

2024 Upland PCB Screening Report Revision 1

Seaport Midstream Partners, LLC
Portland Terminal
9930 NW St. Helens Road
Portland, Oregon
ECSI #1528

Project number: 60733311

December 23, 2024

Quality information

Prepared by	Checked by	Verified by	Approved by
Christine Wheeler	Thomas J. Bialobok	Heather Tye	

Revision History

Revision	Revision date	Details	Authorized	Name	Position
1	2024-12-23	Revised per DEQ Comments	2024-12-23	Thomas Bialobok	Project Manager

Distribution List

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0	Yes	Jeff Schatz / Oregon DEQ
0	Yes	Doug Hall / Seaport Midstream Partners
0	Yes	Biran Hoyman / Seaport Midstream Partners

Prepared for:

BP Remediation Management and its affiliates (collectively BP)
501 West Lake Park Boulevard
Houston, Texas 77079
Working in cooperation with Seaport Midstream Partners, LLC

Prepared by:

Christina Wheeler
AECOM
111 SW 54th Avenue
Suite 600
Portland, Oregon 97201

aecom.com

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Acronyms

bgs	below ground level
B1A	designated area of Portland Superfund Site located on the Lower Willamette River
BP	BP Products of North America, Inc. and its affiliates
CPD	City of Portland Datum
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CUL	Cleanup Level
DQCR	Data Quality Control Report
DEQ	Oregon Department of Environmental Quality
EPA	Environmental Protection Agency
ft	feet
LLC	limited liability company
LNAPL	light non-aqueous phase liquid
mg/kg	milligrams per kilogram
MW	monitoring well
NAPL	non-aqueous phase liquid
PCB	polychlorinated biphenyl
SMP	Seaport Midstream Partners, LLC
µg/L	micrograms per liter
µg/kg	micrograms per kilogram

1. Introduction

Under the direction of BP Products North America Inc. (BP) and their consultants, AECOM has prepared this report regarding the Seaport Midstream Partners, LLC (SMP) Bulk Fueling Terminal (Portland Terminal), located in Portland, Oregon, on behalf of SMP and BP. This report presents the results of the fieldwork completed in September 2024, including the collection of particulates and groundwater from existing well locations for analysis of polychlorinated biphenyls (PCBs) as Aroclors following the procedures outlined in the *2024 Upland PCB Screening Additional Action Work Plan* (AECOM, 2024b).

For clarity, a timeline of deliverables and field work associated with locating potential upland sources of PCBs is included below:

August 2023: PCBs detected outboard of Lower Tieback 09 (Jacobs, 2024; AECOM, 2024a)

May 2024: Request from DEQ for additional upland investigation (DEQ, 2024)

September 2024: 2024 PCB Screening Work Plan (AECOM, 2024b)

December 2024: 2024 PCB Screening Report, Revision 1 (this document)

December 2024: 2024 PCB Assessment Work Plan, Revision 1 (AECOM, 2024c)

1.1 Project Background

The Portland Terminal is a bulk petroleum product storage and transfer facility located at 9930 NW Saint Helens Road (Oregon Highway 30) in Portland, Oregon (Figure 1). The Portland Terminal is bordered to the east by the Willamette River, to the west by NW Saint Helens Road, to the north by the former Linnton Plywood Association property (now Linnton Water Credits), and to the south by the NuStar Energy LP Bulk Terminal (Figure 2). The Portland Terminal is located at River Mile 4.9 of the lower Willamette River and is adjacent to the Portland Harbor Superfund Site.

The Portland Terminal consists of a 14-acre facility with 27 above-ground storage tanks, a truck loading rack, several buildings, a remanufacturing warehouse, a dock structure, a boat house, a groundwater extraction and treatment system, and a sheet pile wall (seawall) along the riverfront. The facility operation includes bulk petroleum storage, additive storage, fuel blending, and the transfer of bulk petroleum via pipeline, barge, and rail throughout the region (AECOM, 2021a).

The seawall was constructed in 2009. It consists of a 40-foot AZ-18 sheet pile with two levels of tieback anchors at 20 and 10 feet above the City of Portland Datum (CPD) (23.2 and 13.2 feet above Columbia River Datum). Tieback anchors on the bottom row are spaced at about 12.4 feet on center. Foam was used to seal perforations where the tiebacks were installed in the sheet pile. A sealant (Roxan™ or equivalent) was placed within the sheet pile interlocks.

Suspected petroleum hydrocarbons were observed in the engineered fill material outboard of the seawall, causing a sheen on the water surface on December 13, 2021. In response to the sheen observed, AECOM conducted tieback inspection and maintenance activities on the seawall in 2022 and 2023, as documented in the *Seawall Maintenance Construction Completion Report* (AECOM, 2022), and the *Seawall Maintenance Tieback Inspection Summary Report* (AECOM, 2024a). Four tiebacks in 2022 and twelve in 2023 were exposed and inspected for signs of seeps and leaks.

To streamline sampling efforts on the river side of the seawall, SMP voluntarily granted site access to the Portland Harbor Superfund Site B1A group to complete independent sampling at each of the 2023 tieback inspection locations. B1A group members include two previous Terminal owners and operators (Atlantic Richfield Company and BP Products North America Inc.) and three other companies that are current or former owners of facilities located near the Terminal. During the 2023 inspection event, PCBs at a concentration of ~5 milligrams per kilogram (mg/kg) were detected in the B1A group sample of visually-impacted-fill collected at a depth of 5.5 feet below ground surface, immediately beneath Lower Tieback 09

(Jacobs, 2024) (sample location TP01-TB09 in Figure 3). A lower concentration of PCBs was detected in a 5-foot-deep sediment sample collected 10 feet riverward of Tieback 09 (sample location TP01 in Figure 3). All visually impacted fill was excavated and disposed of offsite (AECOM, 2024a).

1.2 Potential Upland Sources of PCBs

In 2011, Atlantic Richfield Company responded to an USEPA CERCLA Section 104e Information Request (ARC, 2011) about potential PCB sources on site, stating that:

“PCBs were possibly used in cathodic rectifier oil and fluorescent lights. In the 1990s, the Terminal conducted a survey and removed all equipment potentially containing PCBs. During a routine upgrade in November 2005, fluorescent lamps from the office building were replaced. Based on the apparent age of the bulbs and fixtures, it was assumed that these lamps possibly contained PCBs. There were no releases of PCBs or PCB containing oil to the environment. Please see the documents provided in response to Request 40 for further information and documentation.”

The referenced survey did not identify any potential PCB-containing transformers at the Terminal or locate any records of PCB-containing equipment, but in an abundance of caution, the survey identified the items mentioned above as potentially containing PCBs prior to the 1970s. The cathodic rectifier oil units were historically located in an “electrical building” outside the southwest corner of the North Tank Farm (labeled in Figure 2). The precise location of the building is unknown, but the equipment was stored indoors and there were no known releases of cathodic rectifier oil into the environment. The fluorescent lights were located within the building labeled “office” in Figure 2. There is no record of any breakage of the fixtures and all were located entirely indoors so there was no known pathway for releases into the environment.

A former oil-water separator (OWS), decommissioned in place during seawall installation in 2007, is located behind the seawall adjacent to Lower Tieback 09. It was historically used to treat stormwater runoff before discharge to the Willamette River. No other information is available regarding the use of this OWS.

1.3 Project Objectives and Overview

In an email from Jeff Schatz dated May 29, 2024, the Oregon Department of Environmental Quality (DEQ) requested sampling behind the seawall to determine whether there is any potential upland source of PCBs at the Terminal that may enter the river and require response action under the Portland Harbor Superfund Site remedy. As discussed in Section 1.2, no records have been found of any PCB-containing transformers or other sources of PCBs at the facility. The only indication that there may be PCBs in upland media is the measurement of PCBs in sediment sampled adjacent to Lower Tieback 09 as described in Section 1.1.

DEQ's request is being addressed in two Phases. In the PCB Screening Phase, existing well points upgradient of Lower Tieback 09 were sampled to evaluate the possibility that PCBs are present around the perimeter of the PCB Screening focus area (Figure 3). The PCB Assessment Phase includes advancement of new soil borings to examine soils in the area immediately upland of Lower Tieback 09 and around the adjacent former OWS.

1. In the PCB Screening Phase, seven existing wells within the PCB Screening focus area shown in Figure 3 were sampled to determine if measurable amounts of PCBs may be present within non-aqueous phase liquid (NAPL), particulates, and/or other solids that may have accumulated in the wells. NAPL was not detected in the seven wells, but particulates were recovered and analyzed from all seven locations. At the request of DEQ, groundwater samples were collected from the two monitor wells closest to Lower Tieback 09. PCBs, analyzed as Aroclors by EPA Method 8082, were not detected in any samples. Details regarding the field activities, observations, and analytical results can be found in Section 2 of this Report.
2. For the PCB Assessment Phase, five soil borings will be advanced, and soil samples collected and analyzed for PCBs as congeners by EPA Method 1668A to achieve lower detection limits

and allow comparison to the Portland Harbor Record of Decision cleanup level (CUL) of 9 µg/kg (EPA, 2020). The assessment phase will focus on the soil in the area immediately upland of Lower Tieback 09 and around the adjacent former oil-water separator. In addition, groundwater from the two monitor wells sampled in the PCB Screening Phase will be resampled and analyzed for PCB congeners using Method 1668A and results will be compared to the Portland Harbor CUL for PCBs in groundwater of 0.014 µg/L. Additional details pertaining to the PCB Assessment are included in the PCB Assessment Phase Work Plan (AECOM, 2024c).

2. PCB Screening Results

This section presents the results of the PCB Screening field activities completed on September 5, 2024. Appendices A through D present the supporting field documentation, photographs, laboratory report, and data validation report.

2.1 Screening Activities

Particulates were collected from seven existing wells, and groundwater samples were collected from two monitor wells on September 5, 2024, in accordance with the Screening work plan (AECOM, 2024b). Field notes and groundwater well purging logs are presented in Appendix A. A photographic log of the field activities is included in Appendix B.

After each well was opened, the depth to groundwater and to the bottom of the well was measured from the top of the well casing (Table 1). No NAPL was detected in any of the wells. A soft bottom was inferred based on the resistance of the oil-water interface probe in the five locations not installed as monitoring wells (Table 1), indicating an accumulation of particulate matter at the bottom of each well casing. A hard bottom was inferred at MW-17, and a slightly soft bottom was inferred at P-24.

Table 1 provides the approximate elevations of the bottom of each well (from which particulate samples were collected) relative to the CPD. The approximate elevations were within approximately 2 feet of the historical reported well construction information except for P-24 which appears to have accumulated particles to a depth of 25 ft bgs, although it was originally installed to a depth of 30 ft bgs (Table 1). Nevertheless, the bottom of each well is lower than the elevation of Lower Tieback 09 (10 ft CPD, Table 2), so particulates historically entering each well include material from the elevation of this tieback.

A peristaltic pump with dedicated Teflon and silicone tubing was deployed to the bottom of each well and used to pump the entrained particulate and groundwater directly into laboratory-supplied containers. Minimal particulates could be collected from MW-17, and limited particulates were collected from P-24, which was consistent with the inferred bottom conditions. Photographs of particulate samples from each well are included in Appendix B. No NAPL or sheen was observed in either well.

After collecting the particulate samples at MW-17 and P-24, the Teflon tubing was lifted to a depth halfway between the top of water (as measured prior to sampling) and the bottom of the well. The groundwater was purged in accordance with the procedure outlined in the work plan (AECOM, 2024b). Dissolved groundwater samples were collected for analysis of dissolved-phase PCBs by passing the groundwater through dedicated 45-micron Teflon filters and directly into laboratory-supplied containers. A rinsate blank sample was collected by pumping deionized water through a dedicated set of tubing and filter using the peristaltic pump.

2.2 Analytical Results and Data Quality Review

Table 3 presents the analytical results for the particulate and groundwater samples. PCBs analyzed as Aroclors were undetected in all samples. The laboratory analytical report is included as Appendix C.

Laboratory analytical data acquired during this investigation were reviewed and validated by a qualified chemist from Haley & Aldrich, Inc. to ensure that the data are usable for their intended purpose. No data warranted qualification as a result of this data validation. The data usability summary report is included as Appendix D.

Limited sample volumes for the particulate samples resulted in elevated detection limits relative to those achieved for conventional soil/sediment samples; however, the detection limits are sufficiently low for comparison to the total PCB concentration of >5,000 µg/kg detected in the sediment (and subsequently excavated) riverward of Lower Tieback 09 (Jacobs, 2024).

2.3 PCB Screening Evaluation Conclusions

No PCBs (analyzed as Aroclors with detection limits from 200 to 650 $\mu\text{g/kg}$) were detected in the particulates recovered from the seven existing upland wells in the vicinity of Lower Tieback 09 (locations can be found on Figure 3). Additionally, no PCBs (analyzed as Aroclors with detection limits from 0.036 to 0.075 $\mu\text{g/L}$) were detected in the groundwater from wells in this vicinity (Figure 3). The Aroclor detection limits were higher than the Portland Harbor CULs of 9 $\mu\text{g/kg}$ in soil/sediment and 0.014 $\mu\text{g/L}$ in groundwater so the results cannot be compared to these values. However, as stated above, the objective of this screening phase of fieldwork was to evaluate the possibility that PCBs are present around the perimeter of the PCB Screening Area that could explain the PCBs observed in sediment adjacent to Lower Tieback 09.

the total PCB concentrations found riverward of Lower Tieback 09 (and subsequently excavated) were detected at an order of magnitude higher ($>5,000 \mu\text{g/kg}$) than the detection limits (200 to 650 $\mu\text{g/kg}$) for the well particulates sampled. The non-detect results for both well particulates and groundwater in the well locations sampled suggest that PCBs are not present around the perimeter of the PCB Screening Area upgradient of Lower Tieback 09 at a concentration that could explain the PCBs observed in sediment adjacent to Lower Tieback 09. If there is an upland source of these PCB, it is most likely an isolated occurrence near Lower Tieback 09.

The proposed second phase of assessment focuses on subsurface soils and groundwater directly adjacent to Lower Tieback 09. Soil samples will be collected from five new soil borings and groundwater will be collected from existing monitor wells. The upland soil and groundwater samples will be analyzed for PCBs as congeners to achieve detection limits low enough to compare to Portland Harbor CULs (EPA, 2020). Additional information is presented in the *2024 Upland PCB Assessment Work Plan* (AECOM, 2024c).

3. Limitations

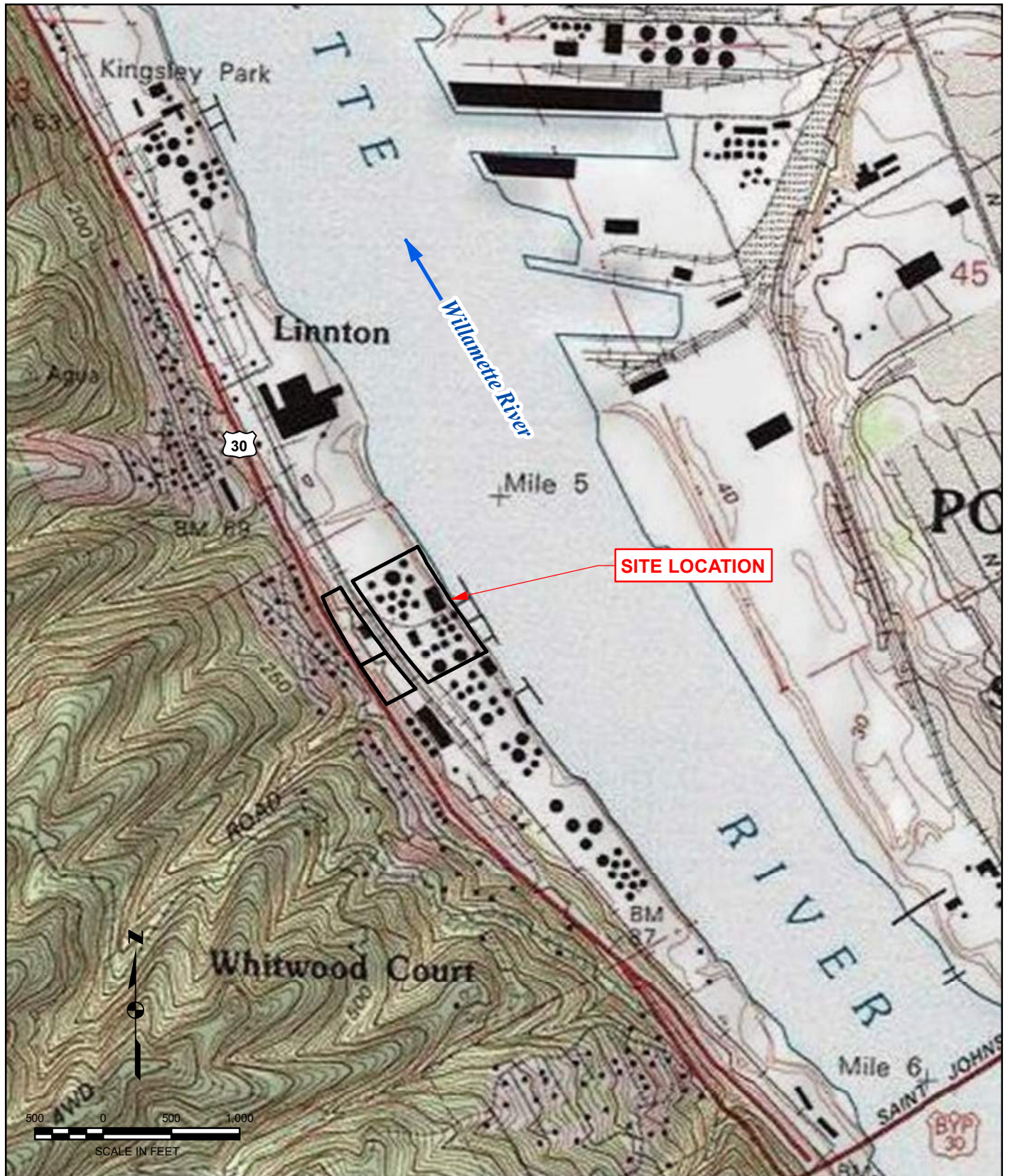
This PCB Screening Report has been prepared for specific application to this project and has been developed in a manner consistent with the level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area and following the terms and conditions outlined in the contracted agreement between AECOM and BP, working in cooperation with SMP. No warranty or other conditions, express or implied, should be understood.

This report is for the use of BP and its representatives and affiliates, SMP and its representatives and affiliates, and applicable regulatory agencies. No other parties shall have the right to rely on AECOM's opinions rendered in connection with the services or this report without our written consent.

4. References

- Atlantic Richfield Company (ARC), 2011. *Responses to U.S. EPA CERCLA Section 104(e) Information Request*. July.
- AECOM, 2021a. *Source Control Evaluation Report, Revision 1*, Prepared for Seaport Midstream Partners, LLC. November 5.
- AECOM, 2021b. *Modified Annual Groundwater Monitoring Sampling and Analysis Plan Revision 1*. Prepared for Seaport Midstream Partners, LLC, for the Portland Terminal, Portland, Oregon. October 7.
- AECOM, 2022a. *Seawall Maintenance Construction Completion Report*, Prepared for Seaport Midstream Partners, LLC for the Portland Terminal, Portland, Oregon. March 8.
- AECOM, 2022b. *Revised Additional Action Work Plan*, Prepared for Seaport Midstream Partners, LLC for the Portland Terminal, Portland, Oregon. October 17.
- AECOM, 2024a. *Seawall Maintenance Tieback Inspection Summary Report*, Prepared for Seaport Midstream Partners, LLC for the Portland Terminal, Portland, Oregon. January 9.
- AECOM, 2024b. *2024 Upland PCB Screening Additional Action Work Plan, Revision 1*, Prepared for Seaport Midstream Partners, LLC for the Portland Terminal, Portland, Oregon. August 16.
- AECOM, 2024c. *2024 Upland PCB Assessment Work Plan*, Prepared for Seaport Midstream Partners, LLC for the Portland Terminal, Portland, Oregon. November 15.
- DEQ, 2024. Schatz, Jeff. Email to Bialobok, Tom. *Re: Upland Investigation Related to PCBs at SMP Terminal (1528)* on May 29, 2024.
- EPA, 2020. Errata #2 for Portland Harbor Superfund Site Record of Decision ROD Table 17. EPA Region 10, Seattle, WA. January 14
- Jacobs, 2024. *B1a Area Predesign Investigation Phase 3 Evaluation Report*. Prepared for the B1a Group. June 5.

Figures



Source: USGS 2020. Copyright: © 2013 National Geographic Society, i-cubed

AECOM

Project Number: 60733311

SITE VICINITY MAP

PORTLAND TERMINAL
9930 NW ST HELENS ROAD
PORTLAND, OREGON

FIGURE 1



LEGEND

— Approximate Portland Terminal Property Boundary

Imagery Source: Microsoft Bing ©2023



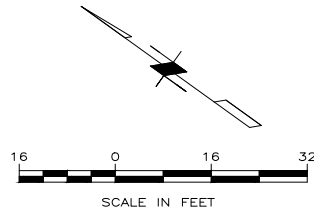
SITE MAP OF TERMINAL AND SURROUNDING PROPERTY

60733311

PORTLAND TERMINAL
9930 NW ST HELENS
PORTLAND, OREGON

FIGURE 2

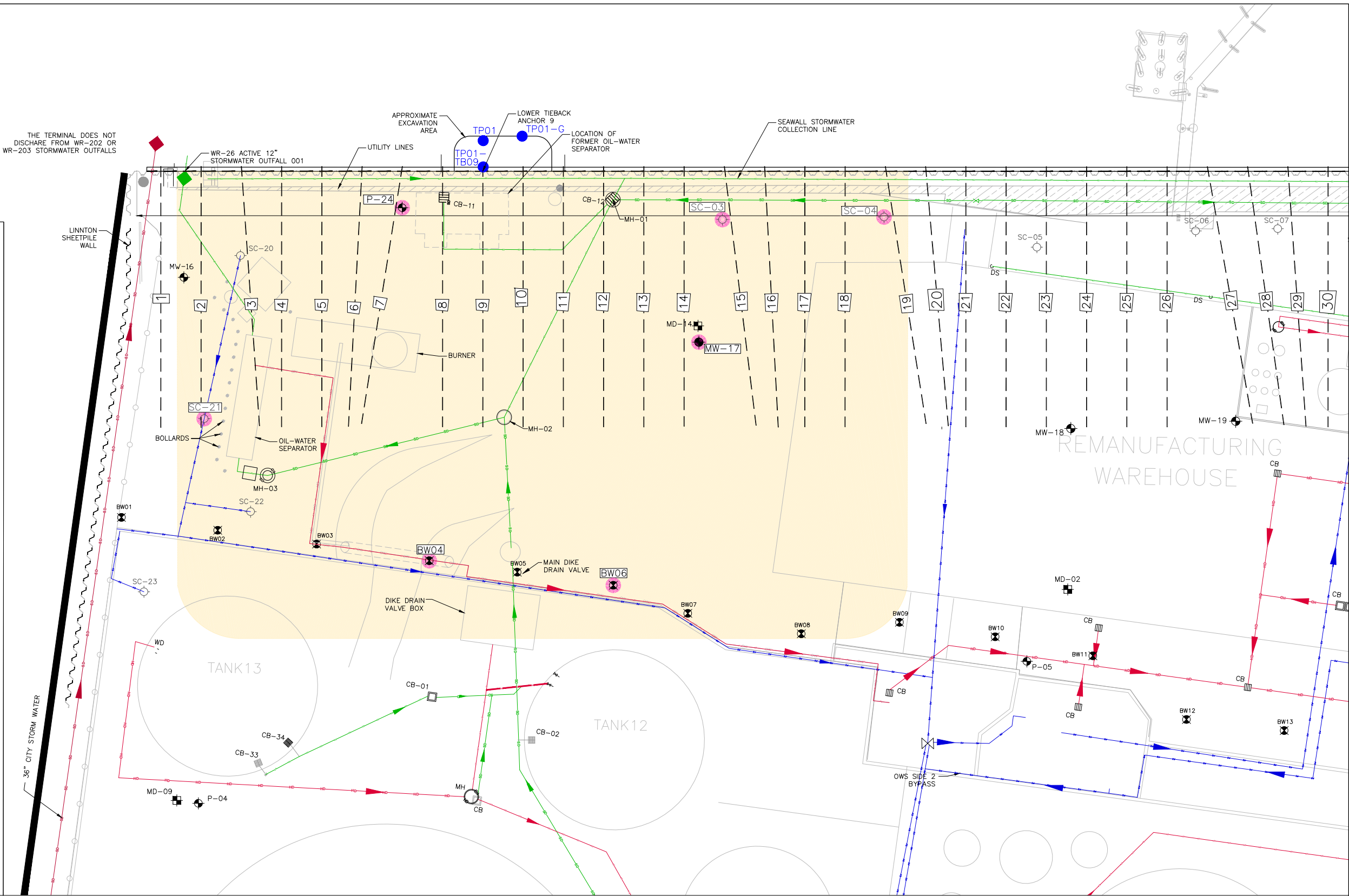
K:\BP\WKO\2024\Fig 2 Site Location Map.dwg Dec 19, 2024 - 12:09pm



LEGEND

- Approximate Property Line
- Concrete Retaining Wall
- Fence
- Railroad Tracks
- Sheetpile Barrier
- Gate
- Groundwater Line
- Stormwater Line
- Off-Site Stormwater Line
- Sanitary Line
- Process Water Line
- Lower Tieback Anchor Location
- SGZ Monitoring Well
- SGZ Extraction Well
- DGZ Monitoring Well
- Barrier Well
- Sediment Sample Location Digitized from Figure-11G of the B1a Area Predesign Investigation Phase 3 Evaluation Report (Jacobs, 2024)
- Existing Well Locations for PCB Screening
- Approximate PCB Screening Focus Area

Notes:
DGZ = Deep Groundwater Zone
SGZ = Shallow Groundwater Zone



PCB SCREENING SAMPLE LOCATIONS

PORTLAND TERMINAL
9930 NW ST HELENS ROAD
PORTLAND, OREGON

FIGURE 3



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Tables

Table 1
Field Measurements of Screening Location Well Depths and Elevations
PCB Screening Report and PCB Investigation Work Plan
SMP Terminal, Portland Oregon

	Well Construction Information				Field Measurements, October 28, 2024	Measured in the Field, September 5, 2024					
Location	Ground Surface Elevation ¹ (ft CPD)	Reported Depth of Boring (ft bgs)	Reported Well Screen Interval Depths (ft bgs)	Reported Well Screen Interval Elevations ¹ (ft CPD)	Approximate Depth of Top of Casing (ft bgs)	Water Depth (ft from top of casing)	Bottom Depth for Particulate Collection ² (ft from top of casing)	Bottom Characterization and Notes	Approximate Particulate Sample Elevation ¹ (ft CPD)	Depth of Water Sample Collection (ft from top of casing)	Approximate Water Sample Elevation ¹ (ft CPD)
BW-04	32.8	25	15 - 25	17.8 - 7.8	1.5	15.2	22.6	Soft Bottom Slight Sheen	8.7	NA	NA
BW-06	33.6	25	15 - 25	18.6 - 8.6	1.5	15.7	23	Soft Bottom	9.1	NA	NA
MW-17	33.0	25	15 - 25	18.0 - 8.0	0.3	22.1	26.3	Hard Bottom Petroleum Odor	6.4	24	8.7
P-24	30.9	30	15 - 30	15.9 - 0.9	1.3	17.3	23.1	Slightly Soft	6.5	20	9.6
SC-03	32.2	41	20 - 40	12.2 - -7.8	1.2	21.6	36.6	Soft Bottom	-5.6	NA	NA
SC-04	35.0	41.5	20 - 40	15.0 - -5.0	1.5	23.5	38.8	Soft Bottom	-5.3	NA	NA
SC-21	31.5	31	12 - 31	19.5 - 0.5	1.5	12.5	29.1	Soft Bottom	0.9	NA	NA

Notes:
 bgs - below ground surface
 CPD - City of Portland Datum
 ft - feet
 NA - not applicable
 NAVD88 - north american vertical datum 1988
¹ All elevations are provided relative to CPD. Add 2.1 feet to convert to NAVD88.
² In some locations, the bottom depth is significantly shallower than the constructed depth, indicating that particulates have accumulated in the bottom of the well.

Table 2
Tieback Excavation and Sampling Depths and Elevations
PCB Screening Report
SMP Terminal, Portland Oregon

Location	Ground Surface Elevation ¹ (ft CPD)	Depth of Excavation (ft bgs)	Bottom of Excavation Elevation ¹ (ft CPD)	Depth of Sample/Tieback (ft bgs)	Elevation of Sample/Tieback ¹ (ft CPD)
Test Pit 01	15	6 ²	9 ²	5.5-6 ³	9-9.5 ³
Lower Tieback 09	15	-	-	5 ⁴	10 ⁴

Notes:

bgs - below ground surface

CPD - City of Portland Datum

ft - feet

NAVD88 - north american vertical datum 1988

¹ All elevations are provided relative to CPD. Add 2.1 feet to convert to NAVD88.

² Approximate depth and elevation of the bottom of excavation at Lower Tiebacks 9 and 10, completed in August 2023.

³ Depth and elevation of sample TP01-TB09, collected from the excavation at Lower Tiebacks 9 and 10 in August 2023.

⁴ Depth and elevation of Lower Tieback 09.

Table 3
PCB Screening Particulate Analytical Results
PCB Screening Report
SMP Terminal, Portland Oregon

Table 3A - Well Particulates

		Location	BW-04	BW-06	MW-17	P-24	SC-03	SC-04	SC-21	SC-21
		Sample ID	PART-BW04-20240905	PART-BW06-20240905	PART-MW17-20240905	PART-P24-20240905	PART-SC03-20240905	PART-SC04-20240905	PART-SC21-20240905	PART-FD-20240905
		Sample Date	09/05/2024	09/05/2024	09/05/2024	09/05/2024	09/05/2024	09/05/2024	09/05/2024	09/05/2024
		Lab Sample ID	580-143579-7	580-143579-6	580-143579-3	580-143579-1	580-143579-11	580-143579-12	580-143579-8	580-143579-9
		Matrix	Solid	Solid	Solid	Solid	Solid	Solid	Solid	Solid
		Sample Type	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Field Duplicate ^A
Method	Analyte	Unit								
SM2540G	Perent Solids	%	86.4	92.1	95.7	88.7	88.5	89.1	94.2	91.9
SW8082A	PCB Aroclor-1016	mg/kg	< 0.40	< 0.30	< 0.33	< 0.38	< 0.37	< 0.39	< 0.37	< 0.37
	PCB Aroclor-1221	mg/kg	< 0.65	< 0.49	< 0.53	< 0.61	< 0.60	< 0.63	< 0.61	< 0.60
	PCB Aroclor-1232	mg/kg	< 0.26	< 0.20	< 0.22	< 0.25	< 0.25	< 0.26	< 0.25	< 0.25
	PCB Aroclor-1242	mg/kg	< 0.43	< 0.33	< 0.35	< 0.41	< 0.40	< 0.42	< 0.40	< 0.40
	PCB Aroclor-1248	mg/kg	< 0.38	< 0.29	< 0.31	< 0.36	< 0.35	< 0.37	< 0.35	< 0.35
	PCB Aroclor-1254	mg/kg	< 0.48	< 0.37	< 0.40	< 0.46	< 0.45	< 0.47	< 0.45	< 0.45
	PCB Aroclor-1260	mg/kg	< 0.40	< 0.30	< 0.33	< 0.38	< 0.37	< 0.39	< 0.37	< 0.37

Table 3B - Groundwater

		Location	MW-17	MW-17	P-24
		Sample ID	GW-MW17-20240905	GW-FD-20240905	GW-P24-20240905
		Sample Date	09/05/2024	09/05/2024	09/05/2024
		Lab Sample ID	580-143579-4	580-143579-5	580-143579-2
		Matrix	Aqueous	Aqueous	Aqueous
		Sample Type	Primary	Field Duplicate ^B	Primary
Method	Analyte	Unit			
SW8082A	PCB Aroclor-1016	ug/L	< 0.061	< 0.061	< 0.061
	PCB Aroclor-1221	ug/L	< 0.075	< 0.075	< 0.075
	PCB Aroclor-1232	ug/L	< 0.063	< 0.063	< 0.063
	PCB Aroclor-1242	ug/L	< 0.059	< 0.059	< 0.059
	PCB Aroclor-1248	ug/L	< 0.052	< 0.052	< 0.052
	PCB Aroclor-1254	ug/L	< 0.036	< 0.036	< 0.036
	PCB Aroclor-1260	ug/L	< 0.061	< 0.061	< 0.061

Notes:

% - percent

< = not detected above the method detection limit shown.

mg/kg - milligrams/kilogram

ug/L - microgram per liter

BW - Barrier Well

MW - Monitor Well

P-24 - Monitor Well

SC - Source Control Well

A = Field Duplicate performed using sample PART-SC21-20240905

B = Field Duplicate performed using sample GW-MW17-20240905

Appendix A

PCB Screening Field Documentation



Daily Quality Control Report

DATE Sept 5, 2024DAY

S	M	T	W	TH	F	S
---	---	---	---	----	---	---

PROJECT MANAGER: Laura McWilliamsWEATHER

SNOW	RAIN	OVERCAST	CLEAR	BRIGHT SUN
------	------	----------	-------	------------

PROJECT: SMP Terminal PCB ScreeningTEMP

To 32	32-50	50-70	70-85	85 up
-------	-------	-------	-------	-------

PROJECT NUMBER:

WIND

Still	Moder	High	Report No.	
-------	-------	------	------------	--

AECOM FIELD PERSONNEL: Eddie, Monica, Christina, TomHUMIDITY

Dry	Moder	Humid		
-----	-------	-------	--	--

TIME ON-SITE: 7:00 am TIME OFF-SITE:

SUBCONTRACTORS/OTHER PERSONNEL ON SITE:

none

TAILGATE SAFETY CONDUCTED; TOPICS COVERED:

Heat, House keeping, ChemicalsWORK PERFORMED: 6:45 - Hydraulic System SC-03 / SC-04 / SC-21 - OFF7AM - SIM OPS Meeting8AM - SC-20 POWER OFF / DISCONNECTP-24 17.28' ^{BTC} DEPTH TO WATER / ^{LIGHT} NO VISABLE PRODUCT
- MEASURED at RIVER SIDE23' DEPTH TO BOTTOM (SOFT) (23.14')8:10 AM - ^{TEFLON} ~~SILICON~~ TUBING INSERTED TO DEPTH- OBSERVED SMALL SEDIMENT / PARTICULATES PLUGS
PULLED TO SURFACE. SURGED BOTTOM W/ TUBING
DURING PUMPING.- Bottom Particulates collected [PART-P24-20240905]- START WATER QUALITY PARAMETERS for GW SAMPLE- 20' BTC SAMPLE IN TAKE DEPTH [GW-P24-20240905]8:58 WATER LEVEL / OPEN (MW-17)- STRONG ODRK 22.09" DEPTH TO WATER26.26" DEPTH TO BOTTOM9:10 - SAME PROCEDURE AS P-24 TUBING SET @ WELL BOTTOM- SAMPLED PARTICULATESGW Parameters 9:20 - 9:55SAMPLES GW-MW17-20240905GW-FD-20240905 (field duplicate)10:30 BWO6 - Removed SPINGERNo NAPL✓ River side, top of PVCMeasured DEPTH of PVC 15.67" DEPTH TO WATER

SIGNATURE:

NAME:

SHEET OF

Daily Quality Control Report

PROJECT:

PROJECT NUMBER:

REPORT NO.

DATE

SOFT BOTTOM	
22.96" DEPTH TO BOTTOM	
PART-BW06-20240905 @ 1035	
1125 -	BW04 - Remared Stinger
	No NAPL
	Measured Depth to Water - 15.22 ft
	Measured Depth to Bottom - 22.63 ft
	↳ Riverside, top of PVC
	Soft Bottom - Collected SAMPLE of PARTICULATES
11:30 -	PART-BW04-20240905
LUNCH BREAK 12-12:30	
12:40	SC-2/ Set up
	Measured DEPTH - 12.51 ft
	Measured Depth to Bottom - 29.10 ft
	No ODOR / SOFT Bottom / No NAPL
	PART-SC21-20240905 @ 1300 PART-FO-20240905 @ 1315
13:20	SC-3 Set up
	Measured DTW 21.55 ft
	Measured DTB 36.56 ft
	No NAPL or SHEN - SOFT BOTTOM - LGS of PARTICULATES
	PARTICULATE SAMPLE from bottom
	PART-SC03-20240905 @ 1330
1400	Rinsete Black Pump DI WATER Through tubing
	RB-SC03-20240905
PROBLEMS ENCOUNTERED/CORRECTION ACTION TAKEN:	
1415	SC-04 OPEN VAULT
	Measured DTW 23.46 ft
	Measured DTB 38.82 ft
TOMORROW'S EXPECTATIONS: No NAPL / No SHEN / SOFT BOTTOM	
1430	PARTICULATES from Bottom SAMPLED
	PART-SC04-20240509 @ 1430
1500	Clean up SITE
1600	OFF SITE

SIGNATURE:

Christina Wheeler

NAME:

Christina Wheeler

Monitoring Well Sampling Field Log

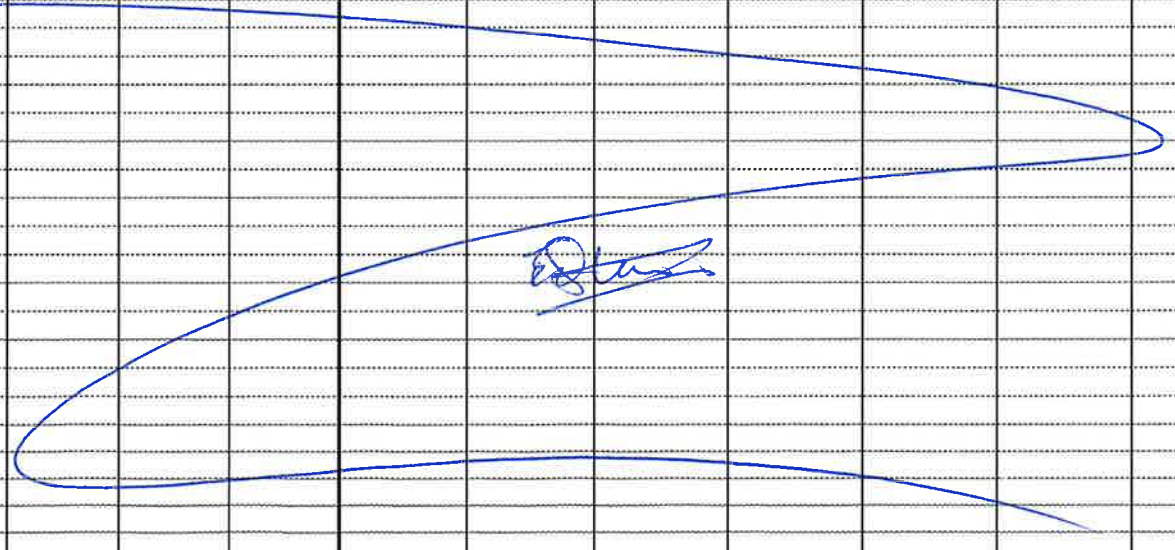
Well Number: MW-17

Page 1 of 1

Date: 9/5/24

Project Information	
Project Name: SUP TERMINAL PCB SCREENING	
Project Number:	
Sampling Information	
Field Team: Eddie/Monica	
Purge Method: PUMP	
Pump Intake Depth (ft bgs): 24'	
Flow-Through Cell:	
Sampling Method: low flow	
Decontamination Method: H2O2 / 10% bleach	
Purge Water Disposition: treatment system	
Field Conditions: 71°F, clear	
Comments: QA/QC sample GW-FD-20210905 ST 1015	
Water Quality Meter: Horiba U-50	
SN: U1175164	

Well Information					
Well Diameter (in)		Screen Interval (ft bgs)		Stick-up or Flush	
2		26.76			
Well Volume Calculation					
Well Depth (ft btc)	DTW (ft btc)	Water Column (ft)	Convert Factor (gal/ft)	One Well Volume (gal)	Three Well Volumes (gal)
	22.09				
3/4"=0.023 gal/ft 2"=0.17 gal/ft 4"=0.66 gal/ft 6"=1.5 gal/ft					
Sample Containers					Filtered?
Number	Type	Preservative	Analytical Parameters		
2	1L Amber	NPC (1/2 Bull)	PCBs		✓
2	1L Amber	NPC (1/2 Bull)	PCBs (2AQC)		✓

Well Purge Data										
Time	Volume Purged (L)	Purge Rate (mL/m)	DTW (ft btc)	Temp. (°C)	Conductivity (µS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTUs)	Clarity/Color/Remarks
0920	Pump On		22.08	-	±3%	±10%	±0.1	±10mv	±10%	<= Stabilization Criteria
0928		115	22.28	21.13	0.717	1.60	6.74	-126	232	
0933			22.37	20.21	0.689	0.80	6.75	-135	132	
0935			22.42	19.43	0.693	0.20	6.74	-139	87.5	
0940			22.47	18.93	0.699	0.08	6.75	-142	25.1	
0945			22.50	18.50	0.707	0.00	6.74	-142	14.0	
0950			22.53	18.25	0.712	0.00	6.74	-143	12.9	
0955	4.5		22.57	18.02	0.714	0.00	6.74	-143	14.3	
										
Start Sampling	0957									
End Sampling	1017									
			22.58							
Sample Time 1015					Sample Number: GW-MW17-20210905					

Note: bgs= below ground surface btc=below top of casing DTW=depth to water

Clarity: VC=very cloudy Cl=cloudy SC=slightly cloudy AC=almost clear C=clear CC=crystal clear

Monitoring Well Sampling Field Log

Well Number: P-24

Page 1 of 1

Date: 9/5/2024

Project Information	
Project Name:	SMP
Project Number:	
Sampling Information	
Field Team:	MA/ELC
Purge Method:	20' P pump
Pump Intake Depth (ft b/c):	20'
Flow-Through Cell:	1
Sampling Method:	Low Flow
Decontamination Method:	Hexam/DI Water/10% Bleach
Purge Water Disposition:	Treatment system
Field Conditions:	
Comments:	Minimum purge rate for well
Water Quality Meter:	Hanna HI-50
SN:	U1175164

Well Information					
Well Diameter (in)	Screen Interval (ft bgs)		Stick-up or Flush		
2					
Well Volume Calculation					
Well Depth (ft b/c)	DTW (ft b/c)	Water Column (ft)	Convert Factor (gal/ft)	One Well Volume (gal)	Three Well Volumes (gal)
—	—	—	—	—	—
3/4"=0.023 gal/ft 2"=0.17 gal/ft 4"=0.66 gal/ft 6"=1.5 gal/ft					
Sample Containers					Filtered?
Number	Type	Preservative	Analytical Parameters		
2	1-L Amber	None	PCBs		Y
ONLY FILLED HALF WAY					

Well Purge Data										
Time	Volume Purged (gal)	Purge Rate (mL/m)	DTW (ft b/c)	Temp. (°C)	Conductivity (µS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTUs)	Clarity/Color/Remarks
0852	Pump On		Initial	-	±3%	±10%	±0.1	±10mv	±10%	← Stabilization Criteria
0853	400	80	18.50	20.32	0.818	1.25	6.63	-154	580	
0857	800	80	18.48	20.04	0.748	0.85	6.53	-147	383	
0847	1200	80	18.62	20.00	0.771	0.75	6.56	-149	232	
0852	1600	80	18.70	19.92	0.767	0.78	6.55	-147	184	
0857	2000	80	18.75	19.96	0.768	0.77	6.56	-146	146	
0902	2400	80	18.80	20.00	0.767	0.78	6.57	-147	104	
0907	2800	80	18.80	20.04	0.770	0.79	6.56	-146	62.1	
0912	3200	80	18.80	20.09	0.777	0.78	6.55	-146	62.6	
0917	3600	80	18.80	20.08	0.772	0.79	6.56	-147	63.1	
Start Sampling: 0922 End Sampling: 0953 Field Filtered - Filtered 250 mL through filter prior to sampling Sample Number: GW-P24-20240905										

SAMPLE TIME: 0845

Note: bgs= below ground surface b/c=below top of casing DTW=depth to water

Clarity: VC=very cloudy Cl=cloudy SC=slightly cloudy AC=almost clear C=clear CC=crystal clear

SMP Terminal PCB Screening Sept 5, 2024

7:00 H&S Meeting, Emphasis on Heat Safety

7:30 Delivery on bottle kits.

Set up Decon Station

8:00 Open up P-24. Measurements from top of casing (TOC)
measured at River side.

Depth to water 17.28 ft; bottom 23.14

No NAPL, odor; slightly soft

Meter had a few particulates

PART-P24-20240905

8:10 Sample with peristaltic pump @ 8:10
collected particulates from bottom of well

8:30 Begin purging w/ tubing 20 ft below TOC
(middle of water column)

Note that screened interval in work plan
is deeper than what we see in the field.

GW-P24-20240905 @ 8:45

Picture #1. Particulates from P24

8:50 Open Up MW-17 Measurements from TOC river side

Depth to water 22.09 ft; Bottom 26.26

No NAPL; No particulates; Hard Bottom

Strong TPH odor when opened

Very few particulates - Picture #2

PART-MW17-20240905 @ 9:05

Sept 5, 2024

920 Begin Purging MW17, will collect GW
sample from 24 ft below TDC

945 Collect sample GW-MW17-20240905 @ 945

Collect a field duplicate GW-FD-20240905 @ 1015

1020 Open vault for Barrier well BW04, full of water
Will pump out well vault.

1030 Open vault for BW06 - Pictures of screen
slight silvery sheen on removed casing
No NAPL. Measure depth from top of PVC inside
Water 15.67 ft deep trace of particulates
Bottom of well 22.96 ft. on probe.

use pump to collect particulate sample from the bottom
PART-BW06-20240905 @ 1035
sample Picture #3

1120 Move over to BW04 - Picture of screen
No sheen on casing, No NAPL in well
Depth to water from PVC Riverside
50 ft bottom 15.22 to water 22.63 to bottom
collect particulates from bottom w/ pump
PART-BW04-20240905 @ 1130
sample Picture #4

Sept 5, 2024

1200 Lunch Break

1230 Back from lunch. GW system pumps have been off for about 5-6 hours.

1240 Set up on SC-21, No sheen on pump.

Measure depth to top of PVC on river side
Water 12.51 ft; bottom of well 29.10
soft bottom No NAPL

particulate sample from bottom of well

PART-SC21-20240905 @ 1300

also collect field duplicate Sample picture #5

PART-FD-20240905 @ 1315

1320 Set up on SC-3 - pictures of pump before SC-21 sample

Lots of Oxidized Iron but no NAPL or Sheen

Water 21.55 ft; bottom of well 36.56

Measure to TOC (PVC) on river side

very, very soft. Lots of sediment in casing

collect particulate sample from bottom

PART-SC03-20240905 @ 1330

sample picture #6

1400 Collect rinsate blank pumping DI water
through pump/tubing RB-SC03-20240905

Sept 5, 2024

1415 Open up SC-Ø4 - No NAPL or sheen
Similar from residues on pump.
Measure to TOC (PVC) on River side
23.46 to Water 38.82 to Bottom
very soft bottom

1430 Collect sample of particulates
PART-SCØ4-20240509 @ 1430
Sample picture #7

1500 All samples are collected. Cleaning up.

1600 Off site

Laura will retain custody of samples
overnight and coordinate for lab delivery
tomorrow

Laura
McWilliam

Appendix B

Photographic Record of PCB Screening Fieldwork

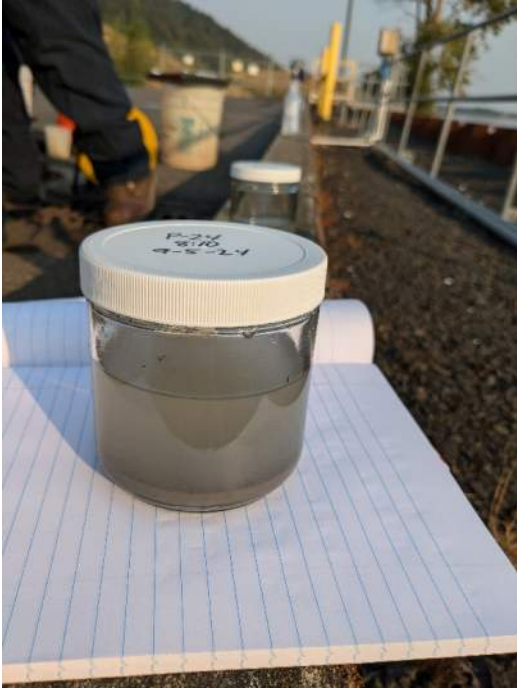
Project: SMP PCB Screening Evaluation	Site Location: SMP Bulk Fueling Terminal, Portland, Oregon	Date: September 5, 2024
Photo Number: 1		
Description: Particulates from P-24		

Photo Number: 2		
Description: Particulates from MW-17		

Project: SMP PCB Screening Evaluation	Site Location: SMP Bulk Fueling Terminal, Portland, Oregon	Date: September 5, 2024
Photo Number: 3		
Description: Removing Interior Casing from Barrier Well BW-06		

Photo Number: 4		
Description: Slight Sheen from Handling Interior Casing from BW-06		

Project: SMP PCB Screening Evaluation	Site Location: SMP Bulk Fueling Terminal, Portland, Oregon	Date: September 5, 2024
Photo Number: 5		
Description: Measuring Well Depth from Top of Outside Casing at Barrier Well BW-06		

Photo Number: 6		
Description: Particulate Sample from BW-06		

Project: SMP PCB Screening Evaluation	Site Location: SMP Bulk Fueling Terminal, Portland, Oregon	Date: September 5, 2024
Photo Number: 7		
Description: Interior Casing Removed from Barrier Well BW-04		

Photo Number: 8		
Description: Particulate Sample from BW-04		

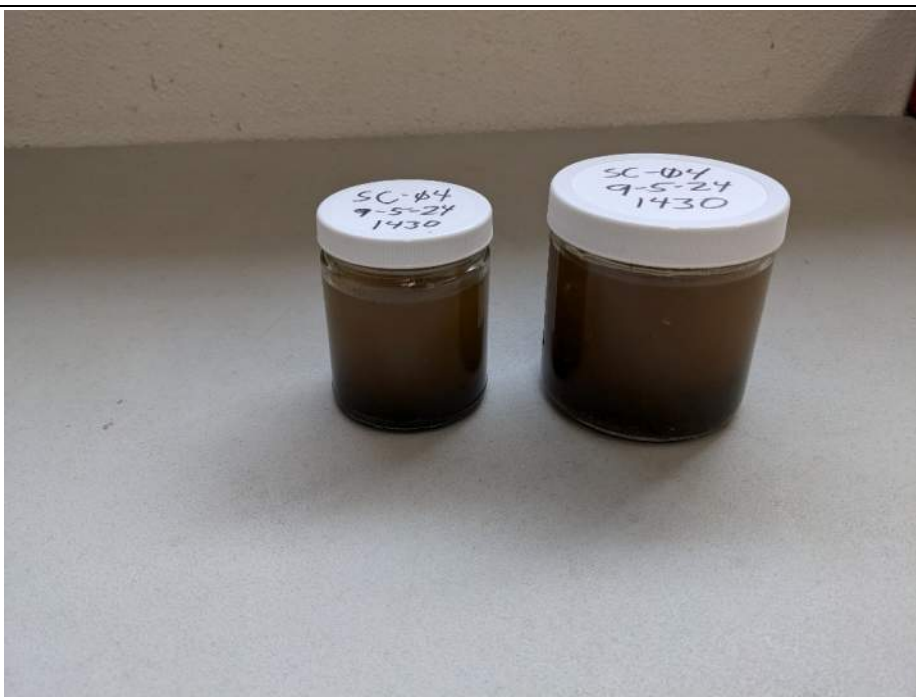
Project: SMP PCB Screening Evaluation	Site Location: SMP Bulk Fueling Terminal, Portland, Oregon	Date: September 5, 2024
Photo Number: 9		
Description: Removing Pump from Source Control Well SC-21		

Photo Number: 10		
Description: Particulate Sample from SC-21		

Project: SMP PCB Screening Evaluation	Site Location: SMP Bulk Fueling Terminal, Portland, Oregon	Date: September 5, 2024
Photo Number: 11		
Description: Removing Pump from Source Control Well SC-03		

Photo Number: 12		
Description: Particulate Sample from SC-03		

Project: SMP PCB Screening Evaluation	Site Location: SMP Bulk Fueling Terminal, Portland, Oregon	Date: September 5, 2024
Photo Number: 13		
Description: Removing Pump from Source Control Well SC-04		

Photo Number: 14		
Description: Particulate Sample from SC-04		

Appendix C

PCB Screening Laboratory Analytical Report



ANALYTICAL REPORT

PREPARED FOR

Attn: Micah Hintz
Haley & Aldrich, Inc.
6420 S. Macadam Ave.
Suite #100
Portland, Oregon 97239
Generated 9/30/2024 7:00:36 PM

JOB DESCRIPTION

BP- Portland Harbor

JOB NUMBER

580-143579-1

Eurofins Seattle

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northwest, LLC Project Manager.

Authorization



Generated
9/30/2024 7:00:36 PM

Authorized for release by
Marie Walker, Senior Project Manager
M.Elaine.Walker@et.eurofinsus.com
(253)248-4972



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Case Narrative

Client: Haley & Aldrich, Inc.
Project: BP- Portland Harbor

Job ID: 580-143579-1

Job ID: 580-143579-1

Eurofins Seattle

Job Narrative 580-143579-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt

The samples were received on 9/6/2024 11:20 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 0.2°C and 0.9°C.

Method 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Samples PART-P24-20240905 (580-143579-1), GW-P24-20240905 (580-143579-2), PART-MW17-20240905 (580-143579-3), GW-MW17-20240905 (580-143579-4), GW-FD-20240905 (580-143579-5), PART-BW06-20240905 (580-143579-6), PART-BW04-20240905 (580-143579-7), PART-SC21-20240905 (580-143579-8), PART-FD-20240905 (580-143579-9), RB-SC03-20240905 (580-143579-10), PART-SC03-20240905 (580-143579-11) and PART-SC04-20240905 (580-143579-12) were analyzed for Polychlorinated Biphenyls (PCBs) by Gas Chromatography. The samples were prepared on 9/12/2024, 9/24/2024 and 9/26/2024 and analyzed on 9/15/2024, 9/25/2024 and 9/27/2024.

The following samples required TBA clean-up, via EPA Method 3660B, to reduce matrix interferences TBA_00052: PART-MW17-20240905 (580-143579-3), PART-BW06-20240905 (580-143579-6), PART-BW04-20240905 (580-143579-7), PART-SC21-20240905 (580-143579-8), PART-FD-20240905 (580-143579-9), PART-SC03-20240905 (580-143579-11), PART-SC04-20240905 (580-143579-12), (LCS 580-472518/2-A), (MB 580-472518/1-A), (LCS 580-472802/2-A), and (MB 580-472802/1-A).

Surrogate recovery for the following sample was outside control limits: PART-P24-20240905 (580-143579-1). Re-extraction and/or re-analysis was performed outside of holding time with acceptable results.

The continuing calibration verification (CCV) associated with 580-472948 recovered high and outside the control limits for PCB-1016 on one column. Results are confirmed on both columns and reported from the passing column. The associated sample is: (CCVIS 580-472948/1).

The continuing calibration verification (CCV) associated with batch 580-472948 recovered above the upper control limit for PCB-1260. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: PART-P24-20240905 (580-143579-1), (CCVIS 580-472948/1), (MB 580-472802/1-A) and (580-144125-A-1-A).

Method 2540G - SM 2540G

Samples PART-P24-20240905 (580-143579-1), PART-MW17-20240905 (580-143579-3), PART-BW06-20240905 (580-143579-6), PART-BW04-20240905 (580-143579-7), PART-SC21-20240905 (580-143579-8), PART-FD-20240905 (580-143579-9), PART-SC03-20240905 (580-143579-11) and PART-SC04-20240905 (580-143579-12) were analyzed for SM 2540G. The samples were analyzed on 9/12/2024 and 9/13/2024.

Eurofins Seattle

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: BP- Portland Harbor

Job ID: 580-143579-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
-----------	-----------------------

S1-	Surrogate recovery exceeds control limits, low biased.
-----	--

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
--------------	---

α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: BP- Portland Harbor

Job ID: 580-143579-1

Client Sample ID: PART-P24-20240905

Lab Sample ID: 580-143579-1

Date Collected: 09/05/24 08:10

Matrix: Solid

Date Received: 09/06/24 11:20

Percent Solids: 88.7

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.98	0.36	mg/Kg	✱	09/24/24 12:26	09/25/24 02:14	1
PCB-1016	ND		1.0	0.38	mg/Kg	✱	09/26/24 10:29	09/27/24 18:08	1
PCB-1221	ND		0.98	0.59	mg/Kg	✱	09/24/24 12:26	09/25/24 02:14	1
PCB-1221	ND		1.0	0.61	mg/Kg	✱	09/26/24 10:29	09/27/24 18:08	1
PCB-1232	ND		0.98	0.24	mg/Kg	✱	09/24/24 12:26	09/25/24 02:14	1
PCB-1232	ND		1.0	0.25	mg/Kg	✱	09/26/24 10:29	09/27/24 18:08	1
PCB-1242	ND		0.98	0.39	mg/Kg	✱	09/24/24 12:26	09/25/24 02:14	1
PCB-1242	ND		1.0	0.41	mg/Kg	✱	09/26/24 10:29	09/27/24 18:08	1
PCB-1248	ND		0.98	0.34	mg/Kg	✱	09/24/24 12:26	09/25/24 02:14	1
PCB-1248	ND		1.0	0.36	mg/Kg	✱	09/26/24 10:29	09/27/24 18:08	1
PCB-1254	ND		0.98	0.44	mg/Kg	✱	09/24/24 12:26	09/25/24 02:14	1
PCB-1254	ND		1.0	0.46	mg/Kg	✱	09/26/24 10:29	09/27/24 18:08	1
PCB-1260	ND		0.98	0.36	mg/Kg	✱	09/24/24 12:26	09/25/24 02:14	1
PCB-1260	ND		1.0	0.38	mg/Kg	✱	09/26/24 10:29	09/27/24 18:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	33	S1-	44 - 135	09/24/24 12:26	09/25/24 02:14	1
DCB Decachlorobiphenyl	44		44 - 135	09/26/24 10:29	09/27/24 18:08	1
Tetrachloro-m-xylene	57		48 - 150	09/24/24 12:26	09/25/24 02:14	1
Tetrachloro-m-xylene	49		48 - 150	09/26/24 10:29	09/27/24 18:08	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (SM22 2540G)	88.7		0.1	0.1	%			09/13/24 09:42	1
Percent Moisture (SM22 2540G)	11.3		0.1	0.1	%			09/13/24 09:42	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: BP- Portland Harbor

Job ID: 580-143579-1

Client Sample ID: GW-P24-20240905

Lab Sample ID: 580-143579-2

Date Collected: 09/05/24 08:45

Matrix: Water

Date Received: 09/06/24 11:20

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.45	0.061	ug/L		09/12/24 08:52	09/15/24 00:04	1
PCB-1221	ND		0.45	0.075	ug/L		09/12/24 08:52	09/15/24 00:04	1
PCB-1232	ND		0.45	0.063	ug/L		09/12/24 08:52	09/15/24 00:04	1
PCB-1242	ND		0.45	0.059	ug/L		09/12/24 08:52	09/15/24 00:04	1
PCB-1248	ND		0.45	0.052	ug/L		09/12/24 08:52	09/15/24 00:04	1
PCB-1254	ND		0.45	0.036	ug/L		09/12/24 08:52	09/15/24 00:04	1
PCB-1260	ND		0.45	0.061	ug/L		09/12/24 08:52	09/15/24 00:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	58		40 - 142	09/12/24 08:52	09/15/24 00:04	1
Tetrachloro-m-xylene	54		29 - 120	09/12/24 08:52	09/15/24 00:04	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: BP- Portland Harbor

Job ID: 580-143579-1

Client Sample ID: PART-MW17-20240905

Lab Sample ID: 580-143579-3

Date Collected: 09/05/24 09:05

Matrix: Solid

Date Received: 09/06/24 11:20

Percent Solids: 95.7

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.89	0.33	mg/Kg	✱	09/24/24 12:26	09/25/24 02:32	1
PCB-1221	ND		0.89	0.53	mg/Kg	✱	09/24/24 12:26	09/25/24 02:32	1
PCB-1232	ND		0.89	0.22	mg/Kg	✱	09/24/24 12:26	09/25/24 02:32	1
PCB-1242	ND		0.89	0.35	mg/Kg	✱	09/24/24 12:26	09/25/24 02:32	1
PCB-1248	ND		0.89	0.31	mg/Kg	✱	09/24/24 12:26	09/25/24 02:32	1
PCB-1254	ND		0.89	0.40	mg/Kg	✱	09/24/24 12:26	09/25/24 02:32	1
PCB-1260	ND		0.89	0.33	mg/Kg	✱	09/24/24 12:26	09/25/24 02:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	50		44 - 135	09/24/24 12:26	09/25/24 02:32	1
Tetrachloro-m-xylene	76		48 - 150	09/24/24 12:26	09/25/24 02:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (SM22 2540G)	95.7		0.1	0.1	%			09/13/24 09:42	1
Percent Moisture (SM22 2540G)	4.3		0.1	0.1	%			09/13/24 09:42	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: BP- Portland Harbor

Job ID: 580-143579-1

Client Sample ID: GW-MW17-20240905

Lab Sample ID: 580-143579-4

Date Collected: 09/05/24 09:45

Matrix: Water

Date Received: 09/06/24 11:20

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.45	0.061	ug/L		09/12/24 08:52	09/15/24 00:21	1
PCB-1221	ND		0.45	0.075	ug/L		09/12/24 08:52	09/15/24 00:21	1
PCB-1232	ND		0.45	0.063	ug/L		09/12/24 08:52	09/15/24 00:21	1
PCB-1242	ND		0.45	0.059	ug/L		09/12/24 08:52	09/15/24 00:21	1
PCB-1248	ND		0.45	0.052	ug/L		09/12/24 08:52	09/15/24 00:21	1
PCB-1254	ND		0.45	0.036	ug/L		09/12/24 08:52	09/15/24 00:21	1
PCB-1260	ND		0.45	0.061	ug/L		09/12/24 08:52	09/15/24 00:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	67		40 - 142	09/12/24 08:52	09/15/24 00:21	1
Tetrachloro-m-xylene	55		29 - 120	09/12/24 08:52	09/15/24 00:21	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: BP- Portland Harbor

Job ID: 580-143579-1

Client Sample ID: GW-FD-20240905

Lab Sample ID: 580-143579-5

Date Collected: 09/05/24 10:15

Matrix: Water

Date Received: 09/06/24 11:20

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.45	0.061	ug/L		09/12/24 08:52	09/15/24 00:39	1
PCB-1221	ND		0.45	0.075	ug/L		09/12/24 08:52	09/15/24 00:39	1
PCB-1232	ND		0.45	0.063	ug/L		09/12/24 08:52	09/15/24 00:39	1
PCB-1242	ND		0.45	0.059	ug/L		09/12/24 08:52	09/15/24 00:39	1
PCB-1248	ND		0.45	0.052	ug/L		09/12/24 08:52	09/15/24 00:39	1
PCB-1254	ND		0.45	0.036	ug/L		09/12/24 08:52	09/15/24 00:39	1
PCB-1260	ND		0.45	0.061	ug/L		09/12/24 08:52	09/15/24 00:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	72		40 - 142	09/12/24 08:52	09/15/24 00:39	1
Tetrachloro-m-xylene	55		29 - 120	09/12/24 08:52	09/15/24 00:39	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: BP- Portland Harbor

Job ID: 580-143579-1

Client Sample ID: PART-BW06-20240905

Lab Sample ID: 580-143579-6

Date Collected: 09/05/24 10:35

Matrix: Solid

Date Received: 09/06/24 11:20

Percent Solids: 92.1

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.82	0.30	mg/Kg	✱	09/24/24 12:26	09/25/24 02:49	1
PCB-1221	ND		0.82	0.49	mg/Kg	✱	09/24/24 12:26	09/25/24 02:49	1
PCB-1232	ND		0.82	0.20	mg/Kg	✱	09/24/24 12:26	09/25/24 02:49	1
PCB-1242	ND		0.82	0.33	mg/Kg	✱	09/24/24 12:26	09/25/24 02:49	1
PCB-1248	ND		0.82	0.29	mg/Kg	✱	09/24/24 12:26	09/25/24 02:49	1
PCB-1254	ND		0.82	0.37	mg/Kg	✱	09/24/24 12:26	09/25/24 02:49	1
PCB-1260	ND		0.82	0.30	mg/Kg	✱	09/24/24 12:26	09/25/24 02:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	45		44 - 135	09/24/24 12:26	09/25/24 02:49	1
Tetrachloro-m-xylene	74		48 - 150	09/24/24 12:26	09/25/24 02:49	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (SM22 2540G)	92.1		0.1	0.1	%			09/13/24 09:42	1
Percent Moisture (SM22 2540G)	7.9		0.1	0.1	%			09/13/24 09:42	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: BP- Portland Harbor

Job ID: 580-143579-1

Client Sample ID: PART-BW04-20240905

Lab Sample ID: 580-143579-7

Date Collected: 09/05/24 11:30

Matrix: Solid

Date Received: 09/06/24 11:20

Percent Solids: 86.4

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		1.1	0.40	mg/Kg	✱	09/24/24 12:26	09/25/24 03:07	1
PCB-1221	ND		1.1	0.65	mg/Kg	✱	09/24/24 12:26	09/25/24 03:07	1
PCB-1232	ND		1.1	0.26	mg/Kg	✱	09/24/24 12:26	09/25/24 03:07	1
PCB-1242	ND		1.1	0.43	mg/Kg	✱	09/24/24 12:26	09/25/24 03:07	1
PCB-1248	ND		1.1	0.38	mg/Kg	✱	09/24/24 12:26	09/25/24 03:07	1
PCB-1254	ND		1.1	0.48	mg/Kg	✱	09/24/24 12:26	09/25/24 03:07	1
PCB-1260	ND		1.1	0.40	mg/Kg	✱	09/24/24 12:26	09/25/24 03:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	47		44 - 135	09/24/24 12:26	09/25/24 03:07	1
Tetrachloro-m-xylene	74		48 - 150	09/24/24 12:26	09/25/24 03:07	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (SM22 2540G)	86.4		0.1	0.1	%			09/13/24 09:42	1
Percent Moisture (SM22 2540G)	13.6		0.1	0.1	%			09/13/24 09:42	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: BP- Portland Harbor

Job ID: 580-143579-1

Client Sample ID: PART-SC21-20240905

Lab Sample ID: 580-143579-8

Date Collected: 09/05/24 13:00

Matrix: Solid

Date Received: 09/06/24 11:20

Percent Solids: 94.2

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		1.0	0.37	mg/Kg	✱	09/24/24 12:26	09/25/24 03:25	1
PCB-1221	ND		1.0	0.61	mg/Kg	✱	09/24/24 12:26	09/25/24 03:25	1
PCB-1232	ND		1.0	0.25	mg/Kg	✱	09/24/24 12:26	09/25/24 03:25	1
PCB-1242	ND		1.0	0.40	mg/Kg	✱	09/24/24 12:26	09/25/24 03:25	1
PCB-1248	ND		1.0	0.35	mg/Kg	✱	09/24/24 12:26	09/25/24 03:25	1
PCB-1254	ND		1.0	0.45	mg/Kg	✱	09/24/24 12:26	09/25/24 03:25	1
PCB-1260	ND		1.0	0.37	mg/Kg	✱	09/24/24 12:26	09/25/24 03:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	62		44 - 135	09/24/24 12:26	09/25/24 03:25	1
Tetrachloro-m-xylene	73		48 - 150	09/24/24 12:26	09/25/24 03:25	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (SM22 2540G)	94.2		0.1	0.1	%			09/12/24 13:59	1
Percent Moisture (SM22 2540G)	5.8		0.1	0.1	%			09/12/24 13:59	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: BP- Portland Harbor

Job ID: 580-143579-1

Client Sample ID: PART-FD-20240905

Lab Sample ID: 580-143579-9

Date Collected: 09/05/24 13:15

Matrix: Solid

Date Received: 09/06/24 11:20

Percent Solids: 91.9

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		1.0	0.37	mg/Kg	✱	09/24/24 12:26	09/25/24 03:42	1
PCB-1221	ND		1.0	0.60	mg/Kg	✱	09/24/24 12:26	09/25/24 03:42	1
PCB-1232	ND		1.0	0.25	mg/Kg	✱	09/24/24 12:26	09/25/24 03:42	1
PCB-1242	ND		1.0	0.40	mg/Kg	✱	09/24/24 12:26	09/25/24 03:42	1
PCB-1248	ND		1.0	0.35	mg/Kg	✱	09/24/24 12:26	09/25/24 03:42	1
PCB-1254	ND		1.0	0.45	mg/Kg	✱	09/24/24 12:26	09/25/24 03:42	1
PCB-1260	ND		1.0	0.37	mg/Kg	✱	09/24/24 12:26	09/25/24 03:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	62		44 - 135	09/24/24 12:26	09/25/24 03:42	1
Tetrachloro-m-xylene	76		48 - 150	09/24/24 12:26	09/25/24 03:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (SM22 2540G)	91.9		0.1	0.1	%			09/12/24 13:59	1
Percent Moisture (SM22 2540G)	8.1		0.1	0.1	%			09/12/24 13:59	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: BP- Portland Harbor

Job ID: 580-143579-1

Client Sample ID: RB-SC03-20240905

Lab Sample ID: 580-143579-10

Date Collected: 09/05/24 14:00

Matrix: Water

Date Received: 09/06/24 11:20

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.45	0.061	ug/L		09/12/24 08:52	09/15/24 00:57	1
PCB-1221	ND		0.45	0.075	ug/L		09/12/24 08:52	09/15/24 00:57	1
PCB-1232	ND		0.45	0.063	ug/L		09/12/24 08:52	09/15/24 00:57	1
PCB-1242	ND		0.45	0.059	ug/L		09/12/24 08:52	09/15/24 00:57	1
PCB-1248	ND		0.45	0.052	ug/L		09/12/24 08:52	09/15/24 00:57	1
PCB-1254	ND		0.45	0.036	ug/L		09/12/24 08:52	09/15/24 00:57	1
PCB-1260	ND		0.45	0.061	ug/L		09/12/24 08:52	09/15/24 00:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	65		40 - 142				09/12/24 08:52	09/15/24 00:57	1
Tetrachloro-m-xylene	60		29 - 120				09/12/24 08:52	09/15/24 00:57	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: BP- Portland Harbor

Job ID: 580-143579-1

Client Sample ID: PART-SC03-20240905

Lab Sample ID: 580-143579-11

Date Collected: 09/05/24 13:30

Matrix: Solid

Date Received: 09/06/24 11:20

Percent Solids: 88.5

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		1.0	0.37	mg/Kg	✱	09/24/24 12:26	09/25/24 04:00	1
PCB-1221	ND		1.0	0.60	mg/Kg	✱	09/24/24 12:26	09/25/24 04:00	1
PCB-1232	ND		1.0	0.25	mg/Kg	✱	09/24/24 12:26	09/25/24 04:00	1
PCB-1242	ND		1.0	0.40	mg/Kg	✱	09/24/24 12:26	09/25/24 04:00	1
PCB-1248	ND		1.0	0.35	mg/Kg	✱	09/24/24 12:26	09/25/24 04:00	1
PCB-1254	ND		1.0	0.45	mg/Kg	✱	09/24/24 12:26	09/25/24 04:00	1
PCB-1260	ND		1.0	0.37	mg/Kg	✱	09/24/24 12:26	09/25/24 04:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	61		44 - 135	09/24/24 12:26	09/25/24 04:00	1
Tetrachloro-m-xylene	78		48 - 150	09/24/24 12:26	09/25/24 04:00	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (SM22 2540G)	88.5		0.1	0.1	%			09/12/24 13:59	1
Percent Moisture (SM22 2540G)	11.5		0.1	0.1	%			09/12/24 13:59	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: BP- Portland Harbor

Job ID: 580-143579-1

Client Sample ID: PART-SC04-20240905

Lab Sample ID: 580-143579-12

Date Collected: 09/05/24 14:30

Matrix: Solid

Date Received: 09/06/24 11:20

Percent Solids: 89.1

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		1.1	0.39	mg/Kg	☼	09/24/24 12:26	09/25/24 04:18	1
PCB-1221	ND		1.1	0.63	mg/Kg	☼	09/24/24 12:26	09/25/24 04:18	1
PCB-1232	ND		1.1	0.26	mg/Kg	☼	09/24/24 12:26	09/25/24 04:18	1
PCB-1242	ND		1.1	0.42	mg/Kg	☼	09/24/24 12:26	09/25/24 04:18	1
PCB-1248	ND		1.1	0.37	mg/Kg	☼	09/24/24 12:26	09/25/24 04:18	1
PCB-1254	ND		1.1	0.47	mg/Kg	☼	09/24/24 12:26	09/25/24 04:18	1
PCB-1260	ND		1.1	0.39	mg/Kg	☼	09/24/24 12:26	09/25/24 04:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	63		44 - 135	09/24/24 12:26	09/25/24 04:18	1
Tetrachloro-m-xylene	79		48 - 150	09/24/24 12:26	09/25/24 04:18	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (SM22 2540G)	89.1		0.1	0.1	%			09/13/24 09:42	1
Percent Moisture (SM22 2540G)	10.9		0.1	0.1	%			09/13/24 09:42	1

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: BP- Portland Harbor

Job ID: 580-143579-1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 580-471179/1-A

Matrix: Water

Analysis Batch: 471508

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 471179

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.45	0.061	ug/L		09/12/24 08:52	09/14/24 22:53	1
PCB-1221	ND		0.45	0.075	ug/L		09/12/24 08:52	09/14/24 22:53	1
PCB-1232	ND		0.45	0.063	ug/L		09/12/24 08:52	09/14/24 22:53	1
PCB-1242	ND		0.45	0.059	ug/L		09/12/24 08:52	09/14/24 22:53	1
PCB-1248	ND		0.45	0.052	ug/L		09/12/24 08:52	09/14/24 22:53	1
PCB-1254	ND		0.45	0.036	ug/L		09/12/24 08:52	09/14/24 22:53	1
PCB-1260	ND		0.45	0.061	ug/L		09/12/24 08:52	09/14/24 22:53	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	57		40 - 142				09/12/24 08:52	09/14/24 22:53	1
Tetrachloro-m-xylene	65		29 - 120				09/12/24 08:52	09/14/24 22:53	1

Lab Sample ID: LCS 580-471179/2-A

Matrix: Water

Analysis Batch: 471508

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 471179

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
PCB-1016	1.00	0.695		ug/L		69	37 - 143
PCB-1260	1.00	0.665		ug/L		67	43 - 120
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
DCB Decachlorobiphenyl	58		40 - 142				
Tetrachloro-m-xylene	66		29 - 120				

Lab Sample ID: LCSD 580-471179/3-A

Matrix: Water

Analysis Batch: 471508

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 471179

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
PCB-1016	1.00	0.682		ug/L		68	37 - 143	2	23
PCB-1260	1.00	0.648		ug/L		65	43 - 120	3	15
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
DCB Decachlorobiphenyl	55		40 - 142						
Tetrachloro-m-xylene	61		29 - 120						

Lab Sample ID: MB 580-472518/1-A

Matrix: Solid

Analysis Batch: 472586

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 472518

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		1.0	0.37	mg/Kg		09/24/24 12:26	09/24/24 22:43	1
PCB-1221	ND		1.0	0.60	mg/Kg		09/24/24 12:26	09/24/24 22:43	1
PCB-1232	ND		1.0	0.25	mg/Kg		09/24/24 12:26	09/24/24 22:43	1
PCB-1242	ND		1.0	0.40	mg/Kg		09/24/24 12:26	09/24/24 22:43	1
PCB-1248	ND		1.0	0.35	mg/Kg		09/24/24 12:26	09/24/24 22:43	1
PCB-1254	ND		1.0	0.45	mg/Kg		09/24/24 12:26	09/24/24 22:43	1
PCB-1260	ND		1.0	0.37	mg/Kg		09/24/24 12:26	09/24/24 22:43	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: BP- Portland Harbor

Job ID: 580-143579-1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	80		44 - 135	09/24/24 12:26	09/24/24 22:43	1
Tetrachloro-m-xylene	80		48 - 150	09/24/24 12:26	09/24/24 22:43	1

Lab Sample ID: LCS 580-472518/2-A
Matrix: Solid
Analysis Batch: 472586

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 472518

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
PCB-1016	5.00	4.30		mg/Kg		86	42 - 150
PCB-1260	5.00	4.31		mg/Kg		86	43 - 145

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl	82		44 - 135
Tetrachloro-m-xylene	81		48 - 150

Lab Sample ID: MB 580-472802/1-A
Matrix: Solid
Analysis Batch: 472948

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 472802

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		1.0	0.37	mg/Kg		09/26/24 10:28	09/27/24 13:26	1
PCB-1221	ND		1.0	0.60	mg/Kg		09/26/24 10:28	09/27/24 13:26	1
PCB-1232	ND		1.0	0.25	mg/Kg		09/26/24 10:28	09/27/24 13:26	1
PCB-1242	ND		1.0	0.40	mg/Kg		09/26/24 10:28	09/27/24 13:26	1
PCB-1248	ND		1.0	0.35	mg/Kg		09/26/24 10:28	09/27/24 13:26	1
PCB-1254	ND		1.0	0.45	mg/Kg		09/26/24 10:28	09/27/24 13:26	1
PCB-1260	ND		1.0	0.37	mg/Kg		09/26/24 10:28	09/27/24 13:26	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	99		44 - 135	09/26/24 10:28	09/27/24 13:26	1
Tetrachloro-m-xylene	106		48 - 150	09/26/24 10:28	09/27/24 13:26	1

Lab Sample ID: LCS 580-472802/2-A
Matrix: Solid
Analysis Batch: 472948

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 472802

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
PCB-1016	5.00	5.04		mg/Kg		101	42 - 150
PCB-1260	5.00	5.06		mg/Kg		101	43 - 145

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl	89		44 - 135
Tetrachloro-m-xylene	97		48 - 150

Eurofins Seattle

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: BP- Portland Harbor

Job ID: 580-143579-1

Client Sample ID: PART-P24-20240905

Lab Sample ID: 580-143579-1

Date Collected: 09/05/24 08:10

Matrix: Solid

Date Received: 09/06/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	2540G		1	471350	MJ	EET SEA	09/13/24 09:42

Client Sample ID: PART-P24-20240905

Lab Sample ID: 580-143579-1

Date Collected: 09/05/24 08:10

Matrix: Solid

Date Received: 09/06/24 11:20

Percent Solids: 88.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3580A			472518	ER	EET SEA	09/24/24 12:26
Total/NA	Analysis	8082A		1	472586	VLF	EET SEA	09/25/24 02:14
Total/NA	Prep	3580A			472802	TOA	EET SEA	09/26/24 10:29
Total/NA	Analysis	8082A		1	472948	VLF	EET SEA	09/27/24 18:08

Client Sample ID: GW-P24-20240905

Lab Sample ID: 580-143579-2

Date Collected: 09/05/24 08:45

Matrix: Water

Date Received: 09/06/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			471179	JW	EET SEA	09/12/24 08:52
Total/NA	Analysis	8082A		1	471508	TL1	EET SEA	09/15/24 00:04

Client Sample ID: PART-MW17-20240905

Lab Sample ID: 580-143579-3

Date Collected: 09/05/24 09:05

Matrix: Solid

Date Received: 09/06/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	2540G		1	471350	MJ	EET SEA	09/13/24 09:42

Client Sample ID: PART-MW17-20240905

Lab Sample ID: 580-143579-3

Date Collected: 09/05/24 09:05

Matrix: Solid

Date Received: 09/06/24 11:20

Percent Solids: 95.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3580A			472518	ER	EET SEA	09/24/24 12:26
Total/NA	Analysis	8082A		1	472586	VLF	EET SEA	09/25/24 02:32

Client Sample ID: GW-MW17-20240905

Lab Sample ID: 580-143579-4

Date Collected: 09/05/24 09:45

Matrix: Water

Date Received: 09/06/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			471179	JW	EET SEA	09/12/24 08:52
Total/NA	Analysis	8082A		1	471508	TL1	EET SEA	09/15/24 00:21

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: BP- Portland Harbor

Job ID: 580-143579-1

Client Sample ID: GW-FD-20240905

Lab Sample ID: 580-143579-5

Date Collected: 09/05/24 10:15

Matrix: Water

Date Received: 09/06/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			471179	JW	EET SEA	09/12/24 08:52
Total/NA	Analysis	8082A		1	471508	TL1	EET SEA	09/15/24 00:39

Client Sample ID: PART-BW06-20240905

Lab Sample ID: 580-143579-6

Date Collected: 09/05/24 10:35

Matrix: Solid

Date Received: 09/06/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	2540G		1	471350	MJ	EET SEA	09/13/24 09:42

Client Sample ID: PART-BW06-20240905

Lab Sample ID: 580-143579-6

Date Collected: 09/05/24 10:35

Matrix: Solid

Date Received: 09/06/24 11:20

Percent Solids: 92.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3580A			472518	ER	EET SEA	09/24/24 12:26
Total/NA	Analysis	8082A		1	472586	VLF	EET SEA	09/25/24 02:49

Client Sample ID: PART-BW04-20240905

Lab Sample ID: 580-143579-7

Date Collected: 09/05/24 11:30

Matrix: Solid

Date Received: 09/06/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	2540G		1	471350	MJ	EET SEA	09/13/24 09:42

Client Sample ID: PART-BW04-20240905

Lab Sample ID: 580-143579-7

Date Collected: 09/05/24 11:30

Matrix: Solid

Date Received: 09/06/24 11:20

Percent Solids: 86.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3580A			472518	ER	EET SEA	09/24/24 12:26
Total/NA	Analysis	8082A		1	472586	VLF	EET SEA	09/25/24 03:07

Client Sample ID: PART-SC21-20240905

Lab Sample ID: 580-143579-8

Date Collected: 09/05/24 13:00

Matrix: Solid

Date Received: 09/06/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	2540G		1	471255	MJ	EET SEA	09/12/24 13:59

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: BP- Portland Harbor

Job ID: 580-143579-1

Client Sample ID: PART-SC21-20240905

Lab Sample ID: 580-143579-8

Date Collected: 09/05/24 13:00

Matrix: Solid

Date Received: 09/06/24 11:20

Percent Solids: 94.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3580A			472518	ER	EET SEA	09/24/24 12:26
Total/NA	Analysis	8082A		1	472586	VLF	EET SEA	09/25/24 03:25

Client Sample ID: PART-FD-20240905

Lab Sample ID: 580-143579-9

Date Collected: 09/05/24 13:15

Matrix: Solid

Date Received: 09/06/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	2540G		1	471255	MJ	EET SEA	09/12/24 13:59

Client Sample ID: PART-FD-20240905

Lab Sample ID: 580-143579-9

Date Collected: 09/05/24 13:15

Matrix: Solid

Date Received: 09/06/24 11:20

Percent Solids: 91.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3580A			472518	ER	EET SEA	09/24/24 12:26
Total/NA	Analysis	8082A		1	472586	VLF	EET SEA	09/25/24 03:42

Client Sample ID: RB-SC03-20240905

Lab Sample ID: 580-143579-10

Date Collected: 09/05/24 14:00

Matrix: Water

Date Received: 09/06/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			471179	JW	EET SEA	09/12/24 08:52
Total/NA	Analysis	8082A		1	471508	TL1	EET SEA	09/15/24 00:57

Client Sample ID: PART-SC03-20240905

Lab Sample ID: 580-143579-11

Date Collected: 09/05/24 13:30

Matrix: Solid

Date Received: 09/06/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	2540G		1	471255	MJ	EET SEA	09/12/24 13:59

Client Sample ID: PART-SC03-20240905

Lab Sample ID: 580-143579-11

Date Collected: 09/05/24 13:30

Matrix: Solid

Date Received: 09/06/24 11:20

Percent Solids: 88.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3580A			472518	ER	EET SEA	09/24/24 12:26
Total/NA	Analysis	8082A		1	472586	VLF	EET SEA	09/25/24 04:00

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: BP- Portland Harbor

Job ID: 580-143579-1

Client Sample ID: PART-SC04-20240905
Date Collected: 09/05/24 14:30
Date Received: 09/06/24 11:20

Lab Sample ID: 580-143579-12
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	2540G		1	471350	MJ	EET SEA	09/13/24 09:42

Client Sample ID: PART-SC04-20240905
Date Collected: 09/05/24 14:30
Date Received: 09/06/24 11:20

Lab Sample ID: 580-143579-12
Matrix: Solid
Percent Solids: 89.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3580A			472518	ER	EET SEA	09/24/24 12:26
Total/NA	Analysis	8082A		1	472586	VLF	EET SEA	09/25/24 04:18

Laboratory References:
EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: BP- Portland Harbor

Job ID: 580-143579-1

Laboratory: Eurofins Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Oregon	NELAP	4167	07-07-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
2540G		Solid	Percent Solids

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: BP- Portland Harbor

Job ID: 580-143579-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-143579-1	PART-P24-20240905	Solid	09/05/24 08:10	09/06/24 11:20
580-143579-2	GW-P24-20240905	Water	09/05/24 08:45	09/06/24 11:20
580-143579-3	PART-MW17-20240905	Solid	09/05/24 09:05	09/06/24 11:20
580-143579-4	GW-MW17-20240905	Water	09/05/24 09:45	09/06/24 11:20
580-143579-5	GW-FD-20240905	Water	09/05/24 10:15	09/06/24 11:20
580-143579-6	PART-BW06-20240905	Solid	09/05/24 10:35	09/06/24 11:20
580-143579-7	PART-BW04-20240905	Solid	09/05/24 11:30	09/06/24 11:20
580-143579-8	PART-SC21-20240905	Solid	09/05/24 13:00	09/06/24 11:20
580-143579-9	PART-FD-20240905	Solid	09/05/24 13:15	09/06/24 11:20
580-143579-10	RB-SC03-20240905	Water	09/05/24 14:00	09/06/24 11:20
580-143579-11	PART-SC03-20240905	Solid	09/05/24 13:30	09/06/24 11:20
580-143579-12	PART-SC04-20240905	Solid	09/05/24 14:30	09/06/24 11:20



580-143579 Chain of Custody

it Program (LaMP) Chain of Custody Record
underwater Samples

Req Due Date (mm/dd/yy):

Sept 20, 2024

TAT: 2 weeks

Page 1 of 2

Lab Work Order Number:

Any questions, call Laura

Lab Name: Eurofins Seattle, Via Portland Service Center		BP/ARC Facility Address: SMP Terminal		Consultant/Contractor: LM Consulting			
Lab Address: 7959 SW Cirrus Drive, Building 22-M, Beaverton, OR 97008		City, State, ZIP Code: Portland OR 97231		Consultant/Contractor Project No:			
Lab PM: Elaine Walker: 253-248-4972		Lead Regulatory Agency: DEQ		Address: 11671 Cypress Canyon Rd			
Service Center Phone: 503-906-9200		California Global ID No.:		Consultant/Contractor PM: Laura McWilliams			
Lab Shipping Acct:		Enfos Proposal No: TASK000010208066		Phone: 858-226-7223 Email: laura@lmconsultingsd.com			
Lab Bottle Order No:		Accounting Mode: Provision OOC-BU OOC-RM		Send/Submit EDD to: laura@lmconsultingsd.com			
Other Info:		Stage Activity		Invoice To: BP-RM ☒ BP-Other			
BP/RM PM: Paul Johnson		Requested Analyses				Report Type & QC Level	
PM Phone: 331-236-1415 (o); 630-731-4463 (m)		Filtered (Y/N)				Limited (Standard) Package	
PM Email: paul.johnson4@bp.com		Preservation				Limited Plus Package	
Unique Sample ID, must follow format of SAMPLENAMEYYYYMMDD Examples: MW01_20190101; BH01_3-5_20190101		Analysis				Full Package w/ chromatograms for samples and references ☒	
Lab No.	Time	Depth Unit	# of Containers	Matrix	PCBs + Aroclors	Moisture	Comments
	PART-P24-20240905	810	23	1 S	X	X	decant and analyze solids
	GW-P24-20240905	845	20	2 GW	X		
	PART-MW17-20240905	905	26	1 S	X		very limited volume of solids
	GW-MW17-20240905	945	24	2 GW	X		
	GW-FD-20240905	1015	24	2 GW	X		
	PART-BW06-20240905	1035	23	2 S	X	X	decant and combine solid from both jars
	combine two jars into a single volume						
	PART-BW04-20240905	1130	23	2 S	X	X	decant and combine solids from both jars
	combine two jars into a single volume						
	PART-SC21-20240905	1300	29	1 S	X	X	decant and analyze solids
	PART-FD-20240905	1315	29	2 S	X	X	decant and combine solids from both jars
	combine two jars into a single volume						
Sampler's Name: Laura McWilliams		Relinquished By / Affiliation		Date	Time	Accepted By / Affiliation	
Sampler's Company: LM Consulting		[Signature]		9/20/24	1120	[Signature]	
Ship Method: Delivered		Ship Date: [Signature]		9/16/24	1430	[Signature]	
Shipment Tracking No:							
Special Instructions: 0.1/0.2, 0.8/0.7							
THIS LINE - LAB USE ONLY: Custody Seals In Place: Yes / No Temp Blank: Yes / No Cooler Temp on Receipt: °F/C Trip Blank: Yes / No MS/MSD Sample Submitted: Yes / No							

IR14 1.9/1.6



Laboratory Management Program (LaMP) Chain of Custody Record
Soil, Sediment and Groundwater Samples

BP Site Node Path: _____

Req Due Date (mm/dd/yy):

Sept 20, 2024

TAT: 2 weeks

Page 2 of 2

BP/RM Facility No: _____

Lab Work Order Number:

Any questions, call Laura

Lab Name: Eurofins Seattle, Via Portland Service Center		BP/ARC Facility Address: SMP Terminal		Consultant/Contractor: LM Consulting			
Lab Address: 7959 SW Cirrus Drive, Building 22-M, Beaverton, OR 97008		City, State, ZIP Code: Portland OR 97231		Consultant/Contractor Project No:			
Lab PM: Elaine Walker: 253-248-4972		Lead Regulatory Agency: DEQ		Address: 11671 Cypress Canyon Rd			
Service Center Phone: 503-906-9200		California Global ID No.:		Consultant/Contractor PM: Laura McWilliams			
Lab Shipping Acct:		Enfos Proposal No: TASK000010209068		Phone: 858-226-7223 Email: laura@lmconsultingsd.com			
Lab Bottle Order No:		Accounting Mode: Provision OOC-BU OOC-RM		Send/Submit EDD to: laura@lmconsultingsd.com			
Other Info:		Stage Activity		Invoice To: BP-RM X BP-Other			
BP/RM PM: Paul Johnson		Requested Analyses				Report Type & QC Level	
PM Phone: 331-236-1415 (o); 630-731-4463 (m)		Filtered (Y/N)				Limited (Standard) Package	
PM Email: paul.johnson4@bp.com		Preservation				Limited Plus Package	
Unique Sample ID, must follow format of SAMPLENAMEYYYYMMDD Examples: MW01_20190101; BH01_3-5_20190101		Depth Unit				Full Package w/ chromatograms for samples and references X	
Time		Analysis				Comments	
RB-SC03-20240905		1400 0 2GW				decant and combine solids from both jars	
PART-SC03-20240905		1330 36 2 S				decant and combine solids from both jars	
combine two jars into a single volume		X X					
PART-SC04-20240905		1430 39 2 S					
combine two jars into a single volume		X X					
Laura McWilliams							
Sampler's Name: Laura McWilliams		Relinquished By / Affiliation		Date	Time	Accepted By / Affiliation	
Sampler's Company: LM Consulting		Laura McWilliams		9/16/24	1120	ECT	
Ship Method: Delivered		Ship Date:		9/16/24	1430	WMAA (ECT)	
Shipment Tracking No:						9/17/24 0948	
Special Instructions:							
THIS LINE - LAB USE ONLY: Custody Seals in Place: Yes / No Temp Blank: Yes / No Cooler Temp on Receipt: °F/C Trip Blank: Yes / No MS/MSD Sample Submitted: Yes / No							

IR14 1.9/1.6

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 580-143579-1

Login Number: 143579

List Number: 1

Creator: O'Connell, Jason I

List Source: Eurofins Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Appendix D

PCB Screening Data Validation Report

Data Usability Summary Report

Project Name: SMP Terminal – Portland Harbor

Project Description: Aqueous and Solid Samples

Sample Date(s): 05 September 2024

Analytical Laboratory: Eurofins Seattle – Tacoma, WA

Validation Performed by: Vanessa Godard

Validation Reviewed by: Katherine Miller

Validation Date: 15 October 2024

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

- 1. Sample Delivery Group Number 580-143579-1**
- 2. Explanations**
- 3. Glossary**
- 4. Abbreviations**
- 5. Qualifiers**
- 6. References**

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

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

Data reported in this sampling event were reported to the laboratory method detection limit (MDL). Results found between the MDL and RL are flagged J as estimated.

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

1. Sample Delivery Group Number 580-143579-1

1.1 SAMPLE MANAGEMENT

This DUSR summarizes the review of SDG number(s) 580-143579-1, dated 30 September 2024. Samples were collected, preserved, and shipped following standard chain of custody (COC) protocols.

Samples were also received appropriately, identified correctly, and analyzed according to the COC.

Analyses were performed on the following samples:

Sample ID	Sample Type	Lab ID	Sample Date	Matrix	Methods	Holding Time
PART-P24-20240905	N	580-143579-1	9/5/2024	Solid	Poly-Chlorinated Biphenyls (PCBs) by EPA 8082A	1 year extraction /40 days analysis
GW-P24-20240905	N	580-143579-2	9/5/2024	Aqueous		
PART-MW17-20240905	N	580-143579-3	9/5/2024	Solid		
GW-MW17-20240905	N	580-143579-4	9/5/2024	Aqueous		
GW-FD-20240905	FD	580-143579-5	9/5/2024	Aqueous		
PART-BW06-20240905	N	580-143579-6	9/5/2024	Solid		
PART-BW04-20240905	N	580-143579-7	9/5/2024	Solid		
PART-SC21-20240905	N	580-143579-8	9/5/2024	Solid		
PART-FD-20240905	FD	580-143579-9	9/5/2024	Solid		
RB-SC03-20240905	EB	580-143579-10	9/5/2024	Blank		
PART-SC03-20240905	N	580-143579-11	9/5/2024	Solid		
PART-SC04-20240905	N	580-143579-12	9/5/2024	Solid		

1.2 CASE NARRATIVE

The laboratory report case narrative lists various additional quality control issues, such as internal standard exceedances and initial calibration verification (ICV) and/or continuing calibration verification (CCV) exceedances. Since these additional quality control issues were not required for the project's DQOs, these quality control issues were not reviewed.

- Samples 580-143579-3, 6, 7, 8, 9, 11, and 12 required TBA clean-up via method EPA 3660B to reduce matrix interferences.
- The CCV recovered high for PCB-1016 on one column. Results were confirmed on both columns and reported from the passing column.
- The CCV recovered high for PCB-1260. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

1.3 MULTIPLE SAMPLE RESULTS

The laboratory reported multiple results for the samples listed below. The validator chose the results that best met the DQOs of the project.

Lab ID	Method	Analyte	Qualification
580-143579-1	EPA 8082A	All PCBs	The laboratory reextracted and reanalyzed the sample due to low surrogate recovery. The original results are marked nonreportable, and the reanalysis results are accepted.

1.4 HOLDING TIMES/PRESERVATION

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

Cooler(s) temperature on arrival to the laboratory was: 0.2, 0.9; 1.9/1.6°C.

1.5 REPORTING LIMITS AND SAMPLE DILUTIONS

No sample dilutions were performed for the analysis of the samples in this report.

1.6 REPORTING BASIS (WET/DRY)

[Refer to Section E 1.1.](#) Solid data in this SDG were reported on a dry weight basis.

1.7 SURROGATE RECOVERY COMPLIANCE

[Refer to Section E 1.2.](#) The percent recovery (%R) for each surrogate compound added to each project sample were determined to be within the laboratory-specified quality control (QC) limits, with the following exceptions:

Method	Sample ID	Lab ID	Surrogate	Dilution	%R	Qualification
EPA 8082A	PART-P24-20240905	580-143579-1	DCB Decachlorobiphenyl	1x	33%	Marked non-reportable. Other data available.

1.8 LABORATORY CONTROL SAMPLES

[Refer to Section E 1.3.](#) Compounds associated with the laboratory control samples/laboratory control sample duplicate (LCS/LCSD) analyses associated with client samples exhibited recoveries and relative percent differences (RPDs) within the specified limits.

1.9 MATRIX SPIKE SAMPLES

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

1.10 BLANK SAMPLE ANALYSIS

[Refer to Section E 1.5.](#) Method blank samples had no detections, indicating that no contamination from laboratory activities occurred. The analysis of the blank samples for field quality control was free of target compounds.

1.11 DUPLICATE SAMPLE ANALYSIS

[Refer to Section E 1.6.](#) The laboratory did not analyze any laboratory duplicates as per the method or laboratory SOP.

The following sample(s) were used for field duplicate analysis. The RPD comparison for detections in either the parent or duplicate sample(s) is shown below. RPDs were all below 35 percent (or the absolute difference rule was satisfied if detects were less than 5 times the RL). All samples are ND.

Primary Sample ID	Duplicate Sample ID	Method(s)
GW-MW17-20240905	GW-FD-20240905	EPA 8082A
PART-SC21-20240905	PART-FD-20240905	EPA 8082A

1.12 PRECISION AND ACCURACY

[Refer to Section E 1.7.](#) Where required by the method, some measurement of analytical accuracy and precision was reported for each method with the site samples.

1.13 CONFIRMATION COLUMN REVIEW

[Refer to Section E 1.8.](#) All samples were non-detect (ND). No confirmations were necessary.

1.14 SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

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

2. Explanations

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

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

- E 1.7 Precision and Accuracy
 - Precision measures the reproducibility of repetitive measurements. In a laboratory environment, this will be measured by determining the relative percent difference (RPD) found between a primary and a duplicate sample. This can be an LCS/LCSD pair, a MS/MSD pair, a laboratory duplicate performed on a site sample, or a field duplicate collected and analyzed concurrently with a site sample.
 - Accuracy is a statistical measurement of the correctness of a measured value and includes components of random error (variability caused by imprecision) and systematic error. In a laboratory environment, this will be measured by determining the percent recovery (%R) of certain spiked compounds. This can be assessed using LCS, blank spike (BS), MS, and/or surrogate recoveries.
- E 1.8 Confirmation Column Review
 - When analyzing for pesticides and polychlorinated biphenyls (PCBs), compound identification based on single-column analysis should be confirmed on a second column or supported by at least one other qualitative technique. When confirmed on a second column, the relative percent difference (RPD) should not exceed 40 percent.

3. Glossary

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

- Sample Types:
 - EB Equipment Blank Sample
 - FB Field Blank Sample
 - FD Field Duplicate Sample
 - N Primary Sample
 - TB Trip Blank Sample
- Units:
 - $\mu\text{g/kg}$ micrograms per kilogram
 - $\mu\text{g/L}$ micrograms per liter
 - $\mu\text{g/m}^3$ micrograms per cubic meter
 - mg/kg milligrams per kilogram
 - mg/L milligrams per liter
 - ppb v/v parts per billion volume/volume
 - pCi/L picocuries per liter
 - pg/g picograms per gram
 - pg/L picograms per liter
- Matrices:
 - GW/WG Groundwater
 - SE Sediment
 - SO Soil
 - WQ Water Quality control matrix
 - WS Surface Water
- Table Footnotes:
 - NA Not applicable
 - ND Non-detect
 - NR Not reported
- Common Symbols:
 - % percent
 - < less than
 - $\leq$ less than or equal to
 - > greater than
 - $\geq$ greater than or equal to
 - = equal
 - $^{\circ}\text{C}$ degrees Celsius
 - $\pm$ plus or minus
 - $\sim$ approximately
 - x times (multiplier)
- Fractions:
 - N Normal (method cannot be filtered)
 - D Dissolved (filtered)
 - T Total (unfiltered)

4. Abbreviations

%D	Percent Difference	MDL	Laboratory Method Detection Limit
%R	Percent Recovery	MS/MSD	Matrix Spike/Matrix Spike Duplicate
%RSD	Percent Relative Standard Deviation	NA	not applicable
%v/v	Percent volume by volume	ND	Non-Detect
2s	2 sigma	NFG	National Functional Guidelines
4,4-DDT	4 4-dichlorodiphenyltrichloroethane	NH ₃	Ammonia
Abs Diff	Absolute Difference	NYSDEC	New York State Department of Environmental Conservation
amu	atomic mass unit	PAH	Polycyclic Aromatic Hydrocarbon
BPJ	Best Professional Judgement	PCB	Polychlorinated Biphenyl
BS	Blank Spike	PDS	Post-Digestion Spike
CCB	Continuing Calibration Blank	PEM	Performance Evaluation Mixture
CCV	Continuing Calibration Verification	PFAS	Per- and Polyfluoroalkyl Substances
CCVL	Continuing Calibration Verification Low	PFBA	Perfluorobutanoic Acid
COC	Chain of Custody	PFD	Perfluorodecalin
COM	Combined Isotope Calculation	PFOA	Perfluorooctanoic Acid
Cr (VI)	Hexavalent Chromium	PFOS	Perfluorooctane sulfonate
CRI	Collision Reaction Interface	PFPeA	Perfluoropentanoic Acid
DoD	Department of Defense	QAPP	Quality Assurance Project Plan
DQO	data quality objective	QC	Quality Control
DUSR	Data Usability Summary Report	QSM	Quality Systems Manual
EIS	Extraction Internal Standard	R ²	R-squared value
EMPC	Estimated Maximum Possible Concentration	Ra-226	Radium-226
FBK	Field Blank Contamination	Ra-228	Radium-228
FDP	Field Duplicate	RESC	Resolution Check Measure
GC	Gas Chromatograph	RL	Laboratory Reporting Limit
GC/MS	Gas Chromatography/Mass Spectrometry	RPD	Relative Percent Difference
GPC	Gel Permeation Chromatography	RRF	Relative Response Factor
H ₂	Hydrogen gas	RT	Retention Time
HCl	Hydrochloric Acid	SAP	Sampling Analysis Plan
ICAL	Initial Calibration	SDG	Sample Delivery Group
ICB	Initial Calibration Blank	SIM	Selected ion monitoring
ICP/MS	Inductively Coupled Plasma/Mass Spectrometry	SOP	Standard Operating Procedure
ICV	Initial Calibration Verification	SPE	Solid-Phase Extraction
ICVL	Initial Calibration Verification Low	SVOC	Semi-Volatile Organic Compound
IPA	Isopropyl Alcohol	TCLP	Toxicity Characteristic Leaching Procedure
LC	Laboratory Control	TIC	Tentatively Identified Compound
LCS/LCSD	Laboratory Control Sample/Laboratory Control Sample Duplicate	TKN	Total Kjeldahl Nitrogen
MBK	Method Blank Contamination	TPH	Total Petroleum Hydrocarbon
MDC	Minimum Detectable Concentration	TPU	Total Propagated Uncertainty
		USEPA	U.S. Environmental Protection Agency
		VOC	Volatile Organic Compound
		WP	Work Plan

5. Qualifiers

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

- Concentration (C) Qualifiers:
 - U The compound was analyzed for but not detected. The associated value is either the compound quantitation limit if not detected by the analytical instrument or could be the reported or blank concentration if qualified by blank contamination. This can also be displayed as less than the associated compound quantitation limit (<RL or <MDL), or “ND”.
 - B The compound was found in the sample and its associated blank. Its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers:
 - E The compound was quantitated above the calibration range.
 - D The concentration is based on a diluted sample analysis.
- Validation Qualifiers:
 - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - J/UJ as listed in exception tables J applies to detected data and UJ applies to non-detected data as reported by the laboratory.
 - UJ The compound was not detected. The reported sample quantitation limit is approximate.
 - NJ The analysis indicated the presence of a compound for which there is presumptive evidence to make a tentative identification; the associated numerical value is an estimated concentration only.
 - R The sample results were rejected as unusable; the compound may or may not be present in the sample.
 - S Result is suspect. See DUSR for details.

6. References

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

