg (ppm)	<0.05	<0.05	nm
1,4-Dichlorobenzene	mg/kg (ppm)	<0.05	<0.05	nm
1,2-Dichlorobenzene	mg/kg (ppm)	<0.05	<0.05	nm
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	<0.5	<0.5	nm
Hexachlorobutadiene	mg/kg (ppm)	<0.25	<0.25	nm
1,2,3-Trichlorobenzene	mg/kg (ppm)	<0.25	<0.25	nm

Date of Report: 06/03/22
Date Received: 05/24/22
Project: MMB 0202787-100, F&BI 205414

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	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	1.0	75	74	21-140	1
Vinyl chloride	mg/kg (ppm)	1.0	83	81	35-135	2
Chloroethane	mg/kg (ppm)	1.0	93	92	21-147	1
Trichlorofluoromethane	mg/kg (ppm)	1.0	96	94	47-143	2
1,1-Dichloroethene	mg/kg (ppm)	1.0	93	90	49-138	3
Methylene chloride	mg/kg (ppm)	1.0	91	89	25-146	2
trans-1,2-Dichloroethene	mg/kg (ppm)	1.0	98	95	62-126	3
1,1-Dichloroethane	mg/kg (ppm)	1.0	98	94	64-131	4
2,2-Dichloropropane	mg/kg (ppm)	1.0	122	115	76-150	6
cis-1,2-Dichloroethene	mg/kg (ppm)	1.0	99	101	62-127	2
Chloroform	mg/kg (ppm)	1.0	102	99	67-129	3
1,1,1-Trichloroethane	mg/kg (ppm)	1.0	103	99	66-125	4
1,1-Dichloropropene	mg/kg (ppm)	1.0	95	93	70-131	2
Carbon tetrachloride	mg/kg (ppm)	1.0	102	99	53-135	3
Trichloroethene	mg/kg (ppm)	1.0	100	96	62-116	4
1,2-Dichloropropane	mg/kg (ppm)	1.0	102	102	70-130	0
Bromodichloromethane	mg/kg (ppm)	1.0	102	102	70-130	0
1,3-Dichloropropane	mg/kg (ppm)	1.0	102	100	70-130	2
Tetrachloroethene	mg/kg (ppm)	1.0	110	105	69-131	5
Dibromochloromethane	mg/kg (ppm)	1.0	105	93	61-137	12
Chlorobenzene	mg/kg (ppm)	1.0	100	100	70-130	0
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1.0	96	94	56-134	2
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1.0	96	100	70-130	4
1,2,3-Trichloropropane	mg/kg (ppm)	1.0	98	101	70-130	3
2-Chlorotoluene	mg/kg (ppm)	1.0	94	96	70-130	2
4-Chlorotoluene	mg/kg (ppm)	1.0	97	100	70-130	3
1,2,4-Trimethylbenzene	mg/kg (ppm)	1.0	95	98	70-130	3
1,3-Dichlorobenzene	mg/kg (ppm)	1.0	102	103	70-130	1
1,4-Dichlorobenzene	mg/kg (ppm)	1.0	101	103	70-130	2
1,2-Dichlorobenzene	mg/kg (ppm)	1.0	98	102	70-130	4
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1.0	96	105	70-130	9
Hexachlorobutadiene	mg/kg (ppm)	1.0	96	96	67-141	0
1,2,3-Trichlorobenzene	mg/kg (ppm)	1.0	94	97	66-138	3

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.

205414

SAMPLE CHAIN OF CUSTODY

05-24-22 VS-B4/A03

Page # 1 of 3

Report To M. Goldman / B. Oozier

Company Hart & Aldrich

Address 3131 Elliot Ave

City, State, ZIP Seattle, WA

Phone _____ Email mgoldman@hartcrowser.com / boozier@hartcrowser.com

SAMPLERS (signature)

PROJECT NAME: MMB

PO #: 0202787-100

REMARKS: Project specific RLs? - Yes / No

INVOICE TO

TURNAROUND TIME
- [x] Standard turnaround
- [ ] RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
- [ ] Archive samples
- [ ] Other
Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260 (8240)	PAHs EPA 8270	PCBs EPA 8082					Notes
MBB-41-51-25	01 A-E	5/24/22	0840	Soil	5												HFA 3 HOLD FOR ANALYSIS
MBB-41-52-30	02		0850							X							
MBB-41-53-35	03		0855							X							
MBB-41-54-40	04		0910							X							
MBB-32-51-25	05		1000														HFA. COARSE SAND.
MBB-32-52-30	06		1010														HFA. COARSE SAND
MBB-32-53-35	07		1030														HFA.
MBB-32-54-40	08		1040							X							
MBB-32-55-45	09		1100							X							
MBB-32-56-50	10		1105							X							

ANALYSES REQUESTED

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Blake Lytle-Goldstein	H&A	5/24/22	1702
Received by:	VINCENT	FED	5-24-22	1702
Relinquished by:				
Received by:		Samples received at 4 °C		

Friedman & Bruya, Inc.
Ph. (206) 285-8282
NP

205414

SAMPLE CHAIN OF CUSTODY

05-24-22 VS-B4/7103

Page# 2 of 3

Report To

Company HALEY & ALDRICH

Address

City, State, ZIP

Phone Email

SAMPLERS (*signature*)

PROJECT NAME: MMB

PO #

REMARKS

Project specific RLs? - Yes / No

INVOICE TO

TURNAROUND TIME
- [x] Standard turnaround
- [ ] RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- [ ] Archive samples
- [ ] Other
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	HVOCs VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	VOCs EPA 8260				Notes
MBB-32-57-55	11 A-E	5/24/22	1110	soil	5					X							
MBB-33-51-25	12		1150														HFA
MBB-33-52-30	13		1155														HFA
MBB-33-53-35	14		1205														HFA
MBB-33-54-40	15		1215														HFA
MBB-33-55-45	16		1225							X							
MBB-33-56-50	17		1235							X							* Canceled per BD 5/26/22 MG
MBB-33-57-52	18		1245							X							
MBB-31-51-25	19		1430			X	X				X		X				STRONG ODOR
MBB-31-5100-25	20		1435			X	X				X		X				STRONG ODOR

Friedman & Bruya, Inc.
Ph. (206) 285-8282

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	BRAD LYTLE-GOLDSMITH	H&A	5/24/22	1702
Received by:	VINH	FBI	5-24-22	1702
Relinquished by:				
Received by:		Samples received at 4 °C		

205414

SAMPLE CHAIN OF CUSTODY 05-24-22

VS-B4 / [illegible]

Page # 3 of 3

Report To Haley & Aldrich

Company

Address

City, State, ZIP

Phone Email

SAMPLERS (signature)	
PROJECT NAME: MMB	PO #
REMARKS	INVOICE TO
Project specific RLs? - Yes / No	

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

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	HVOCs				Notes
MBB-31-S2-30	21 A-E	5/24/22	1440	Soil	5	X	X			X	X						strong odor PID >1000 ppm
MBB-31-S3-35	22	↓	1445	↓	↓												HFA
MBB-31-S4-40	23	↓	1500	↓	↓												HFA
MBB-31-S5-45	24	↓	1505	↓	↓								X				
MBB-31-S6-50	25	↓	1515	↓	↓								X				

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Blake Lytle-Goldstein	H&A	5/24/22	1702
Received by: [signature]	Vinh	FBI	5-24-22	1702
Relinquished by:				
Received by:		Samples received at 4 °C		

Friedman & Bruya, Inc.
Ph. (206) 285-8282

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

June 3, 2022

Marissa Goodman, Project Manager
Haley & Aldrich, Inc
3131 Elliott Ave, Suite 600
Seattle, WA 98121

Dear Ms Goodman:

Included are the results from the testing of material submitted on May 25, 2022 from the MMB 0202787-100, F&BI 205441 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 should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Becca Dozier
HNA0603R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on May 25, 2022 by Friedman & Bruya, Inc. from the Haley & Aldrich, Inc MMB 0202787-100, F&BI 205441 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Haley & Aldrich, Inc
205441 -01	MBB-27-S1-20
205441 -02	MBB-27-S2-25
205441 -03	MBB-27-S200-25
205441 -04	MBB-27-S3-30
205441 -05	MBB-27-S4-35
205441 -06	MBB-27-S5-40
205441 -07	MBB-27-S6-45
205441 -08	MBB-27-S7-50
205441 -09	MBB-28-S1-25
205441 -10	MBB-28-S2-30
205441 -11	MBB-28-S3-35
205441 -12	MBB-28-S4-40
205441 -13	MBB-28-S400-40
205441 -14	MBB-28-S5-46
205441 -15	MBB-28-S6-50
205441 -16	MBB-30-S1-20
205441 -17	MBB-30-S2-25
205441 -18	MBB-30-S3-30
205441 -19	MBB-30-S4-35
205441 -20	MBB-30-S5-40
205441 -21	MBB-30-S500-40
205441 -22	MBB-30-S6-45
205441 -23	MBB-30-S7-47
205441 -24	MBB-29-S1-S25
205441 -25	MBB-29-S2-30
205441 -26	MBB-29-S3-35
205441 -27	MBB-29-S4-40
205441 -28	MBB-29-S5-45

All quality control requirements were acceptable.

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-27-S5-40	Client:	Haley & Aldrich, Inc
Date Received:	05/25/22	Project:	MMB 0202787-100, F&BI 205441
Date Extracted:	05/29/22	Lab ID:	205441-06 1/0.25
Date Analyzed:	05/30/22	Data File:	052935.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	115	84	120
Toluene-d8	89	73	128
4-Bromofluorobenzene	92	57	146

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-27-S6-45	Client:	Haley & Aldrich, Inc
Date Received:	05/25/22	Project:	MMB 0202787-100, F&BI 205441
Date Extracted:	05/29/22	Lab ID:	205441-07 1/0.25
Date Analyzed:	05/30/22	Data File:	052936.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	84	120
Toluene-d8	89	73	128
4-Bromofluorobenzene	91	57	146

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-27-S7-50	Client:	Haley & Aldrich, Inc
Date Received:	05/25/22	Project:	MMB 0202787-100, F&BI 205441
Date Extracted:	05/29/22	Lab ID:	205441-08 1/0.25
Date Analyzed:	05/30/22	Data File:	052937.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	108	84	120
Toluene-d8	85	73	128
4-Bromofluorobenzene	90	57	146

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-28-S3-35	Client:	Haley & Aldrich, Inc
Date Received:	05/25/22	Project:	MMB 0202787-100, F&BI 205441
Date Extracted:	05/29/22	Lab ID:	205441-11 1/0.25
Date Analyzed:	05/30/22	Data File:	052938.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	84	120
Toluene-d8	85	73	128
4-Bromofluorobenzene	88	57	146

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-28-S4-40	Client:	Haley & Aldrich, Inc
Date Received:	05/25/22	Project:	MMB 0202787-100, F&BI 205441
Date Extracted:	05/29/22	Lab ID:	205441-12 1/0.25
Date Analyzed:	05/30/22	Data File:	052939.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	110	84	120
Toluene-d8	91	73	128
4-Bromofluorobenzene	94	57	146

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-28-S400-40	Client:	Haley & Aldrich, Inc
Date Received:	05/25/22	Project:	MMB 0202787-100, F&BI 205441
Date Extracted:	05/29/22	Lab ID:	205441-13 1/0.25
Date Analyzed:	05/30/22	Data File:	052940.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	113	84	120
Toluene-d8	91	73	128
4-Bromofluorobenzene	91	57	146

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-28-S5-46	Client:	Haley & Aldrich, Inc
Date Received:	05/25/22	Project:	MMB 0202787-100, F&BI 205441
Date Extracted:	05/29/22	Lab ID:	205441-14 1/0.25
Date Analyzed:	05/30/22	Data File:	052941.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	116	84	120
Toluene-d8	93	73	128
4-Bromofluorobenzene	92	57	146

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	0.19
Tetrachloroethene	0.56
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	1.3
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	0.040
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-30-S5-40	Client:	Haley & Aldrich, Inc
Date Received:	05/25/22	Project:	MMB 0202787-100, F&BI 205441
Date Extracted:	05/29/22	Lab ID:	205441-20 1/0.25
Date Analyzed:	05/30/22	Data File:	052942.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	110	84	120
Toluene-d8	87	73	128
4-Bromofluorobenzene	94	57	146

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-30-S500-40	Client:	Haley & Aldrich, Inc
Date Received:	05/25/22	Project:	MMB 0202787-100, F&BI 205441
Date Extracted:	05/29/22	Lab ID:	205441-21 1/0.25
Date Analyzed:	05/30/22	Data File:	052943.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	107	84	120
Toluene-d8	89	73	128
4-Bromofluorobenzene	93	57	146

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-30-S6-45	Client:	Haley & Aldrich, Inc
Date Received:	05/25/22	Project:	MMB 0202787-100, F&BI 205441
Date Extracted:	05/29/22	Lab ID:	205441-22 1/0.25
Date Analyzed:	05/30/22	Data File:	052944.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	111	84	120
Toluene-d8	90	73	128
4-Bromofluorobenzene	91	57	146

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	0.53
Tetrachloroethene	0.17
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	0.52
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	0.090
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-30-S7-47	Client:	Haley & Aldrich, Inc
Date Received:	05/25/22	Project:	MMB 0202787-100, F&BI 205441
Date Extracted:	05/29/22	Lab ID:	205441-23 1/0.25
Date Analyzed:	05/30/22	Data File:	052945.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	84	120
Toluene-d8	89	73	128
4-Bromofluorobenzene	92	57	146

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	0.054
Tetrachloroethene	0.043
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	0.033
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-29-S3-35	Client:	Haley & Aldrich, Inc
Date Received:	05/25/22	Project:	MMB 0202787-100, F&BI 205441
Date Extracted:	05/29/22	Lab ID:	205441-26 1/0.25
Date Analyzed:	05/30/22	Data File:	052946.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	110	84	120
Toluene-d8	88	73	128
4-Bromofluorobenzene	91	57	146

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	0.22
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	0.072
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	0.027
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-29-S4-40	Client:	Haley & Aldrich, Inc
Date Received:	05/25/22	Project:	MMB 0202787-100, F&BI 205441
Date Extracted:	05/29/22	Lab ID:	205441-27 1/0.25
Date Analyzed:	05/30/22	Data File:	052947.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	111	84	120
Toluene-d8	87	73	128
4-Bromofluorobenzene	93	57	146

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	0.089
Tetrachloroethene	2.0
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	0.86
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	0.18
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-29-S5-45	Client:	Haley & Aldrich, Inc
Date Received:	05/25/22	Project:	MMB 0202787-100, F&BI 205441
Date Extracted:	05/29/22	Lab ID:	205441-28 1/0.25
Date Analyzed:	05/30/22	Data File:	052948.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	84	120
Toluene-d8	90	73	128
4-Bromofluorobenzene	91	57	146

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	4.5
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	0.66
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	0.53
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	Method Blank	Client:	Haley & Aldrich, Inc
Date Received:	Not Applicable	Project:	MMB 0202787-100, F&BI 205441
Date Extracted:	05/29/22	Lab ID:	02-1293 mb 1/0.25
Date Analyzed:	05/30/22	Data File:	052934.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	84	120
Toluene-d8	93	73	128
4-Bromofluorobenzene	92	57	146

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Date of Report: 06/03/22
Date Received: 05/25/22
Project: MMB 0202787-100, F&BI 205441

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

Laboratory Code: 205441-17 1/0.25 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet wt)	Duplicate Result (Wet wt)	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	<0.5	<0.5	nm
Vinyl chloride	mg/kg (ppm)	<0.05	<0.05	nm
Chloroethane	mg/kg (ppm)	<0.1	<0.1	nm
Trichlorofluoromethane	mg/kg (ppm)	<0.5	<0.5	nm
1,1-Dichloroethene	mg/kg (ppm)	<0.05	<0.05	nm
Methylene chloride	mg/kg (ppm)	<0.2	<0.2	nm
trans-1,2-Dichloroethene	mg/kg (ppm)	<0.05	<0.05	nm
1,1-Dichloroethane	mg/kg (ppm)	<0.05	<0.05	nm
2,2-Dichloropropane	mg/kg (ppm)	<0.05	<0.05	nm
cis-1,2-Dichloroethene	mg/kg (ppm)	<0.05	<0.05	nm
Chloroform	mg/kg (ppm)	<0.05	<0.05	nm
1,1,1-Trichloroethane	mg/kg (ppm)	<0.005	<0.005	nm
1,1-Dichloropropene	mg/kg (ppm)	<0.05	<0.05	nm
Carbon tetrachloride	mg/kg (ppm)	<0.05	<0.05	nm
Trichloroethene	mg/kg (ppm)	<0.02	<0.02	nm
1,2-Dichloropropane	mg/kg (ppm)	<0.05	<0.05	nm
Bromodichloromethane	mg/kg (ppm)	<0.05	<0.05	nm
1,3-Dichloropropane	mg/kg (ppm)	<0.05	<0.05	nm
Tetrachloroethene	mg/kg (ppm)	<0.025	<0.025	nm
Dibromochloromethane	mg/kg (ppm)	<0.05	<0.05	nm
Chlorobenzene	mg/kg (ppm)	<0.05	<0.05	nm
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	<0.05	<0.05	nm
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	<0.05	<0.05	nm
1,2,3-Trichloropropane	mg/kg (ppm)	<0.05	<0.05	nm
2-Chlorotoluene	mg/kg (ppm)	<0.05	<0.05	nm
4-Chlorotoluene	mg/kg (ppm)	<0.05	<0.05	nm
1,2,4-Trimethylbenzene	mg/kg (ppm)	<0.05	<0.05	nm
1,3-Dichlorobenzene	mg/kg (ppm)	<0.05	<0.05	nm
1,4-Dichlorobenzene	mg/kg (ppm)	<0.05	<0.05	nm
1,2-Dichlorobenzene	mg/kg (ppm)	<0.05	<0.05	nm
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	<0.5	<0.5	nm
Hexachlorobutadiene	mg/kg (ppm)	<0.25	<0.25	nm
1,2,3-Trichlorobenzene	mg/kg (ppm)	<0.25	<0.25	nm

Date of Report: 06/03/22
Date Received: 05/25/22
Project: MMB 0202787-100, F&BI 205441

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	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	1.0	83	76	34-101	9
Vinyl chloride	mg/kg (ppm)	1.0	94	87	47-106	8
Chloroethane	mg/kg (ppm)	1.0	111	103	44-123	7
Trichlorofluoromethane	mg/kg (ppm)	1.0	99	91	56-108	8
1,1-Dichloroethene	mg/kg (ppm)	1.0	113	105	61-118	7
Methylene chloride	mg/kg (ppm)	1.0	102	96	10-213	6
trans-1,2-Dichloroethene	mg/kg (ppm)	1.0	114	110	70-130	4
1,1-Dichloroethane	mg/kg (ppm)	1.0	109	112	70-130	3
2,2-Dichloropropane	mg/kg (ppm)	1.0	115	112	45-172	3
cis-1,2-Dichloroethene	mg/kg (ppm)	1.0	108	104	70-130	4
Chloroform	mg/kg (ppm)	1.0	108	109	70-130	1
1,1,1-Trichloroethane	mg/kg (ppm)	1.0	109	106	70-130	3
1,1-Dichloropropene	mg/kg (ppm)	1.0	100	103	70-130	3
Carbon tetrachloride	mg/kg (ppm)	1.0	108	103	68-146	5
Trichloroethene	mg/kg (ppm)	1.0	104	100	53-133	4
1,2-Dichloropropane	mg/kg (ppm)	1.0	95	98	67-137	3
Bromodichloromethane	mg/kg (ppm)	1.0	94	102	70-130	8
1,3-Dichloropropane	mg/kg (ppm)	1.0	98	102	67-135	4
Tetrachloroethene	mg/kg (ppm)	1.0	105	101	59-138	4
Dibromochloromethane	mg/kg (ppm)	1.0	102	96	61-154	6
Chlorobenzene	mg/kg (ppm)	1.0	100	96	65-133	4
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1.0	113	105	68-129	7
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1.0	110	101	35-184	9
1,2,3-Trichloropropane	mg/kg (ppm)	1.0	103	100	70-130	3
2-Chlorotoluene	mg/kg (ppm)	1.0	101	96	50-146	5
4-Chlorotoluene	mg/kg (ppm)	1.0	101	97	47-150	4
1,2,4-Trimethylbenzene	mg/kg (ppm)	1.0	107	101	42-159	6
1,3-Dichlorobenzene	mg/kg (ppm)	1.0	106	102	49-149	4
1,4-Dichlorobenzene	mg/kg (ppm)	1.0	99	101	48-149	2
1,2-Dichlorobenzene	mg/kg (ppm)	1.0	105	101	58-139	4
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1.0	112	107	70-130	5
Hexachlorobutadiene	mg/kg (ppm)	1.0	109	100	41-186	9
1,2,3-Trichlorobenzene	mg/kg (ppm)	1.0	116	104	49-165	11

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.

205441

MBOOMM@HALEYALDRICH.COM

SAMPLE CHAIN OF CUSTODY

05/25/22 VS-B3/A223

Page # 1 of 3

Report To BDOZIER@HALEYALDRICH.COM

Company HALEY & ALDRICH

Address 3131 ELLIOT AVE #600

City, State, ZIP SEATTLE, WA

Phone _____ Email _____

SAMPLERS (*signature*)

PROJECT NAME	PO #
MMB	0202787-100
REMARKS	INVOICE TO
Project specific RLs? - Yes / No	

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

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other _____
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	HVOCs				Notes: ✓-per BD 5/26
MBB-27-51-20	01A-E	5/25/22	0830	SOIL	5	✓	✓			✓	✓						~~HOLD FOR ANALYSIS~~ (HFA)
MBB-27-52-25	02		0835			✓	✓			✓	✓						~~HFA~~
MBB-27-5200-25	03		0840														HFA
MBB-27-53-30	04		0845														HFA
MBB-27-54-35	05		0850														HFA
MBB-27-55-40	06		0905										X				✓-per
MBB-27-56-45	07		0910										X				BD 5/27
MBB-27-57-50	08		0920										X				
MBB-28-51-25	09		1010														HFA
MBB-28-52-30	10		1015														HFA

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	BRAYER LYNE-GOURSTER	H&A	5/25/22	1715
Received by: [signature]	BISRAT TADESSE	FBI	5/25/22	1715
Relinquished by:				
Received by:		Samples received at 4 °C		

Friedman & Bruya, Inc.
Ph. (206) 285-8282

205441

SAMPLE CHAIN OF CUSTODY 05/25/22 VS-B3/A03

Page # 2 of 3

Report To

Company HALEY & ALDRICH

Address

City, State, ZIP

Phone Email

SAMPLERS (*signature*)

PROJECT NAME | PO #

REMARKS | INVOICE TO

Project specific RLs? - Yes / No

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

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	HVOCs				Notes
MBB-28-53-35	11 A-E	5/25/22	1020	SOIL	5								X				
MBB-28-54-40	12		1030										X				
MBB-28-S100-40	13		1035										X				
MBB-28-55-46	14		1045										X				
MBB-28-56-50	15		1055														HFA
MBB-30-51-20	16		1140			✓	✓			✓	✓						~~HFA~~
MBB-30-52-25	17		1145			✓	✓			✓	✓						~~HFA~~ 5/26
MBB-30-53-30	18		1155														HFA
MBB-30-54-35	14		1200														HFA
MBB-30-55-40	20	↓	1210	↓	↓								X				

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	KATIE LYNE-GOLDSON	H&A	5/25/22	1715
Received by:	FISHER ATKESON	FBI	5/25/22	1715
Relinquished by:				
Received by:		Samples received at 4 °C		

Friedman & Bruya, Inc.
Ph. (206) 285-8282

205441 [redacted]

SAMPLE CHAIN OF CUSTODY 05/25/22 US-B3/AB3

Page # 3 of 3

Report To

Company HALEY & ALDRICH

Address

City, State, ZIP

Phone Email

SAMPLERS (*signature*) [redacted]	
PROJECT NAME	PO #
REMARKS Project specific RLs? - Yes / No	INVOICE TO

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

SAMPLE DISPOSAL
☐ Archive samples
☐ Other
Default: Dispose after 30 days

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	HVOCs				Notes
MBB-30-5500-40	21 A-E	5/25/22	1215	SOIL	5								X				
MBB-30-56-45	22		1220										X				
MBB-30-57-47	23		1230										X				NO ID on 4oz Jar (SP) 5/25/22
MBB-29-51-25	24		1400														HFA
MBB-29-52-30	25		1435														MBB-29-52-30 HFA 4oz jar label (SP) 5/25
MBB-29-53-35	26		1440										X				
MBB-29-54-40	27		1500										X				
MBB-29-55-45	28		1505										X				

Friedman & Bruya, Inc.
Ph. (206) 285-8282

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	BLAKE LEPTO-GOLDSTEIN	H&A	5/25/22	1715
Received by: [signature]	BISRAT TADESSE	FBI	5/25/22	1715
Relinquished by:				
Received by:		Samples received at 4 °C		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

June 15, 2022

Angie Goodwin, Project Manager
Haley & Aldrich, Inc
3131 Elliott Ave, Suite 600
Seattle, WA 98121

Dear Ms Goodwin:

Included are the additional results from the testing of material submitted on May 25, 2022 from the MMB 0202787-100, F&BI 205441 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 should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Becca Dozier
HNA0615R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on May 25, 2022 by Friedman & Bruya, Inc. from the Haley & Aldrich, Inc MMB 0202787-100, F&BI 205441 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Haley & Aldrich, Inc
205441 -01	MBB-27-S1-20
205441 -02	MBB-27-S2-25
205441 -03	MBB-27-S200-25
205441 -04	MBB-27-S3-30
205441 -05	MBB-27-S4-35
205441 -06	MBB-27-S5-40
205441 -07	MBB-27-S6-45
205441 -08	MBB-27-S7-50
205441 -09	MBB-28-S1-25
205441 -10	MBB-28-S2-30
205441 -11	MBB-28-S3-35
205441 -12	MBB-28-S4-40
205441 -13	MBB-28-S400-40
205441 -14	MBB-28-S5-46
205441 -15	MBB-28-S6-50
205441 -16	MBB-30-S1-20
205441 -17	MBB-30-S2-25
205441 -18	MBB-30-S3-30
205441 -19	MBB-30-S4-35
205441 -20	MBB-30-S5-40
205441 -21	MBB-30-S500-40
205441 -22	MBB-30-S6-45
205441 -23	MBB-30-S7-47
205441 -24	MBB-29-S1-S25
205441 -25	MBB-29-S2-30
205441 -26	MBB-29-S3-35
205441 -27	MBB-29-S4-40
205441 -28	MBB-29-S5-45

The 8260D matrix spike and matrix spike duplicate failed the relative percent difference for several compounds. The analytes were not detected therefore the data were acceptable.

All other quality control requirements were acceptable.

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-29-S2-30	Client:	Haley & Aldrich, Inc
Date Received:	05/25/22	Project:	MMB 0202787-100, F&BI 205441
Date Extracted:	06/09/22	Lab ID:	205441-25 1/0.25
Date Analyzed:	06/09/22	Data File:	060921.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	79	128
Toluene-d8	101	84	121
4-Bromofluorobenzene	99	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	Method Blank	Client:	Haley & Aldrich, Inc
Date Received:	Not Applicable	Project:	MMB 0202787-100, F&BI 205441
Date Extracted:	06/09/22	Lab ID:	02-1357 mb2 1/0.25
Date Analyzed:	06/09/22	Data File:	060908.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	79	128
Toluene-d8	101	84	121
4-Bromofluorobenzene	99	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Date of Report: 06/15/22
Date Received: 05/25/22
Project: MMB 0202787-100, F&BI 205441

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

Laboratory Code: 206138-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	1	<0.5	16	14	10-126	13
Vinyl chloride	mg/kg (ppm)	1	<0.05	19	16	10-138	17
Chloroethane	mg/kg (ppm)	1	<0.5	22	19	10-176	15
Trichlorofluoromethane	mg/kg (ppm)	1	<0.5	28	26	10-176	7
1,1-Dichloroethene	mg/kg (ppm)	1	<0.05	30	27	10-160	11
Methylene chloride	mg/kg (ppm)	1	<0.5	39	35	10-156	11
trans-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	44	39	14-137	12
1,1-Dichloroethane	mg/kg (ppm)	1	<0.05	45	38	19-140	17
2,2-Dichloropropane	mg/kg (ppm)	1	<0.05	113	54	10-158	71 vo
cis-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	90	46	25-135	65 vo
Chloroform	mg/kg (ppm)	1	<0.05	87	47	21-145	60 vo
1,1,1-Trichloroethane	mg/kg (ppm)	1	<0.05	91	53	10-156	53 vo
1,1-Dichloropropene	mg/kg (ppm)	1	<0.05	86	47	17-140	59 vo
Carbon tetrachloride	mg/kg (ppm)	1	<0.05	87	53	9-164	49 vo
Trichloroethene	mg/kg (ppm)	1	<0.02	83	77	21-139	7
1,2-Dichloropropane	mg/kg (ppm)	1	<0.05	87	80	30-135	8
Bromodichloromethane	mg/kg (ppm)	1	<0.05	86	81	23-155	6
1,3-Dichloropropane	mg/kg (ppm)	1	<0.05	87	82	31-137	6
Tetrachloroethene	mg/kg (ppm)	1	0.033	84	77	20-133	9
Dibromochloromethane	mg/kg (ppm)	1	<0.05	99	92	28-150	7
Chlorobenzene	mg/kg (ppm)	1	<0.05	83	79	32-129	5
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	87	84	31-143	4
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	111	101	28-140	9
1,2,3-Trichloropropane	mg/kg (ppm)	1	<0.05	83	77	25-144	7
2-Chlorotoluene	mg/kg (ppm)	1	<0.05	77	70	31-134	10
4-Chlorotoluene	mg/kg (ppm)	1	<0.05	77	72	31-136	7
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	<0.05	78	71	10-182	9
1,3-Dichlorobenzene	mg/kg (ppm)	1	<0.05	79	72	30-131	9
1,4-Dichlorobenzene	mg/kg (ppm)	1	<0.05	81	74	29-129	9
1,2-Dichlorobenzene	mg/kg (ppm)	1	<0.05	82	76	31-132	8
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	<0.5	87	80	11-161	8
Hexachlorobutadiene	mg/kg (ppm)	1	<0.25	110	95	10-142	15
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	<0.25	94	84	20-144	11

Date of Report: 06/15/22
Date Received: 05/25/22
Project: MMB 0202787-100, F&BI 205441

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
Chloromethane	mg/kg (ppm)	1	71	27-133
Vinyl chloride	mg/kg (ppm)	1	86	22-139
Chloroethane	mg/kg (ppm)	1	90	9-163
Trichlorofluoromethane	mg/kg (ppm)	1	96	10-196
1,1-Dichloroethene	mg/kg (ppm)	1	101	47-128
Methylene chloride	mg/kg (ppm)	1	93	10-184
trans-1,2-Dichloroethene	mg/kg (ppm)	1	91	67-129
1,1-Dichloroethane	mg/kg (ppm)	1	93	68-115
2,2-Dichloropropane	mg/kg (ppm)	1	122	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	1	99	72-127
Chloroform	mg/kg (ppm)	1	94	66-120
1,1,1-Trichloroethane	mg/kg (ppm)	1	103	62-131
1,1-Dichloropropene	mg/kg (ppm)	1	95	69-128
Carbon tetrachloride	mg/kg (ppm)	1	100	60-139
Trichloroethene	mg/kg (ppm)	1	95	63-121
1,2-Dichloropropane	mg/kg (ppm)	1	96	72-127
Bromodichloromethane	mg/kg (ppm)	1	97	57-126
1,3-Dichloropropane	mg/kg (ppm)	1	94	72-130
Tetrachloroethene	mg/kg (ppm)	1	104	72-114
Dibromochloromethane	mg/kg (ppm)	1	111	55-121
Chlorobenzene	mg/kg (ppm)	1	95	76-111
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	100	64-121
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	96	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	1	91	61-137
2-Chlorotoluene	mg/kg (ppm)	1	95	74-121
4-Chlorotoluene	mg/kg (ppm)	1	92	75-122
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	98	76-125
1,3-Dichlorobenzene	mg/kg (ppm)	1	98	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	1	97	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	1	98	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	101	58-138
Hexachlorobutadiene	mg/kg (ppm)	1	104	50-153
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	99	63-138

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.

205441

MBOOPMM@HALEYALDRICH.COM

SAMPLE CHAIN OF CUSTODY

05/25/22 VS-B3/A203

Page # 1 of 3

Report To BOZZIER@HALEYALDRICH.COM

Company HALEY & ALDRICH

Address 3131 ELLIOT AVE #600

City, State, ZIP SEATTLE, WA

Phone _____ Email _____

SAMPLERS (*signature*)

PROJECT NAME	PO #
MMB	0202787-100
REMARKS Project specific RLs? - Yes / No	INVOICE TO

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

SAMPLE DISPOSAL
☐ Archive samples
☐ Other _____
Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	HVOCs				Notes
MBB-27-51-20	01A-E	5/25/22	0830	SOIL	5												HOLD FOR ANALYSIS (HFA)
MBB-27-52-25	02		0835														HFA
MBB-27-5200-25	03		0840														HFA
MBB-27-53-30	04		0845														HFA
MBB-27-54-35	05		0850														HFA
MBB-27-55-40	06		0905										X				
MBB-27-56-45	07		0910										X				
MBB-27-57-50	08		0920										X				
MBB-28-51-25	09		1010														HFA
MBB-28-52-30	10		1015														HFA

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	BRADE LYNE-GOUPSTER	H&A	5/25/22	1715
Received by:	BISRAT TADESSE	FBI	5/25/22	1715
Relinquished by:				
Received by:		Samples received at 4 °C		

Friedman & Bruya, Inc.
Ph. (206) 285-8282

205441

SAMPLE CHAIN OF CUSTODY 05/25/22 VS-B3/A03

Page # 2 of 3

Report To
Company HALEY & ALDRICH
Address
City, State, ZIP
Phone Email

SAMPLERS (*signature*)	
PROJECT NAME	PO #
REMARKS Project specific RLs? - Yes / No	INVOICE TO

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

SAMPLE DISPOSAL
☐ Archive samples
☐ Other
Default: Dispose after 30 days

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	HVOCs				Notes
						ANALYSES REQUESTED											
MBB-28-S3-35	11 A-E	5/25/22	1020	Soil	5								X				
MBB-28-S4-40	12	↓	1030	↓	↓								X				
MBB-28-S400-40	13		1035										X				
MBB-28-S5-46	14		1045										X				
MBB-28-S6-50	15		1055														HFA
MBB-30-S1-20	16		1140														HFA
MBB-30-S2-25	17		1145														HFA
MBB-30-S3-30	18		1155														HFA
MBB-30-S4-35	19		1200														HFA
MBB-30-S5-40	20	↓	1210	↓	↓								X				

Friedman & Bruya, Inc.
Ph. (206) 285-8282

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [illegible]	Bates Lyons-Goldstein	H&A	5/25/22	1715
Received by: [illegible]	Biskat Adesse	FBI	5/25/22	1715
Relinquished by:				
Received by:		Samples received at 4 °C		

205441

SAMPLE CHAIN OF CUSTODY

05/25/22 VS-B3/AB3

Report To

Company HALEY & ALDRICH

Address

City, State, ZIP

Phone Email

SAMPLERS (*signature*)	
PROJECT NAME	PO #
REMARKS Project specific RLs? - Yes / No	INVOICE TO

TURNAROUND TIME
- [x] Standard turnaround
- [ ] RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- [ ] Archive samples
- [ ] Other
- Default: Dispose after 30 days

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	HVOCs				Notes
MBB-30-5500-40	21 A-E	5/25/22	1215	SOIL	5								X				
MBB-30-56-45	22		1220										X				
MBB-30-57-47	23		1230										X				NO ID on 402 JAR (KP) 5/25/22
MBB-29-51-25	24		1400														HFA
MBB-29-52-30	25		1435														MBB-29-52-30 402 JAR label HFA (KP) 5/25/22
MBB-29-53-35	26		1440										X				
MBB-29-54-40	27		1500										X				
MBB-29-55-45	28		1505										X				

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	BLAKE LEITE-GOLDSTEIN	H&A	5/25/22	1715
Received by:	BISRAT TADESSE	FGL	5/25/22	1715
Relinquished by:				
Received by:		Samples received at 4 °C		

Friedman & Bruya, Inc.
Ph. (206) 285-8282

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

June 9, 2022

Marissa Goodman, Project Manager
Haley & Aldrich, Inc
3131 Elliott Ave, Suite 600
Seattle, WA 98121

Dear Ms Goodman:

Included are the results from the testing of material submitted on May 31, 2022 from the Mercer Mega Block (MMB) 0202787-100, F&BI 205503 project. There are 7 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 should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Becca Dozier
HNA0609R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on May 31, 2022 by Friedman & Bruya, Inc. from the Haley & Aldrich, Inc Mercer Mega Block (MMB) 0202787-100, F&BI 205503 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Haley & Aldrich, Inc
205503 -01	MBB-35-S1-25
205503 -02	MBB-35-S2-30
205503 -03	MBB-35-S3-35
205503 -04	MBB-35-S4-40
205503 -05	MBB-30-S1-25

All quality control requirements were acceptable.

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-35-S3-35	Client:	Haley & Aldrich, Inc
Date Received:	05/31/22	Project:	0202787-100, F&BI 205503
Date Extracted:	06/01/22	Lab ID:	205503-03 1/0.25
Date Analyzed:	06/02/22	Data File:	060215.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	79	128
Toluene-d8	100	84	121
4-Bromofluorobenzene	102	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-35-S4-40	Client:	Haley & Aldrich, Inc
Date Received:	05/31/22	Project:	0202787-100, F&BI 205503
Date Extracted:	06/01/22	Lab ID:	205503-04 1/0.25
Date Analyzed:	06/02/22	Data File:	060216.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	79	128
Toluene-d8	102	84	121
4-Bromofluorobenzene	99	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	0.22
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	0.14
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	0.039
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	Method Blank	Client:	Haley & Aldrich, Inc
Date Received:	Not Applicable	Project:	0202787-100, F&BI 205503
Date Extracted:	06/02/22	Lab ID:	02-1304 mb 1/0.25
Date Analyzed:	06/02/22	Data File:	060213.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	92	79	128
Toluene-d8	96	84	121
4-Bromofluorobenzene	97	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Date of Report: 06/09/22
Date Received: 05/31/22
Project: Mercer Mega Block (MMB) 0202787-100, F&BI 205503

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

Laboratory Code: 205483-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	1	<0.5	60	55	10-126	9
Vinyl chloride	mg/kg (ppm)	1	<0.05	65	60	10-138	8
Chloroethane	mg/kg (ppm)	1	<0.5	74	72	10-176	3
Trichlorofluoromethane	mg/kg (ppm)	1	<0.5	71	67	10-176	6
1,1-Dichloroethene	mg/kg (ppm)	1	<0.05	81	80	10-160	1
Methylene chloride	mg/kg (ppm)	1	<0.5	88	90	10-156	2
trans-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	93	90	14-137	3
1,1-Dichloroethane	mg/kg (ppm)	1	<0.05	91	90	19-140	1
2,2-Dichloropropane	mg/kg (ppm)	1	<0.05	106	112	10-158	6
cis-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	98	106	25-135	8
Chloroform	mg/kg (ppm)	1	<0.05	94	101	21-145	7
1,1,1-Trichloroethane	mg/kg (ppm)	1	<0.05	97	94	10-156	3
1,1-Dichloropropene	mg/kg (ppm)	1	<0.05	94	93	17-140	1
Carbon tetrachloride	mg/kg (ppm)	1	<0.05	96	96	9-164	0
Trichloroethene	mg/kg (ppm)	1	<0.02	95	91	21-139	4
1,2-Dichloropropane	mg/kg (ppm)	1	<0.05	97	95	30-135	2
Bromodichloromethane	mg/kg (ppm)	1	<0.05	102	101	23-155	1
1,3-Dichloropropane	mg/kg (ppm)	1	<0.05	97	96	31-137	1
Tetrachloroethene	mg/kg (ppm)	1	<0.025	100	98	20-133	2
Dibromochloromethane	mg/kg (ppm)	1	<0.05	115	113	28-150	2
Chlorobenzene	mg/kg (ppm)	1	<0.05	95	96	32-129	1
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	101	98	31-143	3
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	103	94	28-140	9
1,2,3-Trichloropropane	mg/kg (ppm)	1	<0.05	94	88	25-144	7
2-Chlorotoluene	mg/kg (ppm)	1	<0.05	96	89	31-134	8
4-Chlorotoluene	mg/kg (ppm)	1	<0.05	95	88	31-136	8
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	<0.05	97	89	10-182	9
1,3-Dichlorobenzene	mg/kg (ppm)	1	<0.05	94	95	30-131	1
1,4-Dichlorobenzene	mg/kg (ppm)	1	<0.05	95	93	29-129	2
1,2-Dichlorobenzene	mg/kg (ppm)	1	<0.05	95	88	31-132	8
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	<0.5	93	89	11-161	4
Hexachlorobutadiene	mg/kg (ppm)	1	<0.25	98	90	10-142	9
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	<0.25	95	85	20-144	11

Date of Report: 06/09/22
Date Received: 05/31/22
Project: Mercer Mega Block (MMB) 0202787-100, F&BI 205503

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
Chloromethane	mg/kg (ppm)	1	66	27-133
Vinyl chloride	mg/kg (ppm)	1	76	22-139
Chloroethane	mg/kg (ppm)	1	80	9-163
Trichlorofluoromethane	mg/kg (ppm)	1	82	10-196
1,1-Dichloroethene	mg/kg (ppm)	1	90	47-128
Methylene chloride	mg/kg (ppm)	1	91	10-184
trans-1,2-Dichloroethene	mg/kg (ppm)	1	95	67-129
1,1-Dichloroethane	mg/kg (ppm)	1	96	68-115
2,2-Dichloropropane	mg/kg (ppm)	1	115	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	1	103	72-127
Chloroform	mg/kg (ppm)	1	97	66-120
1,1,1-Trichloroethane	mg/kg (ppm)	1	99	62-131
1,1-Dichloropropene	mg/kg (ppm)	1	98	69-128
Carbon tetrachloride	mg/kg (ppm)	1	99	60-139
Trichloroethene	mg/kg (ppm)	1	97	63-121
1,2-Dichloropropane	mg/kg (ppm)	1	100	72-127
Bromodichloromethane	mg/kg (ppm)	1	105	57-126
1,3-Dichloropropane	mg/kg (ppm)	1	103	72-130
Tetrachloroethene	mg/kg (ppm)	1	105	72-114
Dibromochloromethane	mg/kg (ppm)	1	118	55-121
Chlorobenzene	mg/kg (ppm)	1	102	76-111
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	104	64-121
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	109	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	1	99	61-137
2-Chlorotoluene	mg/kg (ppm)	1	100	74-121
4-Chlorotoluene	mg/kg (ppm)	1	100	75-122
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	103	76-125
1,3-Dichlorobenzene	mg/kg (ppm)	1	102	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	1	100	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	1	104	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	98	58-138
Hexachlorobutadiene	mg/kg (ppm)	1	105	50-153
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	97	63-138

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.

205503

SAMPLE CHAIN OF CUSTODY 5/31/22

AOH/VSB VSA1

Page # 1 of 1

Report To Marissa Goodman

Company Haley & Aldrich

Address 3131 Elliot Ave #1600

City, State, ZIP Seattle WA

Phone _____ Email MGoodman@haleyaldrich.com

SAMPLERS (*signature*): [signature]

PROJECT NAME: Mercer Mega Block (MMB)

PO #: 0202787-100

REMARKS: Project specific RLs? - Yes / No

INVOICE TO

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

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other _____
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	HMXs (8330)				Notes
MMB-35-S1-25	01 A-E	5/31/22	1215	soil	5												Hold for future analysis
MMB-35-S2-30	02		1230														Hold for future analysis
MMB-35-S3-35	03		1250										X				
MMB-35-S4-40	04		1310										X				
MBB-30-S1-25	05		1552														Hold

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Maggie Bradshaw	Haley & Aldrich	5/31/22	
Received by: W. Madden	W. Madden	F+BI	5/31/22	16:42
Relinquished by:		Samples received at 7 °C		
Received by:				

Friedman & Bruya, Inc.
Ph. (206) 285-8282

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

June 9, 2022

Marissa Goodman, Project Manager
Haley & Aldrich, Inc
3131 Elliott Ave, Suite 600
Seattle, WA 98121

Dear Ms Goodman:

Included are the results from the testing of material submitted on June 1, 2022 from the Mercer Mega Block 0202787-100, F&BI 206019 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 should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Becca Dozier
HNA0609R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on June 1, 2022 by Friedman & Bruya, Inc. from the Haley & Aldrich, Inc Mercer Mega Block 0202787-100, F&BI 206019 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Haley & Aldrich, Inc
206019 -01	MBB-38-S2-30
206019 -02	MBB-38-S3-35
206019 -03	MBB-38-S4-40
206019 -04	MBB-38-S400-40
206019 -05	MBB-38-S5-45
206019 -06	MBB-38-S6-47
206019 -07	MBB-37-S1-25
206019 -08	MBB-37-S2-30
206019 -09	MBB-37-S3-35
206019 -10	MBB-37-S4-40
206019 -11	MBB-37-S5-45
206019 -12	MBB-37-S6-46.5

The 8260D laboratory control sample exceeded the acceptance criteria for 1,1-dichloroethene. The compound was not detected, therefore the data were acceptable.

All other quality control requirements were acceptable.

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-38-S3-35	Client:	Haley & Aldrich, Inc
Date Received:	06/01/22	Project:	0202787-100, F&BI 206019
Date Extracted:	06/02/22	Lab ID:	206019-02 1/0.25
Date Analyzed:	06/03/22	Data File:	060316.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	88	79	128
Toluene-d8	98	84	121
4-Bromofluorobenzene	100	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	0.55
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	0.056
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-38-S4-40	Client:	Haley & Aldrich, Inc
Date Received:	06/01/22	Project:	0202787-100, F&BI 206019
Date Extracted:	06/02/22	Lab ID:	206019-03 1/0.25
Date Analyzed:	06/03/22	Data File:	060317.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	79	128
Toluene-d8	94	84	121
4-Bromofluorobenzene	97	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	0.43
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	0.080
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-38-S400-40	Client:	Haley & Aldrich, Inc
Date Received:	06/01/22	Project:	0202787-100, F&BI 206019
Date Extracted:	06/02/22	Lab ID:	206019-04 1/0.25
Date Analyzed:	06/03/22	Data File:	060318.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	79	128
Toluene-d8	89	84	121
4-Bromofluorobenzene	101	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	0.085
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-38-S5-45	Client:	Haley & Aldrich, Inc
Date Received:	06/01/22	Project:	0202787-100, F&BI 206019
Date Extracted:	06/02/22	Lab ID:	206019-05 1/0.25
Date Analyzed:	06/03/22	Data File:	060319.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	79	128
Toluene-d8	103	84	121
4-Bromofluorobenzene	98	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	1.2
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	0.064
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	0.20
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-38-S6-47	Client:	Haley & Aldrich, Inc
Date Received:	06/01/22	Project:	0202787-100, F&BI 206019
Date Extracted:	06/02/22	Lab ID:	206019-06 1/0.25
Date Analyzed:	06/03/22	Data File:	060320.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	79	128
Toluene-d8	104	84	121
4-Bromofluorobenzene	92	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-37-S3-35	Client:	Haley & Aldrich, Inc
Date Received:	06/01/22	Project:	0202787-100, F&BI 206019
Date Extracted:	06/02/22	Lab ID:	206019-09 1/0.25
Date Analyzed:	06/03/22	Data File:	060321.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	107	79	128
Toluene-d8	104	84	121
4-Bromofluorobenzene	98	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	1.2
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	0.26
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	0.11
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-37-S4-40	Client:	Haley & Aldrich, Inc
Date Received:	06/01/22	Project:	0202787-100, F&BI 206019
Date Extracted:	06/02/22	Lab ID:	206019-10 1/0.25
Date Analyzed:	06/03/22	Data File:	060322.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	86	79	128
Toluene-d8	88	84	121
4-Bromofluorobenzene	101	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	0.12
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	0.14
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	0.023
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-37-S5-45	Client:	Haley & Aldrich, Inc
Date Received:	06/01/22	Project:	0202787-100, F&BI 206019
Date Extracted:	06/02/22	Lab ID:	206019-11 1/0.25
Date Analyzed:	06/03/22	Data File:	060323.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	93	79	128
Toluene-d8	88	84	121
4-Bromofluorobenzene	99	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	0.17
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	0.031
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-37-S6-46.5	Client:	Haley & Aldrich, Inc
Date Received:	06/01/22	Project:	0202787-100, F&BI 206019
Date Extracted:	06/02/22	Lab ID:	206019-12 1/0.25
Date Analyzed:	06/03/22	Data File:	060324.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	93	79	128
Toluene-d8	99	84	121
4-Bromofluorobenzene	98	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	0.059
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	Method Blank	Client:	Haley & Aldrich, Inc
Date Received:	Not Applicable	Project:	0202787-100, F&BI 206019
Date Extracted:	06/02/22	Lab ID:	02-1307 mb 1/0.25
Date Analyzed:	06/02/22	Data File:	060208.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	88	79	128
Toluene-d8	105	84	121
4-Bromofluorobenzene	107	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.005
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Date of Report: 06/09/22
Date Received: 06/01/22
Project: Mercer Mega Block 0202787-100, F&BI 206019

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

Laboratory Code: 206019-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	1	<0.5	52	56	10-126	7
Vinyl chloride	mg/kg (ppm)	1	<0.05	56	60	10-138	7
Chloroethane	mg/kg (ppm)	1	<0.5	65	63	10-176	3
Trichlorofluoromethane	mg/kg (ppm)	1	<0.5	62	65	10-176	5
1,1-Dichloroethene	mg/kg (ppm)	1	<0.05	70	73	10-160	4
Methylene chloride	mg/kg (ppm)	1	<0.5	87	84	10-156	4
trans-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	90	87	14-137	3
1,1-Dichloroethane	mg/kg (ppm)	1	<0.05	84	92	19-140	9
2,2-Dichloropropane	mg/kg (ppm)	1	<0.05	87	94	10-158	8
cis-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	86	93	25-135	8
Chloroform	mg/kg (ppm)	1	<0.05	82	87	21-145	6
1,1,1-Trichloroethane	mg/kg (ppm)	1	<0.05	85	91	10-156	7
1,1-Dichloropropene	mg/kg (ppm)	1	<0.05	84	89	17-140	6
Carbon tetrachloride	mg/kg (ppm)	1	<0.05	87	92	9-164	6
Trichloroethene	mg/kg (ppm)	1	0.019	86	86	21-139	0
1,2-Dichloropropane	mg/kg (ppm)	1	<0.05	97	91	30-135	6
Bromodichloromethane	mg/kg (ppm)	1	<0.05	101	96	23-155	5
1,3-Dichloropropane	mg/kg (ppm)	1	<0.05	89	87	31-137	2
Tetrachloroethene	mg/kg (ppm)	1	0.15	84	82	20-133	2
Dibromochloromethane	mg/kg (ppm)	1	<0.05	100	104	28-150	4
Chlorobenzene	mg/kg (ppm)	1	<0.05	85	92	32-129	8
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	87	100	31-143	14
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	96	105	28-140	9
1,2,3-Trichloropropane	mg/kg (ppm)	1	<0.05	87	98	25-144	12
2-Chlorotoluene	mg/kg (ppm)	1	<0.05	89	92	31-134	3
4-Chlorotoluene	mg/kg (ppm)	1	<0.05	91	90	31-136	1
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	<0.05	85	92	10-182	8
1,3-Dichlorobenzene	mg/kg (ppm)	1	<0.05	84	91	30-131	8
1,4-Dichlorobenzene	mg/kg (ppm)	1	<0.05	83	90	29-129	8
1,2-Dichlorobenzene	mg/kg (ppm)	1	<0.05	85	93	31-132	9
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	<0.5	83	93	11-161	11
Hexachlorobutadiene	mg/kg (ppm)	1	<0.25	86	94	10-142	9
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	<0.25	81	90	20-144	11

Date of Report: 06/09/22
Date Received: 06/01/22
Project: Mercer Mega Block 0202787-100, F&BI 206019

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
Chloromethane	mg/kg (ppm)	1	77	27-133
Vinyl chloride	mg/kg (ppm)	1	89	22-139
Chloroethane	mg/kg (ppm)	1	86	9-163
Trichlorofluoromethane	mg/kg (ppm)	1	93	10-196
1,1-Dichloroethene	mg/kg (ppm)	1	97	47-128
Methylene chloride	mg/kg (ppm)	1	113	10-184
trans-1,2-Dichloroethene	mg/kg (ppm)	1	117	67-129
1,1-Dichloroethane	mg/kg (ppm)	1	123 vo	68-115
2,2-Dichloropropane	mg/kg (ppm)	1	128	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	1	115	72-127
Chloroform	mg/kg (ppm)	1	114	66-120
1,1,1-Trichloroethane	mg/kg (ppm)	1	115	62-131
1,1-Dichloropropene	mg/kg (ppm)	1	109	69-128
Carbon tetrachloride	mg/kg (ppm)	1	113	60-139
Trichloroethene	mg/kg (ppm)	1	98	63-121
1,2-Dichloropropane	mg/kg (ppm)	1	100	72-127
Bromodichloromethane	mg/kg (ppm)	1	107	57-126
1,3-Dichloropropane	mg/kg (ppm)	1	100	72-130
Tetrachloroethene	mg/kg (ppm)	1	105	72-114
Dibromochloromethane	mg/kg (ppm)	1	121	55-121
Chlorobenzene	mg/kg (ppm)	1	99	76-111
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	104	64-121
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	103	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	1	96	61-137
2-Chlorotoluene	mg/kg (ppm)	1	98	74-121
4-Chlorotoluene	mg/kg (ppm)	1	97	75-122
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	99	76-125
1,3-Dichlorobenzene	mg/kg (ppm)	1	99	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	1	97	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	1	98	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	96	58-138
Hexachlorobutadiene	mg/kg (ppm)	1	113	50-153
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	99	63-138

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.

2060109

SAMPLE CHAIN OF CUSTODY

06-01-22

Page # 1 of B02/SB2

Report To Marissa Goodman

Company Haley & Aldrich (HA)

Address 3131 Elliot Ave #600

City, State, ZIP Seattle, WA

Phone _____ Email Mgoodman@haleyaldrich.com

SAMPLERS (*signature*)

PROJECT NAME: Mercer Mega Block (MMB)

PO #: 0202787-100

REMARKS

Project specific RLs? - Yes / No

INVOICE TO

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

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other _____
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	HVOCs (8260)				Notes
~~MBB-MMB-38-S1-25~~		~~6/1/2022~~	~~1552~~		~~5~~	M.E.											
MBB-38-S2-30	01A-B	6/1/2022	0855	Soil	5								X	M.E.			HOLD
MBB-38-S3-35	02		0905										X				
MBB-38-S4-40	03		0915										X				
MBB-38-S400-40	04		M.E. 0945										X				
MBB-38-S5-45	05		0925										X				
MBB-38-S6-47	06		0940										X				
MBB-37-S1-25	07		1325										X	M.E.			HOLD
MBB-37-S2-30	08		1335										X	M.E.			HOLD
MBB-37-S3-35	09		1355										X				

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Max Elias	HA	6/1/2022	1624
Received by:	Khoi Hoang	FBE	6/1/2022	1624
Relinquished by:				
Received by:		Samples received at	4	°C

Friedman & Bruya, Inc.
Ph. (206) 285-8282

206019

SAMPLE CHAIN OF CUSTODY

06-01-22

B02/NSB2

Page # 2 of 2

Report To Marissa Goodman

Company Haley & Aldrich (HA)

Address 3131 Elliot Ave #600

City, State, ZIP Seattle, WA

Phone _____ Email mgoodman@haleyaldrich.com

SAMPLERS (*signature*)

PROJECT NAME: Mercer Mega Block (MMB)

PO #: 0202787-100

REMARKS

Project specific RLs? - Yes / No

INVOICE TO

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

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other _____
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	HVOCs (CP60)				Notes
MBB-37-S4-40	10 A-E	6/1/2022	1415		5								X				
MBB-37-S5-45	11	↓	1430		↓								X				
MBB-37-S6-46.5	12	↓	1500		↓								X				Limited quantity

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Max Elias	HA	6/1/2022	1624
Received by:	Khoi Hoang	FBI	6/1/202	16 24
Relinquished by:				
Received by:		Samples received at 4		°C

Friedman & Bruya, Inc.
Ph. (206) 285-8282

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

June 9, 2022

Marissa Goodman, Project Manager
Haley & Aldrich, Inc
3131 Elliott Ave, Suite 600
Seattle, WA 98121

Dear Ms Goodman:

Included are the results from the testing of material submitted on June 2, 2022 from the Mercer Mega Block 0202787-100, F&BI 206060 project. There are 12 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 should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Becca Dozier
HNA0609R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on June 2, 2022 by Friedman & Bruya, Inc. from the Haley & Aldrich, Inc Mercer Mega Block 0202787-100, F&BI 206060 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Haley & Aldrich, Inc
206060 -01	MBB-36-S1-25
206060 -02	MBB-36-S2-30
206060 -03	MBB-36-S3-35
206060 -04	MBB-36-S4-40
206060 -05	MBB-36-S5-43.5
206060 -06	MBB-40-S1-25
206060 -07	MBB-40-S2-30
206060 -08	MBB-40-S3-35
206060 -09	MBB-40-S4-40
206060 -10	MBB-40-S4-S400-40

All quality control requirements were acceptable.

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-36-S3-35	Client:	Haley & Aldrich, Inc
Date Received:	06/02/22	Project:	0202787-100, F&BI 206060
Date Extracted:	06/06/22	Lab ID:	206060-03 1/0.25
Date Analyzed:	06/06/22	Data File:	060629.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	71	132
Toluene-d8	98	68	139
4-Bromofluorobenzene	95	62	136

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-36-S4-40	Client:	Haley & Aldrich, Inc
Date Received:	06/02/22	Project:	0202787-100, F&BI 206060
Date Extracted:	06/06/22	Lab ID:	206060-04 1/0.25
Date Analyzed:	06/06/22	Data File:	060630.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	71	132
Toluene-d8	101	68	139
4-Bromofluorobenzene	98	62	136

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-36-S5-43.5	Client:	Haley & Aldrich, Inc
Date Received:	06/02/22	Project:	0202787-100, F&BI 206060
Date Extracted:	06/06/22	Lab ID:	206060-05 1/0.25
Date Analyzed:	06/06/22	Data File:	060631.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	71	132
Toluene-d8	95	68	139
4-Bromofluorobenzene	99	62	136

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	0.091
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-40-S2-30	Client:	Haley & Aldrich, Inc
Date Received:	06/02/22	Project:	0202787-100, F&BI 206060
Date Extracted:	06/06/22	Lab ID:	206060-07 1/0.25
Date Analyzed:	06/06/22	Data File:	060632.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	71	132
Toluene-d8	97	68	139
4-Bromofluorobenzene	100	62	136

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-40-S3-35	Client:	Haley & Aldrich, Inc
Date Received:	06/02/22	Project:	0202787-100, F&BI 206060
Date Extracted:	06/06/22	Lab ID:	206060-08 1/0.25
Date Analyzed:	06/06/22	Data File:	060633.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	109	71	132
Toluene-d8	97	68	139
4-Bromofluorobenzene	101	62	136

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-40-S4-40	Client:	Haley & Aldrich, Inc
Date Received:	06/02/22	Project:	0202787-100, F&BI 206060
Date Extracted:	06/06/22	Lab ID:	206060-09 1/0.25
Date Analyzed:	06/06/22	Data File:	060634.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	71	132
Toluene-d8	96	68	139
4-Bromofluorobenzene	95	62	136

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	0.19
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	0.029
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-40-S4-S400-40	Client:	Haley & Aldrich, Inc
Date Received:	06/02/22	Project:	0202787-100, F&BI 206060
Date Extracted:	06/06/22	Lab ID:	206060-10 1/0.25
Date Analyzed:	06/06/22	Data File:	060635.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	71	132
Toluene-d8	98	68	139
4-Bromofluorobenzene	97	62	136

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	0.18
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	0.030
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	Method Blank	Client:	Haley & Aldrich, Inc
Date Received:	Not Applicable	Project:	0202787-100, F&BI 206060
Date Extracted:	06/06/22	Lab ID:	02-1314 mb2 1/0.25
Date Analyzed:	06/06/22	Data File:	060610.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	84	120
Toluene-d8	94	73	128
4-Bromofluorobenzene	101	57	146

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Date of Report: 06/09/22
Date Received: 06/02/22
Project: Mercer Mega Block 0202787-100, F&BI 206060

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

Laboratory Code: 206081-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	1	<0.5	48	45	10-126	6
Vinyl chloride	mg/kg (ppm)	1	<0.05	53	49	10-138	8
Chloroethane	mg/kg (ppm)	1	<0.5	72	69	10-176	4
Trichlorofluoromethane	mg/kg (ppm)	1	<0.5	69	65	10-176	6
1,1-Dichloroethene	mg/kg (ppm)	1	<0.05	73	71	10-160	3
Methylene chloride	mg/kg (ppm)	1	<0.5	94	93	10-156	1
trans-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	79	78	14-137	1
1,1-Dichloroethane	mg/kg (ppm)	1	<0.05	86	80	19-140	7
2,2-Dichloropropane	mg/kg (ppm)	1	<0.05	112	107	10-158	5
cis-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	92	85	25-135	8
Chloroform	mg/kg (ppm)	1	<0.05	88	83	21-145	6
1,1,1-Trichloroethane	mg/kg (ppm)	1	<0.05	90	87	10-156	3
1,1-Dichloropropene	mg/kg (ppm)	1	<0.05	89	84	17-140	6
Carbon tetrachloride	mg/kg (ppm)	1	<0.05	88	82	9-164	7
Trichloroethene	mg/kg (ppm)	1	<0.02	85	82	21-139	4
1,2-Dichloropropane	mg/kg (ppm)	1	<0.05	93	88	30-135	6
Bromodichloromethane	mg/kg (ppm)	1	<0.05	93	88	23-155	6
1,3-Dichloropropane	mg/kg (ppm)	1	<0.05	90	88	31-137	2
Tetrachloroethene	mg/kg (ppm)	1	<0.025	94	92	20-133	2
Dibromochloromethane	mg/kg (ppm)	1	<0.05	100	98	28-150	2
Chlorobenzene	mg/kg (ppm)	1	<0.05	89	86	32-129	3
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	95	87	31-143	9
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	92	89	28-140	3
1,2,3-Trichloropropane	mg/kg (ppm)	1	<0.05	89	84	25-144	6
2-Chlorotoluene	mg/kg (ppm)	1	<0.05	92	86	31-134	7
4-Chlorotoluene	mg/kg (ppm)	1	<0.05	90	86	31-136	5
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	<0.05	93	88	10-182	6
1,3-Dichlorobenzene	mg/kg (ppm)	1	<0.05	92	88	30-131	4
1,4-Dichlorobenzene	mg/kg (ppm)	1	<0.05	92	87	29-129	6
1,2-Dichlorobenzene	mg/kg (ppm)	1	<0.05	92	89	31-132	3
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	<0.5	88	83	11-161	6
Hexachlorobutadiene	mg/kg (ppm)	1	<0.25	100	94	10-142	6
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	<0.25	97	88	20-144	10

Date of Report: 06/09/22
Date Received: 06/02/22
Project: Mercer Mega Block 0202787-100, F&BI 206060

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
Chloromethane	mg/kg (ppm)	1	61	27-133
Vinyl chloride	mg/kg (ppm)	1	75	22-139
Chloroethane	mg/kg (ppm)	1	81	9-163
Trichlorofluoromethane	mg/kg (ppm)	1	83	10-196
1,1-Dichloroethene	mg/kg (ppm)	1	90	47-128
Methylene chloride	mg/kg (ppm)	1	90	10-184
trans-1,2-Dichloroethene	mg/kg (ppm)	1	91	67-129
1,1-Dichloroethane	mg/kg (ppm)	1	94	68-115
2,2-Dichloropropane	mg/kg (ppm)	1	123	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	1	95	72-127
Chloroform	mg/kg (ppm)	1	96	66-120
1,1,1-Trichloroethane	mg/kg (ppm)	1	103	62-131
1,1-Dichloropropene	mg/kg (ppm)	1	96	69-128
Carbon tetrachloride	mg/kg (ppm)	1	99	60-139
Trichloroethene	mg/kg (ppm)	1	93	63-121
1,2-Dichloropropane	mg/kg (ppm)	1	99	72-127
Bromodichloromethane	mg/kg (ppm)	1	100	57-126
1,3-Dichloropropane	mg/kg (ppm)	1	94	72-130
Tetrachloroethene	mg/kg (ppm)	1	97	72-114
Dibromochloromethane	mg/kg (ppm)	1	118	55-121
Chlorobenzene	mg/kg (ppm)	1	94	76-111
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	101	64-121
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	101	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	1	98	61-137
2-Chlorotoluene	mg/kg (ppm)	1	97	74-121
4-Chlorotoluene	mg/kg (ppm)	1	96	75-122
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	98	76-125
1,3-Dichlorobenzene	mg/kg (ppm)	1	96	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	1	96	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	1	89	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	91	58-138
Hexachlorobutadiene	mg/kg (ppm)	1	87	50-153
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	87	63-138

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.

~~206054~~ 206060

SAMPLE CHAIN OF CUSTODY

6/2/22

Page # 1 of 1 B02/VSB2

Report To Marissa Goodman

Company Haley & Aldrich (HA)

Address 3131 Elliot Ave #600

City, State, ZIP Seattle, WA

Phone _____ Email mgoodman@haleyaldrich.com

SAMPLERS (*signature*) Max E

PROJECT NAME: Mercer Mega Block (MMB)

PO #: 0202787-100

REMARKS

Project specific RLs? - Yes / No

INVOICE TO

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

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other _____
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	HVOCs (8260)				Notes
MBB-36-S1-25	01 A-G	6/2/2022	1035	soil	5								~~X~~	M.E.			HOLD
MBB-36-S2-30	02		1045										~~X~~	M.E.			HOLD
MBB-36-S3-35	03		1105										X				
MBB-36-S4-40	04		1130										X				
MBB-36-S5-43.5	05		1150										X				
MBB-40-S1-25	06		1440														HOLD
MBB-40-S2-30	07		1455										X				
MBB-40-S3-35	08		1510										X				
MBB-40-S4-40	09		1545										X				
MBB-40-S400-40	10		~~NA 1610~~ 1630										X				

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Max E	Max Elias	HA	6/2/2022	1633
Received by: Windy Madden	Windy Madden	F+BI	6/2/22	16:37
Relinquished by:		Samples received at 9 °C		
Received by:				

Friedman & Bruya, Inc.
Ph. (206) 285-8282

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

June 14, 2022

Marissa Goodman, Project Manager
Haley & Aldrich, Inc
3131 Elliott Ave, Suite 600
Seattle, WA 98121

Dear Ms Goodman:

Included are the results from the testing of material submitted on June 3, 2022 from the Mercer Mega Block 0202738-100-004-02, F&BI 206088 project. There are 12 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 should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Becca Dozier
HNA0614R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on June 3, 2022 by Friedman & Bruya, Inc. from the Haley & Aldrich, Inc Mercer Mega Block 0202738-100-004-02, F&BI 206088 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Haley & Aldrich, Inc
206088 -01	MBB-42-S1-25
206088 -02	MBB-42-S2-30
206088 -03	MBB-42-S3-35
206088 -04	MBB-42-S4-40
206088 -05	MBB-42-S5-45
206088 -06	MBB-39-S1-25
206088 -07	MBB-39-S2-30
206088 -08	MBB-39-S3-35
206088 -09	MBB-39-S4-38

All quality control requirements were acceptable.

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-42-S2-30	Client:	Haley & Aldrich, Inc
Date Received:	06/03/22	Project:	Mercer Mega Block 0202738-100-004-02
Date Extracted:	06/07/22	Lab ID:	206088-02 1/0.25
Date Analyzed:	06/07/22	Data File:	060710.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	79	128
Toluene-d8	102	84	121
4-Bromofluorobenzene	97	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-42-S3-35	Client:	Haley & Aldrich, Inc
Date Received:	06/03/22	Project:	Mercer Mega Block 0202738-100-004-02
Date Extracted:	06/07/22	Lab ID:	206088-03 1/0.25
Date Analyzed:	06/07/22	Data File:	060711.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	79	128
Toluene-d8	99	84	121
4-Bromofluorobenzene	100	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-42-S4-40	Client:	Haley & Aldrich, Inc
Date Received:	06/03/22	Project:	Mercer Mega Block 0202738-100-004-02
Date Extracted:	06/07/22	Lab ID:	206088-04 1/0.25
Date Analyzed:	06/07/22	Data File:	060712.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	79	128
Toluene-d8	98	84	121
4-Bromofluorobenzene	94	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	0.052
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	0.058
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	0.048
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-42-S5-45	Client:	Haley & Aldrich, Inc
Date Received:	06/03/22	Project:	Mercer Mega Block 0202738-100-004-02
Date Extracted:	06/07/22	Lab ID:	206088-05 1/0.25
Date Analyzed:	06/07/22	Data File:	060713.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	93	79	128
Toluene-d8	105	84	121
4-Bromofluorobenzene	99	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-39-S2-30	Client:	Haley & Aldrich, Inc
Date Received:	06/03/22	Project:	Mercer Mega Block 0202738-100-004-02
Date Extracted:	06/07/22	Lab ID:	206088-07 1/0.25
Date Analyzed:	06/07/22	Data File:	060714.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	79	128
Toluene-d8	99	84	121
4-Bromofluorobenzene	99	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-39-S3-35	Client:	Haley & Aldrich, Inc
Date Received:	06/03/22	Project:	Mercer Mega Block 0202738-100-004-02
Date Extracted:	06/07/22	Lab ID:	206088-08 1/0.25
Date Analyzed:	06/07/22	Data File:	060715.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	79	128
Toluene-d8	97	84	121
4-Bromofluorobenzene	100	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-39-S4-38	Client:	Haley & Aldrich, Inc
Date Received:	06/03/22	Project:	Mercer Mega Block 0202738-100-004-02
Date Extracted:	06/07/22	Lab ID:	206088-09 1/0.25
Date Analyzed:	06/07/22	Data File:	060716.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	90	79	128
Toluene-d8	89	84	121
4-Bromofluorobenzene	100	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	Method Blank	Client:	Haley & Aldrich, Inc
Date Received:	Not Applicable	Project:	Mercer Mega Block 0202738-100-004-02
Date Extracted:	06/07/22	Lab ID:	02-1349 mb 1/0.25
Date Analyzed:	06/07/22	Data File:	060708.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	79	128
Toluene-d8	106	84	121
4-Bromofluorobenzene	101	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Date of Report: 06/14/22
Date Received: 06/03/22
Project: Mercer Mega Block 0202738-100-004-02, F&BI 206088

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

Laboratory Code: 206079-03 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	1	<0.5	38	35	10-126	8
Vinyl chloride	mg/kg (ppm)	1	<0.05	39	34	10-138	14
Chloroethane	mg/kg (ppm)	1	<0.5	55	51	10-176	8
Trichlorofluoromethane	mg/kg (ppm)	1	<0.5	42	37	10-176	13
1,1-Dichloroethene	mg/kg (ppm)	1	<0.05	58	54	10-160	7
Methylene chloride	mg/kg (ppm)	1	<0.5	64	63	10-156	2
trans-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	68	64	14-137	6
1,1-Dichloroethane	mg/kg (ppm)	1	<0.05	73	73	19-140	0
2,2-Dichloropropane	mg/kg (ppm)	1	<0.05	103	93	10-158	10
cis-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	82	78	25-135	5
Chloroform	mg/kg (ppm)	1	<0.05	80	79	21-145	1
1,1,1-Trichloroethane	mg/kg (ppm)	1	<0.05	79	75	10-156	5
1,1-Dichloropropene	mg/kg (ppm)	1	<0.05	76	71	17-140	7
Carbon tetrachloride	mg/kg (ppm)	1	<0.05	73	69	9-164	6
Trichloroethene	mg/kg (ppm)	1	<0.02	76	72	21-139	5
1,2-Dichloropropane	mg/kg (ppm)	1	<0.05	83	82	30-135	1
Bromodichloromethane	mg/kg (ppm)	1	<0.05	84	82	23-155	2
1,1,2-Trichloroethane	mg/kg (ppm)	1	<0.05	87	87	10-205	0
1,3-Dichloropropane	mg/kg (ppm)	1	<0.05	86	85	31-137	1
Tetrachloroethene	mg/kg (ppm)	1	<0.025	79	80	20-133	1
Dibromochloromethane	mg/kg (ppm)	1	<0.05	93	95	28-150	2
Chlorobenzene	mg/kg (ppm)	1	<0.05	84	82	32-129	2
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	87	85	31-143	2
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	89	86	28-140	3
1,2,3-Trichloropropane	mg/kg (ppm)	1	<0.05	83	81	25-144	2
2-Chlorotoluene	mg/kg (ppm)	1	<0.05	83	78	31-134	6
4-Chlorotoluene	mg/kg (ppm)	1	<0.05	82	78	31-136	5
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	<0.05	82	77	10-182	6
1,3-Dichlorobenzene	mg/kg (ppm)	1	<0.05	84	81	30-131	4
1,4-Dichlorobenzene	mg/kg (ppm)	1	<0.05	86	81	29-129	6
1,2-Dichlorobenzene	mg/kg (ppm)	1	<0.05	87	82	31-132	6
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	<0.5	84	82	11-161	2
Hexachlorobutadiene	mg/kg (ppm)	1	<0.25	85	82	10-142	4
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	<0.25	86	82	20-144	5

Date of Report: 06/14/22
Date Received: 06/03/22
Project: Mercer Mega Block 0202738-100-004-02, F&BI 206088

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
Chloromethane	mg/kg (ppm)	1	60	27-133
Vinyl chloride	mg/kg (ppm)	1	71	22-139
Chloroethane	mg/kg (ppm)	1	87	9-163
Trichlorofluoromethane	mg/kg (ppm)	1	90	10-196
1,1-Dichloroethene	mg/kg (ppm)	1	90	47-128
Methylene chloride	mg/kg (ppm)	1	93	10-184
trans-1,2-Dichloroethene	mg/kg (ppm)	1	91	67-129
1,1-Dichloroethane	mg/kg (ppm)	1	96	68-115
2,2-Dichloropropane	mg/kg (ppm)	1	126	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	1	101	72-127
Chloroform	mg/kg (ppm)	1	97	66-120
1,1,1-Trichloroethane	mg/kg (ppm)	1	101	62-131
1,1-Dichloropropene	mg/kg (ppm)	1	97	69-128
Carbon tetrachloride	mg/kg (ppm)	1	99	60-139
Trichloroethene	mg/kg (ppm)	1	93	63-121
1,2-Dichloropropane	mg/kg (ppm)	1	99	72-127
Bromodichloromethane	mg/kg (ppm)	1	98	57-126
1,1,2-Trichloroethane	mg/kg (ppm)	1	101	64-115
1,3-Dichloropropane	mg/kg (ppm)	1	99	72-130
Tetrachloroethene	mg/kg (ppm)	1	103	72-114
Dibromochloromethane	mg/kg (ppm)	1	111	55-121
Chlorobenzene	mg/kg (ppm)	1	99	76-111
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	101	64-121
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	99	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	1	94	61-137
2-Chlorotoluene	mg/kg (ppm)	1	99	74-121
4-Chlorotoluene	mg/kg (ppm)	1	97	75-122
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	100	76-125
1,3-Dichlorobenzene	mg/kg (ppm)	1	98	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	1	100	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	1	101	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	96	58-138
Hexachlorobutadiene	mg/kg (ppm)	1	104	50-153
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	100	63-138

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.

206088

SAMPLE CHAIN OF CUSTODY

06-03-22

Page # 1 of 1

B02/1584

Report To Marissa Goodman

Company Haley & Aldrich (HA)

Address 3131 Elliot Ave #600

City, State, ZIP Seattle, WA

Phone _____ Email mgoodman@haleyaldrich.com

SAMPLERS (*signature*)

PROJECT NAME: Mercer Mega Block (MMB)

PO #: 0202787-100

REMARKS

Project specific RLs? - Yes / No

INVOICE TO: PO 0202738-100-004-02 per AE

TURNAROUND TIME
- [X] Standard turnaround
- [ ] RUSH _____
- Rush charges authorized by: _____

SAMPLE DISPOSAL
- [ ] Archive samples
- [ ] Other _____
- Default: Dispose after 30 days

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	HVOCs (8260)				Notes
MBB-42-51-25	01 A-E	6/3/2022	1038	Soil	5												HOLD
MBB-42-52-30	02		1036										X				
MBB-42-53-35	03		1105										X				
MBB-42-54-40	04		1125										X				
MBB-42-55-45	05		1145										X				
MBB-39-51-25	06		1415														Hold
MBB-39-52-30	07		1503										X				
MBB-39-53-35	08		1515										X				
MBB-39-54-38	09	↓	1545	↓	↓								X				

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Max Elias	HA	6/3/2022	1628
Received by:	Eric Young	FedEx	6/3/22	1628
Relinquished by:				
Received by:		Samples received at 4 °C		

Friedman & Bruya, Inc.
Ph. (206) 285-8282

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

June 10, 2022

Marissa Goodman, Project Manager
Haley & Aldrich, Inc
3131 Elliott Ave, Suite 600
Seattle, WA 98121

Dear Ms Goodman:

Included are the results from the testing of material submitted on June 6, 2022 from the MMB 0202787-100, F&BI 206099 project. There are 8 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 should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Becca Dozier
HNA0610R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on June 6, 2022 by Friedman & Bruya, Inc. from the Haley & Aldrich, Inc MMB 0202787-100, F&BI 206099 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Haley & Aldrich, Inc
206099 -01	MBB-43-S1
206099 -02	MBB-43-S2
206099 -03	MBB-43-S3
206099 -04	MBB-43-S4
206099 -05	MBB-43-S5

The 8260D calibration standard failed the acceptance criteria for 2,2,-dichloropropane. The data were flagged accordingly.

All other quality control requirements were acceptable.

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-43-S2	Client:	Haley & Aldrich, Inc
Date Received:	06/06/22	Project:	MMB 0202787-100, F&BI 206099
Date Extracted:	06/07/22	Lab ID:	206099-02 1/0.25
Date Analyzed:	06/08/22	Data File:	060830.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	84	120
Toluene-d8	96	73	128
4-Bromofluorobenzene	96	57	146

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05 ca
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-43-S4	Client:	Haley & Aldrich, Inc
Date Received:	06/06/22	Project:	MMB 0202787-100, F&BI 206099
Date Extracted:	06/07/22	Lab ID:	206099-04 1/0.25
Date Analyzed:	06/08/22	Data File:	060831.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	108	84	120
Toluene-d8	96	73	128
4-Bromofluorobenzene	95	57	146

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05 ca
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	MBB-43-S5	Client:	Haley & Aldrich, Inc
Date Received:	06/06/22	Project:	MMB 0202787-100, F&BI 206099
Date Extracted:	06/07/22	Lab ID:	206099-05 1/0.25
Date Analyzed:	06/08/22	Data File:	060832.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	84	120
Toluene-d8	99	73	128
4-Bromofluorobenzene	94	57	146

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05 ca
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	Method Blank	Client:	Haley & Aldrich, Inc
Date Received:	Not Applicable	Project:	MMB 0202787-100, F&BI 206099
Date Extracted:	06/07/22	Lab ID:	02-1351 mb 1/0.25
Date Analyzed:	06/07/22	Data File:	060709.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	79	128
Toluene-d8	102	84	121
4-Bromofluorobenzene	96	84	116

Compounds:	Concentration mg/kg (ppm)
Chloromethane	<0.5
1,3-Dichloropropane	<0.05
Vinyl chloride	<0.05
Tetrachloroethene	<0.025
Chloroethane	<0.1
Dibromochloromethane	<0.05
Trichlorofluoromethane	<0.5
Chlorobenzene	<0.05
1,1-Dichloroethene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
Methylene chloride	<0.2
1,1,2,2-Tetrachloroethane	<0.05
trans-1,2-Dichloroethene	<0.05
1,2,3-Trichloropropane	<0.05
1,1-Dichloroethane	<0.005
2-Chlorotoluene	<0.05
2,2-Dichloropropane	<0.05 ca
4-Chlorotoluene	<0.05
cis-1,2-Dichloroethene	<0.05
1,2,4-Trimethylbenzene	<0.05
Chloroform	<0.05
1,3-Dichlorobenzene	<0.05
1,1,1-Trichloroethane	<0.005
1,4-Dichlorobenzene	<0.05
1,1-Dichloropropene	<0.05
1,2-Dichlorobenzene	<0.05
Carbon tetrachloride	<0.05
1,2-Dibromo-3-chloropropane	<0.5
Trichloroethene	<0.02
Hexachlorobutadiene	<0.25
1,2-Dichloropropane	<0.05
1,2,3-Trichlorobenzene	<0.25
Bromodichloromethane	<0.05
1,1,2-Trichloroethane	<0.05

Date of Report: 06/10/22
Date Received: 06/06/22
Project: MMB 0202787-100, F&BI 206099

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

Laboratory Code: 206097-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Chloromethane	mg/kg (ppm)	1	<0.5	58	55	10-126	5
Vinyl chloride	mg/kg (ppm)	1	<0.05	59	61	10-138	3
Chloroethane	mg/kg (ppm)	1	<0.5	71	75	10-176	5
Trichlorofluoromethane	mg/kg (ppm)	1	<0.5	68	67	10-176	1
1,1-Dichloroethene	mg/kg (ppm)	1	<0.05	77	77	10-160	0
Methylene chloride	mg/kg (ppm)	1	<0.5	92	90	10-156	2
trans-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	84	85	14-137	1
1,1-Dichloroethane	mg/kg (ppm)	1	<0.05	90	90	19-140	0
2,2-Dichloropropane	mg/kg (ppm)	1	<0.05	100	101	10-158	1
cis-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	95	95	25-135	0
Chloroform	mg/kg (ppm)	1	<0.05	93	92	21-145	1
1,1,1-Trichloroethane	mg/kg (ppm)	1	<0.05	96	95	10-156	1
1,1-Dichloropropene	mg/kg (ppm)	1	<0.05	93	91	17-140	2
Carbon tetrachloride	mg/kg (ppm)	1	<0.05	89	90	9-164	1
Trichloroethene	mg/kg (ppm)	1	<0.02	92	93	21-139	1
1,2-Dichloropropane	mg/kg (ppm)	1	<0.05	96	96	30-135	0
Bromodichloromethane	mg/kg (ppm)	1	<0.05	92	93	23-155	1
1,3-Dichloropropane	mg/kg (ppm)	1	<0.05	95	93	31-137	2
Tetrachloroethene	mg/kg (ppm)	1	<0.025	101	97	20-133	4
Dibromochloromethane	mg/kg (ppm)	1	<0.05	102	100	28-150	2
Chlorobenzene	mg/kg (ppm)	1	<0.05	96	92	32-129	4
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	96	94	31-143	2
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	95	93	28-140	2
1,2,3-Trichloropropane	mg/kg (ppm)	1	<0.05	91	94	25-144	3
2-Chlorotoluene	mg/kg (ppm)	1	<0.05	94	95	31-134	1
4-Chlorotoluene	mg/kg (ppm)	1	<0.05	93	92	31-136	1
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	<0.05	96	95	10-182	1
1,3-Dichlorobenzene	mg/kg (ppm)	1	<0.05	95	96	30-131	1
1,4-Dichlorobenzene	mg/kg (ppm)	1	<0.05	98	96	29-129	2
1,2-Dichlorobenzene	mg/kg (ppm)	1	<0.05	97	97	31-132	0
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	<0.5	85	90	11-161	6
Hexachlorobutadiene	mg/kg (ppm)	1	<0.25	97	99	10-142	2
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	<0.25	97	96	20-144	1

Date of Report: 06/10/22
Date Received: 06/06/22
Project: MMB 0202787-100, F&BI 206099

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
Chloromethane	mg/kg (ppm)	1	61	27-133
Vinyl chloride	mg/kg (ppm)	1	70	22-139
Chloroethane	mg/kg (ppm)	1	84	9-163
Trichlorofluoromethane	mg/kg (ppm)	1	86	10-196
1,1-Dichloroethene	mg/kg (ppm)	1	95	47-128
Methylene chloride	mg/kg (ppm)	1	95	10-184
trans-1,2-Dichloroethene	mg/kg (ppm)	1	92	67-129
1,1-Dichloroethane	mg/kg (ppm)	1	95	68-115
2,2-Dichloropropane	mg/kg (ppm)	1	124	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	1	100	72-127
Chloroform	mg/kg (ppm)	1	100	66-120
1,1,1-Trichloroethane	mg/kg (ppm)	1	102	62-131
1,1-Dichloropropene	mg/kg (ppm)	1	97	69-128
Carbon tetrachloride	mg/kg (ppm)	1	98	60-139
Trichloroethene	mg/kg (ppm)	1	98	63-121
1,2-Dichloropropane	mg/kg (ppm)	1	98	72-127
Bromodichloromethane	mg/kg (ppm)	1	100	57-126
1,3-Dichloropropane	mg/kg (ppm)	1	101	72-130
Tetrachloroethene	mg/kg (ppm)	1	108	72-114
Dibromochloromethane	mg/kg (ppm)	1	115	55-121
Chlorobenzene	mg/kg (ppm)	1	104	76-111
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	105	64-121
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	106	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	1	102	61-137
2-Chlorotoluene	mg/kg (ppm)	1	102	74-121
4-Chlorotoluene	mg/kg (ppm)	1	101	75-122
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	106	76-125
1,3-Dichlorobenzene	mg/kg (ppm)	1	105	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	1	104	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	1	108	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	101	58-138
Hexachlorobutadiene	mg/kg (ppm)	1	114	50-153
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	109	63-138

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.

206099 ~~206097~~ 6/6/22

SAMPLE CHAIN OF CUSTODY 06-06-22

Page # 1 of 1 B02/VSB1

Report To Marissa Goodman
Becca Pozzer
Company Haley & Aldrich
Address
City, State, ZIP
Phone Email mgoodman@haleyaldrich.com

SAMPLERS (signature)	
PROJECT NAME: MMB	PO #: 0202787-100
REMARKS	INVOICE TO
Project specific RLs? - Yes / No	

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

SAMPLE DISPOSAL
☐ Archive samples
☐ Other
Default: Dispose after 30 days

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	HVOCs				Notes
MBB-43-S1	01 A-E	6/6/22	1335	soil	5												
MBB-43-S2	02	↓	1400	↓	↓								X				
MBB-43-S3	03	↓	1420	↓	↓												
MBB-43-S4	04	↓	1430	↓	↓								X				
MBB-43-S5	05 ↓	↓	1445	↓	↓								X				

Friedman & Bruya, Inc.
Ph. (206) 285-8282

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Andrew Nakahara	HA	6/6/22	1715
Received by: [signature]	Yelena Aravkina	FB	06/06/22	17:15
Relinquished by:				
Received by:		Samples received at 4 °C		

ATTACHMENT 3
Ecology UST Closure Notification Form

DEPARTMENT OF ECOLOGY
State of Washington

30-DAY NOTICE
FOR UNDERGROUND STORAGE TANK SYSTEMS

UST ID #: _____

County: _____

This form provides Ecology 30-days' advanced notice for projects, as required by Chapter 173-360A WAC. Instructions are on the back page.

Please ✓ the appropriate box: ☐ Intent to Install ☐ Intent to Close ☐ Change-in-Service

I. SITE INFORMATION	II. OWNER/OPERATOR INFORMATION
Tag or UBI # (if applicable):	Owner/Operator Name:
UST ID # (if applicable):	Business Name:
Site Name:	Mailing Address:
Site Address:	City: State: Zip:
City:	Phone:
Phone:	Email:

III. CERTIFIED SERVICE PROVIDER(S)

Check the appropriate boxes. If more than one service provider is required for this project, fill out both sections.

Note: Individuals performing UST services MUST be ICC-certified or have passed another qualifying exam approved by the Department of Ecology.

1) ☐ Installer ☐ Decommissioner ☐ Site Assessor

Company Name:	Certification Type:
Service Provider Name:	Cert. No.: Exp. Date:
Provider Phone:	Provider Email:

2) ☐ Installer ☐ Decommissioner ☐ Site Assessor

Company Name:	Certification Type:
Service Provider Name:	Cert. No.: Exp. Date:
Provider Phone:	Provider Email:

IV. TANK AND/OR PIPING INFORMATION

TANK ID	TANK CAPACITY	SUBSTANCE STORED	PIPING INSTALLATION OR REPLACEMENT ONLY (Y/N)	DATE PROJECT IS EXPECTED TO BEGIN	COMMENTS

30-DAY NOTICE
FOR UNDERGROUND STORAGE TANK SYSTEMS

GENERAL INSTRUCTIONS

Under WAC 173-360A-0300, 173-360A-0810 and 173-360A-0820, owners and/or operators are required to notify the Department of Ecology (Ecology) **at least 30 days prior** to beginning underground storage tank (UST) and/or piping installation, decommissioning, or change-in-service projects by mailing this notice to the address below. A separate form must be used for each project type (e.g. install, removal). Once this form is received by Ecology, it is date-stamped and returned to the owner/operator listed on the form. Installation and decommissioning projects cannot begin within the first 30 days after the date stamped on this form unless the wait-period has been waived by a regional Ecology UST inspector. If a project cannot meet the deadlines described below, an additional 30-Day Notice may be required.

Department of Ecology
Underground Storage Tank Section
PO Box 47655
Olympia, WA 98504-7655

SITE AND OWNER/OPERATOR INFORMATION

Fill in the site/owner information completely. The contact person listed on this form must confirm the exact date an installation or decommissioning project will begin by contacting the regional UST inspector **at least 3 business days** before proceeding.

INSTALLATION/REPLACEMENT OF TANK AND/OR PIPING

Installation projects must begin within 90 days of the date stamped on this notice. Complete the Tank Information section by assigning Tank ID numbers that have not previously been used at the facility. Once processed, this form allows a one-time drop of product for UST system testing purposes only. The fuel drop is not required to occur within the 90-day period. Once your tank(s) store more than one inch of product, leak detection equipment and monitoring must be in place.

To receive additional deliveries and operate the new tanks/piping, you must submit the Business License application, UST Addendum, and the tank/piping Manufacturer's Installation Checklists to the Department of Revenue (DOR) **within 30 days** of completing the installation. This activates the mailing of your Business License with tank endorsement(s) from DOR and the facility compliance tag from Ecology.

If only piping is being installed or replaced piping, the ICC-certified installer must certify the installation by completing the Retrofit/Repair Checklist with the Manufacturer's Installation Checklist and submitting it to the owner/operator. The form packet must be submitted by the owner/operator to Ecology **within 30 days** of completing the piping installation.

PERMANENT CLOSURE OF TANK AND/OR PIPING

Decommissioning projects must be completed within 90 days after the date stamped on this returned notice. Complete the Tank Information section using Tank ID numbers listed on the Business License. Use the Comments box to include additional information, such as the date when product was removed from both the piping and the tank to less than one inch.

Contact your local fire marshal and planning department prior to tank closure to procure any permits required by county or other local jurisdictions. Compliance with the State Environmental Policy Act (SEPA) Rules, Chapter 197-11 WAC may also apply.

A site assessment is required at the time of closure. If contamination is not discovered, a site assessment report must be submitted to the above address **within 30 days**. If contamination is discovered or confirmed, it must be reported to the appropriate Ecology regional office **within 24 hours** and a site characterization report must be submitted to the above address **within 90 days**.

The following are some examples of tanks that are exempt from the UST regulations.

- Farm or residential tanks, 1,100 gallons or less, used to store motor fuel for personal or farm use only. The fuel must be used for farm purposes and cannot be for resale.
- Tanks used for storing heating oil that is used solely for the purpose of heating the premises.
- Tanks with a capacity of 110 gallons or less.
- Emergency overflow tanks, catch basins, or sumps.

ATTACHMENT 4
City of Seattle Fire Department
UST Closure Application Form

FMO STAFF USE - Inspection Date: _____ | Inspection Time: _____ | Staff: _____

Your Seattle Fire Department

APPLICATION FOR TEMPORARY PERMIT

Code 7908 **Commercial Tank Removal/Decommissioning**

Permit Fee: $288.00 **Date Issued: _____**

APPLICANT TO COMPLETE PAGES 1 AND 2 **Tank(s) must be removed from site on the same day as permit is issued!**

BUSINESS NAME:		
MAILING ADDRESS:		SUITE:
CITY:	STATE:	ZIP:
JOBSITE ADDRESS:		
CONTACT PERSON:	PHONE NUMBER: ( )	

Number of Tank(s): _____ Tank Size(s): _____ ☐ Aboveground tank

Product(s) Previously Contained: _____ ☐ Underground tank

☐ Removal (Marine Chemist inspection and certificate required for all tanks regardless of size or contents)

☐ Abandonment-in-Place (Marine Chemist certificate required for tanks previously containing Class I flammable liquids and/or unknowns)

Hot work being conducted: ☐ No ☐ Yes (If yes, a separate hot work permit is required)

Permit applications may be submitted in person weekdays from 8:00 a.m. to 4:30 p.m., or mailed to:

Seattle Fire Department
Fire Marshal's Office – Permits
220 Third Ave S, 2nd Floor
Seattle, WA 98104-2608

To pay with a Visa or Master Card, email this completed application to us, **and then visit** www.seattle.gov/fire/permits **to make a payment.**
Tel: (206) 386-1450
E-mail: permits@seattle.gov

WORK SHALL NOT COMMENCE UNTIL SFD INSPECTION HAS BEEN COMPLETED.
NO HOT WORK IS ALLOWED ON A TANK SYSTEM PRIOR TO ISSUANCE OF THIS FIRE DEPARTMENT PERMIT!
Contact us at least 2 business days prior to intended start date to request an inspection.
Email: permits@seattle.gov | **Call:** (206) 386-1450

Permission is hereby granted to remove or decommission the tank(s) identified in this permit in accordance with the attached conditions, all noted special conditions, and all applicable provisions of the Seattle Fire Code, and federal, state, and local regulations.

I understand the conditions of this permit and will ensure all tank removal/decommissioning operations are conducted accordingly.
I acknowledge that I received an inspection by a Seattle Fire Department inspector today.

Print Name _____ Signature _____ Title _____

Special permit conditions: *Tank removal/decommissioning must be performed, or directly supervised, by an ICC certified individual (WAC 173-360-600)*

THIS PERMIT IS NULL AND VOID IF PERMIT CONDITIONS ARE NOT ATTACHED

FMO USE:	**APPROVED BY:**	
Check No.: _____	Inspector: _____	SFD ID#_____
Receipt No.: _____	Name of Marine Chemist _____	Certificate # _____
Application ID#:_____	Date: _____	

--CONTINUED ON NEXT PAGE--

Seattle Fire Department Pre-Inspection Checklist

COMMERCIAL TANK DECOMMISSIONING (7908)

Applicant: Fill out Check List and Return to SFD with Permit Application

Inspection Pre-Requisites and Readiness **YES** **NO**

1. Is the tank going to be decommissioned in place? If yes: ☐ ☐
   - ✓ Need triple rinse certificate
   - ✓ **If tank held flammable or unknown liquids, need Marine Chemist inspection**
   - ✓ Schedule SHU inspection to occur after the Marine Chemist inspection
   - ✓ SHU inspector will need a copy of the certificate issued by Marine Chemist

2. Is the tank going to be removed? If yes: ☐ ☐
   - ✓ Need triple rinse certificate
   - ✓ **Need Marine Chemist inspection**
   - ✓ Schedule SHU inspection to occur after the Marine Chemist inspection
   - ✓ SHU inspector will need a copy of the certificate issued by Marine Chemist

3. Is hot work being performed? If yes: ☐ ☐
   - ✓ Separate hot work permit or validation number is required

4. Have you reviewed and do you understand the COMMERCIAL TANK DECOMMISSIONING permit conditions included with the permit application? ☐ ☐
   - ❖ If you do not understand the permit conditions, please call 206-386-1450 and ask to be connected to the SHU "temp inspector" who can clarify the conditions for you, or email the Special Hazards Unit at sfd_fmo_specialhazards@seattle.gov.

5. Are you ready for your inspection now? (Please review the attached conditions to ensure you can meet them, including Marine Chemist sign-off if needed and Triple Rinse completed.) ☐ ☐

Requesting an Inspection Time

1. Please provide information about date(s) and time(s) you would prefer for the inspection. This form is your method of requesting a time. However, the inspection is not scheduled until confirmed by us; and depending upon inspector availability, the confirmed time may differ from the initial request. We can provide next available or may be able to accommodate specific dates depending on our inspectors' availability.

REQUESTED INSPECTION DATE	TIME (ON THE HOUR, FROM 09:00 A.M. TO 03:00 P.M.)

Your inspection is not scheduled or confirmed until you hear back from the SFD permits team.

2. **If you are not ready for an inspection to be scheduled today, you must email us at permits@seattle.gov or call 206-386-1450 to schedule an inspection as soon as you are ready. You are not allowed to begin work until the inspection has been completed.**

Seattle Fire Department 7908

Permit Conditions

Commercial Tank Removal/Decommissioning

1. Two (2) portable fire extinguishers each having a minimum rating of 40 BC shall be on site within 50 feet of the operation. Fire extinguishers shall be inspected, approved and certified annually.

2. Rope or ribbon barricades located at least 10 feet from the tank shall surround every outdoor storage tank removal or decommissioning operation or the operation shall be enclosed in a fenced yard.

3. "No Smoking" signs shall be posted in readily visible locations.

4. No hot work is allowed on a tank system prior to issuance of this permit and the tank is certified “Safe for Hot Work” by a Certified Marine Chemist. Hot work means any activities involving riveting, welding, burning, brazing, soldering, heating, chopping, grinding, ripping, drilling, cutting with a chop saw or “Sawzall”, abrasive blasting, use of powder-actuated tools or similar spark-producing operations, crushing or mechanically shearing to facilitate opening for cleaning, disposal, scrapping for recycling purposes.

5. A separate temporary Seattle Fire Department permit (Code 4913) or a validation number assigned in conjunction with an annual hot work permit (Code 4911 or 4912) is required prior to any hot work operations.

6. Permits may cover multiple tanks located at the same address. If additional tanks are to be removed or abandoned at later dates, separate permits shall be obtained. Each address location requires a separate permit application regardless of whether multiple address locations are physically next to one another.

7. Additional fees will be charged if inspectors are required to work other than normal business hours. (Normal business hours are Monday through Friday, 8:00 a.m. to 4:30 p.m.)

8. No excavation of an underground tank is permitted prior to inspection by the Seattle Fire Marshal’s Office.
   Exception: Removal of the top layer of asphalt or concrete only with no removal of dirt, pea gravel or soil over the underground storage tank. Further excavation may be allowed by a Seattle Fire Department Special Hazards Unit Inspector prior to the initial inspection depending on conditions and if the tank has been inerted by a Marine Chemist who is present on site. The name of the inspector and the time permission was given shall be made available at time of inspection.

9. Prior to inspection, to ensure tanks and connected piping are completely free of all flammable or combustible liquids, a receipt or certificate must be on site indicating the tanks have been pumped and rinsed by an approved company. Product and rinse water must be disposed of in an approved manner.

10. For tanks being decommissioned in place that previously contained Class I liquids, a Certified Marine Chemist certificate must be issued and available on site for inspection certifying that the tank has been properly inerted prior to filling.

11. No tank shall be filled prior to an inspection by the Seattle Fire Marshal's Office.

12. Tanks being decommissioned in place must be filled with a lean concrete mixture. Filling with foam is prohibited.

13. A Marine Chemist's certificate verifying the tank has been properly inerted or is otherwise certified “Safe for Hot Work” shall be issued and available on site for inspection for each underground and aboveground tank being removed regardless of the product previously contained.

14. If tanks are being removed, the tanks' atmosphere must be inert using one of the following approved methods:
    - Dry ice (pellets or chunks of solid CO_2). Minimum 40 lbs per 1000 gallons of tank capacity is recommended.
    - Compressed CO_2 gas in cylinders (Note: This method may only be performed by a Certified Marine Chemist).
    - Purging with air (gas-freeing) using Venturi tube apparatus, with proper bonding and grounding and after the tank has been pumped and rinsed by an approved company.

15. A maximum reading of less than 6% of oxygen must be obtained prior to the removal of the tanks if CO_2 or another inert gas, as approved by the Marine Chemist, is used to inert the tank or, a reading of 0% LEL must be obtained prior to removal of the tank if the air-purging (Venturi air moving devices) method is used.

16. All local, state and federal regulations for confined space entry shall be complied with prior to entering an underground storage tank.

17. Tanks with baffles to prevent movement of liquid must be certified gas-freed or inerted by a Certified Marine Chemist or a Petroleum Industry Safety Engineer regularly engaged in that business prior to removal.

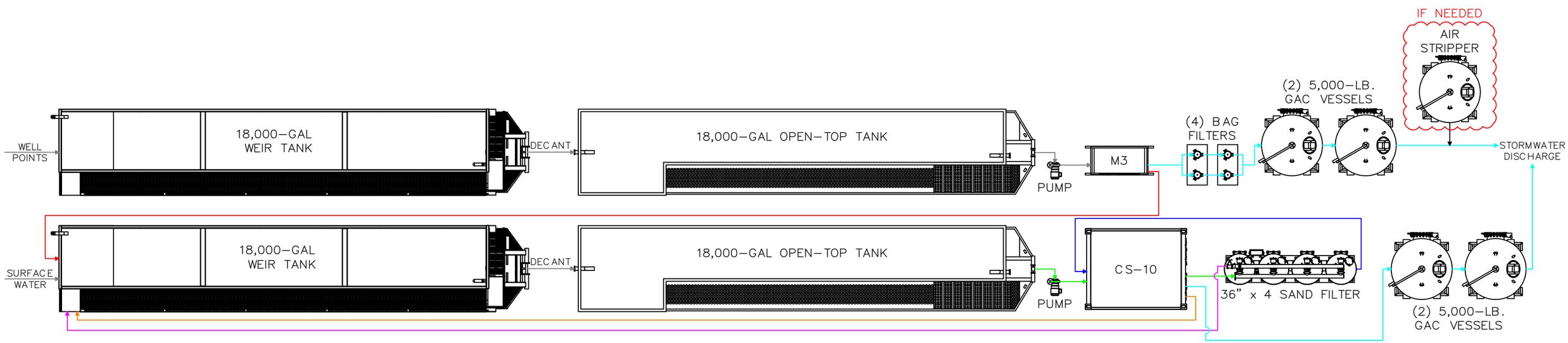
18. Tanks being removed must be removed from the site and relocated to a remote, approved facility on the same day that the permit is issued.

19. During the hot work operations, digging, excavating, hauling or transport of petroleum storage tanks that have not been cleaned and gas-freed, tanks must be inerted to less than 6% oxygen. All openings are to be cap closed and secured except for one 1/8” hole drilled through a cap. These tanks are to be sprayed painted with “INERTED, DO NOT ENTER” or “INERTED WITH CO_2, NOT SAFE FOR WORKERS”.

ATTACHMENT 5
Stormwater and Dewatering Treatment System Schematic

LEGEND

- RAW WATER
- PRETREAT
- INFLUENT
- EFFLUENT
- BACKFLUSH
- RECIRC
- DISCHARGE



Clear Water SERVICES

816 MERCER CESF TREATMENT SYSTEM
PROJECT NO. WAC22MMB01
250–GPM NOMINAL FLOW
PROCESS FLOW DIAGRAM

DATE	REVISIONS

SHEET 1 1 OF 1

DATE: 4/19/2022 | DESIGNER: CWS | FILE NAME: WAC22MMB01_PFD.dwg

ATTACHMENT 6
Administrative Order No. 21321

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Region Office
PO Box 330316, Shoreline, WA 98133-9716 • 206-594-0000

September 1, 2022

Christian Gunter
Alexandria Real Estate Equities
400 Dexter Ave N Ste 200
Seattle, WA 98109-5094

Order Docket #	21321
Site Location	Project Name: 816 Mercer 816 Mercer Street Seattle, WA 98109

Re: Administrative Order

Dear Christian Gunter:

The Department of Ecology (Ecology) has issued the enclosed Administrative Order (Order) requiring Alexandria Real Estate Equities to comply with:

- Chapter 90.48 Revised Code of Washington (RCW) - State of Washington Water Pollution Control Act.
- Chapter 173-201A Washington Administrative Code (WAC) - Water Quality Standards for Surface Waters of the State of Washington.
- Construction Stormwater General Permit WAR311290: National Pollutant Discharge Elimination System (NPDES) and State Waste Discharge General Permit for Stormwater Discharges Associated with Construction Activity.

If you have questions, please contact Charles Hackel at (425) 213-9832 or charles.hackel@ecy.wa.gov.

Sincerely,

Rachel McCrea
Water Quality Section Manager
Northwest Regional Office

Enclosures: Administrative Order Docket #21321
By certified mail 9171 9690 0935 0233 1612 47
ecc: James Murphy, Howard S Wright
PARIS Permit No. WAR311290

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

IN THE MATTER OF AN ADMINISTRATIVE ORDER AGAINST Alexandria Real Estate Equities Christian Gunter	)))))	ADMINISTRATIVE ORDER DOCKET #21321

To: Christian Gunter
Alexandria Real Estate Equities
400 Dexter Ave N Ste 200
Seattle, WA 98109-5094

Order Docket #	21321
Site Location	Project Name: 816 Mercer 816 Mercer Street Seattle, WA 98109

The Department of Ecology (Ecology) has issued this Administrative Order (Order) requiring Alexandria Real Estate Equities to comply with:

- Chapter 90.48 Revised Code of Washington (RCW) - State of Washington Water Pollution Control Act.
- Chapter 173-201A Washington Administrative Code (WAC) - Water Quality Standards for Surface Waters of the State of Washington.
- Construction Stormwater General Permit WAR311290: National Pollutant Discharge Elimination System (NPDES) and State Waste Discharge General Permit for Stormwater Discharges Associated with Construction Activity.

This is an Administrative Order in accordance with General Condition G12 (Additional Monitoring) as set forth in the Construction Stormwater General Permit. Chapter 90.48.120(2) RCW authorizes Ecology to issue Administrative Orders to accomplish the purposes of Chapter 90.48 RCW.

ORDER TO COMPLY

Alexandria Real Estate Equities is subject to coverage under NPDES Construction Stormwater General Permit (CSGP) WAR311290 for construction activities associated with the construction site known as 816 Mercer (816 Mercer Street, Seattle, WA 98109). The project consists of 2.35 disturbed acres. The proposed project comprises of development of two vacant lots with existing surface related utilities and sewer infrastructure. Development will consist of building two 13-story commercial structures with 3 levels of below grade parking. The planned development is expected to encounter soil and groundwater from historical site operations, which included a gasoline and service station, auto repair, auto wrecking, soap manufacturing, and sign painting. Groundwater is expected to be encountered at approximated 20 to 30 feet below ground surface. Therefore, dewatering will be needed with planned excavations ranging from approximately 35 to 55 feet below ground surface.

The receiving waterbody following treatment is Lake Union. Ecology was notified of the presence of onsite groundwater and/or soil contamination, which has the potential to discharge in stormwater and dewatering water due to the proposed construction activity. The Construction Stormwater General Permit does not have water quality sampling or benchmarks for the known contaminants of concern, listed in Table 1, below; however, the permit requires compliance with the Water Quality Standards for Surface Waters of the State of Washington (Water Quality Standards – 173-201A WAC) and prohibits any discharges of pollutants.

The Order establishes Indicator Levels for the 816 Mercer project. Indicator Levels express a pollutant concentration used as a threshold, below which a pollutant is considered unlikely to cause a water quality violation, and above which it may. Indicator Levels in this Administrative Order were derived from WAC 173-201A and the analytical method's minimum quantitation level.

For these reasons and in accordance with RCW 90.48.120(2) it is ordered that Alexandria Real Estate Equities take the following actions. These actions are required at the location known as 816 Mercer, located at 816 Mercer Street, Seattle, WA 98109. In the event of a permit transfer to another Permittee, compliance with this Administrative Order and the actions listed below is required.

Alexandria Real Estate Equities must take the following actions to remain in compliance with NPDES Permit WAR311290:

- Install all pre-treatment and treatment systems prior to any discharge of dewatering water or contaminated construction stormwater to the receiving waterbody.
- Capture, contain, and treat all contaminated dewatering water or contaminated construction stormwater prior to discharge to the receiving waterbody.
- Use an Ecology-approved treatment system and media filtration to treat any contaminated dewatering water or contaminated construction stormwater. Ecology must be notified in advance if any changes in the treatment are made, with the exception of routine maintenance.
- All captured sediment from the treatment of the dewatering water or contaminated construction stormwater must be transported to an approved disposal facility based on the level of contamination.

The treatment system must have enough capacity to hold treated dewatering water or contaminated construction stormwater until it has been tested to determine if any of the Indicator Levels listed in Table 1 have been met. No dewatering water or contaminated construction stormwater may be discharged before it has been tested for the parameters listed in Table 1. If any of the Indicator Levels listed in Table 1 are exceeded, the treated dewatering water or contaminated construction stormwater must not be discharged to the receiving waterbody until it has been retested to determine that all parameters are equal to or below the Indicator Levels in Table 1. If any of the Indicator Levels are exceeded after being retested, Alexandria Real Estate Equities must modify the existing treatment to increase effectiveness, install an additional Ecology-approved treatment system, or truck the contaminated construction stormwater or groundwater off-site for disposal in an approved manner. Alexandria Real Estate Equities may also discharge to sanitary sewer with the approval of the proper sewer authority.

Once the effectiveness of the treatment system has been determined, Alexandria Real Estate Equities may revert to a flow-through treatment system after a minimum of two sampling and testing events and upon written approval from Ecology. The flow-through treatment system design and batch sampling results must be submitted to Ecology for review prior to use.

- If a flow-through treatment system is adopted, all dewatering water or contaminated construction stormwater must be sampled weekly while discharging and tested for the parameters listed in Table 1.
- When using a flow-through treatment system, if any of the Indicator Levels listed in Table 1 are exceeded, Alexandria Real Estate Equities must stop the discharge of treated dewatering water or contaminated construction stormwater to the receiving waterbody until it has been retested to determine that all parameters are equal to or below the Indicator Levels in Table 1. If any of the Indicator Levels are exceeded after being retested, Alexandria Real Estate Equities must modify the existing flow-through treatment system to increase its effectiveness, install an additional Ecology-approved treatment system, or truck the contaminated construction stormwater or dewatering water off-site for disposal in an approved manner. Alexandria Real Estate Equities may also discharge the treated water to sanitary sewer in accordance with the conditions of the discharge authorization from the proper sewer authority.
- Sampling for the contaminants listed in Table 1 must be reported on the required Discharge Monitoring Report (DMR) according to Permit Conditions (S5.B Discharge Monitoring Reports).
- If sampling is conducted more frequently than required by this Order, the results of this monitoring must be included in the calculation and reporting of the data that is submitted in the DMR.
- Any discharge to Waters of the State in exceedance of the contaminant Indicator Levels in Table 1 must be reported to the Department of Ecology according to Permit Condition S5.F, Noncompliance Notification as follows:
    - Immediately notify Ecology of noncompliance by calling the regional 24-hour Environmental Report Tracking System (ERTS) phone number (206) 594-0000 (note that this is a new phone number as of 5/17/2021).
    - Cease the discharge until Indicator Levels can be met.
    - Submit a detailed, written report to Ecology within five (5) days, unless requested earlier by Ecology. See Permit condition S5.F.3 for the full written report requirements.
    - For exceedances of the numeric benchmark for pH, refer to Special Condition S4.D.4 of the CSGP.
- All monitoring data must be prepared by a laboratory registered or accredited under the provisions of Accreditation of Environmental Laboratories, Chapter 137-50 WAC.
- All sampling data must be reported monthly on DMRs electronically using Ecology's secure online system WQWebDMR, in accordance to permit condition S5.B. If the measured concentration is below the detection level then Alexandria Real Estate Equities must report single analytical values below detection as "less than the detection level (DL)" by entering "<" followed by the numeric value of the detection level (e.g. "<0.1"). All other values above DL must be reported as the numeric value.

- Contaminated soils excavated during construction will be immediately hauled offsite without stock piling to an approved disposal facility based on the level of contamination. When it is not feasible to immediately haul soils offsite, the soils must be placed in a covered area to minimize contact with stormwater.
- Noncompliance with permit requirements or the provisions of this Order (such as exceedances of indicator levels) must be immediately reported to the Northwest Regional Office of the Department of Ecology in accordance with Permit Condition S5.F, Noncompliance Notification.
- The Stormwater Pollution Prevention Plan (SWPPP) prepared for 816 Mercer must be fully implemented and amended as needed for the duration of the project.
- If a modification of the Order is desired, a written request must be submitted to Ecology and if approved, Ecology will issue an amendment to this Order.

Ecology retains the right to make modifications to this Order through supplemental Order, or amendment to this Order, it if appears necessary to further protect the public interest.

This Order does not exempt Alexandria Real Estate Equities from any Construction Stormwater General Permit requirement. This Order automatically terminates when NPDES Construction Stormwater General Permit WAR311290 is terminated.

Table 1. Fresh Water Parameters

Alexandria Real Estate Equities must use the specified analytical methods, detection limits (DLs) and quantitation levels (QLs) in the following table for monitoring unless the method used produces measurable results in the sample and EPA has listed it as an EPA-approved method in 40 CFR Part 136. If Alexandria Real Estate Equities uses an alternative method, not specified in the order and as allowed above, it must report the test method, DL, and QL on the discharge monitoring report.

Pollutant & CAS No. (if available)	Sampling Frequency*	Sample Type	Indicator Level, µg/L unless otherwise noted	Required Analytical Protocol	Detection Level, µg/L unless otherwise noted	Quantitation Level, µg/L unless otherwise noted
PETROLEUM HYDROCARBONS						
BTEX (benzene, toluene, ethylbenzene and O,M,P xylenes)	Batch/Weekly	Grab	2.0 [a]	SW 846 8021/ 8260	1.0	2.0
Diesel and Oil-Range Hydrocarbons (NWTPH-Dx) [b]	Batch/Weekly	Grab	250 [a]	NWTPH-Dx	250	250
Gasoline-Range Hydrocarbons (NWTPH-Gx) [c]	Batch/Weekly	Grab	250 [a]	NWTPH-Gx	250	250
METALS						
Antimony, Total (7440-36-0)	Batch/Weekly	Grab	12.0 [h]	200.8	0.3	1.0
Arsenic, Total (7440-38-2)	Batch/Weekly	Grab	360 [d]	200.8	0.1	0.5
Beryllium, Total (7440-41-7)	Batch/Weekly	Grab	0.5 [a]	200.8	0.1	0.5
Cadmium, Total (7440-43-9)	Batch/Weekly	Grab	1.6 [d]	200.8	0.05	0.25
Chromium, Total (7440-47-3)	Batch/Weekly	Grab	15.0 [e]	200.8	0.2	1.0
Copper, Total (7440-50-8)	Batch/Weekly	Grab	8.2 [d]	200.8	0.4	2.0
Lead, Total (7439-92-1)	Batch/Weekly	Grab	27.47 [d]	200.8	0.1	0.5
Mercury, Total (7439-97-6)	Batch/Weekly	Grab	2.1 [d]	1631E	0.0002	0.0005
Nickel, Total (7440-02-0)	Batch/Weekly	Grab	733.79 [d]	200.8	0.1	0.5
Selenium, Total (7782-49-2)	Batch/Weekly	Grab	20.0 [d]	200.8	1.0	1.0
Zinc, Total (7440-66-6)	Batch/Weekly	Grab	59.3 [d]	200.8	0.5	2.5

Pollutant & CAS No. (if available)	Sampling Frequency*	Sample Type	Indicator Level, µg/L unless otherwise noted	Required Analytical Protocol	Detection Level, µg/L unless otherwise noted	Quantitation Level, µg/L unless otherwise noted
VOLATILE ORGANIC COMPOUNDS (VOCs), SEMI VOCs AND HALOGENATED VOCs						
Acetone (67-64-1)	Batch/Weekly	Grab	5.0 [a]	8260	5.0	5.0
n-Butylbenzene (104-51-8)	Batch/Weekly	Grab	5.0 [a]	8260	5.0	5.0
sec-Butylbenzene (135-98-8)	Batch/Weekly	Grab	5.0 [a]	8260	5.0	5.0
tert-Butylbenzene (98-06-6)	Batch/Weekly	Grab	5.0 [a]	8260	5.0	5.0
Carbon Disulfide (75-15-0)	Batch/Weekly	Grab	10 [a]	624.1	10	10
Chloroform (67-66-3)	Batch/Weekly	Grab	4.8 [a]	624.1 or SM6210B	1.6	4.8
1,1-Dichloroethane (75-34-3)	Batch/Weekly	Grab	14.1 [a]	624.1	4.7	14.1
1,2-Dichloroethane (107-06-2)	Batch/Weekly	Grab	8.4 [a]	624.1	2.8	8.4
2,2-Dichloropropane (594-20-7)	Batch/Weekly	Grab	1.0 [a]	624.1	0.19	1.0
Cis-1,2-Dichloroethene (156-59-2)	Batch/Weekly	Grab	5.0 [a]	8260	5.0	5.0
Dibromochloromethane (124-48-1)	Batch/Weekly	Grab	9.3 [a]	624.1	3.1	9.3
Diisopropyl ether (108-20-3)	Batch/Weekly	Grab	1.0 [a]	624.1	0.1	1.0
Isopropylbenzene (98-82-8)	Batch/Weekly	Grab	5.0 [a]	8260	5.0	5.0
p-Isopropyltoluene (99-87-6)	Batch/Weekly	Grab	5.0 [a]	8260	5.0	5.0
Methyl Chloride (74-87-3)	Batch/Weekly	Grab	2.0 [a]	624.1	1.0	2.0
n-propylbenzene (103-65-1)	Batch/Weekly	Grab	5.0 [a]	8260	5.0	5.0
Tetrachloroethylene (127-18-4)	Batch/Weekly	Grab	12.3 [a]	624.1	4.1	12.3
1,1,1-Trichloroethane (71-55-6)	Batch/Weekly	Grab	11.4 [a]	624.1	3.8	11.4
Trichloroethylene (79-01-6)	Batch/Weekly	Grab	5.7 [a]	624.1	1.9	5.7

Pollutant & CAS No. (if available)	Sampling Frequency*	Sample Type	Indicator Level, µg/L unless otherwise noted	Required Analytical Protocol	Detection Level, µg/L unless otherwise noted	Quantitation Level, µg/L unless otherwise noted
1,2,4 –Trimethylbenzene (95-63-6)	Batch/Weekly	Grab	5.0 [a]	8260	5.0	5.0
1,3,5 –Trimethylbenzene (108-67-8)	Batch/Weekly	Grab	5.0 [a]	8260	5.0	5.0
trans-1,2-Dichloroethene (156-60-5)	Batch/Weekly	Grab	4.8 [a]	624.1	1.6	4.8
Vinyl chloride (75-01-4)	Batch/Weekly	Grab	2.0 [a]	624/SM6200B	1.0	2.0
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) AND CARCINOGENIC PAHs						
Acenaphthene (83-32-9)	Batch/Weekly	Grab	5.7 [a]	625.1	1.9	5.7
Acenaphthylene (208-96-8)	Batch/Weekly	Grab	10.5 [a]	625.1	3.5	10.5
Anthracene (120-12-7)	Batch/Weekly	Grab	5.7 [a]	625.1	1.9	5.7
Benzo(a)anthracene (56-55-3)	Batch/Weekly	Grab	23.4 [a]	625.1	7.8	23.4
Benzo(a)pyrene (50-32-8)	Batch/Weekly	Grab	7.5 [a]	610/625.1	2.5	7.5
Benzo(b)fluoranthene (205-99-2)	Batch/Weekly	Grab	14.4 [a]	610/625.1	4.8	14.4
Benzo(k)fluoranthene (207-08-9)	Batch/Weekly	Grab	7.5 [a]	610/625.1	2.5	7.5
Chrysene (218-01-9)	Batch/Weekly	Grab	7.5 [a]	610/625.1	2.5	7.5
Dibenzo(a-h)anthracene (53-70-3)	Batch/Weekly	Grab	7.5 [a]	625.1	2.5	7.5
Fluoranthene (206-44-0)	Batch/Weekly	Grab	6.6 [a]	625.1	2.2	6.6
Fluorene (86-73-7)	Batch/Weekly	Grab	5.7 [a]	625.1	1.9	5.7
Indeno(1,2,3-cd)pyrene (193-39-5)	Batch/Weekly	Grab	11.1 [a]	610/625.1	3.7	11.1
1-Methylnaphthalene (90-12-0)	Batch/Weekly	Grab	10 [a]	8270	10	10
2-Methylnaphthalene (91-57-6)	Batch/Weekly	Grab	10 [a]	8270	10	10

Pollutant & CAS No. (if available)	Sampling Frequency*	Sample Type	Indicator Level, µg/L unless otherwise noted	Required Analytical Protocol	Detection Level, µg/L unless otherwise noted	Quantitation Level, µg/L unless otherwise noted
Naphthalene (91-20-3)	Batch/Weekly	Grab	4.8 [a]	625.1	1.6	4.8
Phenanthrene (85-01-8)	Batch/Weekly	Grab	16.2 [a]	625.1	5.4	16.2
Pyrene (129-00-0)	Batch/Weekly	Grab	5.7 [a]	625.1	1.9	5.7
POLYCHLORINATED BIPHENYLS (PCBs)						
PCBs, Total [g]	Batch/Weekly	Grab	2.0 [d]	608.3	0.065	0.195
Construction Stormwater General Permit Benchmarks						
Parameter	**Sampling Frequency***	**Sample Type**	**Benchmark**		**Analytical Method**	
Turbidity	Batch/Weekly	Grab	25 NTU		SM2130 [f]	
pH	Batch/Weekly	Grab	6.5 - 8.5 SU		SM4500-H^+ B	

NOTES	
[a]	No applicable surface water criterion; value is laboratory quantitation level.
[b]	NWTPH-Dx = Northwest Total Petroleum Hydrocarbons – Semi-volatile ("diesel") for diesel range organics and heavy oils (includes jet fuels, kerosene, diesel-oils, hydraulic fluids, mineral oils, lubricating oils, and fuel oils).
[c]	NWTPH-Gx = Northwest Total Petroleum Hydrocarbons – Volatile petroleum products including aviation and automotive gasolines, mineral spirits, Stoddard solvent, and naphtha.
[d]	Acute – Freshwater Toxic Substances Criteria (WAC 173-201A-240). Based on Hardness of 46.0 mg/L for Hardness Dependent Metals. The Indicator Level for hardness dependent metals is expressed as a dissolved metal value. Meeting the Indicator Level using analytical protocol for total or dissolved metal values meets the intent of this order.
[e]	Indicator Level total chromium is actually for hexavalent chromium using Acute – Freshwater Toxic Substances Criteria (WAC 173-201A-240) because there is no water quality standard for total chromium.
[f]	Or equivalent.
[g]	Total PCBs are the sum of all congener or all isomer or homolog or Aroclor analyses.
[h]	An applicable surface water criterion does not exist for antimony. The indicator level for antimony is based on the human health criteria for consumption of organisms.
*	If permission is granted for flow through, sampling will then be weekly.

FAILURE TO COMPLY WITH THIS ORDER

Failure to comply with this Order may result in the issuance of civil penalties or other actions, whether administrative or judicial, to enforce the terms of this Order.

YOUR RIGHT TO APPEAL

You have a right to appeal this Order to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of this Order. The appeal process is governed by Chapter 43.21B RCW and Chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal you must do both of the following within 30 days of the date of receipt of this Order:

- File your appeal and a copy of this Order with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this Order on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.

You must also comply with other applicable requirements in Chapter 43.21B RCW and Chapter 371-08 WAC.

Your appeal alone will not stay the effectiveness of this Order. Stay requests must be submitted in accordance with RCW 43.21B.320.

ADDRESS AND LOCATION INFORMATION

Street Addresses	Mailing Addresses
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey, WA 98503 **Pollution Control Hearings Board** 1111 Israel Road SW STE 301 Tumwater, WA 98501	**Department of Ecology** Attn: Appeals Processing Desk PO Box 47608 Olympia, WA 98504-7608 **Pollution Control Hearings Board** PO Box 40903 Olympia, WA 98504-0903

CONTACT INFORMATION

Please direct all questions about this Order to:

Charles Hackel
Department of Ecology
Northwest Regional Office
PO Box 330316
Shoreline, WA 98133-9716

Phone: (425) 213-9832
Email: charles.hackel@ecy.wa.gov

MORE INFORMATION

- Pollution Control Hearings Board Website
  http://www.eluho.wa.gov/Board/PCHB
- Chapter 43.21B RCW - Environmental and Land Use Hearings Office – Pollution Control Hearings Board
  http://app.leg.wa.gov/RCW/default.aspx?cite=43.21B
- Chapter 371-08 WAC – Practice And Procedure
  http://app.leg.wa.gov/WAC/default.aspx?cite=371-08
- Chapter 34.05 RCW – Administrative Procedure Act
  http://app.leg.wa.gov/RCW/default.aspx?cite=34.05
- Ecology's Laws, rules, & rulemaking website
  https://ecology.wa.gov/About-us/How-we-operate/Laws-rules-rulemaking

SIGNATURE

Rachel McCrea — Sept. 1, 2022

Rachel McCrea
Water Quality Section Manager
Northwest Regional Office

Date

TABLE

FIGURES

ATTACHMENT 1
Boring Logs for Supplemental Disposal Pre-Characterization Investigation

ATTACHMENT 2
Laboratory Reports and Data Usability Summary Report for Supplemental Disposal Pre-Characterization Investigation

ATTACHMENT 3
Ecology UST Closure Notification Form

ATTACHMENT 4
City of Seattle Fire Department
UST Closure Application Form

ATTACHMENT 5
Stormwater and Dewatering Treatment System Schematic

ATTACHMENT 6
Administrative Order No. 21321