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August 18, 2023
Project No. M0615.20.009

Steve Teel, LHG, Cleanup Project Manager/Hydrogeologist
Washington State Department of Ecology
Toxics Cleanup Program, Southwest
P.O. Box 47775
Olympia, WA 98504

Re: Supplemental Subsurface Investigation, Potter Property
Taylor Way and Alexander Avenue Fill Area

Dear Steve Teel:

On behalf of the Port of Tacoma (the Port), Maul Foster & Alongi, Inc. (MFA), has prepared this supplemental subsurface investigation report to describe the subsurface field activities executed and data collected at the Port-owned Potter Property, located at 1801 E Alexander Avenue in Tacoma, Washington (the Potter Property) (see Figure 1). This investigation was conducted to support the ongoing data gaps investigation at the Taylor Way and Alexander Avenue Fill Area Site (TWAAFA site) (Facility/Site ID No. 1403183; Cleanup Site ID No. 4692) that includes the Potter Property.

MFA performed field activities at the Potter Property consistent with the Washington State Department of Ecology (Ecology)-approved *Supplemental Investigation Work Plan* (MFA 2023).

Purpose

The investigation activities described in this report were conducted in response to Ecology's December 19, 2022, comments (Ecology 2022) on MFA's *Indoor Air Sampling and Analysis Plan, Former Potter Property* (MFA 2022b).

The field investigation activities described in this report included subsurface investigation in three areas of the Potter Property not previously evaluated. The boring locations were within or immediately adjacent to the existing buildings where sub-slab total petroleum hydrocarbon (TPH) and volatile organic compound (VOC) concentrations have been measured above Model Toxics Control Act (MTCA) Method B soil gas screening levels (MFA 2022a).

Background

Property Description

The Potter Property is owned by the Port and operated by tenant Handan, Inc., a trailer and shipping container repair company. Two buildings are present on the Property: the shop building and the conjoined Quonset huts (Quonset Hut 1 and Quonset Hut 2) (see Figure 2).

Property History and Previous Investigations

Releases from historical unlined waste-oil storage and treatment ponds on the adjacent Burlington Environmental Tacoma property resulted in light nonaqueous-phase liquid (LNAPL) in groundwater that extended to beneath the Potter Property (Figure 2). LNAPL recovery trenches were installed in 1999 and 2000 by Stericycle to address the migration of LNAPL. The trench installed in 1999 was located on the Stericycle property (north of the Potter property) and ceased operations in December 1999 after low LNAPL-recovery rates were observed and was abandoned as part of planned construction activities in 2019. The trench installed in 2000 is located partially on the Potter property; measurable quantities of LNAPL have not been detected in it (DOF 2020).

Auto fluff has been used as fill material on the adjacent Stericycle property and extends beyond the property boundary and onto portions of the Potter Property (Figure 2). Auto fluff consists of materials from the demolition and shredding of automobiles and may include wire fragments, glass shards, upholstery, shredded tires and rubber, paint, metal, string, and plastic. These materials are potential sources of petroleum hydrocarbons (gasoline-, diesel-, and oil-range hydrocarbons), metals, VOCs, semivolatile organic compounds (SVOCs); and polychlorinated biphenyls (PCBs; DOF 2020).

MFA conducted a sub-slab soil gas investigation in 2022, the results of which indicated TPH and some VOCs (heptane, n-hexane, and chloroform) exceeded MTCA Method B and/or Method C sub-slab soil gas screening levels in the Quonset hut 2; and tetrachloroethene (PCE), trichloroethene (TCE), and TPH exceeded MTCA Method B and/or MTCA Method C sub-slab soil gas screening levels in the shop building (see Figure 2) (MFA 2022a).

Based on the results of the soil gas sampling, Ecology requested that soil samples be collected from the Potter Property to investigate the source of elevated sub-slab concentrations identified in a June 2022 investigation (MFA 2022a).[1] Ecology requested soil samples be analyzed for TPH and VOCs, as well as PCBs, polycyclic aromatic hydrocarbons (PAHs), and metals based on historical data collected from the TWAAFA site. PCBs exceeding site-specific screening levels have been historically detected in soil samples collected on the neighboring Burlington Environmental property (formerly referred to as Stericycle Parcel A) (Sweet-Edwards 1988). PCBs have not been detected at concentrations exceeding screening levels in six soil samples previously collected from the Potter Property. Benzo(a)pyrene (a PAH constituent) has been detected at a concentration exceeding site-specific screening level in one of the ten soil samples previously collected from the Potter Property. Annotated versions of relevant historical soil data tables and figures are included in Attachment A of the Supplemental Investigation Work Plan (MFA 2023).

Field Investigation Activities

On June 27, 2023, MFA conducted fieldwork activities in accordance with the Ecology-approved *Supplemental Investigation Work Plan* (MFA 2023). Field photographs from the investigation are provided in Attachment A.

MFA coordinated public and private underground utility locates before beginning drilling on the Potter Property. Under MFA oversight, Anderson Environmental Contracting, LLC, of Kelso, Washington, advanced three borings via direct-push drilling methods to 10 feet below ground surface (bgs) on the Potter Property (see Figure 2):

[1] Ecology provided comments (Ecology 2022) on MFA's *Indoor Air Sampling and Analysis Plan, Former Potter Property* (MFA 2022b). Ecology comments pertaining to sub-slab soil gas and indoor air sampling at the Potter Property are addressed in the version of the *Indoor Air Sampling and Analysis Plan, Former Potter Property*, that was revised on January 12, 2023 (MFA 2022b).

- TWA-SB06: located in the northeast part of Quonset Hut 2
- TWA-SB07: located in the center of the shop building
- TWA-SB08: located in the southwest part of the shop building

Soil borings were advanced in locations on the Potter Property relative to existing sub-slab vapor pin locations and to historical sample locations that exhibited screening level exceedances, as shown in Figure 2.

MFA prepared geologic boring logs for each location under the direct supervision of a geologist licensed in the State of Washington (see Attachment B). Soil types were described; visual and olfactory observations were recorded; and soil headspace was screened for organic vapors using a photoionization detector. No auto fluff was identified in the soil cores of the borings. Soil conditions during drilling generally consisted of approximately 1.5 feet of sandy gravel/gravelly sand with silt overlying sand with silt to the maximum depth observed of 10 feet bgs. Soil samples were collected in laboratory-supplied containers. Strong odors and an oily sheen were observed in boring TWA-SB06 (Attachment A). Two soil samples, including one field duplicate (TWA-09-SB06_2.2-2.8_0627), were collected at TWA-SB06 between 2.2 and 2.8 feet bgs where the greatest field indications of contamination were observed. A deeper soil sample (TWA-SB06_8.2-8.8_0627) was collected between 8.2 and 8.8 feet bgs within TWA-SB06 where field indications of contamination were not observed. No field indications of contamination were observed in borings TWA-SB07 or TWA-SB08.

Samples were collected from the following depths:

- TWA-SB06: between 2.2 and 2.8 feet bgs and between 8.2 and 8.8 feet bgs
- TWA-SB07: between 2.4 and 2.8 feet bgs
- TWA-SB08: between 2.6 and 3.2 feet bgs

Borings were backfilled with hydrated bentonite and the ground surface was restored to match existing grade following completion of sampling and logging.

Management of Investigation-Derived Waste

Investigation-derived waste (i.e., soil cuttings) was drummed, labeled, and stored on the adjacent Parcel 110 property at 3401 Lincoln Avenue in Tacoma, Washington in a Washington State Department of Transportation–approved container, pending off-site disposal.

Analytical Methods and Quality Control/Quality Assurance

Samples were submitted to Friedman & Bruya, Inc., a Washington-State accredited laboratory located in Seattle, Washington.

Soil samples were analyzed for the following, consistent with the Ecology (Ecology)-approved *Supplemental Investigation Work Plan*):

- TPH by Northwest Total Petroleum Hydrocarbons Method
- Full suite VOCs by U.S. Environmental Protection Agency (EPA) Method 8260D
- Semivolatile organic compounds (SVOCs, including PAHs) by EPA Method 8270E

Because the potential source(s) of the petroleum hydrocarbons and VOCs may be colocated with other contaminants, soil samples were also analyzed for the following:

- PCB Aroclors by EPA Method 8082A
- Metals (arsenic, cadmium, chromium, copper, lead, manganese, mercury, nickel, selenium, and zinc) by EPA Method 6020B

The laboratory report is provided in Attachment C. Sample analytical data and the laboratory's internal quality assurance and quality control data were reviewed to assess whether they met project-specific data quality objectives. A data validation memorandum summarizing data evaluation procedures, data usability, and deviations from specific field and/or laboratory methods is provided in Attachment D. All data, with the appropriate data qualifiers assigned, are considered acceptable for their intended use.

Results

Analytical results are screened against the site-specific screening levels provided in DOF's *Final Data Gaps Work Plan, Taylor Way and Alexander Avenue Fill Area Site, Tacoma, Washington* (DGWP, DOF 2022), referred to as the DGWP screening level in the table. Chemicals without site-specific screening levels were screened against MTCA Method A or Method B criteria if MTCA Method A criteria were not available. Washington state natural background concentrations for metals are provided in the table for reference.

The following analytes were detected above screening levels (see table):

- Gasoline-range hydrocarbons exceeded the DGWP screening level (500 mg/kg) in shallow soil from TWA-SB06 (530 mg/kg [estimated]).
- Diesel-range hydrocarbons exceeded the DGWP screening level (2,000 mg/kg) in shallow soil from TWA-SB06 (14,000 mg/kg [estimated]).[2]
- Motor oil-range hydrocarbons exceeded the DGWP screening level (2,000 mg/kg) in shallow soil from TWA-SB06 (7,400 mg/kg [estimated]).[3]
- 1-methylnaphthalene exceeded the MTCA Method B cleanup level (CUL) (34 mg/kg) in shallow soil from TWA-SB06 (53 mg/kg).[4]

PCB Aroclors, metals, VOCs, and SVOCs (excluding 1-methylnepthalene) remained below their respective screening levels in the samples analyzed.

Summary

As requested by Ecology, soil samples were analyzed for TPH, VOCs, SVOCs, PCBs, and metals to investigate the source of the elevated sub-slab concentrations and extent of auto fluff on the Property.

Auto fluff was not identified in any of the soil borings advanced on the Property. Further, there were no detections of PCB Aroclors above screening levels in soil samples (see table). PCBs have been previously associated with auto fluff (DOF 2020). Therefore, it does not appear that auto fluff material extends below Quonset Hut 2 or the shop building.

[2] In the shallow soil field duplicate collected from TWA-SB06, diesel-range hydrocarbons were detected at an estimated concentration of 13,000 mg/kg.
[3] In the field duplicate collected from TWA-SB06, motor-oil-range hydrocarbons were detected at an estimated concentration of 7,200 mg/kg.
[4] In the field duplicate collected from TWA-SB06, 1-methylnaphthalene was detected at a concentration of 49 mg/kg.

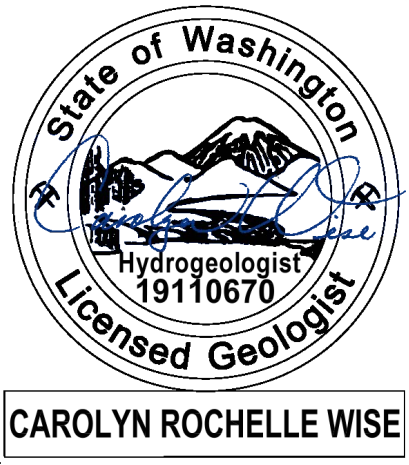
During the 2022 sub-slab soil gas investigation, tetrachloroethene (PCE) and trichloroethene (TCE) exceeded MTCA Method B and MTCA Method C sub-slab soil gas screening levels in the shop building (see Figure 2) (MFA 2022a). There were no detections above screening criteria in soil samples for TPH, metals, PCB Aroclors, VOCs (including PCE and TCE), or SVOCs collected in the shop building (TWA-SB07 and TWA-SB08) (see table). Therefore, subsurface soil beneath the shop building does not appear to be a source associated with the elevated PCE or TCE sub-slab concentrations.

There were no detections above screening levels for metals, PCBs, or VOCs in TWA-SB06 within Quonset Hut 2 (see Table). Detections of TPH (including gasoline-, diesel-, and motor oil-range hydrocarbons) and one SVOC (1-methylnaphthalene) were identified above screening levels in the shallow soil sample (and field duplicate) collected at TWA-SB06 between 2.2 and 2.8 feet bgs (see table). TWA-SB06 was located near monitoring well MW-1 in the northern portion of Quonset Hut 2. The soil core at TWA-SB06 had observations of oily sheen and strong hydrocarbon odors, consistent with historical observations of free product at nearby monitoring well MW-1. A deeper soil sample collected at TWA-SB06 between 8.2 and 8.8 feet bgs did not exceed screening criteria. During the 2022 sub-slab soil gas investigation, TPH and a few VOCs (heptane, n-hexane, and chloroform) exceeded MTCA Method B and MTCA Method C sub-slab soil gas screening levels in the northern portion of Quonset Hut 2 (see Figure 2; MFA 2022a). The elevated detections and observations of TPH in soil are colocated with the elevated sub-slab concentrations of TPH at sub-slab vapor pins TWA-SV-35 and TWA-SV-36 within the northern portion of Quonset Hut 2. Therefore, it appears there is a shallow soil source of TPH in the vicinity of TWA-SB06 that is contributing to elevated TPH sub-slab soil gas concentrations in Quonset Hut 2 (MFA 2022a). There were detections of n-hexane in the shallow soil sample at TWA-SB06; however, the detections were well below screening levels. No other VOCs had detections in the soil samples collected at TWA-SB06.

If you have any questions regarding this letter, please contact us.

Sincerely,

Maul Foster & Alongi, Inc.



08-18-2023

Carolyn Wise, LHG
Project Hydrogeologist

Audrey Hackett
Senior Environmental Scientist

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Attachments

References

Limitations

Figures

Table

A—Photo Array

B—Boring Logs

C—Analytical Laboratory Report

D—Data Validation Memorandum

cc: Scott Hooton, Port of Tacoma

Tasya Gray, Dalton, Olmsted & Fuglevand, Inc.

Kim Seely, Coastline Law Group PLLC

Douglas Steding, Northwest Resource Law PLLC

References

DOF. 2020. *Final Data Gaps Work Plan, Taylor Way and Alexander Avenue Fill Area Site, Tacoma, Washington*. Prepared by Dalton, Olmsted & Fuglevand, Inc.: Seattle, WA. July 29.

Ecology. 2021. Steve Teel, LHG, Washington State Department of Ecology. *Comments on the Aboveground Site Conditions Memorandum and Existing Groundwater Monitoring Network Evaluation and Recommendations Memorandum*. Letter to Tasya Gray, LG, Dalton, Olmsted & Fuglevand, Inc., and Scott Hooton, Port of Tacoma. May 5.

Ecology. 2022. Steve Teel, LHG, Washington State Department of Ecology. *Comments on Indoor Air Sampling and Analysis Plan, Former Potter Property*. Letter to Tasya Gray, LG, Dalton, Olmsted & Fuglevand, Inc. and Scott Hooton, Port of Tacoma. December 19.

MFA. 2022a. *Vapor Intrusion Assessment Report, Taylor Way and Alexander Avenue Fill Area, Former Potter Property*. Prepared for the Port of Tacoma. Maul Foster & Alongi, Inc.: Seattle, WA. October 6.

MFA. 2022b. *Indoor Air Sampling and Analysis Plan, Taylor Way and Alexander Avenue Fill Area, Former Potter Property*. Prepared for the Port of Tacoma. Maul Foster & Alongi, Inc.: Seattle, WA. November 30. Revised January 12, 2023.

MFA. 2023. *Supplemental Investigation Work Plan, Port Parcel 110 and Potter Property, Taylor Way and Alexander Avenue Fill Area*. Prepared for the Port of Tacoma. February 21.

Sweet-Edwards. 1988. *Phase II Hydrogeological Investigation, Parcel A*. Prepared for Chemical Processors, Inc. Sweet-Edwards/EMCON, Inc.: Redmond, WA. April.

Limitations

The services undertaken in completing this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this report.

Figures

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Notes
Potter Property = 1801 E Alexander Avenue in Tacoma, Washington.
TWAAFA = Taylor Way and Alexander Avenue Fill Area.

Legend
- Potter Property
- TWAAFA Site Boundary

Data Sources
U.S. Geological Survey (2021) 7.5-minute topographic quadrangle: Tacoma, Washington.
Township 21 North, Range 3 East, Section 35.
Tax parcel obtained from Pierce County Assessor.
TWAAFA site boundary obtained from Exhibit A of Agreed Order No. DE 14260.

Figure 1
Property Location

Port of Tacoma
Former Potter Property
1801 E Alexander Avenue
Tacoma, Washington

0 1,000 2,000
Feet

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Produced By: sturner
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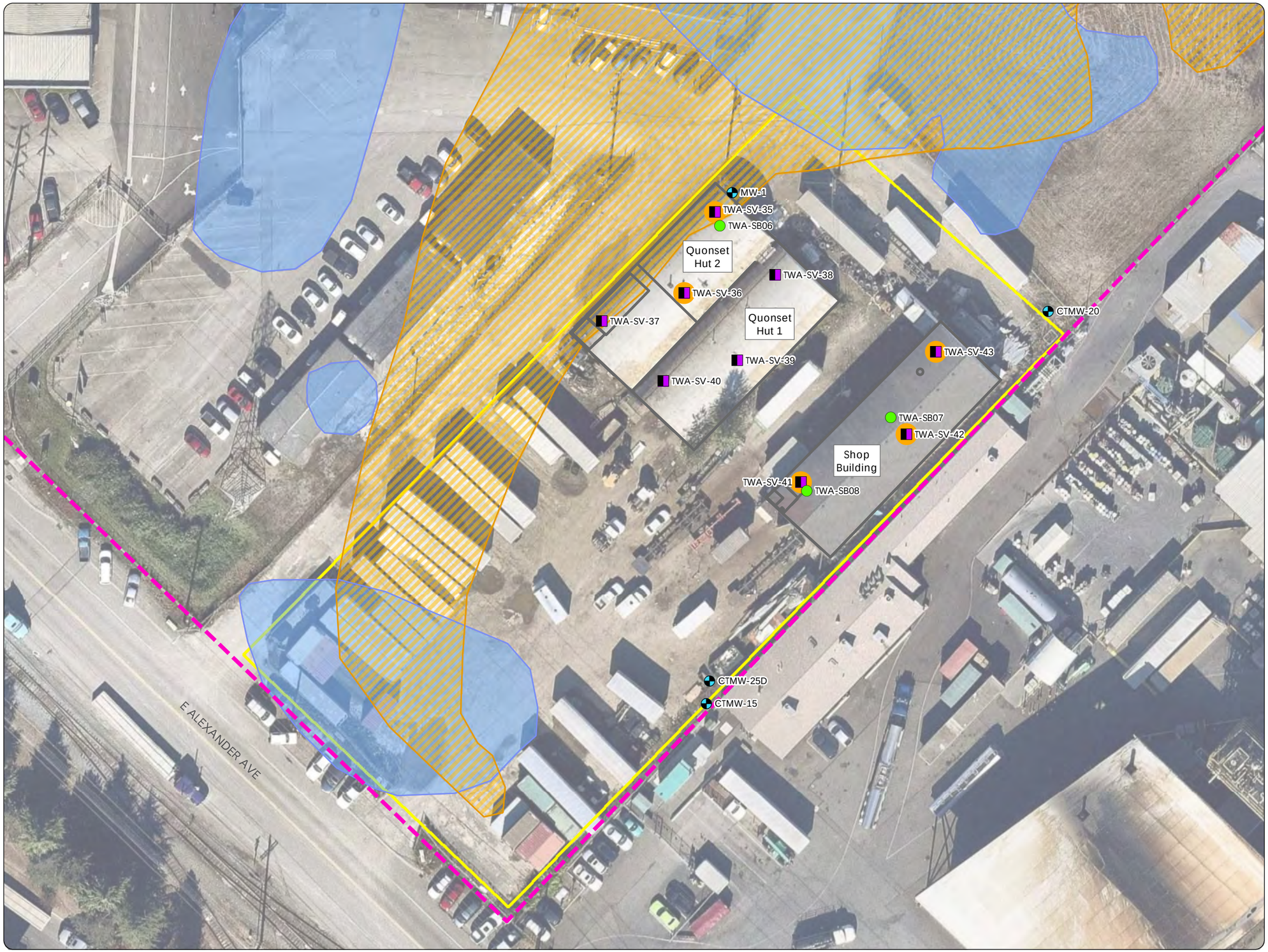

Figure 2
Potter Property Features and Sample Locations

Port of Tacoma
TWAAFA Site
Tacoma, Washington

Legend

- Monitoring Well
- Soil Boring Location
- 2022 Sub-Slab Vapor Pin
- Sub-Slab Soil Gas Screening Level Exceedance
- Autofluff Fill
- LNAPL Plume
- Building
- TWAAFA Site Boundary
- Potter Property Boundary

Notes
Sample locations are approximate. Sample locations were recorded by measuring off site features.
Sub-slab soil gas screening level exceedances are based on MTCA Method B or Method C screening levels.
DOF = Dalton, Olmsted & Fuglevand, Inc.
LNAPL = light non-aqueous phase liquid.
MFA = Maul Foster & Alongi, Inc.
MTCA = Model Toxics Control Act.
Potter Property = 1801 E Alexander Avenue in Tacoma, Washington.
TWAAFA = Taylor Way and Alexander Avenue Fill Area.

0 30 60
Feet

Data Sources
Aerial photograph obtained from Mapbox; parcels obtained from Pierce County Assessor; LNAPL and autofluff fill obtained from the 2020 DOF *Final Data Gaps Work Plan, Taylor Way and Alexander Avenue Fill Area Site, Tacoma, Washington.*

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Table

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Table
Summary of Soil Analytical Results
Supplemental Subsurface Investigation, Potter Property, Port of Tacoma

Location:	DGWP Screening Level[1]	MTCA Method A, Unrestricted Land Use[2]	MTCA Method B[a][2]	Washington State Background Metals, Puget Sound[3]	TWA-SB06			TWA-SB07	TWA-SB08
Building:					Quonset Hut 2			Shop Building	Shop Building
Sample Name:					TWA-SB06_2.2-2.8_0627	TWA-9-SB06_2.2-2.8_0627	TWA-SB06_8.2-8.8_0627	TWA-SB07_2.4-2.8_0627	TWA-SB08_2.6-3.2_0627
Sample Date:					06/27/2023	06/27/2023	06/27/2023	06/27/2023	06/27/2023
Sample Type:					N	FD	N	N	N
Sample Depth (ft bgs):					2.2-2.8	2.2-2.8	8.2-8.8	2.4-2.8	2.6-3.2
TPH (mg/kg)									
Gasoline-range hydrocarbons[b]	500	30	NV	NA	530 J	470 J	5 U	5 U	5 U
Diesel-range hydrocarbons	2,000	2,000	NV	NA	14,000 J	13,000 J	120	50 U	50 U
Motor-oil-range hydrocarbons	2,000	2,000	NV	NA	7,400 J	7,200 J	250 U	250 U	250 U
Total Metals (mg/kg)									
Arsenic	7.3	20	0.67	7	1.04	1 U	1.68	1 U	3.92
Cadmium	NV	2	80	1	1 U	1 U	1 U	1 U	1 U
Chromium	NV	NV	NV	48	6.78	7.62	6.73	6.79	8.31
Copper	NV	NV	3,200	36	7.34	6.71 J	7.12 J	6.98 J	13.6 J
Lead	24	250	NV	24	2.22	2.22	1 U	1 U	3.7
Manganese	NV	NV	3,700	1,200	41.1	49.7	58.9	43.1 J	35.7
Mercury	NV	2	NV	0.07	1 U	1 U	1 U	1 UJ	1 U
Nickel	NV	NV	1,600	48	5.51	5.95	6.3	6.39	6.05
Selenium	NV	NV	400	NV	1 U	1 U	1 U	1 U	1 U
Zinc	NV	NV	24,000	85	13.9	13.6 J	12.4 J	12.7 J	12 J
PCB Aroclors (mg/kg)									
Aroclor 1016	1	NV	5.6	NA	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Aroclor 1221	1	NV	NV	NA	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Aroclor 1232	1	NV	NV	NA	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Aroclor 1242	1	NV	NV	NA	0.049	0.045	0.02 U	0.02 U	0.02 U
Aroclor 1248	1	NV	NV	NA	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Aroclor 1254	1	NV	0.5	NA	0.03	0.026	0.02 U	0.02 U	0.02 U
Aroclor 1260	1	NV	0.5	NA	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Aroclor 1262	1	NV	NV	NA	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Aroclor 1268	1	NV	NV	NA	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
VOCs (mg/kg)									
1,1,1,2-Tetrachloroethane	NV	NV	38	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,1,1-Trichloroethane	NV	2	160,000	NA	0.05 U	0.05 U	0.002 U	0.002 U	0.002 U
1,1,2,2-Tetrachloroethane	NV	NV	5	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,1,2-Trichloroethane	NV	NV	18	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,1-Dichloroethane	NV	NV	180	NA	0.05 U	0.05 U	0.002 U	0.002 U	0.002 U
1,1-Dichloroethene	NV	NV	4,000	NA	0.05 U	0.05 U	0.002 U	0.002 U	0.002 U
1,1-Dichloropropene	NV	NV	NV	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,2,3-Trichlorobenzene	NV	NV	64	NA	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U

Table
Summary of Soil Analytical Results
Supplemental Subsurface Investigation, Potter Property, Port of Tacoma

Location:	DGWP Screening Level[1]	MTCA Method A, Unrestricted Land Use[2]	MTCA Method B[a][2]	Washington State Background Metals, Puget Sound[3]	TWA-SB06			TWA-SB07	TWA-SB08
Building:					Quonset Hut 2			Shop Building	Shop Building
Sample Name:					TWA-SB06_2.2-2.8_0627	TWA-9-SB06_2.2-2.8_0627	TWA-SB06_8.2-8.8_0627	TWA-SB07_2.4-2.8_0627	TWA-SB08_2.6-3.2_0627
Sample Date:					06/27/2023	06/27/2023	06/27/2023	06/27/2023	06/27/2023
Sample Type:					N	FD	N	N	N
Sample Depth (ft bgs):					2.2-2.8	2.2-2.8	8.2-8.8	2.4-2.8	2.6-3.2
1,2,3-Trichloropropane	NV	NV	0.0063	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,2,4-Trichlorobenzene	NV	NV	34	NA	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2,4-Trimethylbenzene	NV	NV	800	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,2-Dibromo-3-chloropropane	NV	NV	0.23	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromoethane	NV	0.005	0.5	NA	0.05 U	0.05 U	0.005 U	0.005 U	0.005 U
1,2-Dichlorobenzene	NV	NV	7,200	NA	0.3	0.34	0.05 U	0.05 U	0.05 U
1,2-Dichloroethane	NV	NV	11	NA	0.05 U	0.05 U	0.002 U	0.002 U	0.002 U
1,2-Dichloropropane	NV	NV	27	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,3,5-Trimethylbenzene	NV	NV	800	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,3-Dichlorobenzene	NV	NV	NV	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,3-Dichloropropane	NV	NV	1,600	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,4-Dichlorobenzene	NV	NV	190	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
2,2-Dichloropropane	NV	NV	NV	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
2-Butanone	NV	NV	48,000	NA	1 U	1 U	1 U	1 U	1 U
2-Chlorotoluene	NV	NV	1,600	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
2-Hexanone	NV	NV	400	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-Chlorotoluene	NV	NV	1,600	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
4-Isopropyltoluene	NV	NV	NV	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
4-Methyl-2-pentanone	NV	NV	6,400	NA	1 U	1 U	1 U	1 U	1 U
Acetone	NV	NV	72,000	NA	5 U	5 U	5 U	5 U	5 U
Benzene	0.0274	0.03	18	NA	0.03 U	0.03 U	0.021	0.001 U	0.001 U
Bromobenzene	NV	NV	640	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Bromodichloromethane	NV	NV	16	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Bromoform	NV	NV	130	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Bromomethane	NV	NV	110	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon tetrachloride	NV	NV	14	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Chlorobenzene	NV	NV	1,600	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Chloroethane	NV	NV	NV	NA	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U
Chloroform	NV	NV	32	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Chloromethane	NV	NV	NV	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,2-Dichloroethene	NV	NV	160	NA	0.05 U	0.05 U	0.002 U	0.002 U	0.002 U
cis-1,3-Dichloropropene	NV	NV	NV	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dibromochloromethane	NV	NV	12	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dibromomethane	NV	NV	800	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U

Table
Summary of Soil Analytical Results
Supplemental Subsurface Investigation, Potter Property, Port of Tacoma

Location:	DGWP Screening Level[1]	MTCA Method A, Unrestricted Land Use[2]	MTCA Method B[a][2]	Washington State Background Metals, Puget Sound[3]	TWA-SB06			TWA-SB07	TWA-SB08
Building:					Quonset Hut 2			Shop Building	Shop Building
Sample Name:					TWA-SB06_2.2-2.8_0627	TWA-9-SB06_2.2-2.8_0627	TWA-SB06_8.2-8.8_0627	TWA-SB07_2.4-2.8_0627	TWA-SB08_2.6-3.2_0627
Sample Date:					06/27/2023	06/27/2023	06/27/2023	06/27/2023	06/27/2023
Sample Type:					N	FD	N	N	N
Sample Depth (ft bgs):					2.2-2.8	2.2-2.8	8.2-8.8	2.4-2.8	2.6-3.2
Dichlorodifluoromethane (Freon 12)	NV	NV	16,000	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	6.05	6	8,000	NA	0.05 U	0.05 U	0.0028	0.001 U	0.001 U
Hexachlorobutadiene	NV	NV	13	NA	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Isopropylbenzene	NV	NV	8,000	NA	0.72	0.83	0.05 U	0.05 U	0.05 U
m,p-Xylene	13.1	NV	NV	NA	0.1 U	0.1 U	0.0023	0.002 U	0.002 U
Methyl tert-butyl ether	NV	0.1	560	NA	0.05 U	0.05 U	0.002 U	0.002 U	0.002 U
Methylene chloride	NV	0.02	94	NA	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U
Naphthalene	NV	5	1,600	NA	0.05 U	0.05 U	0.015	0.01 U	0.01 U
n-Hexane	NV	NV	4,800	NA	0.98	0.69	0.25 U	0.25 U	0.25 U
n-Propylbenzene	NV	NV	8,000	NA	2	2.2	0.05 U	0.05 U	0.05 U
o-Xylene	13.1	NV	16,000	NA	0.056	0.073	0.001 U	0.001 U	0.001 U
sec-Butylbenzene	NV	NV	8,000	NA	0.84	0.89	0.05 U	0.05 U	0.05 U
Styrene	NV	NV	16,000	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
tert-Butylbenzene	NV	NV	8,000	NA	0.064	0.07	0.05 U	0.05 U	0.05 U
Tetrachloroethene	NV	0.05	480	NA	0.025 U	0.025 U	0.002 U	0.002 U	0.002 U
Toluene	4.52	7	6,400	NA	0.05 U	0.05 U	0.0071	0.005 U	0.005 U
trans-1,2-Dichloroethene	NV	NV	1,600	NA	0.05 U	0.05 U	0.002 U	0.002 U	0.002 U
trans-1,3-Dichloropropene	NV	NV	NV	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Trichloroethene	NV	0.03	12	NA	0.02 U	0.02 U	0.002 U	0.002 U	0.002 U
Trichlorofluoromethane (Freon 11)	NV	NV	24,000	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride	NV	NV	0.67	NA	0.05 U	0.05 U	0.002 U	0.002 U	0.002 U
SVOCs (mg/kg)									
1,2,4-Trichlorobenzene	NV	NV	34	NA	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U
1,2-Dichlorobenzene	NV	NV	7,200	NA	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U
1,3-Dichlorobenzene	NV	NV	NV	NA	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U
1,4-Dichlorobenzene	NV	NV	190	NA	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U
1-Methylnaphthalene	NV	NV	34	NA	53	49	0.86	0.01 U	0.01 U
2,4,5-Trichlorophenol	NV	NV	8,000	NA	2.5 U	2.5 U	0.5 U	0.5 U	0.5 U
2,4,6-Trichlorophenol	NV	NV	80	NA	2.5 U	2.5 U	0.5 U	0.5 U	0.5 U
2,4-Dichlorophenol	NV	NV	240	NA	2.5 U	2.5 U	0.5 U	0.5 U	0.5 U
2,4-Dimethylphenol	NV	NV	1,600	NA	2.5 U	2.5 U	0.5 U	0.5 U	0.5 U
2,4-Dinitrophenol	NV	NV	160	NA	7.5 U	7.5 U	1.5 U	1.5 U	1.5 U
2,4-Dinitrotoluene	NV	NV	3.2	NA	1.2 U	1.2 U	0.25 U	0.25 U	0.25 U
2,6-Dinitrotoluene	NV	NV	0.67	NA	1.2 U	1.2 U	0.25 U	0.25 U	0.25 U

Table
Summary of Soil Analytical Results
Supplemental Subsurface Investigation, Potter Property, Port of Tacoma

Location:	DGWP Screening Level[1]	MTCA Method A, Unrestricted Land Use[2]	MTCA Method B[a][2]	Washington State Background Metals, Puget Sound[3]	TWA-SB06			TWA-SB07	TWA-SB08
Building:					Quonset Hut 2			Shop Building	Shop Building
Sample Name:					TWA-SB06_2.2-2.8_0627	TWA-9-SB06_2.2-2.8_0627	TWA-SB06_8.2-8.8_0627	TWA-SB07_2.4-2.8_0627	TWA-SB08_2.6-3.2_0627
Sample Date:					06/27/2023	06/27/2023	06/27/2023	06/27/2023	06/27/2023
Sample Type:					N	FD	N	N	N
Sample Depth (ft bgs):					2.2-2.8	2.2-2.8	8.2-8.8	2.4-2.8	2.6-3.2
2-Chloronaphthalene	NV	NV	6,400	NA	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U
2-Chlorophenol	NV	NV	400	NA	2.5 U	2.5 U	0.5 U	0.5 U	0.5 U
2-Methylnaphthalene	NV	NV	320	NA	64	60	0.66	0.01 U	0.01 U
2-Methylphenol	NV	NV	4,000	NA	2.5 U	2.5 U	0.5 U	0.5 U	0.5 U
2-Nitroaniline	NV	NV	800	NA	1.2 U	1.2 U	0.25 U	0.25 U	0.25 U
2-Nitrophenol	NV	NV	NV	NA	2.5 U	2.5 U	0.5 U	0.5 U	0.5 U
3- & 4-Methylphenol (m,p-Cresol)	NV	NV	NV	NA	5 U	5 U	1 U	1 U	1 U
3-Nitroaniline	NV	NV	NV	NA	25 U	25 U	5 U	5 U	5 U
4,6-Dinitro-2-methylphenol	NV	NV	6.4	NA	7.5 U	7.5 U	1.5 U	1.5 U	1.5 U
4-Bromophenylphenyl ether	NV	NV	NV	NA	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U
4-Chloro-3-methylphenol	NV	NV	8,000	NA	2.5 U	2.5 U	0.5 U	0.5 U	0.5 U
4-Chloroaniline	NV	NV	5	NA	25 U	25 U	5 U	5 U	5 U
4-Chlorophenylphenyl ether	NV	NV	NV	NA	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U
4-Nitroaniline	NV	NV	50	NA	25 U	25 U	5 U	5 U	5 U
4-Nitrophenol	NV	NV	NV	NA	7.5 U	7.5 U	1.5 U	1.5 U	1.5 U
Acenaphthene	NV	NV	4,800	NA	4.9	3.9	0.16	0.01 U	0.19
Acenaphthylene	NV	NV	NV	NA	0.05 U	0.05 U	0.01 U	0.01 U	0.01 U
Anthracene	NV	NV	24,000	NA	7.6	7.4	0.12	0.021	0.01 U
Benzo(a)anthracene	NV	NV	NV	NA	1.3	1.2	0.024	0.051	0.017
Benzo(a)pyrene	5.14	0.19[c][4]	0.19	NA	0.64	0.63	0.01	0.13	0.016
Benzo(b)fluoranthene	NV	NV	NV	NA	0.45	0.39	0.01 U	0.12	0.018
Benzo(ghi)perylene	NV	NV	NV	NA	0.099	0.086	0.01 U	0.25	0.01 U
Benzo(k)fluoranthene	NV	NV	NV	NA	0.083	0.085	0.01 U	0.054	0.01 U
Benzoic acid	NV	NV	320,000	NA	12 U	12 U	2.5 U	2.5 U	2.5 U
Benzyl alcohol	NV	NV	8,000	NA	2.5 U	2.5 U	0.5 U	0.5 U	0.5 U
Bis(2-chloro-1-methylethyl)ether	NV	NV	14	NA	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U
Bis(2-chloroethoxy)methane	NV	NV	240	NA	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U
Bis(2-chloroethyl)ether	NV	NV	0.91	NA	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U
Bis(2-ethylhexyl)phthalate	NV	NV	71	NA	4 U	4 U	0.8 U	0.8 U	0.8 U
Butylbenzylphthalate	NV	NV	530	NA	2.5 U	2.5 U	0.5 U	0.5 U	0.5 U
Carbazole	NV	NV	NV	NA	0.94	0.52	0.12	0.05 U	0.05 U
Chrysene	NV	NV	NV	NA	1.8	1.8	0.041	0.23	0.017
Dibenzo(a,h)anthracene	NV	NV	NV	NA	0.064	0.05 U	0.01 U	0.047	0.01 U
Dibenzofuran	NV	NV	80	NA	2	1.9	0.13	0.05 U	0.05 U

Table
Summary of Soil Analytical Results
Supplemental Subsurface Investigation, Potter Property, Port of Tacoma

Location:	DGWP Screening Level[1]	MTCA Method A, Unrestricted Land Use[2]	MTCA Method B[a][2]	Washington State Background Metals, Puget Sound[3]	TWA-SB06			TWA-SB07	TWA-SB08
Building:					Quonset Hut 2			Shop Building	Shop Building
Sample Name:					TWA-SB06_2.2-2.8_0627	TWA-9-SB06_2.2-2.8_0627	TWA-SB06_8.2-8.8_0627	TWA-SB07_2.4-2.8_0627	TWA-SB08_2.6-3.2_0627
Sample Date:					06/27/2023	06/27/2023	06/27/2023	06/27/2023	06/27/2023
Sample Type:					N	FD	N	N	N
Sample Depth (ft bgs):					2.2-2.8	2.2-2.8	8.2-8.8	2.4-2.8	2.6-3.2
Diethyl phthalate	NV	NV	64,000	NA	2.5 U	2.5 U	0.5 U	0.5 U	0.5 U
Dimethyl phthalate	NV	NV	NV	NA	2.5 U	2.5 U	0.5 U	0.5 U	0.5 U
Di-n-butyl phthalate	NV	NV	8,000	NA	2.5 U	2.5 U	0.5 U	0.5 U	0.5 U
Di-n-octyl phthalate	NV	NV	800	NA	2.5 U	2.5 U	0.5 U	0.5 U	0.5 U
Fluoranthene	NV	NV	3,200	NA	1.4	1.3	0.059	0.04	0.043
Fluorene	NV	NV	3,200	NA	8.8	8.1	0.21	0.01 U	0.11
Hexachlorobenzene	NV	NV	0.63	NA	0.25 UJ	0.25 UJ	0.05 UJ	0.05 UJ	0.05 UJ
Hexachlorobutadiene	NV	NV	13	NA	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U
Hexachlorocyclopentadiene	NV	NV	480	NA	0.75 U	0.75 U	0.15 U	0.15 U	0.15 U
Hexachloroethane	NV	NV	25	NA	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U
Indeno(1,2,3-cd)pyrene	NV	NV	NV	NA	0.05 U	0.05 U	0.01 U	0.21	0.01
Isophorone	NV	NV	1,100	NA	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U
Naphthalene	NV	5	1,600	NA	0.05 U	0.05 U	0.045	0.01 U	0.01 U
Nitrobenzene	NV	NV	160	NA	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U
N-Nitrosodiphenylamine	NV	NV	200	NA	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U
N-Nitrosodipropylamine	NV	NV	0.14	NA	0.25 U	0.25 U	0.05 U	0.05 U	0.05 U
Pentachlorophenol	NV	NV	2.5	NA	1.2 U	1.2 U	0.25 U	0.25 U	0.25 U
Phenanthrene	NV	NV	NV	NA	18	17	0.26	0.013	0.038
Phenol	NV	NV	24,000	NA	2.5 U	2.5 U	0.5 U	0.5 U	0.5 U
Pyrene	NV	NV	2,400	NA	3.5	3.4	0.072	0.058	0.04

Table
Summary of Soil Analytical Results
Supplemental Subsurface Investigation, Potter Property, Port of Tacoma

Notes

Shading (color key below) indicates values that exceed screening criteria; non-detects (U, UJ) were not compared with screening criteria. Analytical results are preliminarily screened to DGWP screening levels. If a DGWP screening level is unavailable, MTCA Method A followed by MTCA Method B were used.

DGWP Screening Level

MTCA Method B

Washington state background metals values are shown for reference only and are not shaded for exceedances.

DGWP = data gap work plan.

FD = field duplicate sample.

ft bgs = feet below ground surface.

J = result is estimated.

mg/kg = milligrams per kilogram.

MTCA = Model Toxics Control Act.

N = normal environmental sample.

NA = not applicable.

NV = no value.

PCB = polychlorinated biphenyl.

SVOC = semivolatile organic compound.

TPH = total petroleum hydrocarbons.

U = result is non-detect at the method reporting limit.

UJ = result is non-detect with an estimated method reporting limit.

VOC = volatile organic compound.

[a]Lower of cancer and noncancer values are shown.

[b]Screening level for gasoline-range hydrocarbons with benzene present.

[c]MTCA Method A value for benzo(a)pyrene is not applicable. Screening level shown is the MTCA B value.

References

[1]DOF. 2020. *Final Data Gaps Work Plan, Taylor Way and Alexander Avenue Fill Area Site, Tacoma, Washington.* Dalton, Olmsted, & Fuglevand. July 29.

[2]Ecology. 2023. *Cleanup Levels and Risk Calculation (CLARC) table.* Washington State Department of Ecology, Toxics Cleanup Program. January.

[3]Ecology. 1994. *Natural Background Soil Metals Concentrations in Washington State.* Publication 94-115. Washington State Department of Ecology. October.

[4]Ecology. 2021. *Polycyclic Aromatic Hydrocarbons and Benzo(a)pyrene: Changes to MTCA Default Cleanup Levels for 2017.* Washington State Department of Ecology, Toxics Cleanup Program. July.

Attachment A

Photographs

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Photographs

Project Name: Supplemental Subsurface Investigation, Potter Property
Project Number: M0615.20.009
Location: 1801 E Alexander Avenue, Tacoma, WA

Photo No. 1.

Description

Oily sheen at TWA-SB06. Photograph taken during field activities on June 27, 2023.

Photo No. 2.

Description

Oily sheen at TWA-SB06. Photograph taken during field activities on June 27, 2023.

Photographs

Project Name: Supplemental Subsurface Investigation, Potter Property
Project Number: M0615.20.009
Location: 1801 E Alexander Avenue, Tacoma, WA

Photo No. 3.

Description

TWA-SB06 soil core. Photograph taken during field activities on June 27, 2023.

Photo No. 4.

Description

Concrete coring at TWA-SB07. Photograph taken during field activities on June 27, 2023.

Photographs

Project Name: Supplemental Subsurface Investigation, Potter Property
Project Number: M0615.20.009
Location: 1801 E Alexander Avenue, Tacoma, WA

Photo No. 5.

Description

TWA-SB07 sampling location. Photograph taken during field activities on June 27, 2023.

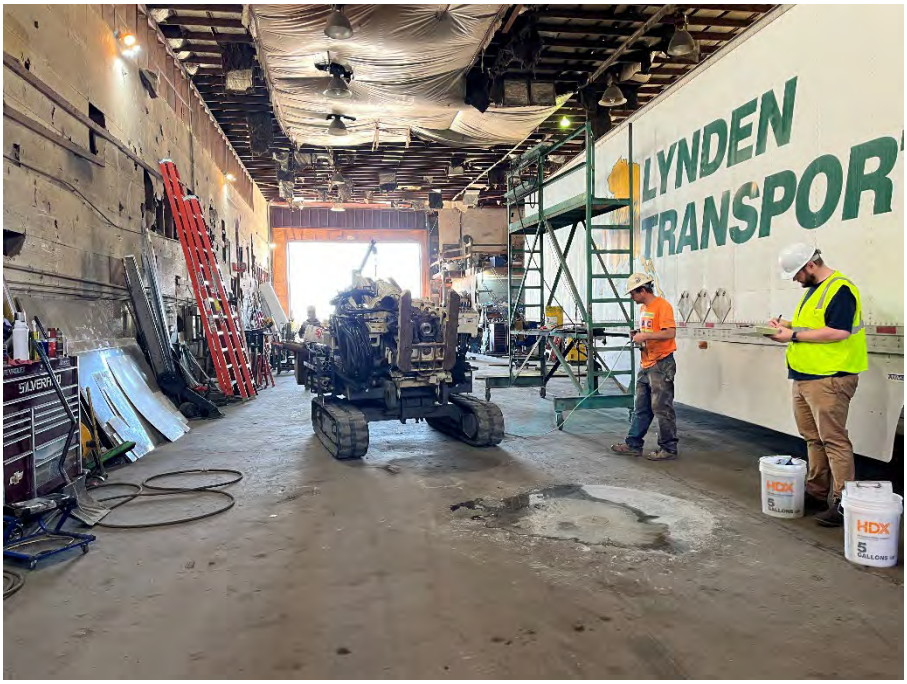

Photo No. 6.

Description

TWA-SB07 shell fragments in soil core. Photograph taken during field activities on June 27, 2023.

Photographs

Project Name: Supplemental Subsurface Investigation, Potter Property
Project Number: M0615.20.009
Location: 1801 E Alexander Avenue, Tacoma, WA

Photo No. 7.

Description

TWA-SB07 soil core. Photograph taken during field activities on June 27, 2023.

Photo No. 8.

Description

TWA-SB08 sampling location. Photograph taken during field activities on June 27, 2023.

Photographs

Project Name: Supplemental Subsurface Investigation, Potter Property
Project Number: M0615.20.009
Location: 1801 E Alexander Avenue, Tacoma, WA

Photo No. 9.

Description

TWA-SB08 shell fragments in soil core. Photograph taken during field activities on June 27, 2023.

Photo No. 10.

Description

TWA-SB08 soil core. Photograph taken during field activities on June 27, 2023.

Attachment B

Boring Logs

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Geologic Borehole Log

MAUL FOSTER ALONG

Project Number	Well Number	Sheet
M0615.20.009	TWA-SB06	1 of 1

Project Name	Potter Property Subsurface Investigation	TOC Elevation (feet)	
Project Location	1801 E Alexander Avenue, Tacoma, WA	Surface Elevation (feet)	
Start/End Date	6/27/2023 to 6/27/2023	Northing	
Driller/Equipment	Anderson Environmental Contracting, LLC/Direct-Push Probe	Easting	
Geologist/Engineer	A. Bixby	Total Depth of Borehole	10.0 feet
Sample Method	Core Barrel	Outer Hole Diam	2.25 inch

Depth (feet, bgs)	Water Levels	Sample Data: Percent Recovery	Sample Data: Sample ID	Sample Data: PID (ppm)	Lithologic Column	Soil Description
						0.0 to 0.5 feet: CONCRETE; gray.
1				11.8		0.5 to 1.3 feet: SILTY GRAVEL WITH SAND (GM); gray; 30% fines, low plasticity; 10% sand, fine to coarse; 60% gravel, fine to coarse, subangular to subrounded; medium dense; slight petroleum hydrocarbon odor; moist.
2				34.9		1.3 to 2.9 feet: SAND WITH SILT (SW-SM); black; 10% fines, low plasticity; 90% sand, fine to coarse; loose; petroleum hydrocarbon odor; moist.
3		58	TWA-SB06_2.2-2.8_0627 TWA-9-SB06_2.2-2.8_0627	73.2		2.9 to 5.0 feet: NO RECOVERY.
4						
5	▽					5.0 to 9.5 feet: SAND WITH SILT (SW-SM); black; 10% fines, low plasticity; 90% sand, fine to coarse; loose; strong petroleum hydrocarbon odor; strong oil sheen; wet.
6				40.1		
7						@ 6.5 feet: Gray silt lamina.
8		90	TWA-SB06_8.2-8.8_0627	4.1		
				0.2		
9				0.3		
10						9.5 to 10.0 feet: NO RECOVERY.

Total Depth = 10.0 feet bgs

NOTES:

1. Depths are relative to feet below ground surface. 2. bgs = below ground surface. 3. ID = identification. 4. PID = photoionization detector. 5. ppm = parts per million.

Borehole Completion Details
0.0 to 10.0 feet bgs: 2.25-inch borehole.

Borehole Abandonment Details
0.0 to 10.0 feet: Borehole backfilled with bentonite.

▽ Water level at approximately 5.0 feet bgs at time of drilling.

MFA BOREHOLE W/WELL W:\GINT\GINTWPROJECTS\0615.20.009\2023.06 POTTER DRILLING.GPJ 7/27/23

Geologic Borehole Log

MAUL FOSTER ALONG

Project Number	Well Number	Sheet
M0615.20.009	TWA-SB07	1 of 1

Project Name	Potter Property Subsurface Investigation	TOC Elevation (feet)	
Project Location	1801 E Alexander Avenue, Tacoma, WA	Surface Elevation (feet)	
Start/End Date	6/27/2023 to 6/27/2023	Northing	
Driller/Equipment	Anderson Environmental Contracting, LLC/Direct-Push Probe	Easting	
Geologist/Engineer	A. Bixby	Total Depth of Borehole	10.0 feet
Sample Method	Core Barrel	Outer Hole Diam	2.25 inch

Depth (feet, bgs)	Water Levels	Sample Data: Percent Recovery	Sample Data: Sample ID	Sample Data: PID (ppm)	Lithologic Column	Soil Description
						0.0 to 0.4 feet: CONCRETE; gray.
				0.0		0.4 to 0.9 feet: SAND WITH SILT (SP-SM); brown; 10% fines, low plasticity; 90% sand, fine to medium; loose; no odor; moist.
1				0.0		0.9 to 1.2 feet: SILTY SANDY GRAVEL (GM); brown; 30% fines, low plasticity; 20% sand, fine to coarse; 50% gravel, fine to medium, subangular to subrounded; medium dense; no odor; moist.
				0.0		1.2 to 2.9 feet: SAND WITH SILT (SW-SM); blackish brown; 10% fines, low plasticity; 90% sand, fine to coarse; loose; no odor; moist.
2						@ 1.3 to 1.5 feet: White shell lamina.
						@ 1.6 to 1.7 feet: Brown silt lamina.
		58	TWA-SB07_2.4-2.8_0627			@ 1.8 to 2.1 feet: White shell lamina.
				0.0		@ 2.1 to 2.2 feet: Brown silt lamina.
3						2.9 to 5.0 feet: NO RECOVERY.
4						
5	▽					5.0 to 9.1 feet: SAND WITH SILT (SW-SM); black; 10% fines, low plasticity; 90% sand, fine to coarse; loose; no odor; wet.
6				0.0		
7						
		88				
8				0.0		
						@ 8.3 feet: Shell fragments.
						@ 8.6 to 8.9 feet: Silt lamina; gray; no odor.
9				0.0		@ 9.0 to 9.1 feet: Silt lamina; gray; no odor.
				0.0		9.1 to 9.4 feet: 100% organic material (rootlets).
						9.4 to 10.0 feet: NO RECOVERY.
10						

Total Depth = 10.0 feet bgs

NOTES:

1. Depths are relative to feet below ground surface. 2. bgs = below ground surface. 3. ID = identification. 4. PID = photoionization detector. 5. ppm = parts per million.

Borehole Completion Details
0.0 to 10.0 feet bgs: 2.25-inch borehole.

Borehole Abandonment Details
0.0 to 10.0 feet: Borehole backfilled with bentonite.

▽ Water level at approximately 5.0 feet bgs at time of drilling.

MFA BOREHOLE W/WELL W:\GINT\GINTWPROJECTS\0615.20.009\2023.06 POTTER DRILLING.GPJ 7/27/23

Geologic Borehole Log

MAUL FOSTER ALONG

Project Number	Well Number	Sheet
M0615.20.009	TWA-SB08	1 of 1

Project Name	Potter Property Subsurface Investigation	TOC Elevation (feet)	
Project Location	1801 E Alexander Avenue, Tacoma, WA	Surface Elevation (feet)	
Start/End Date	6/27/2023 to 6/27/2023	Northing	
Driller/Equipment	Anderson Environmental Contracting, LLC/Direct-Push Probe	Easting	
Geologist/Engineer	A. Bixby	Total Depth of Borehole	10.0 feet
Sample Method	Core Barrel	Outer Hole Diam	2.25 inch

Depth (feet, bgs)	Water Levels	Sample Data: Percent Recovery	Sample Data: Sample ID	Sample Data: PID (ppm)	Lithologic Column	Soil Description
0						0.0 to 0.4 feet: CONCRETE; gray.
1				0.0		0.4 to 1.0 feet: SAND WITH SILT (SP-SM); brown; 10% fines, low plasticity; 90% sand, fine to medium; loose; no odor; moist.
				0.0		1.0 to 1.6 feet: SILTY GRAVEL WITH SAND (GM); grayish brown; 30% fines, low plasticity; 10% sand, fine to coarse; 60% gravel, fine to coarse, subangular to subrounded; dense; no odor; moist.
2				0.0		1.6 to 3.2 feet: SAND WITH SILT (SW-SM); blackish brown; 10% fines, low plasticity; 90% sand, fine to coarse; loose; trace red speckles and white shell fragments; no odor; moist.
		64	TWA-SB08_2.6-3.2_0627			
3				0.0		@ 2.7 feet: Sand grades to fine to medium; fines increase to 15%.
4						2.3 to 5.0 feet: NO RECOVERY.
5	▽					
6				0.0		5.0 to 9.3 feet: SAND WITH SILT (SW-SM); blackish brown; 10% fines, low plasticity; 90% sand, fine to coarse; loose; trace red speckles and white shell fragments; no odor; moist.
7		86				
8				0.0		@ 8.4 to 8.5 feet: Gray silt lamina.
9				0.0		@ 8.9 to 9.0 feet: Gray silt lamina.
10						9.3 to 10.0 feet: NO RECOVERY.

Total Depth = 10.0 feet bgs

NOTES:

1. Depths are relative to feet below ground surface. 2. bgs = below ground surface. 3. ID = identification. 4. PID = photoionization detector. 5. ppm = parts per million.

Borehole Completion Details
0.0 to 10.0 feet bgs: 2.25-inch borehole.

Borehole Abandonment Details
0.0 to 10.0 feet: Borehole backfilled with bentonite.

▽ Water level at approximately 5.0 feet bgs at time of drilling.

MFA BOREHOLE W/WELL W:\GINT\GINTWPROJECTS\0615.20.009\2023.06 POTTER DRILLING.GPJ 7/27/23

Attachment C

Analytical Laboratory Report

MAUL
FOSTER
ALONGI

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.

5500 4th Avenue South
Seattle, WA 98108
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

July 21, 2023

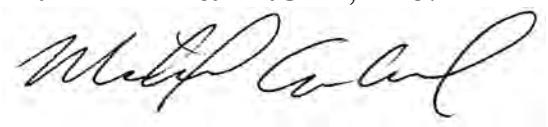
Audrey Hackett, Project Manager
Maul Foster Alongi
2815 2nd Ave, Suite 540
Seattle, WA 98121

Dear Ms Hackett:

Included are the amended results from the testing of material submitted on June 28, 2023 from the Potter Subsurface M0615.20.009, F&BI 306441 project. The 6020B copper and zinc results were amended and 1-methylnaphthalene and 2-methylnaphthalene overrange results were removed.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
c: Amanda Bixby, Fiona Bellows
MFA0707R.DOC

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.

5500 4th Avenue South
Seattle, WA 98108
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

July 7, 2023

Audrey Hackett, Project Manager
Maul Foster Alongi
2815 2nd Ave, Suite 540
Seattle, WA 98121

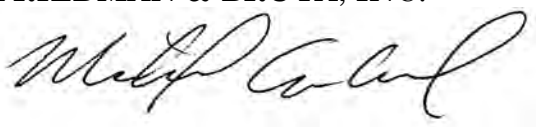
Dear Ms Hackett:

Included are the results from the testing of material submitted on June 28, 2023 from the Potter Subsurface M0615.20.009, F&BI 306441 project. There are 47 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: Amanda Bixby
MFA0707R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on June 28, 2023 by Friedman & Bruya, Inc. from the Maul Foster Alongi Potter Subsurface M0615.20.009, F&BI 306441 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Maul Foster Alongi
306441 -01	TWA-SB07_2.4-2.8_0627
306441 -02	TWA-SB07_5.8-6.2_0627
306441 -03	TWA-SB08_2.6-3.2_0627
306441 -04	TWA-SB08_5.7-6.3_0627
306441 -05	TWA-SB06_2.2-2.8_0627
306441 -06	TWA-9-SB06_2.2-2.8_0627
306441 -07	TWA-SB06_8.2-8.8_0627
306441 -08	Trip Blank 1-0627

The 6020B matrix spike and matrix spike duplicate failed the relative percent difference for mercury and selenium. The metals were not detected therefore the data were acceptable.

The 8260D bromomethane and acetone and 8270E benzyl butyl phthalate calibration standards exceeded the acceptance criteria. The compounds were not detected, therefore this did not represent an out of control condition.

The 8270E hexachlorobenzene calibration standard failed the acceptance criteria. The data were flagged accordingly.

The 8270E matrix spike and matrix spike sample duplicate failed the relative percent difference for 2-nitroaniline. The analyte was not detected therefore the data were acceptable.

The 6020B internal standards associated with copper and zinc were outside of control limits for several samples. The data were qualified accordingly.

All other quality control requirements were acceptable.

Date of Report: 07/07/23
Date Received: 06/28/23
Project: Potter Subsurface M0615.20.009, F&BI 306441
Date Extracted: NA
Date Analyzed: 06/29/23

RESULTS FROM THE ANALYSIS OF THE SOIL SAMPLES FOR PERCENT MOISTURE USING ASTM D2216-98

Sample ID Laboratory ID	% Moisture
TWA-SB07_2.4-2.8_0627 306441-01	15
TWA-SB08_2.6-3.2_0627 306441-03	20
TWA-SB06_2.2-2.8_0627 306441-05	12
TWA-9-SB06_2.2-2.8_0627 306441-06	12
TWA-SB06_8.2-8.8_0627 306441-07	23

Date of Report: 07/21/23
Date Received: 06/28/23
Project: Potter Subsurface M0615.20.009, F&BI 306441
Date Extracted: 06/29/23
Date Analyzed: 06/29/23

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
TWA-SB07_2.4-2.8_0627 306441-01	<5	137
TWA-SB08_2.6-3.2_0627 306441-03	<5	134
TWA-SB06_2.2-2.8_0627 306441-05 1/5	530	ip
TWA-9-SB06_2.2-2.8_0627 306441-06 1/5	470	ip
TWA-SB06_8.2-8.8_0627 306441-07	<5	139
Method Blank 03-1406 MB	<5	138

Date of Report: 07/21/23
Date Received: 06/28/23
Project: Potter Subsurface M0615.20.009, F&BI 306441
Date Extracted: 06/29/23
Date Analyzed: 06/29/23

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 50-150)
TWA-SB07_2.4-2.8_0627 306441-01	<50	<250	131
TWA-SB08_2.6-3.2_0627 306441-03	<50	<250	129
TWA-SB06_2.2-2.8_0627 306441-05	14,000	7,400	ip
TWA-9-SB06_2.2-2.8_0627 306441-06	13,000	7,200	ip
TWA-SB06_8.2-8.8_0627 306441-07	120	<250	130
Method Blank 03-1567 MB2	<50	<250	135

Analysis For Total Metals By EPA Method 6020B

Client ID:	TWA-SB07_2.4-2.8_0627	Client:	Maul Foster Alongi
Date Received:	06/28/23	Project:	Potter Subsurface M0615.20.009
Date Extracted:	06/28/23	Lab ID:	306441-01
Date Analyzed:	06/29/23	Data File:	306441-01.044
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Copper	6.98 J
Lead	<1
Mercury	<1
Selenium	<1
Zinc	12.7 J

Analysis For Total Metals By EPA Method 6020B

Client ID:	TWA-SB07_2.4-2.8_0627	Client:	Maul Foster Alongi
Date Received:	06/28/23	Project:	Potter Subsurface M0615.20.009
Date Extracted:	06/28/23	Lab ID:	306441-01 x5
Date Analyzed:	06/29/23	Data File:	306441-01 x5.047
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Chromium	6.79
Manganese	43.1
Nickel	6.39

Analysis For Total Metals By EPA Method 6020B

Client ID:	TWA-SB08_2.6-3.2_0627	Client:	Maul Foster Alongi
Date Received:	06/28/23	Project:	Potter Subsurface M0615.20.009
Date Extracted:	06/28/23	Lab ID:	306441-03
Date Analyzed:	06/29/23	Data File:	306441-03.050
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.92
Cadmium	<1
Copper	13.6 J
Lead	3.70
Mercury	<1
Selenium	<1
Zinc	12.0 J

Analysis For Total Metals By EPA Method 6020B

Client ID:	TWA-SB08_2.6-3.2_0627	Client:	Maul Foster Alongi
Date Received:	06/28/23	Project:	Potter Subsurface M0615.20.009
Date Extracted:	06/28/23	Lab ID:	306441-03 x5
Date Analyzed:	06/30/23	Data File:	306441-03 x5.128
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Chromium	8.31
Manganese	35.7
Nickel	6.05

Analysis For Total Metals By EPA Method 6020B

Client ID:	TWA-SB06_2.2-2.8_0627	Client:	Maul Foster Alongi
Date Received:	06/28/23	Project:	Potter Subsurface M0615.20.009
Date Extracted:	06/28/23	Lab ID:	306441-05
Date Analyzed:	06/29/23	Data File:	306441-05.051
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.04
Cadmium	<1
Chromium	6.78
Copper	7.34
Lead	2.22
Manganese	41.1
Mercury	<1
Nickel	5.51
Selenium	<1
Zinc	13.9

Analysis For Total Metals By EPA Method 6020B

Client ID:	TWA-9-SB06_2.2-2.8_0627	Client:	Maul Foster Alongi
Date Received:	06/28/23	Project:	Potter Subsurface M0615.20.009
Date Extracted:	06/28/23	Lab ID:	306441-06
Date Analyzed:	06/29/23	Data File:	306441-06.056
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Copper	6.71 J
Lead	2.22
Mercury	<1
Selenium	<1
Zinc	13.6 J

Analysis For Total Metals By EPA Method 6020B

Client ID:	TWA-9-SB06_2.2-2.8_0627	Client:	Maul Foster Alongi
Date Received:	06/28/23	Project:	Potter Subsurface M0615.20.009
Date Extracted:	06/28/23	Lab ID:	306441-06 x5
Date Analyzed:	06/30/23	Data File:	306441-06 x5.129
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Chromium	7.62
Manganese	49.7
Nickel	5.95

Analysis For Total Metals By EPA Method 6020B

Client ID:	TWA-SB06_8.2-8.8_0627	Client:	Maul Foster Alongi
Date Received:	06/28/23	Project:	Potter Subsurface M0615.20.009
Date Extracted:	06/28/23	Lab ID:	306441-07
Date Analyzed:	06/29/23	Data File:	306441-07.057
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.68
Cadmium	<1
Copper	7.12 J
Lead	<1
Mercury	<1
Selenium	<1
Zinc	12.4 J

Analysis For Total Metals By EPA Method 6020B

Client ID:	TWA-SB06_8.2-8.8_0627	Client:	Maul Foster Alongi
Date Received:	06/28/23	Project:	Potter Subsurface M0615.20.009
Date Extracted:	06/28/23	Lab ID:	306441-07 x5
Date Analyzed:	06/30/23	Data File:	306441-07 x5.136
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Chromium	6.73
Manganese	58.9
Nickel	6.30

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Maul Foster Alongi
Date Received:	NA	Project:	Potter Subsurface M0615.20.009
Date Extracted:	06/28/23	Lab ID:	I3-519 mb
Date Analyzed:	06/29/23	Data File:	I3-519 mb.042
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	<1
Copper	<5
Lead	<1
Manganese	<1
Mercury	<1
Nickel	<1
Selenium	<1
Zinc	<5

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

Client Sample ID:	TWA-SB07_2.4-2.8_0627	Client:	Maul Foster Alongi
Date Received:	06/28/23	Project:	Potter Subsurface M0615.20.009
Date Extracted:	07/03/23	Lab ID:	306441-01 1/0.5
Date Analyzed:	07/03/23	Data File:	070313.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	84	120
Toluene-d8	103	73	128
4-Bromofluorobenzene	98	57	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.002
Vinyl chloride	<0.002	Dibromochloromethane	<0.05
Bromomethane	<0.5 k	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5 k	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.002	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.002	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.002	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	<0.002	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.005	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.01
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

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

Client Sample ID:	TWA-SB08_2.6-3.2_0627	Client:	Maul Foster Alongi
Date Received:	06/28/23	Project:	Potter Subsurface M0615.20.009
Date Extracted:	07/03/23	Lab ID:	306441-03 1/0.5
Date Analyzed:	07/03/23	Data File:	070314.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	84	120
Toluene-d8	103	73	128
4-Bromofluorobenzene	100	57	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.002
Vinyl chloride	<0.002	Dibromochloromethane	<0.05
Bromomethane	<0.5 k	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5 k	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.002	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.002	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.002	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	<0.002	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.005	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.01
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	TWA-SB06_2.2-2.8_0627	Client:	Maul Foster Alongi
Date Received:	06/28/23	Project:	Potter Subsurface M0615.20.009
Date Extracted:	07/03/23	Lab ID:	306441-05
Date Analyzed:	07/03/23	Data File:	070316.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	84	120
Toluene-d8	108	73	128
4-Bromofluorobenzene	105	57	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5 k	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5 k	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	0.98	o-Xylene	0.056
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	0.72
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	2.0
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	0.064
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	0.84
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	0.30
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	TWA-9-SB06_2.2-2.8_0627	Client:	Maul Foster Alongi
Date Received:	06/28/23	Project:	Potter Subsurface M0615.20.009
Date Extracted:	07/03/23	Lab ID:	306441-06
Date Analyzed:	07/03/23	Data File:	070317.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	84	120
Toluene-d8	107	73	128
4-Bromofluorobenzene	105	57	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5 k	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5 k	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	0.69	o-Xylene	0.073
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	0.83
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	2.2
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	0.070
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	0.89
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	0.34
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

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

Client Sample ID:	TWA-SB06_8.2-8.8_0627	Client:	Maul Foster Alongi
Date Received:	06/28/23	Project:	Potter Subsurface M0615.20.009
Date Extracted:	07/03/23	Lab ID:	306441-07 1/0.5
Date Analyzed:	07/05/23	Data File:	070509.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	84	120
Toluene-d8	103	73	128
4-Bromofluorobenzene	98	57	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.002
Vinyl chloride	<0.002	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	0.0028
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.002	m,p-Xylene	0.0023
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.002	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.002	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	0.021	sec-Butylbenzene	<0.05
Trichloroethene	<0.002	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	0.0071	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	0.015
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

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

Client Sample ID:	Method Blank	Client:	Maul Foster Alongi
Date Received:	Not Applicable	Project:	Potter Subsurface M0615.20.009
Date Extracted:	07/03/23	Lab ID:	03-1525 mb 1/0.5
Date Analyzed:	07/03/23	Data File:	070309.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	84	120
Toluene-d8	102	73	128
4-Bromofluorobenzene	98	57	146

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.002
Vinyl chloride	<0.002	Dibromochloromethane	<0.05
Bromomethane	<0.5 k	1,2-Dibromoethane (EDB)	<0.005
Chloroethane	<0.1	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.001
Acetone	<5 k	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.002	m,p-Xylene	<0.002
Hexane	<0.25	o-Xylene	<0.001
Methylene chloride	<0.2	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.002	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.002	Bromoform	<0.05
1,1-Dichloroethane	<0.002	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.002	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.002	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.002	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.001	sec-Butylbenzene	<0.05
Trichloroethene	<0.002	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.005	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.01
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Trip Blank 1-0627	Client:	Maul Foster Alongi
Date Received:	06/28/23	Project:	Potter Subsurface M0615.20.009
Date Extracted:	06/30/23	Lab ID:	306441-08
Date Analyzed:	06/30/23	Data File:	063011.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	71	132
Toluene-d8	100	68	139
4-Bromofluorobenzene	102	62	136

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5 k	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50 k	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	Maul Foster Alongi
Date Received:	Not Applicable	Project:	Potter Subsurface M0615.20.009
Date Extracted:	06/30/23	Lab ID:	03-1523 mb
Date Analyzed:	06/30/23	Data File:	063007.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	71	132
Toluene-d8	92	68	139
4-Bromofluorobenzene	101	62	136

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5 k	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50 k	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	TWA-SB07_2.4-2.8_0627	Client:	Maul Foster Alongi
Date Received:	06/28/23	Project:	Potter Subsurface M0615.20.009
Date Extracted:	06/29/23	Lab ID:	306441-01 1/5
Date Analyzed:	06/30/23	Data File:	062937.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	82	22	119
Phenol-d6	89	38	124
Nitrobenzene-d5	74	10	198
2-Fluorobiphenyl	84	45	117
2,4,6-Tribromophenol	72	11	158
Terphenyl-d14	103	50	124

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.5	2,6-Dinitrotoluene	<0.25
Bis(2-chloroethyl) ether	<0.05	3-Nitroaniline	<5
2-Chlorophenol	<0.5	Acenaphthene	<0.01
1,3-Dichlorobenzene	<0.05	2,4-Dinitrophenol	<1.5
1,4-Dichlorobenzene	<0.05	Dibenzofuran	<0.05
1,2-Dichlorobenzene	<0.05	2,4-Dinitrotoluene	<0.25
Benzyl alcohol	<0.5	4-Nitrophenol	<1.5
2,2'-Oxybis(1-chloropropane)	<0.05	Diethyl phthalate	<0.5
2-Methylphenol	<0.5	Fluorene	<0.01
Hexachloroethane	<0.05	4-Chlorophenyl phenyl ether	<0.05
N-Nitroso-di-n-propylamine	<0.05	N-Nitrosodiphenylamine	<0.05
3-Methylphenol + 4-Methylphenol	<1	4-Nitroaniline	<5
Nitrobenzene	<0.05	4,6-Dinitro-2-methylphenol	<1.5
Isophorone	<0.05	4-Bromophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	Hexachlorobenzene	<0.05 ca
2,4-Dimethylphenol	<0.5	Pentachlorophenol	<0.25
Benzoic acid	<2.5	Phenanthrene	0.013
Bis(2-chloroethoxy)methane	<0.05	Anthracene	0.021
2,4-Dichlorophenol	<0.5	Carbazole	<0.05
1,2,4-Trichlorobenzene	<0.05	Di-n-butyl phthalate	<0.5
Naphthalene	<0.01	Fluoranthene	0.040
Hexachlorobutadiene	<0.05	Pyrene	0.058
4-Chloroaniline	<5	Benzyl butyl phthalate	<0.5 k
4-Chloro-3-methylphenol	<0.5	Benz(a)anthracene	0.051
2-Methylnaphthalene	<0.01	Chrysene	0.23
1-Methylnaphthalene	<0.01	Bis(2-ethylhexyl) phthalate	<0.8
Hexachlorocyclopentadiene	<0.15	Di-n-octyl phthalate	<0.5
2,4,6-Trichlorophenol	<0.5	Benzo(a)pyrene	0.13
2,4,5-Trichlorophenol	<0.5	Benzo(b)fluoranthene	0.12
2-Chloronaphthalene	<0.05	Benzo(k)fluoranthene	0.054
2-Nitroaniline	<0.25	Indeno(1,2,3-cd)pyrene	0.21
Dimethyl phthalate	<0.5	Dibenz(a,h)anthracene	0.047
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	0.25

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	TWA-SB08_2.6-3.2_0627	Client:	Maul Foster Alongi
Date Received:	06/28/23	Project:	Potter Subsurface M0615.20.009
Date Extracted:	06/29/23	Lab ID:	306441-03 1/5
Date Analyzed:	06/30/23	Data File:	062938.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	89	22	119
Phenol-d6	94	38	124
Nitrobenzene-d5	89	10	198
2-Fluorobiphenyl	86	45	117
2,4,6-Tribromophenol	78	11	158
Terphenyl-d14	104	50	124

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.5	2,6-Dinitrotoluene	<0.25
Bis(2-chloroethyl) ether	<0.05	3-Nitroaniline	<5
2-Chlorophenol	<0.5	Acenaphthene	0.19
1,3-Dichlorobenzene	<0.05	2,4-Dinitrophenol	<1.5
1,4-Dichlorobenzene	<0.05	Dibenzofuran	<0.05
1,2-Dichlorobenzene	<0.05	2,4-Dinitrotoluene	<0.25
Benzyl alcohol	<0.5	4-Nitrophenol	<1.5
2,2'-Oxybis(1-chloropropane)	<0.05	Diethyl phthalate	<0.5
2-Methylphenol	<0.5	Fluorene	0.11
Hexachloroethane	<0.05	4-Chlorophenyl phenyl ether	<0.05
N-Nitroso-di-n-propylamine	<0.05	N-Nitrosodiphenylamine	<0.05
3-Methylphenol + 4-Methylphenol	<1	4-Nitroaniline	<5
Nitrobenzene	<0.05	4,6-Dinitro-2-methylphenol	<1.5
Isophorone	<0.05	4-Bromophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	Hexachlorobenzene	<0.05 ca
2,4-Dimethylphenol	<0.5	Pentachlorophenol	<0.25
Benzoic acid	<2.5	Phenanthrene	0.038
Bis(2-chloroethoxy)methane	<0.05	Anthracene	<0.01
2,4-Dichlorophenol	<0.5	Carbazole	<0.05
1,2,4-Trichlorobenzene	<0.05	Di-n-butyl phthalate	<0.5
Naphthalene	<0.01	Fluoranthene	0.043
Hexachlorobutadiene	<0.05	Pyrene	0.040
4-Chloroaniline	<5	Benzyl butyl phthalate	<0.5 k
4-Chloro-3-methylphenol	<0.5	Benz(a)anthracene	0.017
2-Methylnaphthalene	<0.01	Chrysene	0.017
1-Methylnaphthalene	<0.01	Bis(2-ethylhexyl) phthalate	<0.8
Hexachlorocyclopentadiene	<0.15	Di-n-octyl phthalate	<0.5
2,4,6-Trichlorophenol	<0.5	Benzo(a)pyrene	0.016
2,4,5-Trichlorophenol	<0.5	Benzo(b)fluoranthene	0.018
2-Chloronaphthalene	<0.05	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.25	Indeno(1,2,3-cd)pyrene	0.010
Dimethyl phthalate	<0.5	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	TWA-SB06_2.2-2.8_0627	Client:	Maul Foster Alongi
Date Received:	06/28/23	Project:	Potter Subsurface M0615.20.009
Date Extracted:	06/29/23	Lab ID:	306441-05 1/25
Date Analyzed:	06/30/23	Data File:	062941.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	84 d	22	119
Phenol-d6	92 d	38	124
Nitrobenzene-d5	135 d	10	198
2-Fluorobiphenyl	91 d	45	117
2,4,6-Tribromophenol	90 d	11	158
Terphenyl-d14	110 d	50	124

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<2.5	2,6-Dinitrotoluene	<1.2
Bis(2-chloroethyl) ether	<0.25	3-Nitroaniline	<25
2-Chlorophenol	<2.5	Acenaphthene	4.9
1,3-Dichlorobenzene	<0.25	2,4-Dinitrophenol	<7.5
1,4-Dichlorobenzene	<0.25	Dibenzofuran	2.0
1,2-Dichlorobenzene	<0.25	2,4-Dinitrotoluene	<1.2
Benzyl alcohol	<2.5	4-Nitrophenol	<7.5
2,2'-Oxybis(1-chloropropane)	<0.25	Diethyl phthalate	<2.5
2-Methylphenol	<2.5	Fluorene	8.8
Hexachloroethane	<0.25	4-Chlorophenyl phenyl ether	<0.25
N-Nitroso-di-n-propylamine	<0.25	N-Nitrosodiphenylamine	<0.25
3-Methylphenol + 4-Methylphenol	<5	4-Nitroaniline	<25
Nitrobenzene	<0.25	4,6-Dinitro-2-methylphenol	<7.5
Isophorone	<0.25	4-Bromophenyl phenyl ether	<0.25
2-Nitrophenol	<2.5	Hexachlorobenzene	<0.25 ca
2,4-Dimethylphenol	<2.5	Pentachlorophenol	<1.2
Benzoic acid	<12	Phenanthrene	18
Bis(2-chloroethoxy)methane	<0.25	Anthracene	7.6
2,4-Dichlorophenol	<2.5	Carbazole	0.94
1,2,4-Trichlorobenzene	<0.25	Di-n-butyl phthalate	<2.5
Naphthalene	<0.05	Fluoranthene	1.4
Hexachlorobutadiene	<0.25	Pyrene	3.5
4-Chloroaniline	<25	Benzyl butyl phthalate	<2.5 k
4-Chloro-3-methylphenol	<2.5	Benz(a)anthracene	1.3
Hexachlorocyclopentadiene	<0.75	Di-n-octyl phthalate	<2.5
2,4,6-Trichlorophenol	<2.5	Benzo(a)pyrene	0.64
2,4,5-Trichlorophenol	<2.5	Benzo(b)fluoranthene	0.45
2-Chloronaphthalene	<0.25	Benzo(k)fluoranthene	0.083
2-Nitroaniline	<1.2	Indeno(1,2,3-cd)pyrene	<0.05
Dimethyl phthalate	<2.5	Dibenz(a,h)anthracene	0.064
Acenaphthylene	<0.05	Benzo(g,h,i)perylene	0.099
Chrysene	1.8	Bis(2-ethylhexyl) phthalate	<4

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	TWA-SB06_2.2-2.8_0627	Client:	Maul Foster Alongi
Date Received:	06/28/23	Project:	Potter Subsurface M0615.20.009
Date Extracted:	06/29/23	Lab ID:	306441-05 1/250
Date Analyzed:	07/03/23	Data File:	070312.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	67 d	22	119
Phenol-d6	94 d	38	124
Nitrobenzene-d5	165 d	10	198
2-Fluorobiphenyl	90 d	45	117
2,4,6-Tribromophenol	197 d	11	158
Terphenyl-d14	110 d	50	124

Compounds:	Concentration mg/kg (ppm)
2-Methylnaphthalene	64
1-Methylnaphthalene	53

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	TWA-9-SB06_2.2-2.8_0627	Client:	Maul Foster Alongi
Date Received:	06/28/23	Project:	Potter Subsurface M0615.20.009
Date Extracted:	06/29/23	Lab ID:	306441-06 1/25
Date Analyzed:	06/30/23	Data File:	062942.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	90 d	22	119
Phenol-d6	101 d	38	124
Nitrobenzene-d5	137 d	10	198
2-Fluorobiphenyl	95 d	45	117
2,4,6-Tribromophenol	99 d	11	158
Terphenyl-d14	121 d	50	124

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<2.5	2,6-Dinitrotoluene	<1.2
Bis(2-chloroethyl) ether	<0.25	3-Nitroaniline	<25
2-Chlorophenol	<2.5	Acenaphthene	3.9
1,3-Dichlorobenzene	<0.25	2,4-Dinitrophenol	<7.5
1,4-Dichlorobenzene	<0.25	Dibenzofuran	1.9
1,2-Dichlorobenzene	<0.25	2,4-Dinitrotoluene	<1.2
Benzyl alcohol	<2.5	4-Nitrophenol	<7.5
2,2'-Oxybis(1-chloropropane)	<0.25	Diethyl phthalate	<2.5
2-Methylphenol	<2.5	Fluorene	8.1
Hexachloroethane	<0.25	4-Chlorophenyl phenyl ether	<0.25
N-Nitroso-di-n-propylamine	<0.25	N-Nitrosodiphenylamine	<0.25
3-Methylphenol + 4-Methylphenol	<5	4-Nitroaniline	<25
Nitrobenzene	<0.25	4,6-Dinitro-2-methylphenol	<7.5
Isophorone	<0.25	4-Bromophenyl phenyl ether	<0.25
2-Nitrophenol	<2.5	Hexachlorobenzene	<0.25 ca
2,4-Dimethylphenol	<2.5	Pentachlorophenol	<1.2
Benzoic acid	<12	Phenanthrene	17
Bis(2-chloroethoxy)methane	<0.25	Anthracene	7.4
2,4-Dichlorophenol	<2.5	Carbazole	0.52
1,2,4-Trichlorobenzene	<0.25	Di-n-butyl phthalate	<2.5
Naphthalene	<0.05	Fluoranthene	1.3
Hexachlorobutadiene	<0.25	Pyrene	3.4
4-Chloroaniline	<25	Benzyl butyl phthalate	<2.5 k
4-Chloro-3-methylphenol	<2.5	Benz(a)anthracene	1.2
Hexachlorocyclopentadiene	<0.75	Di-n-octyl phthalate	<2.5
2,4,6-Trichlorophenol	<2.5	Benzo(a)pyrene	0.63
2,4,5-Trichlorophenol	<2.5	Benzo(b)fluoranthene	0.39
2-Chloronaphthalene	<0.25	Benzo(k)fluoranthene	0.085
2-Nitroaniline	<1.2	Indeno(1,2,3-cd)pyrene	<0.05
Dimethyl phthalate	<2.5	Dibenz(a,h)anthracene	<0.05
Acenaphthylene	<0.05	Benzo(g,h,i)perylene	0.086
Chrysene	1.8	Bis(2-ethylhexyl) phthalate	<4

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	TWA-9-SB06_2.2-2.8_0627	Client:	Maul Foster Alongi
Date Received:	06/28/23	Project:	Potter Subsurface M0615.20.009
Date Extracted:	06/29/23	Lab ID:	306441-06 1/250
Date Analyzed:	07/03/23	Data File:	070313.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	84 d	22	119
Phenol-d6	87 d	38	124
Nitrobenzene-d5	165 d	10	198
2-Fluorobiphenyl	90 d	45	117
2,4,6-Tribromophenol	204 d	11	158
Terphenyl-d14	120 d	50	124

Compounds:	Concentration mg/kg (ppm)
2-Methylnaphthalene	60
1-Methylnaphthalene	49

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	TWA-SB06_8.2-8.8_0627	Client:	Maul Foster Alongi
Date Received:	06/28/23	Project:	Potter Subsurface M0615.20.009
Date Extracted:	06/29/23	Lab ID:	306441-07 1/5
Date Analyzed:	06/30/23	Data File:	062939.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	81	22	119
Phenol-d6	89	38	124
Nitrobenzene-d5	77	10	198
2-Fluorobiphenyl	78	45	117
2,4,6-Tribromophenol	84	11	158
Terphenyl-d14	99	50	124

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.5	2,6-Dinitrotoluene	<0.25
Bis(2-chloroethyl) ether	<0.05	3-Nitroaniline	<5
2-Chlorophenol	<0.5	Acenaphthene	0.16
1,3-Dichlorobenzene	<0.05	2,4-Dinitrophenol	<1.5
1,4-Dichlorobenzene	<0.05	Dibenzofuran	0.13
1,2-Dichlorobenzene	<0.05	2,4-Dinitrotoluene	<0.25
Benzyl alcohol	<0.5	4-Nitrophenol	<1.5
2,2'-Oxybis(1-chloropropane)	<0.05	Diethyl phthalate	<0.5
2-Methylphenol	<0.5	Fluorene	0.21
Hexachloroethane	<0.05	4-Chlorophenyl phenyl ether	<0.05
N-Nitroso-di-n-propylamine	<0.05	N-Nitrosodiphenylamine	<0.05
3-Methylphenol + 4-Methylphenol	<1	4-Nitroaniline	<5
Nitrobenzene	<0.05	4,6-Dinitro-2-methylphenol	<1.5
Isophorone	<0.05	4-Bromophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	Hexachlorobenzene	<0.05 ca
2,4-Dimethylphenol	<0.5	Pentachlorophenol	<0.25
Benzoic acid	<2.5	Phenanthrene	0.26
Bis(2-chloroethoxy)methane	<0.05	Anthracene	0.12
2,4-Dichlorophenol	<0.5	Carbazole	0.12
1,2,4-Trichlorobenzene	<0.05	Di-n-butyl phthalate	<0.5
Naphthalene	0.045	Fluoranthene	0.059
Hexachlorobutadiene	<0.05	Pyrene	0.072
4-Chloroaniline	<5	Benzyl butyl phthalate	<0.5 k
4-Chloro-3-methylphenol	<0.5	Benz(a)anthracene	0.024
2-Methylnaphthalene	0.66	Chrysene	0.041
1-Methylnaphthalene	0.86	Bis(2-ethylhexyl) phthalate	<0.8
Hexachlorocyclopentadiene	<0.15	Di-n-octyl phthalate	<0.5
2,4,6-Trichlorophenol	<0.5	Benzo(a)pyrene	0.010
2,4,5-Trichlorophenol	<0.5	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.05	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.25	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<0.5	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank	Client:	Maul Foster Alongi
Date Received:	Not Applicable	Project:	Potter Subsurface M0615.20.009
Date Extracted:	06/29/23	Lab ID:	03-1568 mb 1/5
Date Analyzed:	06/29/23	Data File:	062934.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	82	22	119
Phenol-d6	89	38	124
Nitrobenzene-d5	75	10	198
2-Fluorobiphenyl	86	45	117
2,4,6-Tribromophenol	72	11	158
Terphenyl-d14	111	50	124

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.5	2,6-Dinitrotoluene	<0.25
Bis(2-chloroethyl) ether	<0.05	3-Nitroaniline	<5
2-Chlorophenol	<0.5	Acenaphthene	<0.01
1,3-Dichlorobenzene	<0.05	2,4-Dinitrophenol	<1.5
1,4-Dichlorobenzene	<0.05	Dibenzofuran	<0.05
1,2-Dichlorobenzene	<0.05	2,4-Dinitrotoluene	<0.25
Benzyl alcohol	<0.5	4-Nitrophenol	<1.5
2,2'-Oxybis(1-chloropropane)	<0.05	Diethyl phthalate	<0.5
2-Methylphenol	<0.5	Fluorene	<0.01
Hexachloroethane	<0.05	4-Chlorophenyl phenyl ether	<0.05
N-Nitroso-di-n-propylamine	<0.05	N-Nitrosodiphenylamine	<0.05
3-Methylphenol + 4-Methylphenol	<1	4-Nitroaniline	<5
Nitrobenzene	<0.05	4,6-Dinitro-2-methylphenol	<1.5
Isophorone	<0.05	4-Bromophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	Hexachlorobenzene	<0.05 ca
2,4-Dimethylphenol	<0.5	Pentachlorophenol	<0.25
Benzoic acid	<2.5	Phenanthrene	<0.01
Bis(2-chloroethoxy)methane	<0.05	Anthracene	<0.01
2,4-Dichlorophenol	<0.5	Carbazole	<0.05
1,2,4-Trichlorobenzene	<0.05	Di-n-butyl phthalate	<0.5
Naphthalene	<0.01	Fluoranthene	<0.01
Hexachlorobutadiene	<0.05	Pyrene	<0.01
4-Chloroaniline	<5	Benzyl butyl phthalate	<0.5 k
4-Chloro-3-methylphenol	<0.5	Benz(a)anthracene	<0.01
2-Methylnaphthalene	<0.01	Chrysene	<0.01
1-Methylnaphthalene	<0.01	Bis(2-ethylhexyl) phthalate	<0.8
Hexachlorocyclopentadiene	<0.15	Di-n-octyl phthalate	<0.5
2,4,6-Trichlorophenol	<0.5	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<0.5	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.05	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.25	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<0.5	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.01

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	TWA-SB07_2.4-2.8_0627	Client:	Maul Foster Alongi
Date Received:	06/28/23	Project:	Potter Subsurface M0615.20.009
Date Extracted:	06/29/23	Lab ID:	306441-01 1/30
Date Analyzed:	06/29/23	Data File:	062922.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Tetrachlorometaxylene	113	11	162
Decachlorobiphenyl	134	11	152

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	TWA-SB08_2.6-3.2_0627	Client:	Maul Foster Alongi
Date Received:	06/28/23	Project:	Potter Subsurface M0615.20.009
Date Extracted:	06/29/23	Lab ID:	306441-03 1/30
Date Analyzed:	06/29/23	Data File:	062923.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Tetrachlorometaxylene	108	11	162
Decachlorobiphenyl	151	11	152

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	TWA-SB06_2.2-2.8_0627	Client:	Maul Foster Alongi
Date Received:	06/28/23	Project:	Potter Subsurface M0615.20.009
Date Extracted:	06/29/23	Lab ID:	306441-05 1/30
Date Analyzed:	06/29/23	Data File:	062924.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Tetrachlorometaxylene	87	11	162
Decachlorobiphenyl	106	11	152

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	0.049
Aroclor 1248	<0.02
Aroclor 1254	0.030
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	TWA-9-SB06_2.2-2.8_0627	Client:	Maul Foster Alongi
Date Received:	06/28/23	Project:	Potter Subsurface M0615.20.009
Date Extracted:	06/29/23	Lab ID:	306441-06 1/30
Date Analyzed:	06/29/23	Data File:	062925.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Tetrachlorometaxylene	82	11	162
Decachlorobiphenyl	99	11	152

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	0.045
Aroclor 1248	<0.02
Aroclor 1254	0.026
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	TWA-SB06_8.2-8.8_0627	Client:	Maul Foster Alongi
Date Received:	06/28/23	Project:	Potter Subsurface M0615.20.009
Date Extracted:	06/29/23	Lab ID:	306441-07 1/30
Date Analyzed:	06/29/23	Data File:	062926.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Tetrachlorometaxylene	86	11	162
Decachlorobiphenyl	106	11	152

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	Method Blank	Client:	Maul Foster Alongi
Date Received:	Not Applicable	Project:	Potter Subsurface M0615.20.009
Date Extracted:	06/29/23	Lab ID:	03-1561 mb2 1/30
Date Analyzed:	06/29/23	Data File:	062921.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Tetrachlorometaxylene	122	11	162
Decachlorobiphenyl	139	11	152

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Date of Report: 07/21/23
Date Received: 06/28/23
Project: Potter Subsurface M0615.20.009, F&BI 306441

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 306440-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	40	95	70-130

Date of Report: 07/21/23
Date Received: 06/28/23
Project: Potter Subsurface M0615.20.009, F&BI 306441

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 306431-03 (Matrix Spike)

Analyte	Reporting Units	Spike Level	(Wet wt) Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	102	100	64-136	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	104	78-121

Date of Report: 07/21/23
Date Received: 06/28/23
Project: Potter Subsurface M0615.20.009, F&BI 306441

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

Laboratory Code: 306441-01 x5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	<5	98	112	75-125	13
Cadmium	mg/kg (ppm)	10	<5	97	104	75-125	7
Chromium	mg/kg (ppm)	50	5.77	91	99	75-125	8
Copper	mg/kg (ppm)	50	<25	95	104	75-125	9
Lead	mg/kg (ppm)	50	<5	95	101	75-125	6
Manganese	mg/kg (ppm	20	36.7	90 b	149 b	75-125	49 b
Mercury	mg/kg (ppm	5	<5	48 vo	97	75-125	68 vo
Nickel	mg/kg (ppm)	25	5.43	91 b	104 b	75-125	13 b
Selenium	mg/kg (ppm)	5	<5	75	103	75-125	31 vo
Zinc	mg/kg (ppm)	50	<25	97	110	75-125	13

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	99	80-120
Cadmium	mg/kg (ppm)	10	94	80-120
Chromium	mg/kg (ppm)	50	97	80-120
Copper	mg/kg (ppm)	50	94	80-120
Lead	mg/kg (ppm)	50	95	80-120
Manganese	mg/kg (ppm)	20	92	80-120
Mercury	mg/kg (ppm)	5	90	80-120
Nickel	mg/kg (ppm)	25	96	80-120
Selenium	mg/kg (ppm)	5	92	80-120
Zinc	mg/kg (ppm)	50	96	80-120

Date of Report: 07/21/23
Date Received: 06/28/23
Project: Potter Subsurface M0615.20.009, F&BI 306441

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

Laboratory Code: 306440-03 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	2	<0.5	50	49	10-142	2
Chloromethane	mg/kg (ppm)	2	<0.5	75	75	10-126	0
Vinyl chloride	mg/kg (ppm)	2	<0.05	78	79	10-138	1
Bromomethane	mg/kg (ppm)	2	<0.5	54	54	10-163	0
Chloroethane	mg/kg (ppm)	2	<0.5	58	59	10-176	2
Trichlorofluoromethane	mg/kg (ppm)	2	<0.5	78	80	10-176	3
Acetone	mg/kg (ppm)	10	<5	75	74	10-163	1
1,1-Dichloroethene	mg/kg (ppm)	2	<0.05	85	88	10-160	3
Hexane	mg/kg (ppm)	2	<0.25	88	87	10-137	1
Methylene chloride	mg/kg (ppm)	2	<0.5	81	83	10-156	2
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2	<0.05	94	96	21-145	2
trans-1,2-Dichloroethene	mg/kg (ppm)	2	<0.05	94	95	14-137	1
1,1-Dichloroethane	mg/kg (ppm)	2	<0.05	92	92	19-140	0
2,2-Dichloropropane	mg/kg (ppm)	2	<0.05	89	93	10-158	4
cis-1,2-Dichloroethene	mg/kg (ppm)	2	<0.05	94	95	25-135	1
Chloroform	mg/kg (ppm)	2	<0.05	94	96	21-145	2
2-Butanone (MEK)	mg/kg (ppm)	10	<1	88	87	19-147	1
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2	<0.05	94	95	12-160	1
1,1,1-Trichloroethane	mg/kg (ppm)	2	<0.05	97	96	10-156	1
1,1-Dichloropropene	mg/kg (ppm)	2	<0.05	95	97	17-140	2
Carbon tetrachloride	mg/kg (ppm)	2	<0.05	96	96	9-164	0
Benzene	mg/kg (ppm)	2	<0.03	92	93	29-129	1
Trichloroethene	mg/kg (ppm)	2	<0.02	95	97	21-139	2
1,2-Dichloropropane	mg/kg (ppm)	2	<0.05	96	99	30-135	3
Bromodichloromethane	mg/kg (ppm)	2	<0.05	96	97	23-155	1
Dibromomethane	mg/kg (ppm)	2	<0.05	98	97	23-145	1
4-Methyl-2-pentanone	mg/kg (ppm)	10	<1	98	100	24-155	2
cis-1,3-Dichloropropene	mg/kg (ppm)	2	<0.05	97	99	28-144	2
Toluene	mg/kg (ppm)	2	0.079	93	92	35-130	1
trans-1,3-Dichloropropene	mg/kg (ppm)	2	<0.05	91	94	26-149	3
1,1,2-Trichloroethane	mg/kg (ppm)	2	<0.05	91	92	10-205	1
2-Hexanone	mg/kg (ppm)	10	<0.5	91	94	15-166	3
1,3-Dichloropropane	mg/kg (ppm)	2	<0.05	95	96	31-137	1
Tetrachloroethene	mg/kg (ppm)	2	<0.025	95	97	20-133	2
Dibromochloromethane	mg/kg (ppm)	2	<0.05	94	95	28-150	1
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2	<0.05	95	96	28-142	1
Chlorobenzene	mg/kg (ppm)	2	<0.05	94	94	32-129	0
Ethylbenzene	mg/kg (ppm)	2	<0.05	93	94	32-137	1
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2	<0.05	95	99	31-143	4
m,p-Xylene	mg/kg (ppm)	4	0.15	92	93	34-136	1
o-Xylene	mg/kg (ppm)	2	0.15	89	92	33-134	3
Styrene	mg/kg (ppm)	2	<0.05	96	98	35-137	2
Isopropylbenzene	mg/kg (ppm)	2	0.078	93	95	31-142	2
Bromoform	mg/kg (ppm)	2	<0.05	94	98	21-156	4
n-Propylbenzene	mg/kg (ppm)	2	0.17	84	88	23-146	5
Bromobenzene	mg/kg (ppm)	2	<0.05	90	94	34-130	4
1,3,5-Trimethylbenzene	mg/kg (ppm)	2	<0.05	91	97	18-149	6
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2	<0.05	98	103	28-140	5
1,2,3-Trichloropropane	mg/kg (ppm)	2	<0.05	88	94	25-144	7
2-Chlorotoluene	mg/kg (ppm)	2	2.3	0 b	6 b	31-134	0
4-Chlorotoluene	mg/kg (ppm)	2	2.7	0 b	0 b	31-136	0
tert-Butylbenzene	mg/kg (ppm)	2	<0.05	92	98	30-137	6
1,2,4-Trimethylbenzene	mg/kg (ppm)	2	0.10	89	93	10-182	4
sec-Butylbenzene	mg/kg (ppm)	2	0.27	84	88	23-145	5
p-Isopropyltoluene	mg/kg (ppm)	2	<0.05	94	98	21-149	4
1,3-Dichlorobenzene	mg/kg (ppm)	2	<0.05	92	95	30-131	3
1,4-Dichlorobenzene	mg/kg (ppm)	2	<0.05	91	95	29-129	4
1,2-Dichlorobenzene	mg/kg (ppm)	2	<0.05	94	98	31-132	4
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2	<0.5	91	98	11-161	7
1,2,4-Trichlorobenzene	mg/kg (ppm)	2	<0.25	101	106	22-142	5
Hexachlorobutadiene	mg/kg (ppm)	2	<0.25	104	108	10-142	4
Naphthalene	mg/kg (ppm)	2	<0.05	105	109	14-157	4
1,2,3-Trichlorobenzene	mg/kg (ppm)	2	<0.25	131	131	20-144	0

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	2	55	10-146
Chloromethane	mg/kg (ppm)	2	78	27-133
Vinyl chloride	mg/kg (ppm)	2	81	22-139
Bromomethane	mg/kg (ppm)	2	58	10-201
Chloroethane	mg/kg (ppm)	2	60	10-163
Trichlorofluoromethane	mg/kg (ppm)	2	84	10-196
Acetone	mg/kg (ppm)	10	119	52-141
1,1-Dichloroethene	mg/kg (ppm)	2	91	47-128
Hexane	mg/kg (ppm)	2	94	43-142
Methylene chloride	mg/kg (ppm)	2	92	10-184
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2	97	60-123
trans-1,2-Dichloroethene	mg/kg (ppm)	2	97	64-132
1,1-Dichloroethane	mg/kg (ppm)	2	96	64-135
2,2-Dichloropropane	mg/kg (ppm)	2	97	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	2	100	64-135
Chloroform	mg/kg (ppm)	2	97	61-139
2-Butanone (MEK)	mg/kg (ppm)	10	108	30-197
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2	98	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	2	102	62-131
1,1-Dichloropropene	mg/kg (ppm)	2	97	64-136
Carbon tetrachloride	mg/kg (ppm)	2	102	60-139
Benzene	mg/kg (ppm)	2	95	65-136
Trichloroethene	mg/kg (ppm)	2	98	63-139
1,2-Dichloropropane	mg/kg (ppm)	2	98	61-145
Bromodichloromethane	mg/kg (ppm)	2	100	57-126
Dibromomethane	mg/kg (ppm)	2	101	62-123
4-Methyl-2-pentanone	mg/kg (ppm)	10	103	45-145
cis-1,3-Dichloropropene	mg/kg (ppm)	2	99	65-143
Toluene	mg/kg (ppm)	2	95	66-126
trans-1,3-Dichloropropene	mg/kg (ppm)	2	94	65-131
1,1,2-Trichloroethane	mg/kg (ppm)	2	96	62-131
2-Hexanone	mg/kg (ppm)	10	98	33-152
1,3-Dichloropropane	mg/kg (ppm)	2	95	67-128
Tetrachloroethene	mg/kg (ppm)	2	95	68-128
Dibromochloromethane	mg/kg (ppm)	2	99	55-121
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2	97	66-129
Chlorobenzene	mg/kg (ppm)	2	94	67-128
Ethylbenzene	mg/kg (ppm)	2	95	64-123
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2	99	64-121
m,p-Xylene	mg/kg (ppm)	4	95	68-128
o-Xylene	mg/kg (ppm)	2	95	67-129
Styrene	mg/kg (ppm)	2	96	67-129
Isopropylbenzene	mg/kg (ppm)	2	95	68-128
Bromoform	mg/kg (ppm)	2	101	56-132
n-Propylbenzene	mg/kg (ppm)	2	93	68-129
Bromobenzene	mg/kg (ppm)	2	95	69-128
1,3,5-Trimethylbenzene	mg/kg (ppm)	2	96	69-129
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2	96	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	2	93	61-137
2-Chlorotoluene	mg/kg (ppm)	2	93	69-128
4-Chlorotoluene	mg/kg (ppm)	2	94	67-127
tert-Butylbenzene	mg/kg (ppm)	2	95	69-129
1,2,4-Trimethylbenzene	mg/kg (ppm)	2	95	69-128
sec-Butylbenzene	mg/kg (ppm)	2	96	69-130
p-Isopropyltoluene	mg/kg (ppm)	2	97	69-130
1,3-Dichlorobenzene	mg/kg (ppm)	2	94	69-127
1,4-Dichlorobenzene	mg/kg (ppm)	2	95	68-126
1,2-Dichlorobenzene	mg/kg (ppm)	2	96	69-127
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2	100	58-138
1,2,4-Trichlorobenzene	mg/kg (ppm)	2	101	64-135
Hexachlorobutadiene	mg/kg (ppm)	2	104	50-153
Naphthalene	mg/kg (ppm)	2	103	62-128
1,2,3-Trichlorobenzene	mg/kg (ppm)	2	114	61-126

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

Laboratory Code: 306391-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	10	<1	90	27-164
Chloromethane	ug/L (ppb)	10	<10	95	34-141
Vinyl chloride	ug/L (ppb)	10	<0.02	103	16-176
Bromomethane	ug/L (ppb)	10	<5	128	10-193
Chloroethane	ug/L (ppb)	10	<1	124	50-150
Trichlorofluoromethane	ug/L (ppb)	10	<1	102	50-150
Acetone	ug/L (ppb)	50	<50	80	15-179
1,1-Dichloroethene	ug/L (ppb)	10	<1	101	50-150
Hexane	ug/L (ppb)	10	<5	101	49-161
Methylene chloride	ug/L (ppb)	10	<5	97	40-143
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	<1	95	50-150
trans-1,2-Dichloroethene	ug/L (ppb)	10	<1	101	50-150
1,1-Dichloroethane	ug/L (ppb)	10	<1	100	50-150
2,2-Dichloropropane	ug/L (ppb)	10	<1	98	62-152
cis-1,2-Dichloroethene	ug/L (ppb)	10	<1	99	50-150
Chloroform	ug/L (ppb)	10	2.4	100 b	50-150
2-Butanone (MEK)	ug/L (ppb)	50	<20	95	34-168
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<0.2	104	50-150
1,1,1-Trichloroethane	ug/L (ppb)	10	<1	100	50-150
1,1-Dichloropropene	ug/L (ppb)	10	<1	98	50-150
Carbon tetrachloride	ug/L (ppb)	10	<0.5	102	50-150
Benzene	ug/L (ppb)	10	<0.35	103	50-150
Trichloroethene	ug/L (ppb)	10	<0.5	102	43-133
1,2-Dichloropropane	ug/L (ppb)	10	<1	97	50-150
Bromodichloromethane	ug/L (ppb)	10	<0.5	99	50-150
Dibromomethane	ug/L (ppb)	10	<1	98	50-150
4-Methyl-2-pentanone	ug/L (ppb)	50	<10	99	50-150
cis-1,3-Dichloropropene	ug/L (ppb)	10	<0.4	100	48-145
Toluene	ug/L (ppb)	10	<1	103	50-150
trans-1,3-Dichloropropene	ug/L (ppb)	10	<0.4	96	37-152
1,1,2-Trichloroethane	ug/L (ppb)	10	<0.5	98	50-150
2-Hexanone	ug/L (ppb)	50	<10	95	50-150
1,3-Dichloropropane	ug/L (ppb)	10	<1	98	50-150
Tetrachloroethene	ug/L (ppb)	10	<1	105	50-150
Dibromochloromethane	ug/L (ppb)	10	<0.5	97	33-164
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	<1	96	50-150
Chlorobenzene	ug/L (ppb)	10	<1	98	50-150
Ethylbenzene	ug/L (ppb)	10	<1	106	50-150
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	<1	97	50-150
m,p-Xylene	ug/L (ppb)	20	<2	105	50-150
o-Xylene	ug/L (ppb)	10	<1	103	50-150
Styrene	ug/L (ppb)	10	<1	99	50-150
Isopropylbenzene	ug/L (ppb)	10	<1	98	50-150
Bromoform	ug/L (ppb)	10	<5	92	23-161
n-Propylbenzene	ug/L (ppb)	10	<1	103	50-150
Bromobenzene	ug/L (ppb)	10	<1	102	50-150
1,3,5-Trimethylbenzene	ug/L (ppb)	10	<1	103	50-150
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	<0.2	103	57-162
1,2,3-Trichloropropane	ug/L (ppb)	10	<1	98	33-151
2-Chlorotoluene	ug/L (ppb)	10	<1	101	50-150
4-Chlorotoluene	ug/L (ppb)	10	<1	102	50-150
tert-Butylbenzene	ug/L (ppb)	10	<1	100	50-150
1,2,4-Trimethylbenzene	ug/L (ppb)	10	<1	102	50-150
sec-Butylbenzene	ug/L (ppb)	10	<1	100	46-139
p-Isopropyltoluene	ug/L (ppb)	10	<1	102	46-140
1,3-Dichlorobenzene	ug/L (ppb)	10	<1	99	50-150
1,4-Dichlorobenzene	ug/L (ppb)	10	<1	99	50-150
1,2-Dichlorobenzene	ug/L (ppb)	10	<1	98	50-150
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	<10	93	50-150
1,2,4-Trichlorobenzene	ug/L (ppb)	10	<1	97	50-150
Hexachlorobutadiene	ug/L (ppb)	10	<0.5	98	42-150
Naphthalene	ug/L (ppb)	10	<1	95	50-150
1,2,3-Trichlorobenzene	ug/L (ppb)	10	<1	94	44-155

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	10	89	88	49-149	1
Chloromethane	ug/L (ppb)	10	90	89	34-143	1
Vinyl chloride	ug/L (ppb)	10	100	101	43-149	1
Bromomethane	ug/L (ppb)	10	121	124	28-182	2
Chloroethane	ug/L (ppb)	10	116	118	59-157	2
Trichlorofluoromethane	ug/L (ppb)	10	95	99	59-141	4
Acetone	ug/L (ppb)	50	84	86	20-139	2
1,1-Dichloroethene	ug/L (ppb)	10	100	101	67-138	1
Hexane	ug/L (ppb)	10	102	105	50-161	3
Methylene chloride	ug/L (ppb)	10	94	95	29-192	1
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	95	103	70-130	8
trans-1,2-Dichloroethene	ug/L (ppb)	10	96	100	70-130	4
1,1-Dichloroethane	ug/L (ppb)	10	96	100	70-130	4
2,2-Dichloropropane	ug/L (ppb)	10	108	122	71-148	12
cis-1,2-Dichloroethene	ug/L (ppb)	10	98	100	70-130	2
Chloroform	ug/L (ppb)	10	94	99	70-130	5
2-Butanone (MEK)	ug/L (ppb)	50	92	98	50-157	6
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	100	106	70-130	6
1,1,1-Trichloroethane	ug/L (ppb)	10	97	102	70-130	5
1,1-Dichloropropene	ug/L (ppb)	10	95	98	70-130	3
Carbon tetrachloride	ug/L (ppb)	10	97	102	70-130	5
Benzene	ug/L (ppb)	10	98	104	70-130	6
Trichloroethene	ug/L (ppb)	10	98	104	70-130	6
1,2-Dichloropropane	ug/L (ppb)	10	94	98	70-130	4
Bromodichloromethane	ug/L (ppb)	10	96	100	70-130	4
Dibromomethane	ug/L (ppb)	10	95	97	70-130	2
4-Methyl-2-pentanone	ug/L (ppb)	50	97	100	70-130	3
cis-1,3-Dichloropropene	ug/L (ppb)	10	98	103	70-130	5
Toluene	ug/L (ppb)	10	97	104	70-130	7
trans-1,3-Dichloropropene	ug/L (ppb)	10	97	100	70-130	3
1,1,2-Trichloroethane	ug/L (ppb)	10	91	97	70-130	6
2-Hexanone	ug/L (ppb)	50	93	96	66-132	3
1,3-Dichloropropane	ug/L (ppb)	10	92	96	70-130	4
Tetrachloroethene	ug/L (ppb)	10	99	106	70-130	7
Dibromochloromethane	ug/L (ppb)	10	91	103	63-142	12
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	93	99	70-130	6
Chlorobenzene	ug/L (ppb)	10	91	97	70-130	6
Ethylbenzene	ug/L (ppb)	10	101	107	70-130	6
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	94	100	70-130	6
m,p-Xylene	ug/L (ppb)	20	100	106	70-130	6
o-Xylene	ug/L (ppb)	10	97	105	70-130	8
Styrene	ug/L (ppb)	10	92	99	70-130	7
Isopropylbenzene	ug/L (ppb)	10	93	100	70-130	7
Bromoform	ug/L (ppb)	10	94	95	50-157	1
n-Propylbenzene	ug/L (ppb)	10	97	105	70-130	8
Bromobenzene	ug/L (ppb)	10	92	102	70-130	10
1,3,5-Trimethylbenzene	ug/L (ppb)	10	95	105	52-150	10
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	94	105	75-140	11
1,2,3-Trichloropropane	ug/L (ppb)	10	93	102	40-153	9
2-Chlorotoluene	ug/L (ppb)	10	93	104	70-130	11
4-Chlorotoluene	ug/L (ppb)	10	96	105	70-130	9
tert-Butylbenzene	ug/L (ppb)	10	95	106	70-130	11
1,2,4-Trimethylbenzene	ug/L (ppb)	10	94	104	70-130	10
sec-Butylbenzene	ug/L (ppb)	10	95	105	70-130	10
p-Isopropyltoluene	ug/L (ppb)	10	96	107	70-130	11
1,3-Dichlorobenzene	ug/L (ppb)	10	93	103	70-130	10
1,4-Dichlorobenzene	ug/L (ppb)	10	91	103	70-130	12
1,2-Dichlorobenzene	ug/L (ppb)	10	91	105	70-130	14
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	86	98	70-130	13
1,2,4-Trichlorobenzene	ug/L (ppb)	10	90	101	70-130	12
Hexachlorobutadiene	ug/L (ppb)	10	92	104	70-130	12
Naphthalene	ug/L (ppb)	10	91	101	61-133	10
1,2,3-Trichlorobenzene	ug/L (ppb)	10	87	99	69-143	13

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QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270E

Laboratory Code: 306444-01 1/5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Phenol	mg/kg (ppm)	0.83	<0.5	94	87	36-118	8
Bis(2-chloroethyl) ether	mg/kg (ppm)	0.83	<0.05	82	77	24-116	6
2-Chlorophenol	mg/kg (ppm)	0.83	<0.5	84	78	24-125	7
1,3-Dichlorobenzene	mg/kg (ppm)	0.83	<0.05	80	74	17-116	8
1,4-Dichlorobenzene	mg/kg (ppm)	0.83	<0.05	85	79	18-118	7
1,2-Dichlorobenzene	mg/kg (ppm)	0.83	<0.05	86	81	22-117	6
Benzyl alcohol	mg/kg (ppm)	4.2	<0.5	89	84	36-121	6
2,2'-Oxybis(1-chloropropane)	mg/kg (ppm)	0.83	<0.05	91	86	20-126	6
2-Methylphenol	mg/kg (ppm)	0.83	<0.5	98	92	38-120	6
Hexachloroethane	mg/kg (ppm)	0.83	<0.05	86	78	10-207	10
N-Nitroso-di-n-propylamine	mg/kg (ppm)	0.83	<0.05	96	92	10-176	4
3-Methylphenol + 4-Methylphenol	mg/kg (ppm)	0.83	<1	93	88	39-121	6
Nitrobenzene	mg/kg (ppm)	0.83	<0.05	87	82	10-186	6
Isophorone	mg/kg (ppm)	0.83	<0.05	93	90	29-155	3
2-Nitrophenol	mg/kg (ppm)	0.83	<0.5	91	93	16-148	2
2,4-Dimethylphenol	mg/kg (ppm)	0.83	<0.5	88	83	17-130	6
Benzoic acid	mg/kg (ppm)	2.5	<2.5	63	64	10-101	2
Bis(2-chloroethoxy)methane	mg/kg (ppm)	0.83	<0.05	90	86	37-121	5
2,4-Dichlorophenol	mg/kg (ppm)	0.83	<0.5	88	87	19-144	1
1,2,4-Trichlorobenzene	mg/kg (ppm)	0.83	<0.05	87	82	35-116	6
Naphthalene	mg/kg (ppm)	0.83	<0.01	86	83	28-125	4
Hexachlorobutadiene	mg/kg (ppm)	0.83	<0.05	103	98	25-126	5
4-Chloroaniline	mg/kg (ppm)	6.8	<5	85	83	21-117	2
4-Chloro-3-methylphenol	mg/kg (ppm)	0.83	<0.5	106	101	36-138	5
2-Methylnaphthalene	mg/kg (ppm)	0.83	<0.01	104	99	10-192	5
1-Methylnaphthalene	mg/kg (ppm)	0.83	<0.01	106	100	10-163	6
Hexachlorocyclopentadiene	mg/kg (ppm)	0.83	<0.15	81	79	10-136	2
2,4,6-Trichlorophenol	mg/kg (ppm)	0.83	<0.5	94	89	16-151	5
2,4,5-Trichlorophenol	mg/kg (ppm)	0.83	<0.5	96	92	20-139	4
2-Chloronaphthalene	mg/kg (ppm)	0.83	<0.05	89	84	42-117	6
2-Nitroaniline	mg/kg (ppm)	4.2	<0.25	120	91	50-150	27 vo
Dimethyl phthalate	mg/kg (ppm)	0.83	<0.5	98	95	50-150	3
Acenaphthylene	mg/kg (ppm)	0.83	<0.01	92	87	45-128	6
2,6-Dinitrotoluene	mg/kg (ppm)	0.83	<0.25	102	99	11-182	3
3-Nitroaniline	mg/kg (ppm)	4.2	<5	96	88	36-110	9
Acenaphthene	mg/kg (ppm)	0.83	<0.01	93	90	36-125	3
2,4-Dinitrophenol	mg/kg (ppm)	1.7	<1.5	100	97	10-135	3
Dibenzofuran	mg/kg (ppm)	0.83	<0.05	100	94	44-125	6
2,4-Dinitrotoluene	mg/kg (ppm)	0.83	<0.25	100	97	37-149	3
4-Nitrophenol	mg/kg (ppm)	1.7	<1.5	104	99	24-159	5
Diethyl phthalate	mg/kg (ppm)	0.83	<0.5	98	95	48-126	3
Fluorene	mg/kg (ppm)	0.83	<0.01	100	94	48-121	6
4-Chlorophenyl phenyl ether	mg/kg (ppm)	0.83	<0.05	97	92	50-150	5
N-Nitrosodiphenylamine	mg/kg (ppm)	0.83	<0.05	95	92	10-190	3
4-Nitroaniline	mg/kg (ppm)	4.2	<5	92	87	10-150	6
4,6-Dinitro-2-methylphenol	mg/kg (ppm)	0.83	<1.5	118	115	10-148	3
4-Bromophenyl phenyl ether	mg/kg (ppm)	0.83	<0.05	99	93	50-150	6
Hexachlorobenzene	mg/kg (ppm)	0.83	<0.05	95	90	50-150	5
Pentachlorophenol	mg/kg (ppm)	0.83	<0.25	94	90	18-159	4
Phenanthrene	mg/kg (ppm)	0.83	<0.01	97	93	46-122	4
Anthracene	mg/kg (ppm)	0.83	<0.01	102	99	30-144	3
Carbazole	mg/kg (ppm)	0.83	<0.05	99	97	50-150	2
Di-n-butyl phthalate	mg/kg (ppm)	0.83	<0.5	93	94	43-124	1
Fluoranthene	mg/kg (ppm)	0.83	<0.01	99	96	50-150	3
Pyrene	mg/kg (ppm)	0.83	<0.01	99	94	40-134	5
Benzyl butyl phthalate	mg/kg (ppm)	0.83	<0.5	116	114	14-187	2
Benz(a)anthracene	mg/kg (ppm)	0.83	<0.01	97	92	50-150	5
Chrysene	mg/kg (ppm)	0.83	<0.01	107	98	50-150	9
Bis(2-ethylhexyl) phthalate	mg/kg (ppm)	0.83	<0.8	104	103	45-130	1
Di-n-octyl phthalate	mg/kg (ppm)	0.83	<0.5	111	117	25-161	5
Benzo(a)pyrene	mg/kg (ppm)	0.83	<0.01	100	96	50-150	4
Benzo(b)fluoranthene	mg/kg (ppm)	0.83	<0.01	96	92	50-150	4
Benzo(k)fluoranthene	mg/kg (ppm)	0.83	<0.01	97	96	50-150	1
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.83	<0.01	96	93	40-140	3
Dibenz(a,h)anthracene	mg/kg (ppm)	0.83	<0.01	104	98	41-136	6
Benzo(g,h,i)perylene	mg/kg (ppm)	0.83	<0.01	100	94	29-139	6

Date of Report: 07/21/23
Date Received: 06/28/23
Project: Potter Subsurface M0615.20.009, F&BI 306441

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270E

Laboratory Code: Laboratory Control Sample 1/5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Phenol	mg/kg (ppm)	0.83	92	47-128
Bis(2-chloroethyl) ether	mg/kg (ppm)	0.83	83	35-131
2-Chlorophenol	mg/kg (ppm)	0.83	83	58-111
1,3-Dichlorobenzene	mg/kg (ppm)	0.83	80	47-109
1,4-Dichlorobenzene	mg/kg (ppm)	0.83	84	46-110
1,2-Dichlorobenzene	mg/kg (ppm)	0.83	86	50-110
Benzyl alcohol	mg/kg (ppm)	4.2	95	36-147
2,2'-Oxybis(1-chloropropane)	mg/kg (ppm)	0.83	88	54-113
2-Methylphenol	mg/kg (ppm)	0.83	94	60-114
Hexachloroethane	mg/kg (ppm)	0.83	84	45-111
N-Nitroso-di-n-propylamine	mg/kg (ppm)	0.83	95	70-130
3-Methylphenol + 4-Methylphenol	mg/kg (ppm)	0.83	91	66-112
Nitrobenzene	mg/kg (ppm)	0.83	89	59-111
Isophorone	mg/kg (ppm)	0.83	96	52-128
2-Nitrophenol	mg/kg (ppm)	0.83	95	60-121
2,4-Dimethylphenol	mg/kg (ppm)	0.83	88	53-119
Benzoic acid	mg/kg (ppm)	2.5	68	13-223
Bis(2-chloroethoxy)methane	mg/kg (ppm)	0.83	94	64-112
2,4-Dichlorophenol	mg/kg (ppm)	0.83	93	63-111
1,2,4-Trichlorobenzene	mg/kg (ppm)	0.83	90	56-111
Naphthalene	mg/kg (ppm)	0.83	87	57-107
Hexachlorobutadiene	mg/kg (ppm)	0.83	107	49-119
4-Chloroaniline	mg/kg (ppm)	6.8	81	10-136
4-Chloro-3-methylphenol	mg/kg (ppm)	0.83	104	70-130
2-Methylnaphthalene	mg/kg (ppm)	0.83	103	63-112
1-Methylnaphthalene	mg/kg (ppm)	0.83	105	63-113
Hexachlorocyclopentadiene	mg/kg (ppm)	0.83	76	46-127
2,4,6-Trichlorophenol	mg/kg (ppm)	0.83	93	65-116
2,4,5-Trichlorophenol	mg/kg (ppm)	0.83	92	67-117
2-Chloronaphthalene	mg/kg (ppm)	0.83	89	67-109
2-Nitroaniline	mg/kg (ppm)	4.2	94	46-148
Dimethyl phthalate	mg/kg (ppm)	0.83	96	70-130
Acenaphthylene	mg/kg (ppm)	0.83	89	70-130
2,6-Dinitrotoluene	mg/kg (ppm)	0.83	99	70-130
Acenaphthene	mg/kg (ppm)	0.83	91	66-112
2,4-Dinitrophenol	mg/kg (ppm)	1.7	91	63-132
Dibenzofuran	mg/kg (ppm)	0.83	96	63-117
2,4-Dinitrotoluene	mg/kg (ppm)	0.83	93	52-140
4-Nitrophenol	mg/kg (ppm)	1.7	93	16-187
Diethyl phthalate	mg/kg (ppm)	0.83	94	64-120
Fluorene	mg/kg (ppm)	0.83	95	67-117
4-Chlorophenyl phenyl ether	mg/kg (ppm)	0.83	93	70-130
N-Nitrosodiphenylamine	mg/kg (ppm)	0.83	94	61-118
4-Nitroaniline	mg/kg (ppm)	4.2	86	28-121
4,6-Dinitro-2-methylphenol	mg/kg (ppm)	0.83	109	51-152
4-Bromophenyl phenyl ether	mg/kg (ppm)	0.83	98	70-130
Hexachlorobenzene	mg/kg (ppm)	0.83	93	70-130
Pentachlorophenol	mg/kg (ppm)	0.83	100	60-133
Phenanthrene	mg/kg (ppm)	0.83	94	70-130
Anthracene	mg/kg (ppm)	0.83	96	70-130
Carbazole	mg/kg (ppm)	0.83	91	63-122
Di-n-butyl phthalate	mg/kg (ppm)	0.83	88	48-128
Fluoranthene	mg/kg (ppm)	0.83	94	70-130
Pyrene	mg/kg (ppm)	0.83	104	70-130
Benzyl butyl phthalate	mg/kg (ppm)	0.83	118	64-135
Benz(a)anthracene	mg/kg (ppm)	0.83	97	70-130
Chrysene	mg/kg (ppm)	0.83	106	70-130
Bis(2-ethylhexyl) phthalate	mg/kg (ppm)	0.83	102	59-116
Di-n-octyl phthalate	mg/kg (ppm)	0.83	103	46-129
Benzo(a)pyrene	mg/kg (ppm)	0.83	94	68-120
Benzo(b)fluoranthene	mg/kg (ppm)	0.83	93	67-128
Benzo(k)fluoranthene	mg/kg (ppm)	0.83	93	70-130
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.83	90	67-129
Dibenz(a,h)anthracene	mg/kg (ppm)	0.83	92	67-128
Benzo(g,h,i)perylene	mg/kg (ppm)	0.83	90	65-130

Date of Report: 07/07/23
Date Received: 06/28/23
Project: Potter Subsurface M0615.20.009, F&BI 306441

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR POLYCHLORINATED BIPHENYLS AS AROCLOR 1016/1260 BY EPA METHOD 8082A

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Aroclor 1016	mg/kg (ppm)	0.25	126	119	47-158	6
Aroclor 1260	mg/kg (ppm)	0.25	130	131	69-141	1

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, biased low; or, the calibration results for the analyte were outside of acceptance criteria, biased high, with a detection for the analyte in the sample. 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 standard reporting limit. 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.

k – The calibration results for the analyte were outside of acceptance criteria, biased high, and the analyte was not detected in the sample.

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.

QDB06432 306441

SAMPLE CHAIN OF CUSTODY 06/28/23

N4/VW2

Page # 1 of 1

Report To AUDREY HACKETT

Company MAUL FOSTER & ALONGI

Address 2815 2ND AVE, STE 540

City, State, ZIP SEATTLE, WA 98121

Phone (206) 331-1835 Email ahackett@maulfoster.com

SAMPLERS (*signature*) Amanda Bixby

PROJECT NAME: POTTER SUBSURFACE

PO #: MOGIS.20.009

REMARKS
X = analyze.
O = hold.
Project specific RLs? - Yes / No

INVOICE TO: accounting@maulfoster.com

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	SVOCs EPA 8270D SIM	METALS* EPA 6020B	See note re: metals		Notes
TWA-SB07_2.4-2.2_0627	01 A-E	6/27/23	1400	S	5	X	X			X		X	X	X			
TWA-SB07_5.8-6.2_0627	02	6/27/23	1405	S	5	O	O			O		O	O	O			
TWA-SB08_2.6-3.2_0627	03	6/27/23	1440	S	5	X	X			X		X	X	X			
TWA-SB08_5.7-6.3_0627	04	6/27/23	1445	S	5	O	O			O		O	O	O			
TWA-SB06_2.2-2.8_0627	05	6/27/23	1530	S	5	X	X			X		X	X	X			Impacted
TWA-SB06_2.2-2.8_0627	06	6/27/23	1530	S	6	X	X			X		X	X	X			Impacted
TWA-SB06_8.2-8.8_0627	07	6/27/23	1535	S	6	X	X			X		X	X	X			
Trip Blank #1-0627	08 A-B	6/27/23	NA	W	2					X							

Samples received at 4 C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Amanda Bixby	Amanda Bixby	MFA	6/28/23	1300
Received by: Nham Phan	Nham Phan	FLBT	6/28/23	1300
Relinquished by:				
Received by:				

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

* Metals include As, Cd, Cr, Cu, Pb, Mn, Hg, Ni, Se, & Zn.

Attachment D

Data Validation Memorandum

MAUL
FOSTER
ALONGI

Data Quality Assurance/Quality Control Review

Project No. M0615.20.009 |July 27, 2023 | Port of Tacoma

Maul Foster & Alongi, Inc. (MFA), conducted an independent review of the quality of analytical results for soil and associated quality control samples collected on June 27, 2023, at the Potter Property at 1801 E Alexander Avenue in Tacoma, Washington.

Friedman & Bruya, Inc. (F&B), performed the analyses. MFA reviewed F&B report number 306441. The analyses performed and the samples analyzed are listed in the following tables. Samples submitted on hold are indicated below.

Analysis	Reference
Diesel- and motor-oil-range hydrocarbons	NWTPH-Dx
Gasoline-range hydrocarbons	NWTPH-Gx
Percent moisture	ASTM D2216-98
Polychlorinated biphenyls as Aroclors	EPA 8082A
Semivolatile organic compounds	EPA 8270E
Total metals	EPA 6020B
Volatile organic compounds	EPA 8260D

Notes
ASTM = ASTM International.
EPA = U.S. Environmental Protection Agency.
NWTPH = Northwest Total Petroleum Hydrocarbons.

Samples Analyzed	
Report 306441	
TWA-SB07_2.4-2.8_0627	TWA-SB06_2.2-2.8_0627
TWA-SB07_5.8-6.2_0627 (hold)	TWA-9-SB06_2.2-2.8_0627
TWA-SB08_2.6-3.2_0627	TWA-SB06_8.2-8.8_0627
TWA-SB08_5.7-6.3_0627 (hold)	Trip Blank 1-0627

Data Qualification

Analytical results were evaluated according to applicable sections of U.S. Environmental Protection Agency (EPA) guidelines for data review (EPA 2020a, 2020b) and appropriate laboratory- and method-specific guidelines (EPA 1986, F&B 2022).

Data validation procedures were modified, as appropriate, to accommodate quality control requirements for methods that EPA data review procedures do not specifically address (e.g., Northwest Total Petroleum Hydrocarbons [NWTPH]-Dx).

Based on the results of the data quality review procedures described below, the data, with the appropriate final data qualifiers assigned, are considered acceptable for their intended use. Final data qualifiers represent qualifiers originating from the laboratory and accepted by the reviewer, and data qualifiers assigned by the reviewer during validation.

Final data qualifiers:

- J = result is estimated.

- U = result is non-detect at the method reporting limit (MRL).
- UJ = result is non-detect with an estimated MRL.

According to report 306441, some EPA Method 6020B total copper and total zinc results had internal standards that were outside control limits. F&B noted that the results are considered estimates. These results were originally reported as non-detect from diluted analyses with passing internal standard recoveries, and F&B reported the undiluted analyses at MFA's request. Due to the internal standard issue, the reviewer qualified the associated sample results with J, as shown in the following table.

Report	Sample	Analyte	Original Result (mg/kg)	Qualified Result (mg/kg)
306441	TWA-SB07_2.4-2.8_0627	Total copper	6.98	6.98 J
		Total zinc	12.7	12.7 J
	TWA-SB08_2.6-3.2_0627	Total copper	13.6	13.6 J
		Total zinc	12.0	12.0 J
	TWA-9-SB06_2.2-2.8_0627	Total copper	6.71	6.71 J
		Total zinc	13.6	13.6 J
	TWA-SB06_8.2-8.8_0627	Total copper	7.12	7.12 J
		Total zinc	12.4	12.4 J

Notes
J = result is estimated.
mg/kg = milligrams per kilogram.

According to report 306441, the EPA Method 8260D acetone and bromomethane calibration standards exceeded acceptance criteria with a high bias. All associated sample results were non-detect; thus, qualification by the reviewer was not required.

According to report 306441, the EPA Method 8270E benzyl butyl phthalate calibration standard exceeded the acceptance criterion with a high bias. All associated sample results were non-detect; thus, qualification by the reviewer was not required.

According to report 306441, the EPA Method 8270E hexachlorobenzene calibration standard exceeded the acceptance criterion with a low bias. The reviewer qualified all associated sample results with UJ, as shown in the following table.

Report	Sample	Analyte	Original Result (mg/kg)	Qualified Result (mg/kg)
306441	TWA-SB07_2.4-2.8_0627	Hexachlorobenzene	0.05 U	0.05 UJ
	TWA-SB08_2.6-3.2_0627		0.05 U	0.05 UJ
	TWA-SB06_2.2-2.8_0627		0.25 U	0.25 UJ
	TWA-9-SB06_2.2-2.8_0627		0.25 U	0.25 UJ
	TWA-SB06_8.2-8.8_0627		0.05 U	0.05 UJ

Notes
mg/kg = milligrams per kilogram.
U = result is non-detect at the method reporting limit.
UJ = result is non-detect with an estimated method reporting limit.

Sample Conditions

Sample Custody

Sample custody was appropriately documented on the chain-of-custody form accompanying the report.

Holding Times

Extractions and analyses were performed within the recommended holding times.

Preservation and Sample Storage

The samples were preserved and stored appropriately.

Reporting Limits

The laboratory evaluated results to MRLs. Samples that required dilutions because of high analyte concentrations, matrix interferences, and/or dilutions necessary for preparation and/or analysis were reported with raised MRLs.

The reviewer confirmed that when samples were diluted for analysis or when a higher sample volume was used for the extraction, F&B provided the preparation or dilution factor after the laboratory sample identification number.

Blanks

Method Blanks

Laboratory method blanks are used to assess whether laboratory contamination was introduced during sample preparation and analysis. Laboratory method blank analyses were performed at the required frequencies. For purposes of data qualification, the laboratory method blanks were associated with all samples prepared in the analytical batch.

All laboratory method blank results were non-detect to MRLs.

Equipment Rinsate Blanks

Equipment rinsate blanks are used to evaluate field equipment decontamination. These blanks were not required for this sampling event, as all samples were collected using dedicated, single-use equipment.

Trip Blanks

Trip blanks are used to evaluate whether volatile organic compound contamination was introduced during sample storage and during shipment between the sampling location and the laboratory.

A trip blank (Trip Blank 1-0627) was submitted with the sample delivery group 306441 for EPA Method 8260D analysis.

The trip blank was non-detect to MRLs for all target analytes.

Laboratory Control Sample and Laboratory Control Sample Duplicate Results

A laboratory control sample (LCS) and a laboratory control sample duplicate (LCSD) are spiked with target analytes to provide information about laboratory precision and accuracy. Where LCSDs were

not reported, laboratory precision was evaluated using laboratory duplicate or matrix spike (MS) and matrix spike duplicate (MSD) results. The LCS and the remaining LCSD were prepared and analyzed at the required frequency.

All LCS and LCSD results were within acceptance limits for percent recovery and relative percent difference (RPD).

Laboratory Duplicate Results

Laboratory duplicate results are used to evaluate laboratory precision. Where laboratory duplicate results were not reported, laboratory precision was evaluated using LCS and LCSD or MS and MSD results. All remaining laboratory duplicate samples were prepared and analyzed at the required frequency.

Laboratory duplicate results greater than five times the MRL were evaluated using laboratory RPD control limits. Laboratory duplicate results less than five times the MRL, including non-detects, were evaluated using a control limit of the MRL of the parent sample; the absolute difference of the laboratory duplicate sample result and the parent sample result, or the MRL for non-detects, was compared to the MRL of the parent sample.

All laboratory duplicate results met the acceptance criteria.

Matrix Spike and Matrix Spike Duplicate Results

MS and MSD results are used to evaluate laboratory precision, accuracy, and the effect of the sample matrix on sample preparation and analysis. Where MS and/or MSD were not reported, laboratory precision and accuracy were evaluated using LCS, LCSD, and laboratory duplicate results. All remaining MS and MSD samples were prepared and analyzed at the required frequency.

When MS and MSD were prepared with samples from unrelated projects, the MS and/or MSD percent recovery and/or RPD control limit exceedances did not require qualification because these sample matrices were not representative of project sample matrices.

According to report 306441, the EPA Method 6020B MS and MSD prepared with sample TWA-SB07_2.4-2.8_0627 had some total metals results outside the percent recovery acceptance limits of 75 percent to 125 percent, and some RPD results above the 20 percent acceptance limit. The MS and MSD were reported from an analysis with a dilution factor of 5, while some of the initial sample results were reported undiluted. Matrix effects present at a dilution of 5 can be presumed to also be present in an undiluted analysis. The MS had a low total mercury result, at 48 percent, and the MS and MSD had a total mercury RPD of 68 percent. The MSD had a high total manganese result, at 129 percent, and the MS and MSD had a total manganese RPD of 49 percent. The MS and MSD also had a total selenium RPD of 31 percent. The associated sample was non-detect for total selenium and thus did not require qualification based on the RPD exceedance. The reviewer qualified the associated total mercury and manganese results, as shown in the following table.

Report	Sample	Analyte	Original Result (mg/kg)	Qualified Result (mg/kg)
306441	TWA-SB07_2.4-2.8_0627	Total manganese	43.1	43.1 J
		Total mercury	1 U	1 UJ

Notes
J = result is estimated.
mg/kg = milligrams per kilogram.
U = result is non-detect at the method reporting limit.
UJ = result is non-detect with an estimated method reporting limit.

All remaining MS and MSD results were within acceptance limits for percent recovery and RPD.

Surrogate Recovery Results

The samples were spiked with surrogate compounds to evaluate laboratory performance of individual samples for organic analyses.

According to report 306441, the NWTPH-Gx surrogate results for samples TWA-SB06_2.2-2.8_0627 and TWA-9-SB06_2.2-2.8_0627 were outside percent recovery acceptance limits. F&B noted that this was due to matrix effects. The reviewer confirmed with the laboratory that the surrogates were above the upper percent recovery limit of 150 percent, at 184 percent and 155 percent, respectively. Sample results were reported from an analysis with a dilution factor of 5. The reviewer qualified the associated sample results with J, as shown in the following table.

Report	Sample	Analyte	Original Result (mg/kg)	Qualified Result (mg/kg)
306441	TWA-SB06_2.2-2.8_0627	Gasoline-range hydrocarbons	530	530 J
	TWA-9-SB06_2.2-2.8_0627	Gasoline-range hydrocarbons	470	470 J

Notes
J = result is estimated.
mg/kg = milligrams per kilogram.

According to report 306441, the NWTPH-Dx surrogate results for samples TWA-SB06_2.2-2.8_0627 and TWA-9-SB06_2.2-2.8_0627 were outside percent recovery acceptance limits. F&B noted that this was due to matrix effects. The reviewer confirmed with the laboratory that the surrogates were above the upper percent recovery limit of 150 percent, at 250 percent and 276 percent, respectively. Sample results were reported from an undiluted analysis. The reviewer qualified the associated sample results with J, as shown in the following table.

Report	Sample	Analyte	Original Result (mg/kg)	Qualified Result (mg/kg)
306441	TWA-SB06_2.2-2.8_0627	Diesel-range hydrocarbons	14,000	14,000 J
		Motor-oil-range hydrocarbons	7,400	7,400 J
	TWA-9-SB06_2.2-2.8_0627	Diesel-range hydrocarbons	13,000	13,000 J
		Motor-oil-range hydrocarbons	7,200	7,200 J

Notes
J = result is estimated.
mg/kg = milligrams per kilogram.

All remaining surrogate results were within percent recovery acceptance limits.

Field Duplicate Results

Field duplicate samples measure both field and laboratory precision. The following field duplicate and parent sample pair was submitted for analysis:

Report	Parent Sample	Field Duplicate Sample
306441	TWA-SB06_2.2-2.8_0627	TWA-9-SB06_2.2-2.8_0627

MFA uses acceptance criteria of 100 percent RPD for results that are less than five times the MRL or 50 percent RPD for results that are greater than five times the MRL. RPD was not evaluated when both results in the sample pair were non-detect. When one result in the sample pair was non-detect, RPD was evaluated using the MRL of the non-detect result.

All field duplicate results met the RPD acceptance criteria.

Data Package

The data package was reviewed for transcription errors, omissions, and anomalies.

On the chain-of-custody form accompanying report 306441, samples TWA-SB06_2.2-2.8_0627 and TWA-9-SB06_2.2-2.8_0627 are noted to be "impacted." The reviewer confirmed with the sampler that this was due to visible free product on the soil and was noted in order to indicate to the laboratory that the samples may have high concentrations of target and/or non-target analytes.

At MFA's request, report 306441 was revised on July 21, 2023, to include ASTM D2216-98 percent moisture results for soil samples, to remove extraneous EPA Method 8270E results that were over the calibration range of the instrument, and to report some EPA Method 6020B results from undiluted analyses rather than diluted analyses.

In report 306441, sample "Trip Blank #1-0627" was reported by F&B as Trip Blank 1-0627, The reviewer confirmed with the laboratory that this is due to system limitations that do not allow special characters in sample names. The sample name could not be revised in the laboratory report.

No other issues were found.

References

EPA. 1986. *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.* EPA publication SW-846. 3rd ed. U.S. Environmental Protection Agency. Final updates I (1993), II (1995), IIA (1994), IIB (1995), III (1997), IIIA (1999), IIIB (2005), IV (2008), V (2015), VI phase I (2017), VI phase II (2018), VI phase III (2019), VII phase I (2019), and VII phase II (2020).

EPA. 2020a. *National Functional Guidelines for Inorganic Superfund Methods Data Review.* EPA 542-R-20-006. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation: Washington, DC. November.

EPA. 2020b. *National Functional Guidelines for Organic Superfund Methods Data Review.* EPA 540-R-20-005. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation: Washington, DC. November.

F&B. 2022. *Quality Assurance Manual.* Rev. 18. Friedman & Bruya, Inc.: Seattle, WA. December 9.